Corvallis Area Metropolitan Transportation Plan: Destination 2030

Adopted by the

Corvallis Area Metropolitan Planning Organization

September 2006

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CAMPO Policy Board

Alan Rowe	City of Adair Village
Betty Griffiths	City of Corvallis
Ken Schaudt	City of Philomath
Linda Modrell	County of Benton
Vivian Payne	Oregon Department of Transportation

Technical Advisory Committee

Beau Vencil	City of Philomath
Edna Campau	City of Albany, Transit
Jim Minard	City of Adair Village
Jim Mitchell	City of Corvallis
John deTar	Oregon Department of Transportation
Roger Irvin	County of Benton
Satvinder Sandhu	Federal Highway Administration
Ned Conroy	Federal Transit Administration, Region X

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I. Introduction

A. Purpose

The purpose of this transportation plan is to devise strategies and outline a path to help the Corvallis Metropolitan Area achieve its vision and goals for a future transportation system. The plan is intended to direct the future infrastructure developments in a manner that is closely aligned with the lifestyle and the values of the community. It outlines the area's transportation priority projects and policies and provides a blue print for orderly allocation of scarce resources. Additionally, it serves as the requisite document for the flow of federal transportation funds to the area.

B. Leading Agency

The Corvallis Area Metropolitan Planning Organization (CAMPO) is an association of local governments made up of representatives of Benton County, the cities of Corvallis, Philomath and Adair Village and the Oregon Department of Transportation (ODOT). CAMPO was designated a Metropolitan Planning Organization (MPO) by the Oregon Governor in December 2002 to carryout the federal requirements of the Metropolitan Transportation Planning Process in the Corvallis Urbanized Area.

In 2002, the US Census Bureau declared that the population of the City of Corvallis and its densely developed surrounding areas had reached 54,229. Urban areas with a population of 50,000 are called Urbanized Areas (Fig. I-1) and are required to form an MPO such as CAMPO (US Code, Title 23).

One of the major responsibilities of CAMPO is to develop a regional transportation plan for the Corvallis Urbanized Area. The adoption of the transportation plan is a prerequisite for receiving federal funds for the Corvallis Urbanized Area's transportation projects.

C. Development Process

The *Corvallis Area Metropolitan Transportation Plan: Destination 2030* was developed through coordination among local governments, the Oregon Department of Transportation (ODOT), citizens, stakeholders and special interest groups in the Corvallis Urbanized Area. The Plan is intended to comply with all state and federal requirements applicable to the development of regional transportation plans.

The development process of the plan is depicted in Figure I-2. It began with establishing a vision and goals for the future transportation system of the Planning Area. Information on the existing condition of the transportation system was gathered and reviewed and five transportation system alternatives were developed and evaluated. This led to the formation of a preferred alternative that was deemed to most closely align with the Area's vision and goals. The projects and policies recommended in this plan are within the framework of the Preferred Alternative.

The development of the Plan involved three cohesive and integrated tracks: a public participation and input process, technical analysis, and the directives of the CAMPO Policy Board. The role of

the public and the agency's efforts to engage the public in the development of the Plan are described in Section III-Public Involvement.

The technical track involved the work of CAMPO's Technical Advisory Committee, comprised of the public works and transportation staff of the member jurisdictions, staff of CAMPO, Cascades West Council of Governments, and ODOT. Transportation planning and engineering consultants were also employed to gather and analyze data on the existing transportation system. The ODOT modeling section also developed and forecasted future transportation scenarios. The resulting technical work was prepared for review by the public and the elected officials. An array of transportation planning techniques was used to satisfy both the needs of the public as well as federal and state requirements.

Finally, the CAMPO Policy Board steered the development of the plan at the policy level. According to federal rules, the adoption of the plan by the MPO Policy Board constitutes the approval of a transportation plan for the Corvallis Urbanized Area.

D. Planning Area

CAMPO's Planning Area is a slightly expanded Corvallis Urbanized Area as defined by the 2000 US Census (Figure I-1). It is mostly stretched along OR 99W, from the Corvallis Municipal Airport in the south to Adair Village in the north. The Willamette River forms the eastern boundary of the Planning Area. The east-west expanse of the area is extended along US 20/OR 34 to the west of City of Philomath, where US 20 and OR 34 detach.

The Planning area includes the entire cities of Corvallis, Philomath and Adair Village and their Urban Growth Boundaries, as well as the parts of Benton County that are in between these cities.

E. Document Structure

This introduction forms Section I of the document. Section II describes the federal and state regulatory framework within which the plan was developed and Section III states the Plan's Vision and Goals. Section IV provides detail on the public involvement process. Sections V and VI describe the Planning Area and the elements of the existing transportation system in the area. Section VII presents the alternatives considered for meeting the goals of the plan. Section VIII includes the recommendations of the plan. A glossary of acronyms and the appendices of the Plan follow the main body of the document.

Figure I-1

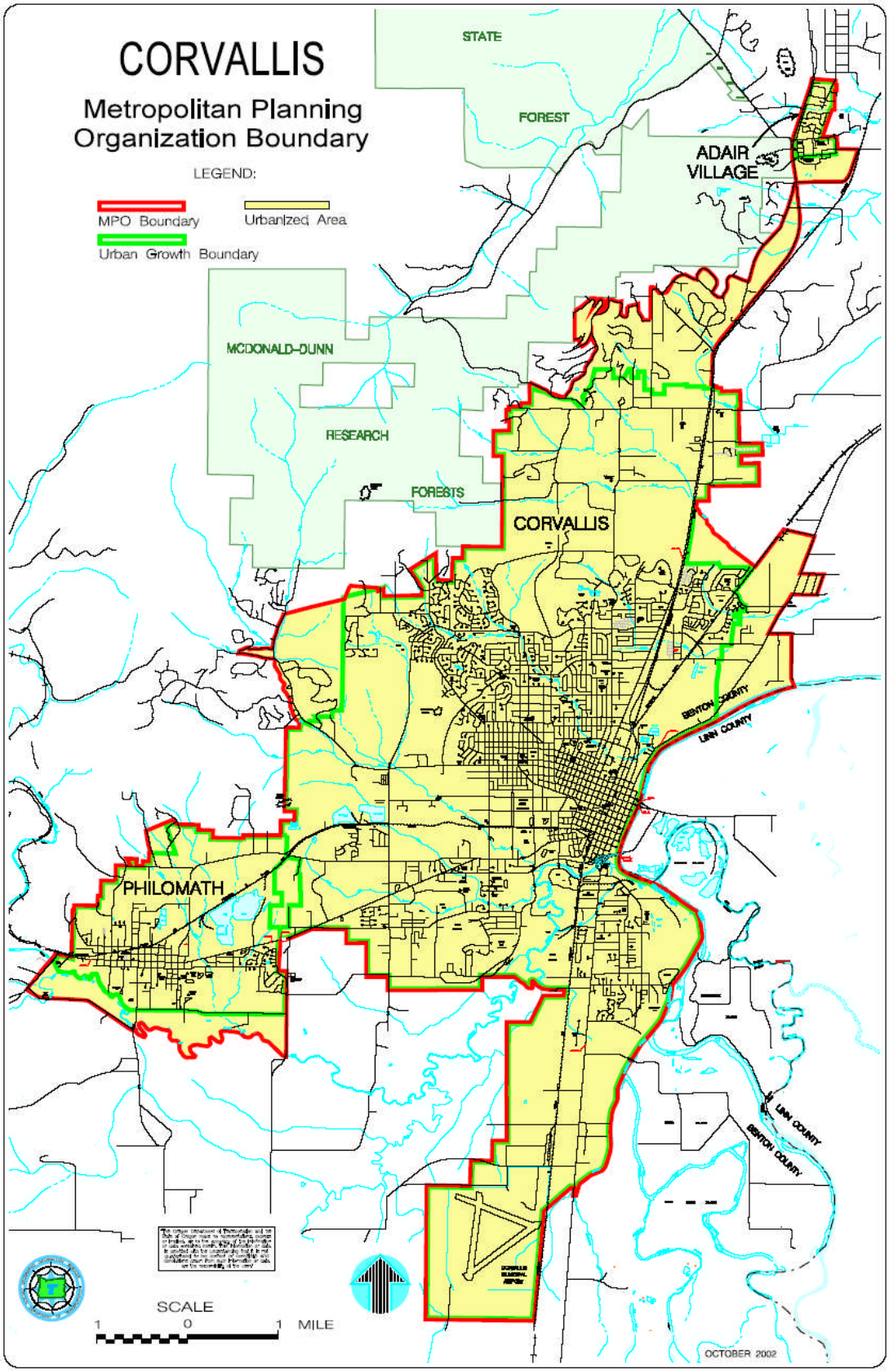
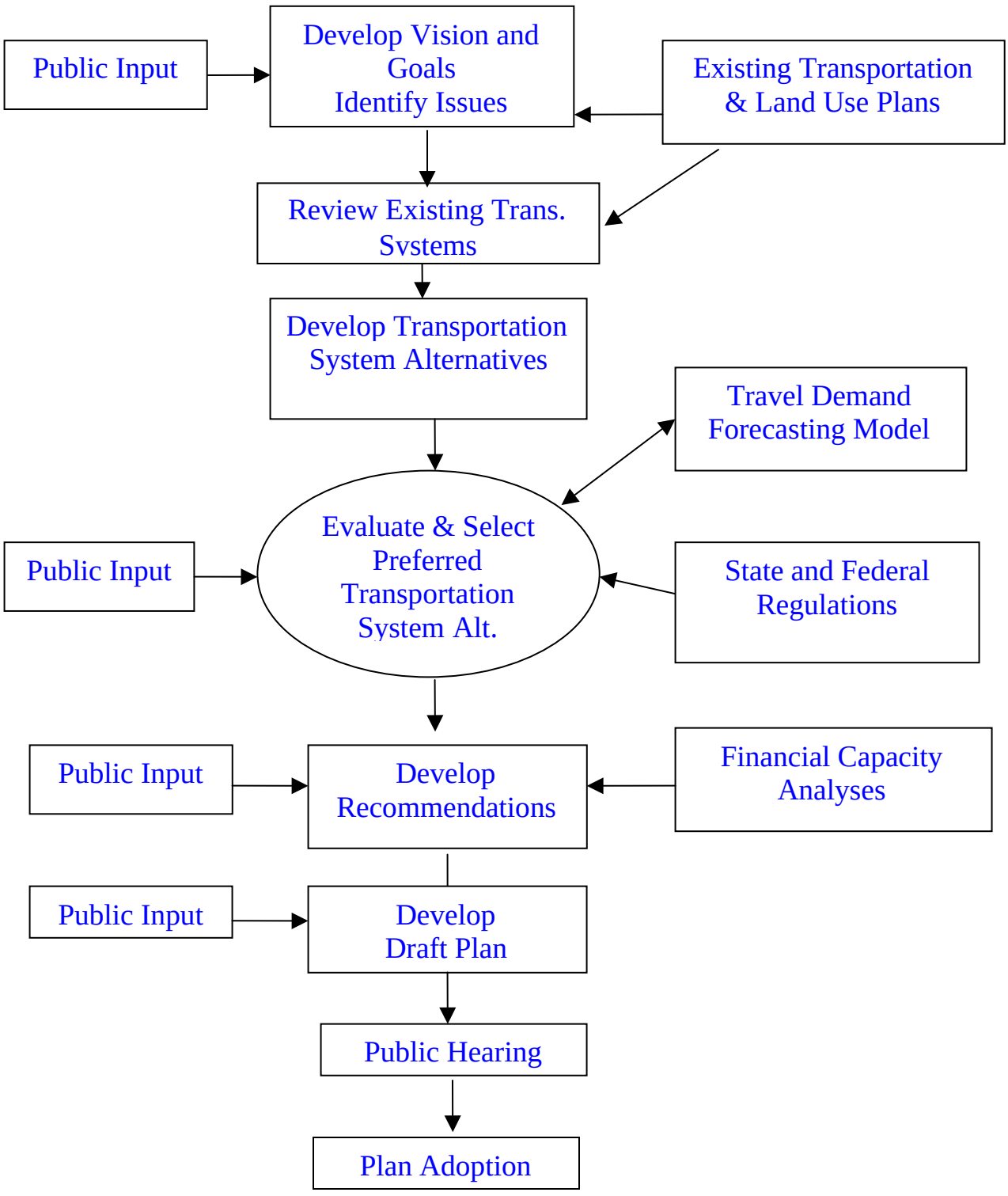

CORVALLIS
Metropolitan Planning Organization Boundary
LEGEND:
MPO Boundary
Urbanized Area
Urban Growth Boundary
STATE
FOREST
ADAIR VILLAGE
MCDONALD-DUNN
RESEARCH
FORESTS
CORVALLIS
PHILOMATH
BENTON COUNTY
LINN COUNTY
SCALE
1 0 1 MILE
OCTOBER 2002

Figure I-2

Corvallis Area Metropolitan Transportation Plan: Destination 2030

Schematic Development Process



II. Regulatory Framework

This Regional Transportation Plan is intended to meet both federal and state requirements for regional transportation system plans. This section describes the federal and state rules, regulations and policies that influence the content of this document.

A. Federal Regulation

According to the 23 CFR, §450.322:

> *"The metropolitan transportation planning process shall include the development of a transportation plan addressing at least a twenty-year planning horizon. The plan shall include both long-range and short-range strategies/actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods…"*

In order to comply with this mandate, the Corvallis Area Metropolitan Transportation Plan must:

1. Identify the projected transportation demand of persons and goods in the metropolitan planning area over the period of the plan;

2. Identify adopted congestion management strategies including, as appropriate, traffic operations, ridesharing, pedestrian and bicycle facilities, alternative work schedules, freight movement options, high occupancy vehicle treatments, telecommuting, and public transportation improvements that demonstrate a systematic approach in addressing current and future transportation demand;

3. Reflect the consideration given to the results of the management systems;

4. Reflect, to the extent that they exist, consideration of: the area's comprehensive long range land use plan and metropolitan development objectives; national, State, and local housing goals and strategies, community development and employment plans and strategies, and environmental resource plans; local, State, and national goals and objectives such as linking low income households with employment opportunities; and the area's overall social, economic, environmental, and energy conservation goals and objectives;

5. Indicate, as appropriate, proposed transportation enhancement activities;

6. Assess capital investment and other measures necessary to preserve the existing transportation system and make the most efficient use of existing transportation facilities to relieve vehicular congestion and enhance the mobility of people and goods;

7. Include design concept and scope descriptions of all existing and proposed transportation facilities. Proposed improvements shall be described in sufficient detail to develop cost

estimates. For major transportation investments for which analyses are not complete, indicate that the design concept and scope (mode and alignment) have not been fully determined and will require further analysis;

8. Reflect a multimodal evaluation of the transportation, socioeconomic, environmental, and financial impact of the overall plan, including all major transportation investments in accordance with §450.318;

9. Include a financial plan that demonstrates the consistency of proposed transportation investments with already available and projected sources of revenue. The financial plan shall compare the estimated revenue from existing and proposed funding sources that can reasonably be expected to be available for transportation uses, and the estimated costs of constructing, maintaining and operating the total (existing plus planned) transportation system over the period of the plan. *In compliance with 23 CFR, §450.322 (11), a Financial Plan for the Corvallis Area Metropolitan Transportation was developed and included as Appendix B;*

10. Provide adequate opportunity for public official (including elected officials) and citizen involvement in the development of the transportation plan before it is approved by the MPO, in accordance with the requirements of 23 CFR §450.316(b)(1). Such procedures shall include opportunities for interested parties (including citizens, affected public agencies, representatives of transportation agency employees, and private providers of transportation) to be involved in the early stages of the plan development/update process. The procedures shall include publication of the proposed plan or other methods to make it readily available for public review and comment.

The long-range transportation plan must be adopted by the MPO Policy Board by a resolution and must be made available to the public. Although transportation plans do not need to be approved by FHWA or FTA, copies of any new/revised plans must be provided to each agency.

New Federal Requirements

On August 10, 2005 the President signed into law the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) which introduced a set of new Transportation Planning Requirements. All Metropolitan Transportation Plans must be in full compliance with the new SAFETEA-LU requirements by July 1, 2007. The major requirements of the new ACT are:

- **Environmental Mitigation:** Metropolitan and statewide transportation plans must include a discussion of types of potential environmental mitigation activities for their recommended projects, to be developed in consultation with Federal, State and Tribal wildlife, land management, and regulatory agencies.

- **New Consultations:** MPOs and States must consult "as appropriate" with "State and local agencies responsible for land use management, natural resources, environmental

protection, conservation, and historic preservation" in developing long-range transportation plans.

- **Consistency of Transportation Plan with Planned Growth and Development Plans:** Revises the previous planning factor related to environment to add promoting consistency between transportation improvements and State and local planned growth and economic development patterns.

- **Transportation System Security:** SAFETEA-LU calls for the security of the transportation system to be a stand-alone planning factor, signaling an increase in importance from prior legislation, in which security was coupled with safety.

- **Operational and Management Strategies:** Metropolitan transportation plans shall include operational and management strategies to improve the performance of the existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods.

- **Participation Plan:** MPOs must develop and utilize a "Participation Plan" that provides reasonable opportunities for interested parties to comment on the content of the metropolitan transportation plan and metropolitan TIP prior to approval. Further, this "Participation Plan" must be developed "in consultation with all interested parties".

- **Visualization Techniques in Plans and Metropolitan TIP Development:** As part of the transportation plan and TIP development, MPOs shall employ visualization techniques in presenting transportation issues and documents.

- **Publication of Plans and TIP/STIP:** MPOs shall publish or otherwise make available for public review transportation plans and TIPs, "including (to the maximum extent practicable) in electronically accessible formats and means, such as the World Wide Web".

Annual Listing of Obligated Projects: SAFETEA-LU specifies that the development of the annual listing "shall be a cooperative effort of the State, transit operators, and the MPO" and also shall include two new project types, "investments in pedestrian walkways and bicycle transportation facilities" for which Federal funds have been obligated in the preceding year.

B. Oregon's Transportation Planning Rule (TPR)

The Transportation Planning Rule (TPR) (OAR660-012), requires MPOs to develop a Transportation System Plan (TSP) for a coordinated network of transportation facilities and services of regional significance. The TSP is to provide for a safe, convenient and economic transportation system that reduces reliance on the automobile so that air pollution, traffic and other livability problems typically faced by urban areas might be avoided. The Transportation Planning Rule aims to

> *"improve the livability of urban areas by promoting changes in land use patterns and the transportation system that make it more convenient for people to walk, bicycle and use transit, and drive less to meet their daily needs." ORS 660-012-0000*

As a TSP, this document must address the road system, public transportation, bicycles and pedestrians, air, rail and pipeline services, transportation system management and demand management, and parking. It must include a financing program and policies and land use regulations for implementing the TSP.

The Transportation Plan must be based on the needs of the planning area, including those of the transportation disadvantaged and the movement of goods and services to support existing and planned industrial and commercial development.

The planning process must consider alternatives for meeting current and future needs and evaluate improvements in the existing system, new facilities and services for a variety of modes, transportation system management measures, demand management measures, and a "no build" alternative. The TPR also specifies the standards to be used in evaluating and selecting system alternatives. The TPR also requires the Transportation Plans include specific measures for increasing the modal share of non-auto trips, increasing average auto occupancy and other criteria.

The TSP's financing program must list planned projects, provide an estimate of timing and cost, and discuss the potential of existing and new funding mechanisms to meet transportation needs.

The MPO must coordinate with affected state and federal agencies, special districts and transportation providers in the development of the plan. The Transportation Planning Rule requires cities and counties within the MPO to adopt the TSP as part of their Comprehensive Plans.

The Regional Transportation Plan is required to include interim benchmarks to assure satisfactory progress towards meeting the plan's objectives at five-year intervals over the planning period.

The plan is to include policies to guide selection of transportation facility and service improvements for funding. These policies must consider the priority to be given to facilities and improvements that support mixed-use, pedestrian friendly development and increased use of alternative modes.

The TPR also requires regional TSPs to provide for coordinated project development among affected local governments and specifies necessary components of that coordinated process.

The regional transportation plan must also be consistent with the Oregon Transportation Plan and the State's modal plans, such as the Oregon Highway Plan. See Appendix A for information on these plans.

III. Vision and Goals

A. Vision

The Vision of the Regional Transportation Plan was developed based on the most common elements of the visions described in the area's transportation and land use plans. The draft vision was reviewed and modified by the general public, the Ad hoc Committee and the Technical Advisory Committee. Through these processes, the Policy Board adopted the following Vision for the Transportation Plan.

> *"By 2030 the Corvallis Metropolitan Area's transportation system provides for safe, efficient and convenient movement of people and goods to support a robust and burgeoning local and regional economy.*
>
> *The transportation system offers a variety of mode choices to all people for intra and inter-regional travel. The adverse impacts of these modes on the natural and built environment have been well balanced with the provision of an acceptable level of mobility and accessibility. The multimodal system conserves natural resources and helps promote the integrity of neighborhoods and the entire community.*
>
> *Coordination of transportation and land use decisions has lowered the rate of growth in vehicle miles of travel. Partnership between the public and private sectors has secured the needed capital by utilizing all financial resources."*

B. Goals

The Goals of the Regional Transportation Plan were developed based on a review of the goals found in the transportation plans that are relevant to the Planning Area and are consistent with the above vision. The Ad hoc Committee and the Technical Advisory Committee reviewed and commented on the Goals. In accordance with the recommendations of these groups, the Policy Board adopted the following Goals for the Transportation Plan:

1. **To provide for safe, convenient and efficient movement of people and goods throughout the planning area**

2. **To provide for and promote alternative modes of transportation (transit, biking, walking, etc.)**

3. **To provide for economic vitality of the planning area and the region**

4. **To preserve integrity of neighborhoods and the natural environment**

5. **To provide accessibility to destinations within and outside of the planning area**

6. **To provide transportation choices to all people**

7. To maximize the life of existing transportation facilities

8. To develop an energy efficient transportation system

9. To coordinate land use and transportation decisions

10. To develop financing strategies for the implementation of the Plan

IV. Public Involvement

The residents of the Corvallis area and its public officials highly value citizen participation in public decision-making processes. As such, among the earliest tasks completed by the newly formed organization was development and adoption of a *Public Involvement Framework* (Appendix B). In compliance with federal requirements, the *Public Involvement Framework* document was duly advertised and released for public review and comment. Following a 45-day comment period, the Policy Board adopted the framework. The document outlines the public outreach efforts required for the organization's transportation planning and programming activities.

The *Framework* calls for development of a specially tailored public involvement plan for each of CAMPO's major planning activities. In compliance with this directive, a special *Public Involvement Plan* was adopted by the Policy Board for the development of the *Corvallis Area Metropolitan Transportation Plan* (Appendix C). Figure IV-1 shows the public involvement process used in the development of the Transportation Plan.

Implementation of the *Public Involvement Plan* involved two types of outreach activities: Continuous and Episodic.

A. Continuous Outreach

Throughout the development of the Plan, commenting opportunities were provided to the public at all meetings of the Policy Board. Dates, time and location of the meetings were announced in the newspaper. All material (agendas, minutes of the meetings, draft documents, etc.) were available on the CAMPO website.

B. Episodic Outreach

In addition to the continuous outreach effort, special outreach and public involvement opportunities were structured into the process. These included initial, midcourse and final public meetings.

1. Initial Public Meetings

The initial public meeting was held to discuss the purpose, scope, process and schedule for development of the Transportation Plan. Notices of the meeting were posted on the MPO website and were published twice in the *Corvallis Gazette-Times*. A direct mail notification was sent to interested citizens and members of the transportation related committees in the Urbanized Area.

Public input from this first meeting contributed to the drafting of the Plan's Vision and Goals and the identification of transportation issues to be addressed by the Plan. Subsequent to the public meeting, the Ad hoc Committee, comprised of the chairs of various city and county transportation committees, reviewed the input gathered from the public and provided comment on the draft vision and goals.

2. Midcourse Public Meetings

Two Public Open House Meetings were held at midcourse decision-making points.

The focus of the first meeting was the review of Transportation System Alternatives and the impacts of each Alternative as analyzed by the Corvallis Travel Demand Model. The public was asked to provide input into the formation of a Preferred System Alternative based on their review of the described impacts. The Ad Hoc Committee also provided input into the formation of the Preferred System Alternative.

The second open house focused on review of and comment on the modeling results for the Preferred Alternative. The announcement of, invitation to and materials related to these open houses were published and distributed in the same manner as for the initial public meetings.

3. Final Public Meeting

A public meeting was held on September 14, 2006 to seek public comments on the draft of the Transportation Plan. This meeting was advertised in the media and copies of the draft Transportation Plan were made available to the public. Staff provided an overview of the entire document and its development process. Members of the public asked questions about the role of the Travel Forecasting Model, the Financial Plan and the sources of revenue for the recommended projects. An issue discussed was the need for a more effective public transportation between Philomath and Albany through Corvallis. The public was informed of the adoption schedule and additional opportunities for providing comments.

4. Public Hearing

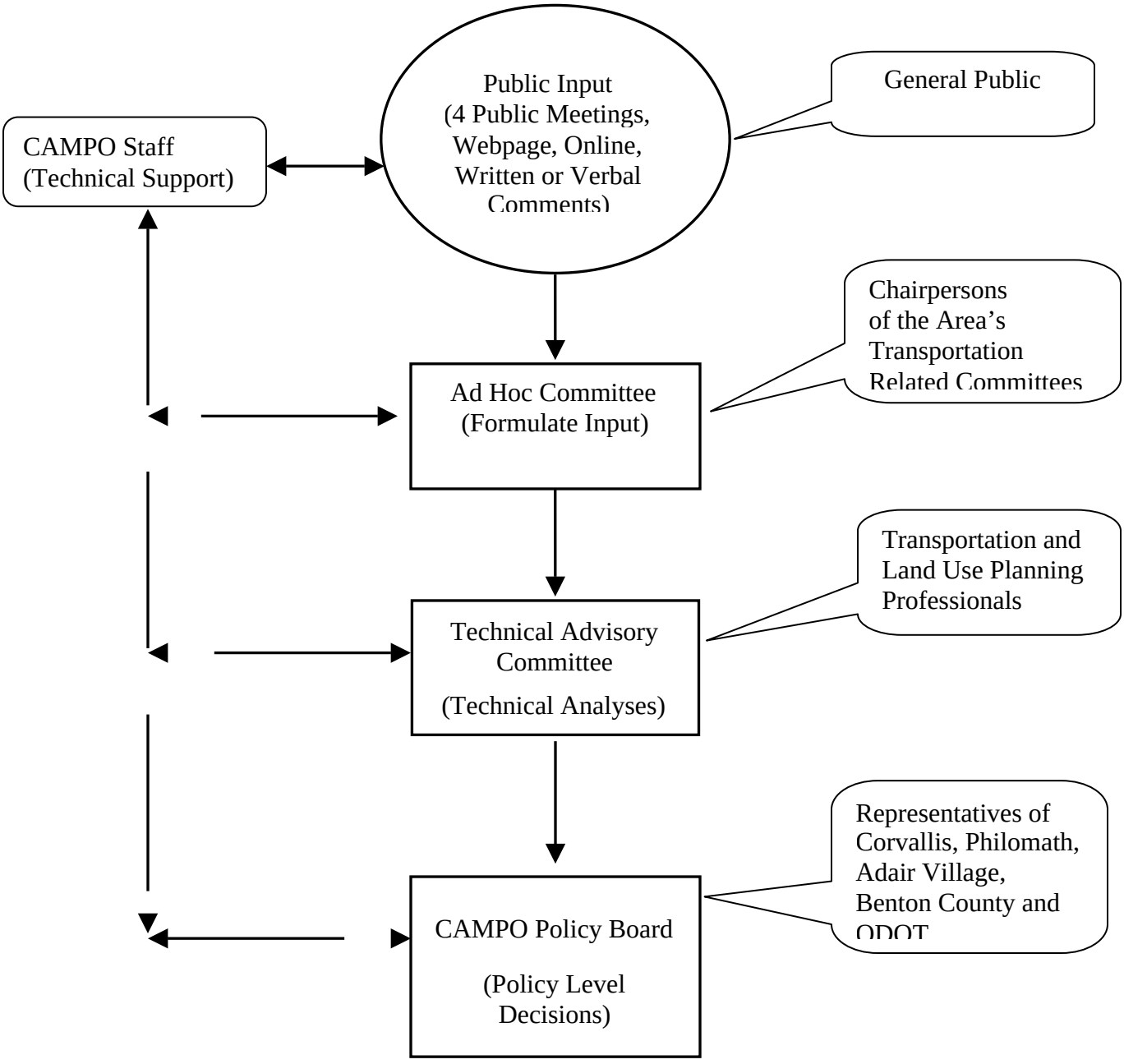
A voluntary Public Hearing was held on September 21, 2006 to receive public testimonies on the adoption of the Transportation Plan. The CAMPO's Policy Board received testimonies. Additional public testimonies on the adoption of the Plan were received through September 25, 2006. A summary of written comments was provided to the Policy board. The public was also informed about the adoption schedule of the Transportation Plan.

Figure IV-1

Public Involvement Process

for the development of the

Corvallis Area MetropolitanTransportation Plan: Destination 2030



V. Planning Area Characteristics

This section provides a review of existing or baseline conditions within the Planning Area that influence the development and operation of the transportation system.

A. Political and Physical Characteristics

The Corvallis Metropolitan Planning Area is located in the Willamette Valley of western Oregon. The Planning Area is approximately 80 miles south of Portland, Oregon, and 45 miles north of Eugene, Oregon. It covers approximately 32.27 square miles (25,131 acres) that extends from Adair Village southward to the Corvallis Municipal Airport. The Willamette River is the eastern boundary and the City of Philomath is on the western edge of the Planning Area. The Cities of Corvallis, Philomath, and Adair Village are wholly within the Planning Area, as well as parts of unincorporated Benton County. All arterial and collector roadways within the Planning Area fall under the jurisdiction of the three cities, Benton County, ODOT, or Oregon State University. Major state highway facilities located within the Planning Area include US 20, US 20/OR 34, OR 34, and OR 99W. Figure I-1 depicts the Planning Area.

The topography is a mix of flat land in the eastern portion with rolling hills, and steeper terrain primarily located in the north and western portions. The Willamette River and Marys River are the most prominent water features in the area. Several wetlands, as well as floodplains, are located near the rivers and creeks that run through the Area.

1. Land Use and Zoning

It is critical that the Regional Transportation Plan be developed relative to the land use patterns of the area. Land use helps determine the development of transportation systems and infrastructure, while the transportation system also influences land use. For example, location of commercial, institutional/public, and industrial areas affect the destinations of workers, and therefore, travel patterns, traffic volumes and transit service needs. An understanding of the land use in the Planning Area offers context for patterns observed in the transportation data. Map V-1 shows the current city and county land uses.

The central areas of Corvallis and Philomath are characterized by compact grid street patterns, while much of the remainder of the Planning Area is less dense and features a more circuitous street pattern. In general, industrial zoning is concentrated to the west in the Philomath area, to the south near the Corvallis Municipal Airport, and east of OR 99W in Corvallis. Commercial zoning is concentrated along roadway corridors and in downtown Corvallis and Philomath. Public land includes parks and extensive Oregon State University land. Much of the Planning Area is zoned as residential.

a. City of Corvallis

Corvallis is the primary commercial center of the Planning Area. The major commercial areas of the city include the downtown central business district (CBD), the 9th Street, OR 99W corridor, the Philomath Boulevard corridor, and the Kings Boulevard/Walnut Boulevard area.

Development in the Corvallis CBD is relatively compact and includes a mixture of uses, such as restaurants, retail shops, gas stations, and banks. Many government and cultural uses are also located in the CBD. The roadway system in the downtown area is characterized by a series of one-way streets with pedestrian and bicycle facilities. The City of Corvallis transit center is located in the CBD. The Corvallis Comprehensive Plan identifies several major and minor neighborhood centers, which are located throughout the city, primarily along major arterials.

Much of the zoned industrial land in Corvallis is located in the southern portion of the city, north of the Corvallis Municipal Airport (located at the southern boundary of the Planning Area), the eastern edge of the city, or in the OR 99W corridor. Research Technology is a critical and unique zoning designation, located primarily in the Sunset Research Park and near the Hewlett-Packard campus.

Higher-density residential areas are generally located near major roadways, such as the southern portion of OR 99W, near Oregon State University or near other employment centers. Lower-density residential development characterizes much of the northern portion of the city, as well as the southwestern edge.

Most of the zoned agricultural land in the Planning Area is located west of Corvallis. Public Institutional zoning is another designation in Corvallis, and includes Oregon State University and the Corvallis Municipal Airport property. Most of the land designated as Open Space within the city is located near the Willamette and Marys Rivers, and on the west and north edges of the city.

b. City of Philomath

Development in Philomath is denser toward the center of town near Main Street (US 20/OR 34). Most commercial land uses and zoning districts are located adjacent to or near Main Street. All of the designated public land (including schools and parks) is located south of Main Street. The Philomath Rodeo Ground is also located south of Main Street. Industrial uses are located primarily in the northern area of the city. A significant industrial site is the mill property at the intersection of US 20 and OR 34, just west of the Philomath city limits. Most areas zoned for residential use are located in the northwest and southeast areas of town.

c. City of Adair Village

Adair Village was built on the site of a World War II military base, and its settlement pattern reflects that history. Development in Adair Village is primarily residential, with the exceptions of the Santiam Christian School, the Northwest Labor School, and the AV Market and Tavern. The 123-acre Adair County Park is located to the east of the city. The northern limit of the city is adjacent to the E.E. Wilson Wildlife Area. The Oregon Department of Fish and Wildlife (ODFW) Regional Office is located just south of the city limits. Since the 2000 Census, 122 housing units have been added to the jurisdiction's housing stock. [1]

d. Unincorporated Benton County

The unincorporated portions of Benton County between Corvallis and Philomath and between Corvallis and Adair Village are characterized by low-density residential development, including working and hobby farms. Most of these areas are zoned by Benton County as 2- 5- or 10-acre residential land. The Benton County Fairgrounds is located west of Corvallis with access from

NW 53rd Street. Valley Landfills operates a regional landfill at Coffin Butte adjacent to OR 99W, north of Adair Village.

2. Schools and Parks

Within the Planning Area there are community focal points, such as schools and parks, which are important for understanding travel patterns. These facilities attract pedestrians, bicyclists, transit users, and drivers and have specific transportation needs (e.g., pedestrian safety around schools). Awareness of the location of these facilities that are essential to the community fabric is important for planning an effective regional transportation system.

a. Schools

Trips to and from school by students and teachers – via bus, walking, bicycling, or driving – affects transportation patterns as well as transportation infrastructure planning and design. Schools also attract people outside of school hours for sports and extra curricular events, as well as for community events held at school facilities. There are 17 public schools located within the Planning Area. Eleven of the schools are inside the Corvallis city limits and include eight elementary schools, two middle schools and Corvallis High School. Two elementary schools, a middle school and a high school are within the Philomath city limits, and one elementary school and Crescent Valley High School are in unincorporated Benton County.

There are also several private schools within the study area, including Santiam Christian School in Adair Village, Ashbrook Independent School, Corvallis Montessori School, Corvallis Waldorf School, Willamette Valley Community School, and Zion Lutheran School in Corvallis. Corvallis is also home to an extension of Linn-Benton Community College – The Benton Center.

b. Oregon State University (OSU)

OSU is located just west of downtown Corvallis, less than one mile from the Willamette River. The main campus is bounded by 9th Street to the east, Monroe Street to the north, Western Boulevard to the south, and 35th Street to the west.

The main OSU campus encompasses approximately 570 acres, including 153 campus buildings with over six million square feet of building space. The campus also has several athletic facilities, such as Reser Stadium, which has a capacity of approximately 45,000 people. The campus has 58 acres of parking, which provides space for approximately 7,714 vehicles. The campus also has approximately 5,800 bicycle parking spaces, one third of which are covered. In 2005, a multistory parking garage was constructed across the street from Reser Stadium.

OSU students and faculty make up a large portion of transportation users in Corvallis, and therefore affect regional transportation patterns and planning. OSU is the largest employer in the Planning Area with over 4,000 faculty and staff. Students are a significant portion of the Corvallis population. Approximately 19,000 students are currently enrolled at the university. Approximately half of Corvallis Transit System (CTS) transit rides are by OSU students or faculty/staff.

c. Parks and Recreational Areas

Parks are important to the transportation system because they are popular destinations for residents and visitors. Parks sometimes need special transportation attention to serve particular park users, such as children.

There are 40 parks and open spaces in the Planning Area with approximately 1,562 acres of parkland. Most of these parks are managed by the City of Corvallis. Other recreational facilities in Corvallis are the Osborn Aquatic Center (located at 1940 NW Highland Drive) and the Corvallis Senior Center (located at 2601 NW Tyler Avenue).

B. Demographics

The 2000 U.S. Census showed that the population of the City of Corvallis and the surrounding area had exceeded 50,000. Map V-2 shows population density in the Planning Area. Not surprisingly, the highest population densities (measured in people per acre calculated by census block group) are located in central Corvallis and central Philomath. This corresponds to the existence of OSU campus and the traditional grid street and housing patterns in those areas.

The population counts and estimates shown in Table V-1 are for years 2000 and 2004.The Planning Area figures include Corvallis, Philomath, Adair Village, and a portion of unincorporated Benton County.

Table V-1: Population

Jurisdiction	April 1, 2000, Census Count[1]	July 1, 2006, Certified Estimate[2]
Planning Area	**58,229**	**64,159**
Corvallis	49,322	53,900
Philomath	3,838	4,460
Adair Village	536	920
Unincorporated Benton County (within Planning Area)[3]	4,533	N/A
Nearby Jurisdictions[4]		
Albany	40,852	46,610
Monroe	607	610

[1] *2000 US Census.*

[2] *Portland State University Population Research Center*

[3] *Benton County population within the Planning Area is estimated (based on population of Planning Area minus populations of Adair Village, Corvallis, and Philomath).*

[4] *Albany and Monroe are not located within the Planning Area.*

Table V-2 shows the number of households for each jurisdiction, based on numbers from the 2000 U.S. Census.

Table V-2: Households – For the Purpose of Modeling

Jurisdiction	2000 Households
City of Corvallis	19,630
City of Philomath	1,346
City of Adair Village	170
Unincorporated Benton County (within Planning Area)[1]	2,312
Planning Area Total	**23,188**

[1] *Benton County households within the Planning Area are estimated based on household number of Planning Area minus households of Adair Village, Corvallis, and Philomath.*

Note: Household information for the Planning Area is based on allocation of households by Transportation Analysis Zone (TAZ). Because the TAZ boundaries do not line up exactly with the Planning Area boundary, the total households figure may be different from other estimates, depending on which TAZs are assumed to be included in the Planning Area.

Below are general demographic characteristics for the Planning Area, from the 2000 U.S. Census. Where appropriate, the characteristics are compared to statewide or countywide data. Please note that figures for Benton County are for the entire county (not just the county area within the Planning Area boundary).

- The average **household sizes** for Adair Village (3.15 persons) and Philomath (2.85) are higher than the same statistic for households statewide (2.51 persons) and in Benton County (2.43 persons). The average household size for Corvallis is 2.26 persons, which is lower than statewide and countywide averages.
- The median **age** for residents in each of the jurisdictions within the Planning Area is lower than the statewide median of 36.3 years. The Benton County median age is 31.1, while Adair Village is 28.2, Corvallis is 27.0 and Philomath is 31.6 years. This likely reflects the large number of Oregon State University students in the Planning Area.
- 89.2 percent of Benton County residents, 93.3 percent of Philomath residents, 87.9 percent of Adair Village residents, and 86.0 percent of Corvallis residents identified themselves as "**White**", compared to the statewide figure of 86.6 percent.
- 9.0 percent of Adair Village residents and 8.2 percent of Philomath residents were living below the **poverty** level in 1999, which is lower than Benton County (14.6 percent) and the state (11.6 percent) poverty levels. However, 20.6 percent of Corvallis residents were living below poverty level in 1999, a statistic likely heavily influenced by the university population.
- 42.8 percent of Adair Village residents aged 25 years or older, 31.6 percent of Philomath residents aged 25 years or older, and 53.1 percent of Corvallis residents aged 25 years or

older hold a **college degree** or higher. This is comparable to Benton County (47.4 percent) but is significantly higher than the statewide figure of 25.1 percent.

- Adair Village had the highest percentage (52.9 percent) of **households with a member less than 18 years** old. In Philomath, 49.7 percent of the households had a member 18 years old or less, compared to 25.1 percent of Corvallis households, and 29.9 percent of Benton County households. The statewide percentage was 33.4 percent.
- The Planning Area generally has a relatively lower percentage of **elderly residents** compared to the statewide percentage. 8.2 percent of Adair Village households reported the presence of individuals 65 years or older compared with 14.0 percent of Philomath households, 16.9 percent of Corvallis households, and 18.0 percent of Benton County households. The statewide percentage was 22.9 percent.
- **Housing vacancy** in the area is generally lower than the state vacancy level of 8.2 percent. The vacancy rates were: Adair Village, 5.6 percent; Philomath, 6.1 percent; Corvallis 6.1 percent; and, Benton County 5.7 percent.
- In the state of Oregon, **owner-occupied housing** units outnumber **renter-occupied housing** units 64.3 percent to 35.7 percent. In Philomath and Benton County as a whole, this trend is reflected (Philomath has 60.5 percent owner-occupied housing units and 39.5 percent renter-occupied housing units; Benton County has 57.3 percent owner-occupied housing units and 42.7 percent renter-occupied housing units). However, in Corvallis and Adair Village the trend is reversed. In Corvallis 44.9 percent of housing units are owner-occupied, while 55.1 percent are renter-occupied. In Adair Village 44.1 percent of housing units are owner-occupied, while 55.9 percent are renter-occupied. Figures in Corvallis reflect the influence of Oregon State University students on the demand for rental residences. Figures in Adair Village reflect housing stock and history. Adair Village was once a military base, and 75 percent of the original base housing is duplexes that were auctioned off in the late 1970s. However, since the 2000 census, 122 new homes have been built in Adair Village, which likely changed the owner/renter ratio.
- **Age of the housing stock**: Most of the housing stock (80.9 percent) in Adair Village was built between 1940 and 1959. Much of the housing stock in Philomath (29.9 percent) and Corvallis (29.1 percent) was built between 1970 and 1979.
- At OSU, there were 19,162 registered students for the 2004-2005 school year. According to OSU officials, approximately 70 percent of students live off-campus, and the rest are housed in the 12 University dormitories fall through spring. College dormitories and fraternity and sorority houses are considered "**group quarters**" for census purposes. Group quarters are not included in any housing, household, household income, family income, or non-family income statistics. Group quarters are included in per capita income and estimated earning statistics.

C. Employment Characteristics

Employment characteristics are important to the understanding of travel patterns and particularly work trips. Peak hour periods are used for travel forecasting and determination of needed transportation improvements, facilities, programs and strategies, so employment numbers and employer locations have a significant effect on transportation planning outcomes. The following employment figures are for the year 2000.

Table V-3: Employment by Jurisdictions

Jurisdiction	Employed	Employed – Percentage[1]	Unemployed	Unemployed – Percentage[1]
Corvallis	23,881	57.7%	1,353	3.3%
Philomath	1,885	68.2%	81	2.9%
Adair Village	258	69.0%	21	5.6%
Benton County (Unincorporated within Planning Area)	5,998 [2]	Not Available	Not available	Not available
Planning Area	**32,022**	**Not Available**	**Not available**	**Not available**
Oregon	1,627,769	60.9%	112,529	4.2%

[1]Percent of population 16 years and older.

[2]Benton County employment within the Planning Area is estimated (based on Urbanized Area employment minus employment of Adair Village, Corvallis, and Philomath).

Note: Employment information for the Planning Area is based on allocation of employment by Transportation Analysis Zone (TAZ). Because the TAZ boundaries do not line up exactly with the Planning Area boundary, the total employment figures for the Planning Area may be different from other Planning Area estimates, depending on which TAZs are assumed to be included in the MPO area.

Source: 2000 U.S. Census.

In general, Adair Village has a higher unemployment percentage than other jurisdictions in the Planning Area. However, the difference is partially due to the fact that because Adair Village has a smaller population, small differences in absolute numbers cause large percentage changes. Corvallis has a relatively lower employment percentage when compared to other locations.

Median household incomes in 1999 for the jurisdictions within the Planning Area were generally comparable or higher than the state median household income, with the exception of Corvallis, which was significantly lower. The statewide median household income in 1999 was $40,916. It was $41, 897 in Benton County, $49,000 in Adair Village, $41,461 in Philomath, and $35,236 in Corvallis. The lower median household income for Corvallis is likely influenced by the presence of the Oregon State University student population.

In recent years, the Planning Area has seen an increase in service-related and education jobs and a decrease in resource-related jobs. Employment projections developed for the comprehensive plans of Benton County, Philomath, and Corvallis predict an increase in education, service, retail, and technology jobs, with a continued decline in resource-related jobs. Education is one of the most significant employment sectors for the Planning Area, due to the presence of OSU. The major employment sector in the Planning Area (as recorded in 2000) is the service industry, with 17,530 employees comprising over 50 percent of the work force. Other major employment sectors included manufacturing (6,744), retail (3,090) and government (1,470). There were no employees in the mining industry and agriculture and farming employed 586 people.

D. Commute Patterns

Commute characteristics and patterns help determine where transportation system needs exist, and influence locations of future strains on the transportation system. Many commuters living in the Planning Area work in Corvallis. Other residents commute to Albany, Salem, Eugene, Lebanon, or other locations. Many residents outside of the Planning Area in Salem, Albany, and Lebanon travel to Corvallis for employment. Additionally, a portion of the OSU students live outside of the Planning Area. Interstate 5, (approximately 10 miles east of the Planning Area) US 20 and OR 99W are important north-south commuter routes. US 20/OR 34 is a principal east-west commuter route. Residents in the Planning Area, particularly those in the northern portion, also travel to Albany for shopping and services.

According to the 2000 U.S. Census, in all of Benton County (including Corvallis, Philomath, and Adair Village), 20,187 workers aged 16 years or older worked in Benton County, while 8,297 worked outside of Benton County. In Corvallis, 18,384 workers aged 16 years or older worked in Corvallis, while 5,091 worked outside of Corvallis. In Adair Village, 17 workers aged 16 years or older worked in Adair Village, while 237 worked outside of Adair Village. In Philomath, 405 workers aged 16 years or older worked within Philomath, while 1,472 worked outside of Philomath.

Table V-4 shows the times commuters leave home to get to work. Most commuters in the Planning Area leave home between 7:30 a.m. and 7:59 a.m. Between 7:00 a.m. and 8:30 a.m., approximately 30 to 35 percent of workers working outside of their home have departed for work (Benton County 31%, Adair Village 35%, Corvallis 32%, and Philomath 33%). Although the Census does not report departure time from work to home, it can be assumed that a similar commute peak occurs in the evening.

Table V-4: Times Commuters Leave Home to Work

Location	**12:00 a.m. to 4:59 a.m.**	**5:00 a.m. to 5:29 a.m.**	**5:30 a.m. to 5:59 a.m.**	**6:00 a.m. to 6:29 a.m.**	**6:30 a.m. to 6:59 a.m.**	**7:00 a.m. to 7:29 a.m.**	**7:30 a.m. to 7:59 a.m.**
Corvallis	497	326	582	777	1,559	2,387	4,121
Philomath	67	38	88	73	222	187	401
Adair Village	2	7	9	16	17	44	49
Benton County[1]	916	660	1,160	1,893	3,008	4,598	6,613
Location	**8:00 a.m. to 8:29 a.m.**	**8:30 a.m. to 8:59 a.m.**	**9:00 a.m. to 9:59 a.m.**	**10:00 a.m. to 10:59 a.m.**	**11:00 a.m. to 11:59 a.m.**	**12:00 p.m. to 3:59 p.m.**	**4:00 p.m. to 11:59 p.m.**
Corvallis	3,029	1,793	2,085	910	609	2,247	1,749
Philomath	203	116	106	39	21	87	162
Adair Village	35	13	8	10	0	10	22
Benton County[1]	4,638	2,570	2,878	1,194	740	2,841	2,386

[1]*Benton County figures are for Benton County as a whole (Planning Area and non-Planning Areas of the County).*

Source: 2000 U.S. Census

In Oregon as a whole, 7.5 percent of occupied housing units do not have a vehicle available. In Benton County, the percentage is 5.7 percent, in Corvallis the percentage is 7.9 percent, in Philomath the percentage is 2.7 percent, and in Adair Village all occupied housing units have at least one vehicle available.

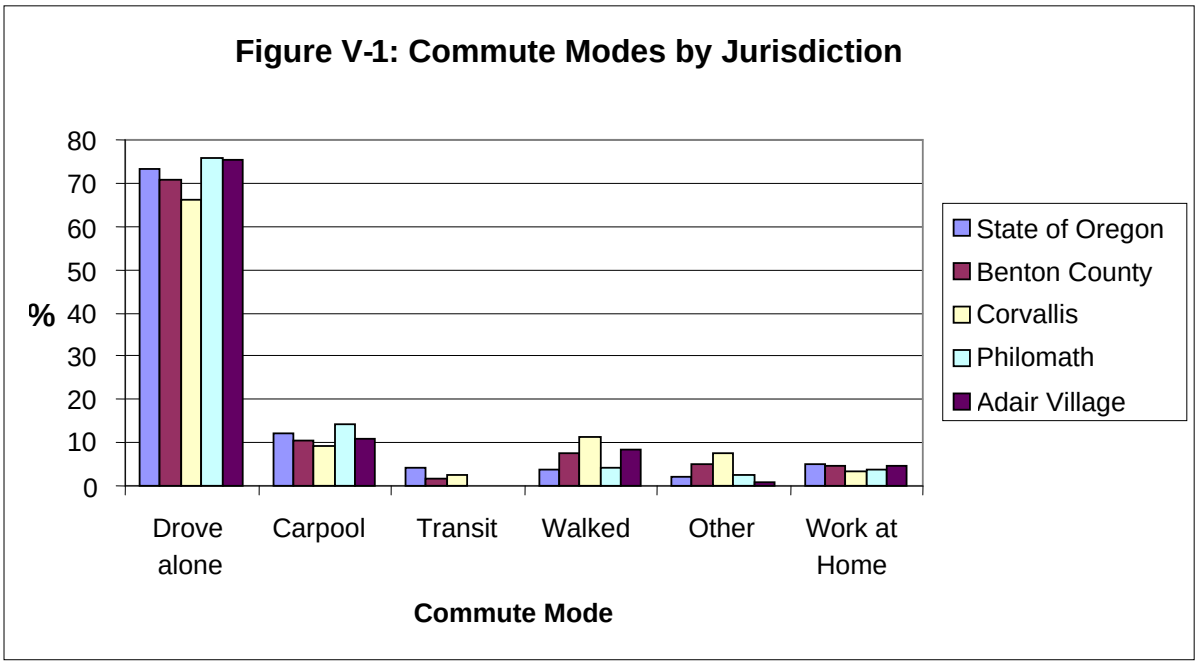
Statewide, 73.2 percent of workers 16 years and older drive alone while commuting to work. This compares with 66.2 percent in Corvallis, 75.2 percent in Adair Village, 75.8 percent in Philomath, and 70.7 percent in Benton County as a whole. Corvallis percentages may be affected by the presence and high quality of bicycle and pedestrian facilities and trails in the city, transit service, and the OSU group pass transit program. Rates can also be tied to income levels or demographics. A large student population can result in lower vehicle ownership and use. Factors that contribute to Adair Village and Philomath having higher percentages of workers that drive alone, compared to Corvallis and the state, may be that Adair Village does not have transit service, and Adair Village and Philomath are located further from stores and services available in Corvallis and Albany.

The mean travel time to work for all jurisdictions comprising the Planning Area is less than the State of Oregon mean travel time of 22 minutes. According to the 2000 U.S. Census, the mean travel time to work for Corvallis residents is 15.3 minutes. Commuters living in Philomath and Adair Village have longer commutes, with mean travel times of 16.9 and 18.0 minutes, respectively. The mean travel time to work for Benton County residents as a whole is 17.8 minutes.

Identifying major employers indicates where most employees are traveling to and from and where some of the peak-hour transportation needs may exist. Major employers within the Planning Area include the following (2005 statistics):

- Oregon State University (estimated 4,100 faculty and staff)
- Hewlett-Packard (estimated 4,200 total employees)
- Good Samaritan Hospital (1,400 total employees)
- Corvallis School District (760 total employees)
- Corvallis Clinic (570 total employees)
- City of Corvallis (430 total employees)
- CH2M HILL (420 total employees)
- Benton County (375 total employees)
- Summit Information (320 total employees)
- ATS Systems (300 total employees)
- Environmental Protection Agency (225 total federal plus contract employees)
- Evanite Fiber (130 total employees)
- Georgia Pacific Corporation (140 total employees)
- NYPRO Oregon (83 total employees)
- Consumers Power Inc. (65 total employees)

Figure V-1 *(next page)* shows the percentage of commuters by mode for jurisdictions (2000 U.S. Census data). Most commuters drove alone, followed by carpooling, walking, "other" (including bicycling), and transit.



Notes:"Other" category includes bicycling.
Transit figures do not reflect any transit usage in Philomath, as the Philomath Connection transit service was instituted after the 2000 Census. Source: 2000 U.S. Census.

Oregon State University: Because of its numbers of students and employees, OSU has a heavy influence on commuter patterns in the Planning Area. Students, faculty and staff comprise 49 percent of Corvallis Transit System (CTS) ridership. Table V-5 lists the number of parking permits issued at OSU for the period from 2000 to 2002. Approximately 25 percent of students had student-parking permits (assuming student populations similar to the 2004-2005 school year). Therefore, it can be inferred that approximately 75 percent of students commute to school by some way other than single-occupant vehicle (bicycle, walking, carpooling, transit, etc.). It has been noted that many OSU employees and students do not park on campus, but park within the neighborhoods adjacent to the university. According to the City of Corvallis, OSU has a heavy influence on traffic operations on Kings Boulevard, Harrison Boulevard, Monroe Avenue and other roadways.

Table V-5: OSU Number of Yearly Parking Permits, 2000-2002

	2000	2001	2002
Student Permits	4,552	4,647	5,270
Faculty Permits	2,842	2,992	3,160
Motorcycle Permits	93	154	154
Total Permits	7,487	7,793	8,584

Source: OSU Facilities Department.

Table V-6 shows the mode shares for OSU campus travel (year 2003). For from/to campus travel, the largest mode share is vehicle (driving alone), followed by walking and bicycling. The fact that 44 percent of total trips take place by means other than driving alone is significant.

Table V-6: Mode Shares for Travel From/To OSU Campus (Year 2003)

Mode	Number of Trips			Percentage		
	A.M.	P.M.	Total	A.M.	P.M.	Total
Car Drive Alone	7,064	4,534	11,598	61%	50%	56%
Walk	2,491	2,718	5,209	21%	30%	25%
Bicycle	1,071	1,057	2,128	9%	12%	10%
Carpool	414	567	981	4%	6%	5%
Bus	380	174	554	3%	2%	3%
OSU Shuttle	240	88	328	2%	1%	2%
TOTAL	11,660	9,138	20,798	100%	100%	100%

Source: Oregon State University Campus Master Plan 2004-2015 (December 2004).

VI. Existing Transportation System

An extensive examination of the transportation facilities and services within the Planning Area was conducted as part of the planning process. This section presents a description of the existing transportation system, its capacity and functioning and weaknesses or deficiencies where they exist. More detailed information on the existing transportation system can be found in the companion document *Corvallis Area Metropolitan Transportation Plan Existing Conditions Report.*

A. Roadways

This section summarizes the roadway characteristics for the federally classified and regionally adopted roadways within the Planning Area.

1. Jurisdictional Responsibility and Functional Classification

The public entities that have jurisdictional responsibility for roadways in the Planning Area include: ODOT, Benton County, City of Corvallis, City of Philomath, City of Adair Village, and OSU. Map VI-1 depicts jurisdictional responsibility for classified roadways in the Planning Area.

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. CAMPO has adopted the functional classifications of roadways, as depicted in Map VI-2. Functional Classification of roadways in the Planning Area includes the following designations: Urban Principal Arterials, Urban Minor Arterials, Urban Collectors, and Local Roads.

Urban Principal Arterial – US 20/OR 34 at Technology Loop intersection

a. Urban Principal Arterials

Urban Principal Arterials are the highest roadway classification and serve larger volumes of regional traffic at higher speeds than roads in the lower classifications. Arterials generally emphasize regional mobility over access. The Urban Principal Arterials in the Planning Area include the state routes: OR 99W, US 20/OR 34, OR 34, and US 20. ODOT has responsibility for the design, maintenance, repair and construction of these facilities.

- **OR 99W –** OR 99W (Pacific Highway West) runs north south through downtown Corvallis and central Adair Village. It provides access to the Corvallis Municipal Airport, and it links to Circle Boulevard, and Walnut Street, two minor arterials in Corvallis. Beyond the Planning Area, OR 99W connects to Monmouth to the north and Monroe to the south.

- **US 20/OR 34 –** US 20/OR 34 (Newport to Corvallis Highway) is a principal east-west linkage in the Planning Area. This roadway runs through central Corvallis and central Philomath, and provides access to OSU and downtown Corvallis.
- **US 20 –** US 20 (Corvallis-Albany Highway) is a southwest to northeast route that follows the eastern boundary of Corvallis, and links to Albany northeast of the Planning Area.
- **OR 34 –** OR 34 (Alsea Highway) links to Philomath from the west and to Corvallis from the east. This roadway links to Interstate 5 to the east (Corvallis-Lebanon Highway) and eventually to Waldport on the Oregon Coast to the west.

The Oregon Highway Plan includes a classification or ranking system for the state highways intended to guide investment and management decisions. **Statewide Highways** (considered part of the National Highway System) primarily provide inter-urban and inter-regional mobility and connections to larger urban areas, ports and major recreation areas, not served by Interstate Highways. ODOT's management objective for highways of statewide significance is high-speed, continuous flow operation. **Regional Highways** provide connections to regional centers and the Statewide or Interstate Highways or economic and activity centers of regional importance. The management objective for Regional Highways is high-speed, continuous flow in rural areas and moderate to high speed in urban areas. Secondarily, they serve local land uses near the highways. **District Highways** are of countywide significance and are largely county or city arterials or collectors. They link smaller population centers and serve more local travel needs. They are intended to provide moderate to high-speed continuous flow in rural areas and moderate to low speed operation in populated areas. They also serve pedestrians and bicycles. Along any of these highways, ODOT may designate a **Special Transportation Area**, where local access has an increased priority. These are highway segments where a downtown, business district or community center straddles the highway. Local auto, pedestrian, bike and transit movements are generally as important as through traffic in these areas and slower speeds are allowed.

- OR 99W is classified in the Oregon Highway Plan (OHP) as a Regional Highway.
- US 20/OR 34 are classified by ODOT in the OHP as a Statewide Highway and it is part of the National Highway System (NHS). The route is also classified as a statewide freight route within the MPO planning area. In downtown Corvallis, the area from Polk Avenue to Western Boulevard, is a designated as a Special Transportation Area (STA).
- US 20 is classified by ODOT in the OHP as a Regional Highway. From OR 99W to the west end of the Van Buren Bridge, the area along US 20 is designated as an STA.
- OR 34 is classified by ODOT in the OHP as a District Highway within the MPO Planning Area.

b. Urban Minor Arterials

Urban Minor Arterials also are intended to favor mobility over access. These roadways provide a higher level of accessibility to adjacent land uses, but a lesser degree of mobility than the Urban Principal Arterials. Urban Minor Arterials in the Planning Area are:

Urban Minor Arterial - 19th Street at Chapel Drive, Philomath

Located primarily in unincorporated Benton County

- Reservoir Avenue (West Hills Road to 53rd Street)
- 53rd Street (SW Nash Avenue to Harrison Boulevard)
- Highland Drive (Circle Boulevard to Lewisburg Avenue)
- Crescent Valley Drive (Lewisburg Avenue to Drive)
- Lewisburg Avenue (Crescent Valley Drive to Granger Avenue)

Located primarily in Philomath

- 13th Street (Chapel Drive to Main Street)
- Chapel Drive (13th Street to Bellfountain Road)
- 19th Street (Chapel Drive to West Hills Road)

Located primarily in Corvallis

- Western Boulevard (Philomath Boulevard to 3rd Street)
- Van Buren Avenue (Kings Boulevard to US 20/OR 34)
- 35th Street (Harrison Boulevard to US 20/OR 34)
- 53rd Street (Harrison Boulevard to Circle Boulevard)
- Kings Boulevard (Monroe Avenue to Walnut Boulevard)
- 9th Street (OR 99W – Van Buren Avenue)
- Circle Boulevard (US 20 to Kings Boulevard)
- Harrison Boulevard (53rd Street/Walnut Boulevard to US 20/OR 34
- Conifer Boulevard (OR 99W to US 20)
- Walnut Boulevard (Circle to 53rd Street)
- Buchanan Avenue (5th Street to Kings Boulevard)
- 5th Street (Van Buren Avenue to Buchanan Avenue)

c. Urban Collectors

Urban Collectors are intermediate roadways that typically serve as the direct link between local streets and the arterial street system. Mobility and access functions are important for urban collectors. Urban collectors in the Planning Area include the following:

Located primarily in unincorporated Benton County

- Arboretum Road (OR 99W to OR 99W)
- Mountain View Drive (OR 99W to Lewisburg Avenue)
- Kiger Island Drive (OR 99W to MPO boundary)
- Bellfountain Road (Plymouth Boulevard to south MPO area)
- West Hills Road (9th Street to 19th Street)
- Oak Creek Drive (53rd Street to MPO boundary)
- Sulphur Springs Road (Lewisburg Avenue to MPO boundary)

Bellfountain Road – Urban Collector

- Airport Avenue (OR 99W to MPO boundary)
- Plymouth Road (53rd Street to MPO boundary)

Located primarily in Adair Village

- Arnold Avenue (OR 99W to east MPO boundary)

Located primarily in Corvallis

- Satinwood Street (Walnut Boulevard to Washington Way)
- Conser Street (Conifer Boulevard to Walnut Boulevard)
- 15th Street (Research Way to Monroe Avenue)
- 9th Street (Van Buren Avenue – Washington Way)
- Highland Drive (Circle Boulevard – Buchanan Avenue)
- Washington Way (9th Street to Satinwood Street)
- Jefferson Way (15th Street to 3rd Street)
- Grant Avenue (Kings Boulevard to 9th Street)
- Garfield Avenue (Kings Boulevard to 9th Street)
- Crystal Lake Drive (Park Avenue to 3rd Street)
- Park Avenue (3rd Street to Crystal Lake Drive)
- Midvale Drive (Park Avenue to Goodnight Avenue)
- 3rd Street (Kiger Island Drive to Washington Way)
- 5th Street (Harrison Boulevard to Buchanan Avenue)
- Technology Loop (53rd Street to Western Boulevard)
- Brooklane Drive (45th Street to Philomath Boulevard)
- Research Way (Technology Loop to County Club Drive)
- 45th Street (Brooklane Drive to Country Club Drive)
- 49th Street (Country Club Drive to Nash Avenue)
- Thompson Street (Alexander Avenue to Park Avenue)
- Goodnight Avenue (OR 99W to Midvale Drive)
- Alexander Avenue (OR 99W to Crystal Lake Drive)
- Country Club Drive (Philomath Boulevard to 35th Street)
- 36th Street (Witham Hill Drive to Harrison Boulevard & Country Club Drive to US 20/OR 34)
- Witham Hill Drive (Walnut Boulevard to Grant Avenue)
- Ponderosa Avenue (Witham Hill Drive to MPO boundary)
- Circle Boulevard (Kings Boulevard to Witham Hill Drive)
- 29th Street (Walnut Boulevard to Harrison Boulevard)
- 30th Street (Harrison Boulevard to Western Boulevard)
- SW Birdsong Drive (49th Street to 45th Street)
- Monroe Avenue (Harrison Boulevard to 3rd Street)

Located primarily in Philomath

- North 9th Street (West Hills Road to Main Street)

- West Hills Road (9th Street to 19th Street)

d. Local Roads

The other roadways in the Planning Area are classified as local roads. Local roads or residential streets provide maximum accessibility to adjacent land uses and minimum mobility.

2. Number of Lanes and Roadway Width

The number of lanes helps define the capacity and streetscape of a roadway. Map VI-3 shows the number of lanes for arterials and collectors in the Planning Area. Most of the arterials and collectors in the Planning Area are two lanes, although some of the Urban Minor Arterials (e.g., portions of Circle Boulevard (29th Street to Conser Street), 9th Street (Walnut Boulevard to Harrison Boulevard), and Walnut Boulevard (Witham Hill Drive to Conser Street) have four lanes. Portions of Harrison Boulevard and Van Buren Boulevard have three lanes (Kings Boulevard to NW 3rd Street). The Urban Principal Arterials (state routes) range from two to four lanes.

Roadway widths for urban collectors generally range from 30 to 40 feet. Widths of urban minor arterials and urban principal arterials may exceed 60 feet. On-street parking is provided on many of the arterials and collectors within central Corvallis and central Philomath.

3. Posted Speed Limits

Posted speed limits affect the capacity and characterize the function of a roadway. Posted speed limits are generally 25 mph through central Corvallis and Philomath, 30 to 35 mph on other arterials and collectors within Corvallis and Philomath, and 45 to 50 mph on roadways toward the outer edges of the Planning Area. OR 99W, between Mountain View Drive and Adair Village is posted 55 mph.

4. Traffic Signals and Four-Way Stops

There are 59 signalized intersections in Corvallis, two signalized intersections in Philomath, and none in Adair Village. There are three signalized intersections located in unincorporated Benton County within the Planning Area.

5. Pavement Condition

Pavement condition is an important element of roadway functionality. All of the functionally classified arterials and collectors in the Planning Area are paved. The pavement conditions vary, although most of the arterials and collectors are in fairly good condition. Asphalt concrete is the primary paving material. However, a few segments (Reservoir Avenue, 9th Street in Philomath, 19th Street, Crescent Valley Drive) are oil mat, and some are Portland cement concrete (segments of Conser Street, Walnut Boulevard, and Circle Boulevard). Map VI-4 shows pavement condition based on pavement condition index (PCI) ratings from Benton County.
Most of the state routes are rated "good or better."

Roadway segments rated "poor" or lower include portions of:

- NW 9th Street

- Walnut Boulevard
- NE Conser Street
- NW Buchanan Avenue
- SW 9th Street, SW 15th Street
- NE Conifer Street
- SW Country Club Drive
- SE Goodnight Avenue
- SW Jefferson Avenue
- NW Kings Boulevard
- SW Western Boulevard
- 53rd Street
- SW Brooklane Drive

6. Bridges

There are many bridges in the Planning Area, including city, county and State bridges. Map VI-5 shows bridge locations and jurisdiction.

Four bridges within the Planning Area are considered deficient:

- Bridge 15370-05 (Crescent Valley Road):
- Van Buren Bridge
- Bridge 08616 (US 20 over OR 99W)
- OR 99W over P&WR

7. Freight Routes

Freight movement on highways is critical to the economic health of a region. A major element of the traffic in the Planning Area is freight movement via truck on the two designated statewide freight routes that extend through the Planning Area. US 20/OR 34 through Corvallis and Philomath (from Interstate 5 to the City of Newport) is a freight route and also part of the National Highway System (NHS), this includes OR 34 across the bridge to 4th street. The second freight route is OR 99W, which was designated in 2005.

According to ODOT, 24.9 percent of traffic on state highways within the Planning Area is composed of trucks. Also according to ODOT, average daily truck traffic on state highways within the Planning Area ranges from 500 to 2,999 trucks per day (2002 ODOT transportation volume tables). Map VI-6 shows the annual truck freight tonnage in the Planning Area.[1] The largest volumes of freight are carried through downtown Corvallis on OR 99W and just east of the Planning Area boundary on OR 34 (over 10 million tons shipped in 2002). Four to 10 million tons of truck freight was shipped east-west on OR 34 and OR 99W in the southern portion of the Planning Area.

Philomath has a series of city-designated truck routes, including US 20, Plymouth Drive, Chapel Drive, Fern Road/13th Street, Grange Hall Road (in Benton County), OR 34, Industrial Road, Bellfountain Road, and 19th Street/West Hills Road.

[1] Adapted from the ODOT Freight Route Analysis Plan website (http://www.oregon.gov/ODOT/TD/TP/docs/FRAP/Map1.pdf).

The Corvallis Transportation System Plan (1996) does not list any city-identified truck routes. The Van Buren Bridge over the Willamette River has load limits (over 80,000 pounds) as well as height limitations due to its design.

Although much of the freight traffic originates outside the Planning Area and travels through the Area, there are numerous business locations in or near the Planning Area that generate significant amounts of freight traffic.

8. Roadway Congestion

Maps VI-7a and VI-7b show the performance of intersections at the peak hour of traffic. Intersections marked green meet OHP, Benton County, City of Philomath and City of Corvallis Mobility Standards; intersections marked red do not meet mobility standards. Volume to capacity (V/C) ratios that exceed mobility standards indicate that intersection movement(s) experience congested operations during the peak period. Intersection V/C ratios lower than the mobility standards indicate intersections operating at acceptable levels of mobility. (Note: Traffic counts were taken during the fall and spring, while OSU was in session, but do not account for event traffic such as OSU football game traffic. Therefore, the analysis would not reflect the increase of traffic associated with those events.) Currently, only two of the 26 major intersections on the regional system do not meet applicable operational standards:

- Walnut Boulevard and Highland Drive (highest V/C ratio at a signalized intersection) Southbound and northbound through movements are the most congested movements.
- US 20/OR 34 and 15th Street in Philomath (If designated as an STA, this section would meet the mobility standards required for an STA.)

Table VI-1 lists the intersections close to not meeting the standards, their V/C, and the respective mobility standard. These locations should be observed to determine when they would exceed mobility thresholds.

Table VI-1: Intersections Close to Not Meeting Mobility Standards

Intersection Description	**Mobility Standard**	**Overall or Max. V/C Ratio**	
Unsignalized Intersection		**Major**	**Minor**
Oregon 99W SB & NW Buchanan Avenue	0.85	0.25	0.85
SW Philomath Avenue (US 20/OR 34) & SW Western The WB (to US 20/34) thru lane is most congested	0.80	0.74	
Signalized Intersection			
Albany – Corvallis Highway (US 20) & NE Circle Boulevard	0.80	0.73	
SW Philomath Avenue (US 20/OR 34) & SW Technology Loop	0.80	0.78	

9. Safety

a. Crash Data – State Routes

From 1999 through 2003, 959 crashes were reported along the state highway segments within the Planning Area, including 423 injury crashes and 531property damage only (PDO) crashes (note that crash type is labeled by the most severe crash circumstance: fatality, injury, or PDO). There were a total of five crashes involving a fatality from 1999 through 2003 along these state routes. Four of the fatal crashes occurred on OR 99W, though no more than two were in any given year. Each of the four fatal crashes on OR 99W occurred in different areas, with two occurring in the couplet section through downtown Corvallis. Causes ranged from driving the wrong way on a one-way street, to disregarding a traffic signal.

The number of traffic incidents along the three corridors within the Planning Area ranged from 170 to 224 crashes per year. In general, the number of total crashes increased from 1999 to 2003. The most common type of crash was rear-end, which comprised 46 percent (448 crashes) of all crashes over the 5-year period. Turning crashes made up 22 percent (210 crashes) of the crash total.

An assessment of road conditions and time of day showed that the majority of crashes (71 percent or 683 crashes) occurred on dry surface. Most of the crashes (74 percent or 714 crashes) occurred during the day. Passenger vehicles accounted for roughly 94 percent of the total crashes (902). Trucks, buses, school buses, motorcycles, and vehicles listed as an "other" or "unknown" vehicle-type comprised the remaining vehicles.

Over the past five years, the locations listed below have experienced the greatest number of crash events on state routes within the Planning Area. The total number of crashes from 1999 through 2003 is presented for each of the locations listed in Table VI-2.

Table VI-2: Crash Data 1999-2003 for Planning Area State Highways

Rank	Location	MP	Total Crashes
1	Intersection of OR 99W and Circle Boulevard	87.71	40
2	Intersection of NW 4th Street (SB OR 99W) and Harrison Boulevard	83.35	22
3	Intersection of NW 3rd Street (NB OR 99W) and Van Buren Avenue	83.42	19
4	Intersection of 2nd Street (US 20) and Tyler Street	0.15	19
5	Intersection of Main Street (US 20/OR 34) and 26th Street (Philomath)	55.45	14

Source: Oregon Department of Transportation - Crash Analysis and Reporting Unit, 2003.

Note: In the couplet section of OR 99W, the individual one-way segments are identified as NW 3rd Street (NB) and NW 4th Street (SB).

The location with the greatest number of crashes along state highways in the Planning Area is the intersection of Circle Boulevard and OR 99W (MP 81.77). This location experienced nearly twice as many crashes as any other location along OR 99W. Many of the crashes were attributed to following too close, driving too fast for the conditions or disregarding the traffic signal.

ODOT has developed a safety priority index system (SPIS) to identify hazardous locations along state highways. This rating is considered when making decisions regarding expenditure of state funds for highway improvements. The highway locations with SPIS scores that are in the highest 10 percent of all SPIS scores are evaluated for potential safety improvements. The following locations in the Planning Area were included in the highest 10 percent 2004 SPIS scores (see map VI-8 for mileposts):

1. US 20/OR 34 (Highway 33): MP 53.68 to 53.83
2. US 20/OR 34 (Highway 33): MP 55.37 to 55.54
3. OR 99W (Highway 91): MP 78.84 to 78.99
4. OR 99W (Highway 91): MP 81.33 to 81.47
5. OR 99W (Highway 91): MP 81.68 to 81.86
6. Southbound OR 99W (Highway 91): MP 83.26 to 83.39
7. Northbound OR 99W (Highway 91): MP 83.26 to 83.50
8. Southbound OR 99W (Highway 91): MP 83.71 to 83.80
9. Southbound OR 99W (Highway 91): MP 83.76 to 83.87
10. Northbound OR 99W (Highway 91): MP 83.77 to 83.87
11. OR 99W (Highway 91): MP 83.84 to 83.94
12. OR 99W (Highway 91): MP 83.89 to 84.01
13. OR 99W (Highway 91): MP 84.41 to 84.56

b. Crash Rates – State Routes

Crash rates help paint a more complete picture of the safety conditions of a segment than the number of crashes. Rates account for the traffic volumes traveling along a specific segment of roadway, whereas crash numbers do not account for traffic levels. In all but one location, the crash rates for the state highway sections within the Planning Area are lower than the statewide average crash rate for both 2003 and 5-year statewide average conditions. Between MP 1.52 and 3.77 of US 20, the 2003 crash rate was higher than the statewide rate (1.69 to 1.34 crashes per million vehicle miles), but the 5-year average crash rate for the segment was below the statewide rate – indicating a potential anomaly for 2003. The state highway segment in the Planning Area with the highest crash rate in 2003 was US 20/OR 34 (milepost 50.11 – 52.19), and the segment with the highest 5-year crash rate (1999 to 2003) was OR 99W (milepost 80.62 to 86.91).

c. Pedestrian and Bicyclist Crashes - State Routes

From 1999 through 2003, crashes involving pedestrians/cyclists were most prevalent on OR 99W, and US 20/OR 34. Nearly all of the crashes were located in the vicinity of the OR 99W couplet section in downtown Corvallis. The primary cause of these crashes was the failure of vehicles to yield to pedestrians and/or cyclists. The majority of crashes along US 20/OR 34 were concentrated in the City of Philomath (MP 50.11 to 50.82) where the primary cause was failure of vehicles to yield to pedestrians and/or cyclists. It should be noted that the above statistics

include only crashes with motor vehicles and do not include bicycle and pedestrian, bicycle and bicycle or other forms of crashes.

d. Crash Data - City and County Intersections

For the 1999-2003 period, a total of 80 crashes were reported at the major non-state route intersections within the Planning Area. Intersections considered included:

- Circle Boulevard / 29th Street (Corvallis)
- Circle Boulevard / Kings Boulevard (Corvallis)
- Walnut Boulevard / Witham Hill Drive (Corvallis)
- Walnut Boulevard / 29th Street (Corvallis)
- 53rd Street / Harrison Boulevard (Benton County)
- Highland Drive / Walnut Boulevard (Corvallis)
- Kings Boulevard / Harrison Boulevard (Corvallis)
- Chapel Drive/19th Street (Philomath)
- US 20/OR 99W Ramp Connections

These crashes included 29 injury crashes and 51property damage only (PDO) crashes. There were no fatal crashes during the five-year period at these intersections. The number of traffic incidents at these Planning Area intersections ranged between 9 crashes in 1999 to 21 crashes in 2001.

The most common type of crash involved turning vehicles, which comprised 40 percent (32 incidents) of all crashes over the five-year period. This was followed by rear-end crashes, which made up 30 percent (24 crashes) of the crash total.

An assessment of road conditions and time of day showed that the majority of crashes (78 percent or 62 crashes) occurred on dry surface, and most of the crashes (76 percent or 61 crashes) occurred during the day. Passenger vehicles accounted for roughly 91 percent (73 crashes) of the total, with the remaining vehicles comprised of trucks (including semi-trucks and tow trucks), busses, school busses, and vehicles listed as “unknown” vehicle-type.

At each intersection, the majority of crashes resulted in property damage only, except at the intersection of 53rd Street/Harrison Avenue, where there were more injury accidents than property damage only incidents.

B. Transit System

The transit system is composed of a mix of public and private fixed-route and demand-response providers. Map VI-9 shows the Corvallis Transit System, Philomath Connection, and Greyhound Intracity service within the Planning Area.

1. Fixed-Route Transit

a. Corvallis Transit System

The Corvallis Transit System (CTS) is the primary fixed-route transit service inside the Planning Area providing service within the City of Corvallis and the surrounding area. The City of Corvallis administers the CTS and has a contract with Laidlaw International, Incorporated to provide the transit services. The CTS is the primary recipient of Federal Transit Administration (FTA) Section 5307 funds in the Planning Area.

Schedule hours are generally 7:30 a.m. to 7:00 p.m. during the week, with reduced hours on Saturdays and no service on Sundays. Base fare is $0.75 for a one-way trip. Coupon books and passes are available. Transfers between CTS and the Philomath Connection transit service are free. There are some service coverage gaps on the eastern edge of the Corvallis central business district, as well as no Sunday services and no service to Adair Village.

The OSU Group Pass program provides OSU staff, faculty, and students with unlimited bus rides by showing a valid OSU identification card. The City of Corvallis receives an annual payment for this service. OSU funds the staff and faculty program, and the student program is funded through student fees. According to the City of Corvallis Public Works Department, students comprise 49 percent of total CTS ridership.

There are eight primary bus routes that meet at the Downtown Intermodal Mall transfer point at 5th Street and Monroe Avenue. The Timberhill Shopping Center on Walnut Boulevard and the Corvallis Clinic also serve as transfer points. All CTS buses are equipped with wheelchair facilities and bicycle racks. The routes are:

- *Route 1 – OSU/Witham Hill/Timberhill/Hewlett Packard* – Route 1 is an hourly service that primarily runs on Walnut Boulevard, Witham Hills Drive, 36th Street, Harrison Boulevard, and Monroe Avenue. This route provides connections to Hewlett Packard, Wilson School, OSU, Woodland Meadows Park, Hoover School, Timberhill Park, and Timberhill Shopping Center.

- *Route 2 – 9th Street/Highland/Hospital* – Route 2 is an hourly service that primarily runs on 9th Street, Highland Drive and Satinwood Street. This route provides connections to businesses along 9th Street, Good Samaritan Hospital, Corvallis Clinic, and Wilson School.

- *Route 3 - OSU/Sunset Center/Research Way*- Route 3 is an hourly service that primarily runs on Monroe Avenue, Western Boulevard, West Hills Road, 53rd Street, Research Way, and 35th Street. This route provides connections to OSU, Reser Stadium, Westland School, Adams School, Sunset Park, and Starker Arts Park.

- *Route 4 – 5th Street/Highland/Hospital/11th* – Route 4 is an hourly service that primarily runs on 5th Street, 11th Street, Highland Drive, 9th Street, and Satinwood Street. This route provides connections to Corvallis High School, Lane-Benton Community College, Washington Park, Fire Station 1,

Library, DHS Child Welfare, Osborn Aquatic Center, Garfield Park, Garfield School, Wilson School, Corvallis Clinic, and Good Samaritan Hospital.

- *Route 5 – OSU/Kings/Timberhill* – Route 5 is a 30-minute service that primarily runs on Monroe Avenue and Kings Boulevard. This route provides connections to OSU and Timberhill Shopping Center.
- *Route 6 – South Corvallis/Western/OSU* – Route 6 is a 30-minute service that primarily runs on Jefferson Way, Western Boulevard, 3rd Street, Ryan Street and Midvale Drive. This route provides connections to downtown Corvallis, Lily Park, southern Corvallis, Lincoln School, Tunison Park and Willamette Park.

CTS Bus Route 6

- *Route 7 – OSU/29th/Circle/H-P/Conifer/Hospital* - Route 7 is an hourly service that primarily runs on Monroe Avenue, 29th Street, Circle Boulevard, 9th Street, Conser Street, Conifer Boulevard, and Elks Drive. This route provides connections to OSU, Cloverland Park, Jefferson School, Fire Station 3, Boys & Girls Club, Osborn Aquatic Center, Hewlett-Packard, Cheldelin School, Good Samaritan Hospital, and Corvallis Clinic.
- *Route 8 – OSU/53rd St/Philomath Blvd* – Route 8 is an hourly service that primarily runs on Jefferson Way, Harrison Boulevard, 53rd Street, Technology Loop, and Philomath Boulevard. This route provides connections to OSU, Arnold Park, Benton County Fairgrounds, Reser Stadium, Sunset Shopping Center and businesses and housing near Technology Loop.

As shown in Figure VI-1, Route 5 (OSU/Kings/Timberhill) has the highest annual ridership of all the routes (2004 data). This route also shows the highest variability in volume of ridership during the year. Students comprise a significant portion of the ridership on Route 5, and during the summer, ridership decreases by approximately 3,000 riders per month.

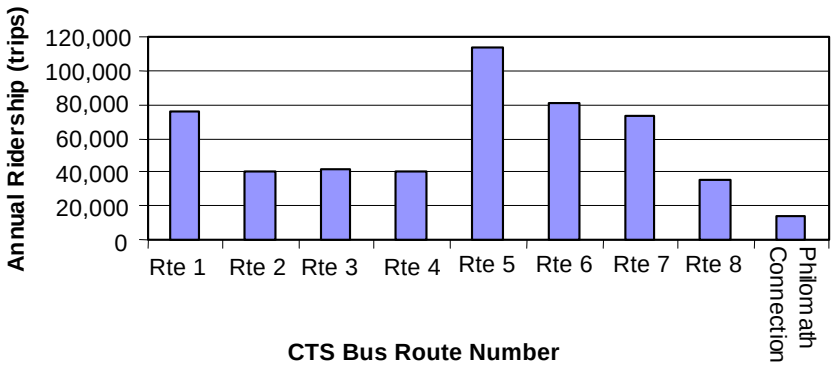
Routes 1, 3, 6, 7, and 8 all service the OSU campus. Forty percent of Route 3 ridership is students, resulting in a decrease of 1,700 riders during summer months. Ridership on Routes 1 and 8 is approximately 30 percent students, while ridership on Routes 6 and 7 is slightly less than 20 percent students for each route. Routes 2 and 4 do not directly service the OSU campus. The ridership of these two routes remains constant throughout the year.

For all routes, generally the morning peak commute begins around 7:00 a.m. and ends around 9:00 a.m. The morning peak commute is more pronounced than the afternoon peak commute. The afternoon peak commute is from about 3:00 p.m. to 5:00 p.m. considering that most routes serve the University, this pattern is likely reflective of the varying schedules of students. Also important to note is that during the summer months, morning and afternoon commute-hour ridership is similar to the rest of the day, indicating that a significant portion of morning and afternoon commute riders are students.

CTS operates shuttles during special events, such as Fall Festival and Benton County Fairgrounds events. On OSU game days, OSU runs a shuttle through downtown Corvallis, and there is also a shuttle for East Campus and West Campus to serve students. These shuttles run with 15-minute headways before and after the football games. CTS also operates a holiday trolley, a free express shopper route sponsored by participating merchants during the holiday season. Transit use is promoted through programs such as Try Transit Week, a week when all transit rides are free.

The Corvallis Area Transit Master Plan updated in 2005, outlines transit improvements in detail for the future Transit System in the area. This plan adopts the recommendations of the Corvallis Area Transit Master Plan.

Figure VI-1: Annual CTS and Philomath Connection Transit Ridership, 2004



Source: Corvallis Transit System.

b. Philomath Connection

The Philomath Connection is a sub-recipient of FTA Section 5307 funds administered by the City of Corvallis and provides fixed-route transit service between Philomath, Corvallis, and Oregon State University. Buses are equipped with wheelchair lifts and bicycle racks. There is a park-and-ride lot located at the Philomath City Library on Applegate Street. Philomath Connection provides two routes, Corvallis/Philomath Route 1 and Philomath/Corvallis Route 2. Main Street/Philomath Boulevard (US 20/OR 34) is the primary roadway of travel on the route. One-way fare is $1.00, and transfers between Philomath Area Transit and Corvallis Transit System are free. Days of service are Monday through Saturday, from approximately 7:00 a.m. to 7:00 p.m. As shown in Figure VI-1, total ridership is less than 20,000 trips per year.

c. Linn-Benton Loop

The Linn-Benton Loop is managed by the City of Albany and funded by a variety of sources, including the Cities of Corvallis and Albany. It operates Monday through Saturday and connects with the Corvallis Transit System, Philomath Connection and the Albany Transit System. Linn-Benton Loop is a recipient of FTA Section 5311funding. There are three loop routes:

- Albany/Hwy 20/Corvallis Loop, (runs from 6:30 a.m. to 10:00 a.m.)
- Albany/Hwy 34/Corvallis Express Loop, (runs from 10:00 a.m. to 2:30 p.m.)
- Albany/Hwy 99/34/Corvallis Reverse Loop, (runs from 2:45 p.m. to 6:30 p.m.)

Base adult fare is $1.25, and discount coupon books are available. In addition to the designated stops, the Loop bus will stop on an on-call basis at the following locations: J&J Electric, Children's Farm Home, 4th Street & Madison Avenue in downtown Corvallis, Peoria Road/Highway 34 and Tangent at Highway 34 and 99E Junction.

d. HUT Airport Shuttle

HUT Airport Shuttle provides service from Corvallis and Albany to the Portland International Airport. Base fare for one-way travel is $43.00 and for round trip travel is $84.00. The route runs from the Corvallis Hilton Garden Inn (2500 SW Western Blvd.) to Oregon State University (2301 SW Jefferson Street) to the Albany Phoenix Inn Suites to the Portland International Airport. The Shuttle runs every 90 minutes, seven days a week. Approximately 20,000 passengers are served annually.

e. Greyhound and Valley Retriever Bus Lines

Greyhound operates passenger service on a regular schedule from and to the cities north and south of Corvallis.

The Valley Retriever is a charter/rental bus service based in Newport, Oregon. It operates three times each day Monday through Friday with stops in Corvallis, and it connects with the Amtrak Station in Albany. It is operated under a contract with Greyhound.

f. OmniShuttle

OmniShuttle is a shared door-to-door service. OmniShuttle services the Eugene/Springfield area, and also provides service to Albany, Corvallis, Roseburg, and Oregon Coast destinations.

2. Demand-Response Transit

a. CTS Paratransit Service

CTS Paratransit is a demand-response (curb to curb) service that serves people who are unable to use fixed route service and meet federal eligibility requirements. CTS Paratransit offers the same service hours as regular CTS.

b. Special Transportation Fund (STF)/Dial-A-Bus

The State of Oregon provides funding for the transportation of senior citizens aged 60 or older and people with disabilities who are unable to access the fixed-route transit service. Benton County is the recipient of Special Transportation Funds and contracts with Dial-A-Bus for the provision of demand-response services throughout Benton County. Ridership was approximately 6,000 during March 2005, and has shown a gradual increase. Riders typically request rides one to seven days in advance, and are serviced on a first-come, first-served basis. One-way fares range from $1.00 to $4.00, depending on service zone. Service hours are Monday through Friday, 8:00 a.m. to 9:00 p.m.; Saturdays 9:00 a.m. to 9:00 p.m.; and Sundays 9:00 a.m. to 3:00 p.m. Some extended hours are available within Corvallis city limits for ADA-certified riders. Benton County is preparing a Coordinated Public Transit-Human Services Transportation Plan in compliance with SAFETEA-LU requirements that will cover the Planning Area.

c. Senior Companion Program

The Senior Companion Program operates in Benton, Linn and Lincoln Counties as is a volunteer program sponsored in part by Samaritan Pacific Communities Hospital, Samaritan Health Services, Samaritan Lifeline Program, and other city and county agencies. It links trained “senior companions” with seniors or people with disabilities to provide, among other services,

transportation to medical appointments, the grocery store, social events, or other personal errands. Currently there are three volunteers serving in Benton County. Client miles driven during 2004 ranged from 319 to 588 each month.

d. Cascades West RideLine

Cascades West RideLine is a transportation brokerage that coordinates rides for those needing door-to-door service. Currently in Benton County, the brokerage serves Medicaid clients needing non-emergency medical rides. Rides are provided by 14 transport companies, including Dial-A-Bus.

3. Other Transit Services

a. Public School Districts

The Corvallis School District contracts with Laidlaw International Incorporated to provide bus transportation for the students living farther than one mile from the schools. There are 60 standard buses and eight special needs buses. For the elementary schools, there are 24 a.m. bus routes and 27 p.m. bus routes; for the middle schools there are 23 a.m. bus routes and 22 p.m. bus routes; and, for the high schools there are 15 a.m. bus routes and 14 p.m. bus routes. [2]

The Philomath School District provides bus transportation for students. There are 15 bus routes and two special needs buses.

b. Taxi and Limousine Services

Roadrunner Taxi and Auto Taxi provide taxi service for the Corvallis area. Reservations are accepted, and the services will travel to the Portland or Eugene airport.

c. Express Cab Company and Shuttle,

Tumblewood Tours and Shuttle provide taxi and shuttle service in the Planning Area.

d. Private Retirement Facility Vehicle Services

Various retirement communities or centers provide transportation services to residents for shopping, medical, leisure, or other activities.

[2] There are currently plans for a Crescent Valley/Corvallis High School connection for the 2005-2006 school year.

C. Pedestrian System

Pedestrian facilities that are accessible, convenient, and safe to use are an essential component of the transportation system. As the 1995 *Oregon Bicycle and Pedestrian Plan* (OBPP) explains, virtually everyone is a pedestrian at some point during the day and therefore benefits from accessible facilities. Pedestrians include children walking to and from school, people using wheelchairs or other forms of mobility assistance, people walking to lunch, and people walking to and from their vehicles. In addition, walking meets the commuting, recreational, and social transportation needs for a significant portion of the population that cannot or chooses not to drive. The community's pedestrian system also offers recreational opportunities for both local and out-of-town users, potentially stimulating economic growth and tourism.

According to the OBPP, pedestrian facilities are defined as any facilities used by a pedestrian, including walkways, traffic signals, crosswalks, curb ramps, and other amenities such as illumination or benches. The Planning Area has several different types of walkways, which are defined in the OBPP as "transportation facilities built for use by pedestrians and persons in wheelchairs," including the following:

- **Sidewalks:** Sidewalks are separated from the roadway with a curb and/or planting strip. ODOT's minimum standard sidewalk width is 6 feet. The City of Corvallis requires 6-foot minimum sidewalks and a 12-foot minimum planted buffer on arterials and collectors. Adair Village has adopted these standards as well. Philomath requires 6- foot to 12-foot sidewalks with a 6-foot to 9.5-foot planted buffer on all arterials and collectors. The Main Street arterials are to have 12-foot sidewalks with no planted buffer.
- **Multi-Use Paths:** Multi-use paths are used by a variety of non-motorized users, including walkers, bicyclists, skaters, and runners. Multi-use paths may be paved or unpaved, and are often wider than the average sidewalk (i.e. 10 feet to 12 feet.) Multi-use paths are discussed in detail in the bicycle section.
- **Roadway shoulders**: Roadway shoulders often serve as pedestrian routes in rural 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 6 feet or greater. There are several roadways like this in the Planning Area.

1. Existing Sidewalks

The pedestrian system in the Planning Area is comprehensive in certain areas, such as in downtown Corvallis, around Oregon State University, and along most arterial and collector roadways within city limits. Sidewalks are lacking in other areas, such as on the outskirts of the Planning Area, and on roadways in unincorporated areas. Map VI-10 shows gaps in the region's sidewalk system on roadways with collector status and higher. Sidewalk obstructions and encroachments, typically mailboxes, overgrown vegetation, and utility poles, impede safe and accessible pedestrian travel in some areas.

Philomath and Corvallis have development codes requiring sidewalks on both sides of roadways.

2. Existing Sidewalk Conditions

Table VI-3 shows sample sidewalk conditions and their corresponding rating.

Existing sidewalk widths along arterials and collectors vary from 5 feet with no separation from the roadway to 10 feet with planted buffers. Multi-use paths provide alternatives to sidewalks on some roadways, like 53rd Street, Philomath Boulevard/Highway 20, and Walnut Boulevard. Most of these facilities are in good or fair condition.

Some sidewalks are part of the roadway and separated from traffic with an extruded curb. This type of sidewalk is typically in locations where the adjacent property has not been developed. This facility is intended as a short-term connection for pedestrians and is not recognized as a sidewalk or pathway standard.

Most sidewalks and multi-use paths along arterials and collectors have old curb ramps that are not in compliance with new ADA standards and guidelines due to the lack of truncated domes or other detectable warning. Some curbs lack ramps entirely. Other deficiencies include ramps of insufficient width (less than 36 inches), ramps that are not aligned with the pedestrian flow, excessive slope (maximum of 1:12), excessive cross-slope (maximum of 1:50), inadequate landings, and obstacles in the pedestrian path.

Table VI-3: Sidewalk Condition Examples

Good	Smooth surface without cracks; ADA compliant width and grades.	
Fair	Fairly smooth surface, with some cracks and uneven settling of sidewalk panels. ADA compliant width and grades.	
Poor	Rough surface, with numerous cracks and severe settlement. Non-ADA compliant due to surface condition or obstructions.	
Extruded Curb Pathway	Portion of the roadway separated by an extruded curb. Variable pathway conditions.	

a. Corvallis

The downtown core of Corvallis is pedestrian friendly. First Street is a recently completed "slow street" that provides through access and parking for motor vehicles, as well as wide sidewalks and a multi-use path for pedestrians and bicyclists. The area between Harrison Boulevard and Western Boulevard from the Willamette River to 3rd Street has employed the use of wide sidewalks, generous planted buffers, street furniture (benches, planted trash receptacles, pedestrian-scale lighting, etc.), textured corner treatments, and art that fosters a dynamic pedestrian environment. The downtown area also has land uses that are conducive to pedestrian travel, with attractive shops and cafes that front the street and have outdoor seating. The 3rd and 4th Streets couplet serves as OR 99W through town and has more traffic than 1st Street and 2nd Street. Pedestrian access from the university to the Willamette River is good.

Downtown Corvallis

Arterials and collectors outside of the downtown and university areas of Corvallis have 5-foot to 6-foot sidewalks in variable condition. Some have no separation from the roadway, others have narrow planted buffers, and the newest sidewalks and roadways have wide planted buffers. The newer sidewalks are in good condition and meet ADA guidelines, particularly in the newest developments. Some sidewalks in older neighborhoods are experiencing minor cracking and heaving from tree roots and water damage. Table VI-4 identifies major missing sidewalk segments on arterial and collector roadways in the Corvallis city limits.

New roadway standards in practice

Table VI-4: Major Roadways in Corvallis Lacking Sidewalks

Roadway	From	To
15th St. / Avery Park	Philomath Blvd./Highway 20	Avery Park
30th St.	Western Avenue	600' south of Washington Avenue
35th St.	Orchard Avenue	Western Avenue
53rd St.	West Hills Road	Philomath Blvd / Highway 20
Avery	Avery Park	Highway 99W/ 3rd Street
Brooklane Dr.	Highway 20	Brooklane Drive alley
Circle Blvd.	Hewlett-Packard	Conser Street
Country Club Dr.	47th Place	Research Way
Crystal Lake Dr.	Crystal Circle	Park Avenue
Philomath Blvd./ Highway 20	35th Street	53rd Street
Western Blvd.	35th Street	Country Club Drive

Sidewalks or multi-use paths are largely absent in the areas outside of Corvallis and Philomath city limits, particularly in the older residential areas north of Corvallis along Highland Drive, Crescent Valley Drive, Lewisburg Avenue, and Mountain View Drive. Pedestrians walk on the shoulder or in the bicycle lane on these roadways.

b. Philomath

Sidewalks along Philomath's arterial and collector roadways are present but often narrow and in disrepair, making it difficult to walk around town, particularly if one has impaired mobility. Curb ramps along 9th Street and 13th Street do not meet current ADA guidelines except in front of the school on 19th Street. Sidewalks exist on both sides of Main Street, (OR 20/34), from 7th Street to 19th Street. On the north side, from the east side of town to 15th Street, the sidewalk is approximately 5 feet wide with a 10-foot-wide planting strip. New street trees have been planted, and many corners have curb ramps. The City and ODOT have been working to improve ADA-compliance and many curb ramps along Main Street meet current ADA standards.

Downtown Philomath Sidewalks

On the north side, from 15th Street to 12th Street, the historic downtown Philomath section has a 6-foot sidewalk walking area with a 6-foot buffer, as well as on-street parking and decorative street lighting. From 12th Street west to 8th Street on the north side, the sidewalk is 4 feet wide with a 10-foot planting strip and no on-street parking. From 8th Street west, the sidewalk is 6 feet wide with poles obstructing pedestrian passage and no buffer. On the south side, the 4-foot sidewalk is largely continuous with a 10-foot planting strip.

Main Street and Applegate Street in Philomath are scheduled to be converted into a one-way couplet with construction starting in 2006. Couplets are typically easier to cross because the pedestrian can focus on one direction of traffic at a time, particularly if the signals are timed to provide gaps. New 6.5-foot sidewalks will be built on Main Street and Applegate Street from 14th Street to Green Street. The existing sidewalks will remain on Main Street and Applegate Street from 14th Street west. Additional signals will also improve pedestrian safety by providing a controlled crossing.

Other arterial and collector roadways in Philomath have sidewalks in variable conditions. Some are good, such as those in front of the Clemens Primary School. Others are in poor condition or lack curb ramps, like those on 13th Street at Applegate Street. Sidewalks are intermittent on 9th Street, 13th Street, 19th Street, and Bellfountain Road. There is a short section of sidewalk on Chapel Drive that connects 19th Street to the entrance of Philomath Middle School. 19th Street improvements are under construction.

c. Adair Village

Sidewalks are intermittent and lack curb ramps on the older sidewalk along the city's primary arterial, Arnold Avenue. The sidewalk on the south side of Arnold Avenue has a wide planted buffer, but sidewalks on the north side of Arnold Avenue are adjacent to the curb. Sidewalks and shoulders end at the entrance to Adair County Park.

Adair Village Sidewalk

3. Existing Sidewalk Replacement / Construction Programs

The City of Philomath has a sidewalk construction/replacement program that has been successful by working with residents to repair or construct sidewalks along improved streets with curbs and gutters. The targeted areas during the first three years of the program included all of Applegate Street and adjacent side streets, and the second phase will focus on Newton and Green Streets between 24th and 26th, as well as along 26th Street.

The City of Corvallis has a Sidewalk Safety Program to systematically replace, repair, and construct sidewalks and Americans with Disabilities Act (ADA) ramps over time. Each year, one of eleven sidewalk districts is surveyed for sidewalks in need of repairs. The City then works with property owners to improve the safety and condition of the sidewalk by offering them the opportunity to participate in the City's repair contract or to make the repairs themselves.

There is no comparable program for Adair Village.

Benton County currently is upgrading a portion of 53rd Street near the Benton County Fairgrounds to include sidewalks, curbs and gutters.

4. Pedestrian Destinations

Major pedestrian destinations are located in the following areas of the region:

- **Downtown** – Corvallis and Philomath have downtown cores that are destinations for pedestrians.
- **Schools (including OSU and Reser Stadium)** – Most of the arterial and collector streets around schools in the Planning Area have sidewalks on at least one side of the street and are generally in good or fair condition. The exceptions are Crescent Valley High School and Mountain View Elementary School.
- **Parks/Recreation Centers** – Most of the parks in the Corvallis Planning Area are accessible by sidewalk or multi-use path. Other parks are accessible by bicycle or by walking on a wide shoulder / bicycle lane.
- **Shopping / retail centers** – Shopping/retail centers are located throughout the region, clustered in downtown Philomath and Corvallis, along Highway 20/34, 9th Street, Circle Boulevard, and Walnut Boulevard. Most of these shopping and retail centers are accessible on sidewalks. However, the high traffic volumes and curb-tight sidewalks can make the walking experience uncomfortable. Additionally, many retail and shopping areas have limited pedestrian access from the sidewalk to the business itself, forcing pedestrians to walk through a large parking lot without a clear walkway.
- **Employment centers** – Employment centers in the Planning Area include County and City offices in the Corvallis downtown core, retail services mentioned above, OSU, Hewlett Packard, CH2M HILL, Good Samaritan Regional Health Center, Samaritan Health Services, the Corvallis Clinic, Linn-Benton Community College (satellite campus), Corvallis School District, Georgia Pacific, United States Environmental Protection Agency Research Laboratory, Evanite Fiber, the Technology/Research business park, and smaller businesses and industry throughout the region. Major employment centers have good sidewalk connectivity and access, and some have internal pathway systems that improve pedestrian access.

5. Pedestrian System Deficiencies

Although many of the arterials and collectors in the Planning Area have adequate pedestrian facilities and a complementary multi-use path system, there are still several barriers pedestrians must overcome:

a. Auto-Oriented Land Uses

Auto-oriented land uses clustered outside of the downtown cores force many pedestrians to walk along and cross high-volume arterial roadways to access destinations. Many of these roadways have sidewalks but they are only 5 feet wide and adjacent to the curb (no planter strips). The lack of a buffer next to high-speed traffic can make walking uncomfortable and potentially dangerous.

b. Limited Crossings

Crossing larger arterials like 9th Street, Circle Boulevard, Walnut Boulevard, Philomath Boulevard, and portions of US 20, OR 34, and OR 99W is challenging due to long distances between signalized intersections and marked crossings. Gaps, or opportunities to cross the roadway, are decreasing due to increasing traffic volumes and signal timing that has not been adjusted to reflect the changing roadway conditions. These conditions discourage pedestrians from walking to services along the roadway and may endanger those who choose to dart across the roadway to reach their desired destinations.

c. Lack of Handicapped Accessibility

Portions of the arterial and collector street systems lack ADA-compliant curb ramps and driveway cuts. This can make traveling by wheelchair or motorized mobility device challenging, if not impossible.

d. Poor Sidewalk Connectivity

Though sidewalk connectivity and condition are generally good in the urbanized areas of Philomath and Corvallis, the older residential areas in unincorporated Benton County north of Corvallis and Philomath lack sidewalks and, in many cases, a shoulder or bicycle lane that would provide pedestrians with a place to walk beside the roadway. Areas of particular concern are along Highland Drive, Mountain View Drive, and Granger Avenue, where pedestrians have been observed walking along the shoulder or in the roadway to access schools in the vicinity.

D. Bicycle System

Jurisdictions in the Planning Area have championed good bicycle facilities since the early 1970s, and their efforts have paid off. The League of American Bicyclists has named Corvallis a Bicycle-Friendly Community and has awarded Corvallis the prestigious "Gold Award." Nearly 95 percent of the city's arterial and collector roadways have striped bicycle lanes.

In 2000, 7.4 percent of the Corvallis population commuted to work by bicycle.[3] This percentage does not include the large university student population or the people who ride their bicycle to school, stores, libraries, parks, and on recreational rides. These groups make up a much larger number of people riding bicycles in the community.

The City of Philomath prides itself on being a "gateway to the getaway" and providing access to numerous outdoor activities, including bicycling. The Philomath Boulevard (US 20/OR 34) multi-use path is used by many residents and provides an integral link between Philomath and the downtown Corvallis riverfront, as well as other rural bicycle touring roads. Adair Village has integrated bicycle lanes into its community, providing access to schools, parks, and residential areas.

Touring and recreational bicycling are popular due to the area's proximity to scenic rural roads. The area is often targeted for bicycle races and charity rides, which bring hundreds of visitors to the area for bike-specific events.

Regional bicycle connectivity is very good throughout the Planning Area. ODOT highways OR 99W, US 20, and OR 34 link the three communities and have good shoulders for bicycling. While facilities on these highways are limited through downtown Corvallis and Philomath, there are good parallel routes on local roadways. For bicyclists who prefer routes with lower traffic volumes and speeds, there are many alternative routes to and from each city in the Planning Area. Many of the alternate routes have dedicated bicycle facilities, low traffic volumes, or, in many cases, a parallel multi-use path. Map VI-10 shows the different types of bicycle facilities in the Planning Area.

1. Types of Bicycle Facilities

According to AASHTO's *Guide for the Development of Bicycle Facilities* (1999) and the *Oregon Bicycle and Pedestrian Plan* (1995), there are several different types of bicycle facilities. Bicycles are allowed on all of roadways in Corvallis and the surrounding areas. Bikeways are distinguished as preferential roadways that have facilities to accommodate bicycles. Accommodation can be a bicycle route designation or bicycle lane striping. Multi-use paths are facilities separated from a roadway for use by cyclists, pedestrians, skaters, runners, or others.

The following types of bikeways, recognized by AASHTO and the *Oregon Bicycle and Pedestrian Plan,* are found in the Planning Area:

[3] U.S. Census Bureau, Census 2000 Summary File 3 (SF 3). Generated by Allison Wildman using Data Extraction System, http:///www.census.gov/ (April 6, 2005).

- **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 ADT or less).

- **Shoulder Bikeway**: These are paved roadways that have striped shoulders wide enough for bicycle travel. ODOT recommends a 6-foot paved shoulder to adequately provide for bicyclists, or 4-foot minimum in constrained areas. Roadways with shoulders less than 4 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. The standard width for a bicycle lane is 6 feet. The minimum width of a bicycle lane against a curb or adjacent to a parking lane is 5 feet. A bicycle lane may be as narrow as 4 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.

- **Multi-Use Path**: Multi-use paths are paved pathways that are physically separated from the roadway and shared by all non-motorized users, including walkers, joggers, skaters, and bicyclists. In general, multi-use paths are desirable for recreational uses, particularly by families and children. They are also preferred for corridors where there are few intersections or crossings, to reduce the potential for conflicts with motor vehicles.

2. Existing Bikeway Locations

Existing bicycle lanes, shoulder bikeways, and multi-use paths are shown on Map VI-10. There are approximately 80 miles of dedicated bicycle facilities in the Planning Area. Almost 95 percent of arterial and collector roadways within Corvallis city limits have striped bicycle lanes. Adair Village has one striped bicycle lane on Arnold Avenue and Philomath has one striped bicycle lane within city limits (19th Street). Bicycle lanes will be constructed on Main Street and Applegate Street as part of the Philomath couplet project.

A traditional grid pattern and good street connectivity in Philomath, Corvallis, and Adair Village present many options for bicyclists to travel throughout the area on shared roadways. In addition to having an extensive network of on-street facilities, the Planning Area also contains a

complimentary network of multi-use paths. These include the Campus Way path, Philomath Boulevard path, the Riverfront path, and the Walnut Boulevard path. All of the multi-use paths in the Planning Area are presented on Map VI-10.

3. Existing Bikeway Conditions

a. Bicycle Lanes

Most of the existing on-street bicycle facilities are of standard width and in good condition. There are, however, areas with sub-optimal designs for some of the existing bicycle facilities. One example is a narrower than standard bicycle lane. This treatment has been used throughout the region to include a striped facility on the roadway, particularly in downtown Corvallis.

PathwayDesign, Country Club Road

Benton County and the City of Corvallis have planned and constructed two interconnected but separate bikeway systems over the past 30 years – an on-street bicycle system and a multi-use path system. At times these systems are redundant, but they do provide distinct choices for commuters and recreational users.

b. Multi-Use Paths

Most of the multi-use paths in the Planning Area are in good condition and sometimes provide connectivity that cannot be achieved on street. Examples are the multi-use path from Witham Hill Drive to Harrison Boulevard, the Campus Way path, and the railroad path from Buchanan Avenue to Highway 99W and Circle Boulevard, as well as numerous short paths that connect cul-de-sacs, link schools and neighborhoods, and circulate through parks. These paths provide excellent recreational opportunities and good places for young or inexperienced bicyclists to develop riding skills. Most of the paths are 8 to 10 feet wide and constructed of asphalt. The exception is the riverfront path in Corvallis, which is generally 12 feet wide and constructed of concrete. A 12-foot path also exists along the Willamette River from Rivergreen Avenue through Willamette Park.

Connector pathway

Some multi-use paths in the Planning Area were built many years ago when the standard facility for bicyclists was a separated path. Some multi-use paths were built along rural roads in anticipation of reconstruction of these roadways to urban standards (including bicycle lanes). The multi-use paths are likely to remain as pedestrian ways after bicycle lanes are added to these roadways. Practices have since evolved to provide on-street facilities for bicyclists and to augment the bicycle network with multi-use paths as appropriate. Many of the original paths have not been reconstructed since they were built and are showing the effects of time. Many are too narrow for the number of people using them. Others are experiencing buckling, heaving, and cracking, which can be both uncomfortable and hazardous for users. Additionally, some of the older paths, like 53rd Street, have numerous conflicts for bicyclists and other path users as they cross multiple driveways and roadways.

A new trend in multi-use path design and implementation is to connect cul-de-sacs and parks in new developments with an internal pathway system. Many of these paths in the Planning Area are 6 feet wide and constructed of concrete or asphalt. While these paths are narrower than a standard multi-use path, the intention is to provide a short connection that cannot be achieved on-street and accommodate fewer users. The width of the multi-use path restricts access by maintenance and emergency vehicles and should only be used for short connections.

c. Shoulder Bikeways

Most of the shoulder bikeways in the area are in very good condition and have adequate width. Some roadways have narrow shoulders but low traffic volumes, like Bellfountain Road and Plymouth Drive. Other sections have areas where the shoulder narrows to accommodate a turn lane and creates a conflict point for bicyclists and turning motor vehicles.

4. Destinations for Bicyclists

Major destinations for bicyclists are primarily the same as those for pedestrians: downtowns, schools, employment centers, shopping centers, neighborhood commercial areas, and parks and recreation. In addition, OR 99W, OR 34, and US 20 provide regional connections to other highways and county roads to nearby cities such as Albany, Lebanon, Independence, Monmouth, and Salem, as well as to cities and destinations along the Oregon Coast.

5. Bicycle System Challenges

As a whole, bicycling through the Planning Area is easy and accessible, and the area highlights some of the best practices for bicycle facility planning and implementation in the country. Recognizing and addressing the following deficiencies will improve the quality, connectivity, and rate of bicycling in the region by eliminating hazards and completing regional connections:

- **Railroad track crossings:** A number of Portland & Western mainline tracks and spurs crisscross the region, many of which cross roadways at some point. Angled crossings of railroad tracks are extremely difficult for bicyclists to cross, particularly when the rails and roadway are wet. Asphalt surrounding the flange of the rail has a tendency to crumble and buckle over time. It is important to address railroad crossings where a bicycle facility crosses the rail line. Specific locations of concern are Avery Avenue and Allen Street, 6th Street and Washington Way, and 35th Street and Washington Way.

- **Crossing the Willamette River:** The Willamette River is a barrier for bicyclists, as there are few existing crossings. The Van Buren Bridge does provide a linkage over the river and the Corvallis Trails Master Plan states that it would be desirable to maintain a bicycle and pedestrian facility when the bridge is replaced.

- **Substandard facilities:** Some facilities in the region do not adhere to current design standards and best practices, (for example, where a bicycle lane is provided on only one side of a roadway). Identifying these facilities and planning a systematic modification and modernization program is a good next step. Many of these discrepancies will be eliminated as streets are brought up to standard.

- **Gaps in the bikeway system:** Although the bicycle facility network is quite comprehensive in the Planning Area, there are still gaps that are challenging for bicyclists. These gaps exist because of financial or political constraints. To close the gaps would require removing on-street parking or street trees, or necessitate bringing the entire street up to current standard, which can be financially challenging.

- **Future development:** As the area continues to grow, it is increasingly important to recognize the benefits of good connectivity for bicyclists and pedestrians. Past efforts to provide connectivity between cul-de-sacs and to major roadways have been good and these practices should continue to be required for all new development. Developers should be encouraged to improve access and connectivity by implementing pedestrian and bicycle-friendly designs, like clear pathways from on-street facilities, covered bicycle parking, internal trail systems, and orienting storefronts to the roadway.

E. Parking

Parking policies and practices strongly influence people's choice of transportation modes. Policies that result in readily available parking spaces encourage the use of Single Occupancy Vehicles (SOVs) and compete with the promotion of alternative modes of transportation. Zoning regulations that require a certain number of parking spaces to be provided as a condition of development approval are an example of policies that increase the supply of parking. Public and private employers contribute to the use of SOVs by offering free or discounted parking to their employees.

Within the Planning Area there is a combination of public and private parking spaces. The public parking includes on-street and off-street facilities while the private parking is located off-street. There is one publicly owned parking structure on the OSU campus. On-street parking is allowed in most areas of the central business district. The City of Corvallis completed a Downtown Parking Study in 2002 , and staffs a committee that focuses on downtown parking issues.

Corvallis has established two residential parking districts near the OSU campus to ensure adequate parking for residents in those neighborhoods. Vehicles without permits are limited to parking for two hours in the districts between 8 a.m. and 5 p.m. on weekdays.

The TPR requires that Transportation Plans include policies that would reduce reliance on SOVs. The vitality of many retail businesses relies on the availability of free short-term (four hours or less) parking. It is the availability of free long-term (more than four hours) parking that is the main focus of parking policies. The following parking policies are recommended for adoption by jurisdictions to reduce reliance on SOV without compromising the short-term needs of the business community:

1. Encourage major employers to use incentives that promote greater use of alternative transportation modes by employees, and disincentives for the use of workplace parking.
2. Actively manage the parking supply at public offices to provide parking spaces only to those employees who have no alternatives to driving alone.
3. Give priority to the parking needs of those who carpool or vanpool, while accommodating visitors and the physically disabled.
4. Reduce the number of parking spaces required for new developments.
5. Strengthen requirements for new developments to provide accessibility for public transportation, bicycles and walking.
6. Require new developments to provide for internal circulation of transit, bicycles and pedestrians.
7. Provide incentives for public employees to use public transportation, carpool or vanpool.
8. Set requirements for new developments to provide parking spaces relative to proximity to the central business district. New developments near the central business district would not be required to provide as many parking spaces as new developments on the periphery of the Planning Area.
9. Require new developments to locate buildings near the street and provide parking behind buildings.

10. Position parking in a manner that does not conflict with bicycle and pedestrian access.
11. Encourage shared parking among neighboring businesses.
12. Provide for telecommuting of employees.
13. Provide and promote construction of park and ride lots on the periphery of the Planning Area and adjacent to public transportation routes.
14. Provide a downtown circulator bus with 15-minute headway and shelters.
15. Allow on-street parking, where appropriate and factor that into parking requirements for new developments.

F. Transportation Demand Management

In the last decades, auto trips and vehicle miles traveled have grown at a much faster rate than population. Transportation demand management strategies are designed to curb this trend. The Planning Area cannot build its way out of congestion; there are neither the financial resources nor the willingness to allow the adverse environmental impacts of such a trend. TDM strategies address the demand side of transportation to make more efficient use of the transportation infrastructure.

Specifically, demand management strategies attempt to increase transit ridership, vehicle occupancy (from single-occupancy to multiple-occupancy), walking and bicycling, or to reduce the lengths and volumes of trips. Implementation of demand management strategies reduces dependence on the single-occupant vehicle, thereby reducing traffic congestion, vehicle emissions, and fuel consumption. To accomplish these objectives, TDM programs use incentives and disincentives to effect changes in travel behavior.

In the broadest view, TDM involves providing quality transit, bicycle and pedestrian systems. The details of these facilities are discussed in the sections above. This section will discuss other services and programs that are aimed at encouraging use of alternative modes and reducing single-occupant vehicles (SOV).

1. Existing Program

The City of Corvallis and Oregon Cascades West Council of Governments provide TDM services and programs to residents within and commuters to the Planning Area. Both agencies use grants administered by the State as a funding source for their programs.

The City of Corvallis supports a full-time TDM position that coordinates a multi-pronged program:

- The Corvallis Employment Transportation Coordinators (ETC) group is a regional collective of government and private industry employers who are committed to the idea of improved transportation alternatives. The ETC is coordinated by the City of Corvallis and meets regularly to discuss and coordinate TDM activities.
- Production of public information materials, including an information kiosk available for use at events and promotion of transit and non-motorized modes
- Sponsorship of and participation in public information and promotional events, such as "Get There Another Way Week"
- Assistance to local employers interested in reducing SOV trips and/or implementing employer incentives
- Provision of park & ride sites

Benton County is a participant in the Corvallis ETC and is investigating strategies that might be effective in reducing SOV use by County employees such as a group pass program whereby employees would get a free or reduced cost transit pass as incentive to leave their cars at home.

Oregon Cascades West Council of Governments operates a regional TDM program that serves Benton County. This program has several components:

- The Cascades West Rideshare Program provides free carpool matching
- Support for the Valley Vanpool, a commuter vanpool matching and organizing service that now has five vanpools serving the Planning Area (two serve Corvallis to Salem commuters, one serves Corvallis to Eugene commuters and two serve Eugene to Corvallis commuters). Valley Vanpool incorporates a Guaranteed Ride Home program.
- Assistance to public and private employers to design site-specific programs to reduce SOV trips to work sites (may include employer provided financial or other incentives, employer-specific carpool and vanpool coordination, restructuring of work schedules, etc)
- Public information services to inform and educate the public about transportation options. An element of this component is the website www.cwride.org.
- Advocacy for investments in the transportation system that support the development and use of alternative modes such as transit, rail, and the use of carpools and vanpools.
- Identification and development of park and ride sites

Park and Ride lots are a popular and effective strategy to reduce the number of people driving alone, and can provide layover stops for car/vanpools and in some cases, fixed route transit. There are 12 park & ride lots that serve the Planning Area, 3 formal lots and 9 informal lots. Although most of these sites are not within the Planning Area, they serve those traveling to and from the Area. For example, Corvallis and Philomath residents drive to the I-5/OR 34 lot to catch a ride to Salem or Portland. A resident of Wren may use the site at the intersection of US 20 and OR 228 to commute to Corvallis for employment or to attend school.

Formal lots are located at:

- I-5/OR 34 (between Corvallis and Lebanon)
- Hickory Street (North Albany Road)--this lot will soon be replaced with a new lot on the west side of North Albany Road
- Spicer Drive/I-5 (Albany)

Informal lots are located at:

- Applegate and 11th (Philomath Public Library)
- Rite Aid (9th and Circle, Corvallis)
- 1st and Harrison Street (behind Super 8 Motel in Corvallis)
- 7th and Oak (Lebanon)
- Arboretum Road/OR 99W (Adair Village)
- US 20/OR228 (Wren)
- US 20/OR180 (near Blodgett)
- I-5/Ankeny Hill Road (Jefferson)
- I-5/Exit 238 (near Scio)

2. TDM Program Gaps

Enhancements and expansions to the existing programs are essential for the TDM strategies to be effective and attract additional users.

Ensuring that land use and development patterns support alternative modes is a critical component of an overall approach to reducing SOV and increasing the efficiency of use of the public transportation infrastructure. The techniques include parking standards that are adequate but not inviting SOV use, increasing densities in general and especially along transit routes, encouraging transit-oriented development, mixing uses to shorten trips to make biking and walking more viable, and ensuring developments are designed to invite pedestrian, transit and bicycle access. Other "Smart Growth" techniques should continue to be expanded and refined by the jurisdictions in the Planning Area.

Additional investment in the TDM program itself is also necessary to expand assistance to employers, expand transit and vanpool subsidies, assist commuters in the formation of vanpools and carpools and effectively communicate with the traveling public about transportation options. It may prove beneficial to augment the current TDM program with additional techniques. Research into alternative commuting options consistently points to financial incentives and disincentives as one, if not the most, useful and cost-effective TDM options. Financial incentives/disincentives that may prove effective within the planning area include modifications to parking pricing by employers (currently employers within the Planning Area do not charge employees for parking) and increasing on-street parking meter fees.

TDM strategies are not a final solution to traffic congestion and its resulting problems (lost time, wasted fuel, etc.). When considered individually, the impacts of most TDM strategies appear modest, affecting just a few percent of total vehicle travel. However, their effects are cumulative and synergetic. A comprehensive TDM program that includes an appropriate combination of complementary strategies can have significant impacts and is often the most cost effective solution to common transportation problems when all costs and benefits are considered. If TDM strategies are implemented in just one small location, the effects to overall regional travel may be fairly negligible, but if TDM strategies are in operation in a broader region, significant reductions in single-occupant automobiles can happen.

G. Air Facilities

1. Public Air Facilities

Corvallis Municipal Airport Property

The Corvallis Municipal Airport is a Federal Aviation Administration (FAA) designated Group C General Aviation Airport that is located approximately four miles south of downtown Corvallis in the southern portion of the Planning Area. Roadway access to the Corvallis Municipal Airport from the north and south is provided via OR 99W and Airport Avenue. Access from the west is via Airport Avenue.

The airport is open to the public, and currently handles all types of aviation except fixed-route air transportation. At this time, commercial airline passengers are served by Mahlon-Sweet Field in Eugene, (approximately 30 miles south), and Portland International Airport in Portland, (approximately 80 miles north).

The Corvallis Municipal Airport currently has one fixed-base operator. Corvallis Aero Services, Inc., which has been in business since 1982 and provides fuel (BP avgas and jet A), maintenance services, overnight hangar parking, auto rental arrangements, and flight training services (ground school, pilot supplies, testing center, aircraft rental, and flight instruction specializing in helicopter training). The airport has five Special Aviation Services Operations: Helicopter Transport Services, Inc. is home-based at the Corvallis Municipal Airport and provides air crane and fire-fighting services, Frontier Flight Service is a flight training facility specializing in training of Japanese students, REACH Air Medical Service, which is an air ambulance helicopter service, and two private T-hangar groups.

Access to Corvallis Municipal Airport on Airport Road

The airport averages 100,000 operations per year, with 142 aircraft based at the field. Approximately 77 percent of the operations are local general aviation, 14 percent are transient general aviation, 7 percent are commercial, 2 percent are military, and less than 1 percent is air taxi. Of the 142 aircraft based on the field, 115 are single-engine airplanes, 6 are multi-engine airplanes, 2 are jet airplanes, and 11 are helicopters.

There are two asphalt runways, and both are in good condition. Runway 17/35 is 5,900 feet long by 150 feet wide and has the following weight limits: 60,000 lbs for single-wheel, 100,000 lbs for double-wheel, and 150,000 lbs for double-tandem aircraft. Runway 9/27 is 3,345 feet long by 75 feet wide and has the following weight limits: 51,000 lbs for single-wheel, 65,000 lbs for double-wheel, and 100,000 lbs for double-tandem aircraft. The airport provides 102 T-hangar spaces and 46 tie-downs.

The City of Corvallis Public Works Department manages the airport. The facility's operations are fully self-funded, with revenue sources that include land and building rents, tie-down and T-hangar rents, fuel sales, and sales of grass seed from airport-owned acreage. Improvements made

by the City include utility systems, aircraft T-hangar storage, lighting, navigational aids, and runway and taxiway improvements.

The *Corvallis Municipal Airport Master Plan* (2003) calls for greater development of the commercial services at the airport. The plan also states that the airport will continue to provide for private and corporate aircraft and will maintain facilities for air-freight carrier service. Air-freight providers in the Planning Area, such as Federal Express, and United Parcel Service use the Corvallis Municipal Airport.

Benton County has adopted an airport overlay zone to protect the airport's viability. The plan seeks a higher level of development, which would increase air and roadway traffic in the future.

The Corvallis Municipal Airport Master Plan includes recommendations for extending runway 17/35 to north and south by 1050 ft. and replacing the existing hangar area with a new terminal building. The Metropolitan Transportation Plan adopts the recommendations of the Corvallis Municipal Airport Master Plan, as revised in 2003.

2. Private Air Facilities

There are two private air facilities located within the Planning Area:

Table VI-5: Private Air Facilities in the Planning Area

Airport Name	Use	Number of Aircraft Based at Facility	Location
Dunning Vineyards	Private; permission required prior to landing	1	3 miles north of downtown Corvallis
Good Samaritan Hospital Heliport	Private; medical and air ambulance use	Heliport usage	South of Elks Drive in Corvallis

Source: www.airnav.com.

The Flying Tom Airport, which has two aircraft based at the field, is located just outside Planning Area boundaries to the east of OR 99W and just south of Adair Village. The Joyner Airport, which has one aircraft based at the field, is located on Granger Avenue, just east of the Planning Area. The Winn Airport has three aircraft based at the field, and is located just east of the Planning Area and north of Garden Avenue.

H. Rail System

1. Freight Rail

Rail in Corvallis

Portland & Western Railroad (P&WR) provides rail service within the Planning Area. This short-line railroad is one of a number of wholly owned subsidiaries of Genessee & Wyoming, Inc., a leading operator of regional railroads, switching services and rail car leasing based in Greenwich, Connecticut. The rail lines connect with the P&WR line in Newberg, which then heads to Portland.

The P&WR operates two short-line rail tracks within the Planning Area:

- **Westside Branch.** This route runs south from Yamhill County through Corvallis to Monroe, parallel with OR 99W. The line turns east just south of Adair Village, so that in that area the rail line is located just east of the Planning Area boundary. The line runs through downtown Corvallis. Within the Planning Area the line is classified as Class 2 track and Excepted Track south of Corvallis. The classifications relate to the maximum operating speed allowed on the track. Freight trains operating on Class 2 track are limited to a maximum of 25 mph and passenger trains may not exceed 30 mph. Operations on Excepted Track are limited to a maximum of 10 mph and no passengers or hazardous materials can be carried on this type of track.

- **Toledo Branch.** This route runs 75.4 miles between Albany and Toledo, and through central Corvallis and central Philomath. The track is owned by the Union Pacific Railroad, but P&WR leases the rights to the track. This branch serves the Georgia Pacific paper mill in Toledo, which is P&WR's largest single customer. P&WR has a road-switcher in Corvallis.

Rail Freight in the Planning Area

- The portion of the line from Albany to Corvallis (12 miles) is Class 3 track (maximum 40 mph for freight and 60 mph for passengers) that consists primarily of heavy rail, and carries the heaviest rail traffic on the P&WR system. At Albany, the line crosses the Willamette River on a 140-foot through-truss span. The timber trestle portion is in need of repair. Between Corvallis and Toledo (63.4 miles) the line is generally Class 2. Issues along this segment of the line include poor drainage in some areas, steep grades, and a tunnel with limited clearance. Another issue is the interaction between trains and vehicles at the numerous at-grade crossings in the Planning Area.

- The line carries approximately one million gross tons of freight per year. According to ODOT, the primary commodities trafficked through the Planning Area include: wood chips, scrap paper, brown rolled paper (pulp board), logs, dimensioned lumber, feed pellets, feed grains, fertilizer, dairy feed (cottonseed meal), wheat, oats, grass seed, newsprint, scrap iron and steel, finished steel, and treated utility poles.

The recent *Toledo Sweet Home Rail Corridor Feasibility Study* (2005), examined the potential of the railway corridor to support future economic development. That study found that the rail system in the Planning Area is generally underused for freight purposes.

2. Passenger Rail

There is no passenger rail service within the Planning Area. The nearest Amtrak train station is located in Albany, approximately 11 miles from Corvallis. Amtrak (Amtrak Cascades and Coast Starlight services) stops in Albany, and travels both north to Vancouver, British Columbia, and south to San Diego, California (Coast Starlight train only). Local Amtrak officials classify the level of passenger demand at the Albany station as moderate (not at full capacity). Current track conditions in the Planning Area limit maximum passenger train speed to 30 to 60 mph north and east of Corvallis and preclude service in Corvallis. Special excursion trains, on rare occasion, travel roundtrip to the Oregon coast or from the north or south through the Planning Area.

The *Benton County Comprehensive Plan* (2001) recommends that the region consider tying into a Willamette Valley commuter line at some point in the future. Passenger rail service to Corvallis is discussed as an option in the *Oregon State Rail Plan* (2001).

3. At-Grade Rail Crossings

Most of the rail crossings in the Planning Area are at-grade. These crossings can cause conflicts between trains and vehicles, pedestrians, and bicyclists, as well as delays for roadway users, especially during peak traffic periods. These conflicts are most noticeable, where both north-south and east-west rail lines are located. At-grade rail crossing locations on classified arterials and collectors are shown on Map VI-11.

One of the many rail crossings in the Planning Area (Corvallis)

I. Waterways and Pipelines

1. Waterways

The Willamette River and Marys River are the only significant navigable waterways within Planning Area boundaries. The Willamette River is located at the eastern edge of the Planning Area. Within the Planning Area the Willamette is primarily used for active and passive recreational opportunities, and is not used for commerce. According to the 2001 *Benton County Transportation System Plan*, stationary bridge crossings in Corvallis and Albany cap the height and width of vessels able to utilize the river, and the viability of the Willamette River as a transportation link is limited. This piece of the Willamette River is maintained by the Army Corps of Engineers.

The Marys River is located in the southern portion of the Planning Area. The Marys is not seen as a viable option for transportation services, particularly given the depth constraints near the confluence with the Willamette River in the southeastern portion of the Planning Area.

2. Pipelines

No significant through-transmission, oil or gas pipelines exist within Planning Area boundaries. Transmission lines for electricity, telephone, cable, and internet service exist throughout the Planning Area. Electric transmission lines are located in the northern portion of the Planning Area. Water pipelines convey water from the City of Corvallis' watershed on Marys Peak to the City's water system. There are no known capacity constraints for pipeline or transmission line service within Planning Area boundaries.

J. Existing Transportation and Related Plans

Consistent with Oregon's Statewide Planning Goals and the State's Transportation Planning Rule, local jurisdictions have developed a number of land use and transportation-related plans. The regional transportation planning process included review of these documents. The *Regional Transportation Plan* drew from these plans elements relevant to the regional transportation system. Table VI-6 compares three of the most relevant plans, the local transportation system plans. More detail on all of the plans can be found in Appendix E.

Table VI-6
Comparative Analysis of Corvallis Urbanized Area's Existing TSPs

	Benton County Transportation System Plan	**Corvallis Transportation Plan**	**Philomath Transportation System Plan**
Status	Adopted in 2001	Adopted in 1996	Adopted in 1999
1. Vision	Preserve, protect and promote sustainability, livability and economic vitality by: a. Providing choices of alternative modes b. Maximizing efficiency of existing system c. Intertwining quality of life, and use and transportation decision-making.	▪ Preserve the natural environment ▪ Access and connectivity to all ▪ Promote economic vitality ▪ Enhance neighborhood livability	The Plan was developed primarily to address the issue of Hwy 20/34
2. Transportation Policies/Goals	▪ Provide for mobility, circulation, and safety ▪ Maximize cost effectiveness and funding mechanisms ▪ Preserve natural resources/rural characteristics and neighborhoods ▪ Provide for economic development through improvement of rail and air transportation and through affordable ground transportation to regional terminals ▪ Develop plans and projects in compliance with OHA and in coordination with ODOT ▪ Consider circulation, safety and mobility in land use decisions.	1. Contribute to community livability, respect natural features, minimize negative effects 2. Reduce congestion, facilitate safe and efficient movement of people & goods 3. Develop and promote alternative systems of transportation 4. Give considerations to needs of people with limited choice 5. Give considerations to energy efficient transportation modes 6. Adopt/update periodically a long range transportation plan 7. Establish a capital improvement program for the transportation system 8. Consider the gateway role of the state highways to Corvallis 9. Give special consideration to beautification of gateways 10. Review development proposals to ensure continuity of sidewalks, trails, bike paths and ped ways. 11. Establish trails in addition to roads 12. Insure consistency of transportation with land use plan 13. Maintain a uniform construction standards to accommodate all modes 14. Coordinate and collaborate with ODOT in highway planning and construction	1. Relieve traffic congestion of Hwy 20/34 2. Improve traffic circulation and safety 3. Promote use of alternative modes 4. Develop a master plan for street layout 5. Remove through traffic from downtown and neighborhoods 6. Integrate transportation system with other land use decisions

	Benton County Transportation System Plan	**Corvallis Transportation Plan**	**Philomath Transportation System Plan**
3. Land Use/ Transportation Coordination	Inform transportation agencies of: ▪ Land use applications requiring public hearing ▪ Applications for private access ▪ Applications within the airport noise corridor or affecting air port operation	1. Provide bike parking in new developments 2. Provide bike & ped access to new developments 3. Ensure transit friendly designs	▪ Advocates narrower streets ▪ Calls for amendment of Comp Plan and Zoning code to insure consistency with the TSP
4. Roadways Recommended	Improve: ▪ US 20, Conifer-N. Albany Rd. ▪ US 20/Hwy34, 99W-US 20, Junction ▪ US 20, Junction –Woods Creek ▪ 99W, Walnut- WPRR ▪ 99W, Rivergreen Av.–Airport Av. ▪ Van Buren Bridge (Replace) ▪ Airport Road ▪ Various intersection improvements (geometrics and signals)	▪ Improve Hwy 99W ▪ Improve Hwy 20 ▪ Improve Hwy 20/34 ▪ Widen US 20/OR 34 in Corvallis ▪ Provide ramps between OR 99W and US 20/OR 34 ▪ Improve bypass/OR 34 interchange ▪ Construct two lanes of the northern leg of the bypass ▪ Widen US 20 ▪ Widen south leg of the Bypass ▪ Replace Van Buren Bridge ▪ Extend Circle Dr. to connect to Harrison Blvd. ▪ Extend Kings Blvd. to Lewisburg Road ▪ Widen Highland Drive ▪ Widen Lewisburg Road ▪ New east-west and north-south collector road ▪ Widen OR 99W to four lanes ▪ Extend Satinwood Dr ▪ Widen 53rd Street	▪ Install traffic lights ▪ Improve Grange Hall Rd. Bridge ▪ Improve truck route ▪ Manage access ▪ Extend Newton St. to 26th St. ▪ Overlay streets ▪ Improve street signing ▪ Widen intersections along College Street and Applegate ▪ Consider one way traffic on Hwy20/34 ▪ Extend Applegate Street over Newton Creek.
5. Alternative Modes	▪ Provide satellite park & ride lots ▪ Provide shuttle service between Monroe, Lewisburg and Adair Village ▪ Run express Bus, Philomath–Albany ▪ Expand Corvallis Transit System ▪ Expand County Cruiser Service ▪ Continue Valley Retriever Service ▪ Continue Rural Rounds Service ▪ Continue Linn-Benton Loop	Includes extensive; ▪ Bikeway improvement plan ▪ Transit development plan ▪ Sidewalk/walkway improvement plan	Includes: ▪ Pedestrian System Plan ▪ Bicycle System Plan ▪ Travel Demand Management Plan ▪ Public Transportation Plan
6. Air, Rail and Pipes	▪ Minimize rail and auto conflict ▪ Provide for safe RR crossing ▪ Discourage development around RR tracks ▪ Plan for a commuter rail between Albany and Philomath	▪ Adopts the Corvallis Airport Master Plan, Airport Land Disposition Policy and the Airport Industrial Park Development Plan ▪ Advocates rail services for freight and passengers & intermodal connections	Extend a spur from W&P RR to Georgia Pacific

VII. Transportation System Alternatives

The intent of every transportation plan is to sketch a route from where the community is currently (existing conditions) to its desired conditions in the future (vision and goals). Previous sections of this document defined the vision and goals of the Corvallis Metropolitan Planning Area for its future transportation system, provided a description of the existing transportation system and identified its possible shortcomings. This section includes a description of the plausible alternative approaches for achieving the vision and goals, a description of the Travel Demand Forecasting Model that was used to analyze the alternative approaches, and the results of that analysis. Throughout this section the alternative approaches are referred to as "transportation system alternatives."

A. Overview of Alternatives

The two major components of a transportation system are travel demand and the supply of transportation services and facilities. The intent of each plan is to respond to the existing and anticipated demand in a manner and to the degree defined by the Plan's Vision and Goals. Traditional transportation system plans often focus on the supply side of the transportation system by expanding transportation facilities and services to achieve their desired transportation system. Successful transportation system plans, in recent years, have increasingly realized and addressed the role that land use decisions play in affecting travel behavior and the interconnectivity of land use and transportation systems.

Five alternatives were considered as logical approaches to achieve the Plan's Vision and Goals. The alternatives are:

1. No-Build (sometimes referred to as Status Quo)
2. Transportation Demand Management Emphasis
3. Transportation Capacity Enhancement Emphasis
4. Land Use Management Emphasis
5. Multi-Prong Approach

Following the broad description of alternatives, there is a description of the specific assumptions that were entered into the Corvallis Area Travel Demand Model for quantitative analyses.

1. No-Build Alternative

The No-Build Alternative is sometimes referred to as the status quo alternative. In this scenario the Planning Area will experience its projected growth in population and employment and the demand for transportation facilities and services will increase accordingly. The cities and the county public works departments will continue the annual routine repair and maintenances that they currently provide. However, no new major roadway or transit improvement projects will be implemented. The existing roadway network will be expected to handle the increased traffic. The transit system will maintain its current service level and will not extend its service to the newly developed areas. This approach will also be applied to the improvement of traffic operations, or

development of a state-of-the-art traffic control center. Therefore, the capital improvement cost of this scenario is assumed to be zero and it is used as the comparison basis for other scenarios.

2. Transportation Demand Management Alternative

Transportation Demand Management (TDM) is based on the concept that the supply side of transportation cannot continue expanding to meet the demand, especially when resources are scarce. Therefore, strategies to reduce the need for trips, particularly single occupancy vehicular trips, are preferred to those that expand transportation capacity. This alternative relies heavily on more efficient use of existing transportation resources and avoids implementation of major capacity expansion projects, such as construction of new arterials. Strategies within this framework may include a combination of measures described below:

a. Transportation System Management (TSM)

The premise of Transportation System Management is that the existing transportation system capacity is adequate to accommodate future transportation demands, provided that the system is maintained and preserved carefully and its efficiency is maximized. Some of the most widely used TSM strategies are:

- ***Operation Improvements***

Synchronization of consecutive traffic lights, reconfiguration and geometric modification of intersections and facilitating the movement of buses are examples of changes that improve flow of traffic and reduce travel time.

- ***Intelligent Transportation System (ITS)***

ITS is the application of modern technologies to improve traffic flow, safety and communication. Examples of ITS are deployment of traffic monitoring cameras and remote management of green time at intersections, advanced roadway information on roadway conditions, delays and guidance to alternative route, and incident management.

- ***Congestion Management***

Includes improvements to reduce traffic congestion, mostly during peak hours, such as working with major employers to allow flex time, staggered working hours and/or, telecommuting. Congestion management generally includes other techniques such as traffic operation improvements described above and preferential treatment of buses or other pooling vehicles.

- ***Access Management***

Access management is an effective way of enhancing roadway capacity. This requires adoption of policies that limit the number of accesses for each class of roadway coupled with combining several adjacent accesses into a single driveway, purchasing property access rights and the construction of access roads and fringe roads.

- ***Parking Policies***

Parking policies that charge the true cost of parking, reduce the availability of long term parking lots in the core urban area, and favor the use of alternative modes of transportation can be an effective disincentive to driving.

- ***Travel Demand Reduction (TDR)***

TDR includes restrictive techniques aimed at reducing travel demands in urban areas. Successful implementation of these techniques generally requires the adoption and enforcement of stringent municipal policies, such as:

- **Employer Trip Reduction Programs**

Encourages major employers, possibly by providing incentives and disincentives, to reduce the number of auto trips to and from the place of employment. The employer, in return, provides incentives for the use of alternative modes of transportation and may provide disincentives for the use of single occupancy vehicles by its employees. A similar measure could curb student driving to schools.

- **Adoption of Travel Reduction Ordinances (TROs)**

The city or the county adopts an ordinance requiring all major employers to reduce the number of single occupancy vehicles generated. The ordinance generally requires trip reduction by a certain percentage over a period of time.

- **Implementation of Exaction Fees/User Fees**

Requires paying per mile or a fixed usage fee for driving a personal vehicle. The most common form of this levy is the federal and state gasoline tax paid at gas stations.

b. Travel Demand Management

Strategies to manage travel demand in more efficient ways include:

- ***Transit Improvements***

The most common form of TSM is investment in the transit system in an effort to reduce travel demand by shifting trips from single occupancy vehicles to public transit. It requires expansion of the transit system by adding new routes and increasing frequency and the overall quality of transit service. A vital transit service requires high-density land use and a steady source of local funding, in addition to the federal and state funds.

- ***Incentives for Use of Alternative Modes of Transportation***

This includes enhancing transit service, enhancing pedestrian and bikeway facilities, improving carpooling and vanpooling, free downtown shuttles and encouraging telecommuting.

- ***Provision of Bike and Pedestrian Facilities***

A rich and well-connected network of bikeways and walkways can reduce the number of vehicular trips and vehicle miles of travel. Studies have found a direct relationship between the construction of bikeway facilities and the increase in bicycle use. Other studies support that increase in bicycle use reduces the number of auto trips. Rietveld and Daniel (2004) found that the use of bicycle transportation increases in cities where cycling is relatively easier (fewer hindrances along cycling routes) and safer.

- ***Disincentives for Use of Single Occupancy Vehicles***

Policies to restrict the use of parking, particularly, long term parking; preferential treatment of carpooling and vanpooling vehicles, levying exaction and usage fees and higher levels of traffic congestion act as disincentives to SOV use.

- ***Park and Ride Facilities***

An effective way of managing travel demand is the development of park and ride facilities in the fringe of the urban area. Park and Ride lots provide opportunities for commuters to park their vehicle and share the ride for the main portion of their trip either in public transit or by carpooling and vanpooling.

3. Transportation Capacity Enhancement Alternative

In this scenario investments are directed to enhance the supply of transportation facilities and services, mainly through increasing the capacity of roadways. Additional transportation infrastructure will be provided to address the growing transportation needs of the area. The 2000 US Census indicates that more than 85 percent of all trips in the nation are by a single occupancy vehicle. Similarly, today in the Planning Area, the automobile is the predominant mode for a great majority of trips. No drastic reduction in the use of the automobile can be reasonably anticipated in the near future. Increasing the supply of transportation facilities also includes the enhancement of the transit system as well as the rail system. Included in this alternative are:

a. Roadway Expansion

Roadway expansion includes construction of new roadways or the widening of the existing roadways. In either form it provides additional capacity for almost all modes of transportation, as roads are used not only by the automobile but also by transit, bikes, pedestrians and freight. Roadway expansion is a direct response to mitigate roadway congestion. Increasing capacity reduces the ratio of vehicles to the capacity on a roadway (V/C Ratio) and thus improves the Level of Service (LOS).

b. Roadway Extension

Roadway extension is extending an existing roadway to a logical terminus point. It disperses traffic and in some cases provides additional connectivity resulting in reduced VMT.

c. Intersection Capacity Improvements

Intersection capacity improvement is generally adding another lane to the existing configuration of the intersection. In most cases, adding an exclusive left turn or right turn lane significantly reduces congestion. Intersection capacity improvement is an efficient way of reducing travel time.

d. Transit Expansion

Transit expansion includes operating new bus routes, increasing frequency of bus service and extending bus routes. Although the results of transit expansion are drastically different from the results of roadway expansion, both are investments on the supply side of transportation.

e. Rail Expansion

The railroad plays a significant role in the movement of freight through the Planning Area. Any improvements to the railroad system would help reduce demand for additional roadway capacity.

4. Land Use Management Alternative

In recent years the effectiveness of coordinating land use and transportation decisions as a means of reducing travel demand has been increasingly realized. In this scenario a substantial amount of transportation need will be addressed through better management of land use patterns and urban design. This concept is referred to by a variety of names such as *Neo Traditionalism, New Urbanism, Smart Growth Design, Livable Community,* or *Sustainable Community* In the core of this concept is an urban design that hearkens back to more-traditional neighborhoods before the automobile dominated the American urban landscape. The design aims at preventing urban sprawl and reducing travel demands. The most effective form of this alternative is the one that is supplemented by Transportation Demand Management techniques. Generally, land use management techniques are applied to future developments in urban area as they occur, and as such, the realization of its benefits is gradual.

While there is a broad array of strategies that could be part of a land use management alternative, the following were selected as most appropriate, given the characteristics of the Planning Area:

a. Increase Residential Density

Higher residential densities reduce demand for infrastructures and particularly transportation facilities. Studies show that a vital transit system requires urban density of 8-10 residential units per acre.

b. Grid Street System

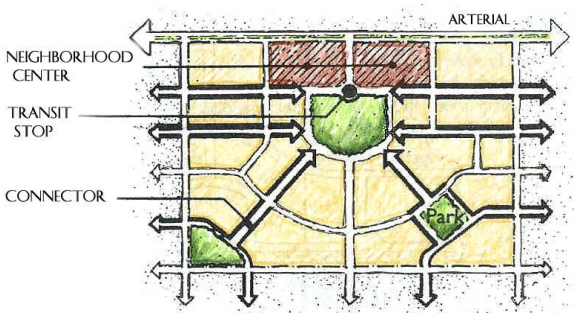
An interconnected grid street system provides many routes to a single destination. Therefore, it provides a higher level of intra urban connectivity and disperses traffic. It also facilitates walking and bicycling. In contrast, a suburban pattern of winding streets with cul-de-sacs increases VMT and travel time.

c. Mixed Use Developments

Prevailing land use practice segregates residential areas and employment centers, which increases the need for vehicular trips and travel time. A higher level of accessibility is provided in mixed use developments whereby the jobs, shops and residences are within walking or biking distance of each other, or even within the same building or building complex.

d. Transit-Oriented Development (TOD)

A TOD is a land use development around a transit center designed to increase the use of alternative modes of transportation, particularly the use of public transportation. The development generally includes a regional node containing a mixture of uses in close proximity to residences. It is a compact urban development with a network of sidewalks and bikeways that reduces the need for the use of single occupancy vehicles. Transit Oriented Development generally requires at least six residential units per acre in residential areas and 25 employees per acre in commercial centers.



e. Neighborhood Centers

Neighborhood centers are compact developments with relatively high density that include commercial, retail, restaurant and possibly office uses in the core and a mixture of housing around the core. The development features a rich network of walkway and bikeway facilities.

5. Multi-Prong Alternative

This approach was developed subsequent to the evaluation of the other alternatives. It is based on the assumption that none of the above alternatives can singularly address the multifaceted transportation needs of the Planning Area. The diverse life styles and land use pattern of the area require diverse solutions to its transportation needs. As such, a multi-prong approach employing an appropriate share of each alternative was formulated to be closely aligned with this plan's goals. The Multi-prong Approach includes a combination of:

- Transportation Demand Management strategies.
- Land Use Management and policies to coordinate transportation and land use decisions
- Capacity Expansion projects on arterials and collectors to respond to the demand.

B. Transportation System Alternatives Assumptions and Projects

This section describes transportation improvement projects, activities, policies and techniques that were assumed under each Transportation System Alternative for the purpose of evaluation. These projects and assumptions are only to form a hypothetical transportation system scenario and are not recommendations of the Plan. Each Transportation System Alternative includes short term (2010 Network), intermediate term (2020 Network) and long-term (2030 Network) improvement projects and activities. Tables VII-1 and VII-2 show the projects and activities in a matrix format for each alternative. It also indicates whether the assumption is related to the short-term, intermediate, or long-term network.

1. No-Build Alternative

Although the No-Build Alternative does not include any new improvement project, there are a few projects in the FY2006-2009 Corvallis Area MPO Transportation Improvement Program and

the Statewide Transportation Improvement Program for which funding has been secured. These projects will be implemented over the next 3-4 years. Also, the No-Build Alternative assumes that additional streets and roads will be extended with funds from developments as developments occur.

2. Transportation Demand Management (TDM) Alternative

Assumptions for the TDM alternative includes mainly transit improvement projects; park and ride lots and program enhancements aimed at reducing reliance on single occupancy vehicles.

3. Transportation Capacity Expansion Alternative

The Capacity Expansion Alternative network includes mainly roadway projects, as well as some transit projects. The roadway projects for this alternative were derived from the local Transportation System Plans (TSPs).

4. Land Use Management Alternative

The assumptions for the Land Use Management Alternative include several policies and municipal requirements that could reasonably be adopted and implemented by the local governments from now until 2030. To quantify the impacts of land use management alternative, the following assumptions were made:

- The built area will not be retrofitted. New land use policies will be applied only to the future residential developments.

- Current zoning designations will mainly be maintained. Current zoning was used to determine the amount of vacant land available for residential development.

- The land use management policies will be applied to new residential areas that are of adequate size and are conducive to the implementation of all aspects of land use management techniques.

- Only 50 percent or 3,187 of the projected 6,374 new residential units will be part of a mixed use and/or high-density development with access to alternative modes of transportation.

- Transportation Demand Management measures will be vigorously pursued.

- The combination of all land use policies (mixed use, high density, access to transit, etc.) and TDM measures will reduce travel demand by 15 percent in the newly developed residential areas.

5. Multi-prong Alternative

The assumed projects and activities for the Multi-prong Alternative are a combination of projects and activities from all of the other alternatives.

Table VII-1: Roadway Projects Assumed to Occur Under Each Alternative

	No-build (Committed projects)	TDM	Capacity Expansion	Land Use Mgmt	Multi-prong
Roadway System Projects					
US 20: Philomath Couplet - Convert Applegate and Main Streets to one way east bound and west bound, respectively, with a westbound connection between the existing highway and College Street, expand Main Street to five lanes from Newton Creek to 15th Street	2010	2010	2010	2010	2010
Reservoir Road - 53rd Street to one third of a mile west – Improve with sidewalk and bikeway.	2010	2010	2010	2010	2010
19th Street - OR 34 to Chapel Street – Adding bike lanes and turn lanes.	2010	2010	2010	2010	2010
53rd Street - Railroad Overpass – Eliminate the railroad overpass, realign intercepting roadways.	2010	2010	2010	2010	2010
53rd Street - US 20/OR 34 to Country Club Road – Adding bike lanes and turn lanes at intersections	2010	2010	2010	2010	2010
Circle Blvd. at 9th Street – add right-turn lane eastbound to 9th Street			2010		
35th Street, US 20/OR 34 to Orchard – widen, realign and add bike lanes (partially completed)			2010		2010
53rd Street and Philomath Blvd. (US 20/OR 34) intersection – add turning lane					2010
College Street, 20th Street to 12th Street - widen with intersection curb extensions, bike paths and sidewalks (Done)			2010		
Applegate Street, 20th Street to 15th Street – widen with intersection curb extensions, bike paths and sidewalks			2010		
Applegate Street, between 23rd Street and 24th Street – extend over Newton Creek (Done)			2010		
South 19th Street, College Street to Chapel Drive – add bike lanes 'signed and striped'			2010		
Circle Boulevard – Extend Circle Boulevard to Harrison Boulevard		2020	2020		2020
Kings Boulevard – Extend to NW James Avenue		2020	2020		
Kings Boulevard – Extend to Lester Avenue	2010				2010
NW James Avenue – Extend from new Kings Boulevard extension to OR 99W		2020	2020		
Van Buren Avenue Bridge – replace Van Buren Bridge (preliminary engineering)					2010
Van Buren Avenue Bridge – replace Van Buren Bridge			2020		2020
OR 99W, Rivergreen Avenue to Airport – widen Hwy 99 from 2 lanes to 4 with left turn lanes at major intersections to 500 ft. south of Airport			2020		
Country Club Dr, Barley Hill Dr. to Hwy 20/34 - widen to provide 6-foot multi-use paths in each direction.			2020		
Country Club Dr, Barley Hill Dr. to Hwy 20/34 – widen to add bike lanes, sidewalks, improve alignment					2020
Crystal Lake Dr. - widen and reconstruct street to standard with bike lane			2020		2020
Reservoir Road/ SW 53rd St. – install traffic signal, construct at-grade rail crossing - same number of lanes; same as existing speed limits			2020		
Airport Ave. Improvement – improve to urban standard			2020		
Airport Ave., OR 99W to Airport Place – upgrade to urban standards					2020
Independence US 20 – install traffic signal			2020		
Junction US 20 at OR 34 – install traffic signal			2020		
US 20/OR 34 at OR 99W – reconstruct to increase turning radii, add sidewalk, etc			2020		
West Hills Rd. at 53rd St. – install traffic signal			2020		
US 20/OR 34, Newton Creek to 53rd Street - reconstruct to four lanes with left-turn refuges and bike lanes			2020		
US 20/OR 34, Newton Creek to 53rd Street – complete final design, acquire ROW (preliminary engineering only)					2020
US 20, 53rd Street to Western Boulevard - widen			2020		
OR 99W, railroad overcrossing to north of Lewisburg Rd. - widen to four lanes with left turn refuges			2020		
OR 99W, railroad overcrossing to Circle Blvd. - widen to four lanes with left turn refuges					2020
US 20/OR 34, 53rd Street to Western - complete final design and acquire right-of-way					2020
US 20/OR 34, Western Blvd. to OR 99W - widen to four lanes with left turn refuges			2020		
US 20/OR 34 and OR 99W interchange - provide ramps for south to west and west to south movements. – Two lanes each			2020		
US 20 at Western Boulevard – install traffic signal			2020		
OR 99W at either Goodnight or Rivergreen Avenue – install traffic signal			2020		
OR 99W at both Goodnight and Rivergreen Avenue – install traffic signal when warranted					2020
Country Club Dr., 35th to 53rd – widen to add bike lanes sidewalks, improve alignment			2020		2020
West Hills Road, 35th Street /Western Boulevard to 53rd Street – widen to add bike lanes			2020		
West Hills Road, 35th Street /Western Boulevard to 53rd Street – enhance to urban standards					2020
Grant Avenue, Highland to 9th Street – widen to add bike lanes sidewalks, improve alignment			2020		2020
Crystal Lake, Alexander to Park – widen to add bike lanes sidewalks, improve alignment			2020		
Buchanan at 9th Street– construct left turn lanes on Buchanan			2020		2020
Witham Hill Dr., Grant Avenue to Walnut Blvd – widen/improve bike lanes			2020		2020
Plumley Street, - extend Plumley from Airport Ave to extension of Rivergreen			2020		2020
Newton Street, between dead end and 26th Street – extend to 26th Street			2020		

College/Main/Applegate Streets – construct Phase II of the Philomath Couplet with additional capacity, include bike lanes			2020		
Main Street at 9th Street – install traffic signal			2020		
13th Street, Chapel Drive to Main Street – improve for truck route with bike lane			2020		
13th Street, Chapel Drive to Main Street – reconstruct to urban standards to accommodate truck traffic, add bike lanes, "signed and striped."					2020
Chapel Drive, Bellfountain Road to 13th Street - add 6 foot multi-use paths			2020		
Chapel Drive, Bellfountain Road to 13th Street – upgrade to urban standards					2030
South 13th Street, Main Street to Chapel Drive – add bike lanes 'signed and striped'			2020		
US 20, Conifer Avenue to N. Albany Road – widen US 20 from 2 lanes to 4 lanes			2030		
US 20/OR 34, between OR 99W and US 20/OR 34 junction – add two more lanes			2030		
US 20, US 20/OR 34 junction to Woods Creek Road – widen to provide continuous left turn lane on US 20			2030		
OR 99W between railroad over crossing and Walnut Blvd. – widen Highway OR 99W to 4 lanes with left turn lanes at Circle Blvd. and Walnut Blvd.			2030		
Arnold Avenue and OR 99W – install traffic signal			2030		
Chapel Dr. between 19th St. and Bellfountain Rd. – widen this rural section to provide 6-foot multi-use paths in each direction.			2030		
US 20, Circle Blvd. to Albany - widen to four lanes with left turn refuges			2030		
19th St. between US 20/OR 34 and Chapel Dr. – urban section with 6-foot bike lanes in each direction			2030		
Bellfountain Rd. between Airport Rd. and Greenberry Rd. - widen this rural section to provide 6-foot multi-use paths in each direction and extend the existing county bikeway system to Invale Elementary School			2030		
Granger Ave.: Pettibone to US 20 - Widen this rural section to provide 6-foot multi-use paths in each direction and extend the existing county bikeway system to US 20.			2030		
West Hills Road at Reservoir Rd. – install traffic signal			2030		
Harrison Blvd., Kings to 36th, widen (has been partially completed)			2030		
Harrison Blvd., 29th to 36th, - widen to add bike lanes and urban section.					2030
Brooklane Dr., Chintimini to US 20/OR 34 – widen to add bike lanes sidewalks, improve alignment			2030		
Brooklane Dr., Chintimini to US 20/OR 34 – reconstruct and realignment, bring to urban standards					2030
Ponderosa Ave, Glenridge to Skyline – widen to add bike lanes sidewalks, improve alignment			2030		
Alexander from 3rd to Crystal Lake – widen to add bike lanes, sidewalks, improve alignment			2030		2030
OR 99W at Kiger Island Drive – install traffic signal			2030		2030
53rd Street, Philomath Blvd to Nash – widen			2030		
US 20, Downtown Corvallis to Circle Boulevard – widen to 4 lanes			2030		
Circle Boulevard, Hewlett-Packard campus to US 20 – widen to 4 lanes			2030		2030
Clemens Mill Road - relocate road across from 26th Street (Clemens Mill Rd. and 26th Street and Hwy 20/34 to improve access)			2030		2030
US 20 at Highway 34 – install traffic signal			2030		2030
Main Street at 26th Street – install traffic signal			2030		2030
West Hills Road, Wyatt Lane to N. 19th Street – add bike lanes 'signed and striped'			2030		2030
Lester Ave. – extend to OR 99W					2030
Satinwood Drive – extend to Lester Ave.					2030

Table VII-2: Transit, TDM and Land Use Management Projects, Activities and Policies Assumed to Occur Under Each Alternative

	No-build (Committed projects)	TDM	Capacity Expansion	Land Use Mgmt	Multi-prong
Transit Improvements					
Purchase/replace 2 buses[1]	•				
The number of buses will increase from 8 to 12.		2010			
The number of buses will increase from 8 to 11.					2010
The number of buses will increase from 11 to 15.					2020
The number of buses will increase from 15 to 18.					2030
Increase the number of buses from 12 to 20		2020			
Construct a new bus maintenance and operation facility					2010
Route Expansions: o Route #3 will be modified to serve Technology Loop and Research Way. o Route #7 will be expanded to serve the Hewlett-Packard campus. o Route #4 will be modified to serve the hospitals and northeast Corvallis. o Route #2 will be modified to serve 9th Street and the hospital. o Route #8 will be modified to serve south Corvallis and OSU. Routes #1, #5, and #6 that CTS current operate will not be modified		2010	2010		
Modify transit routes regularly to serve the highest number of passengers.					2010
New Routes – o Philomath Circulator, to serve Philomath Blvd and Applegate Street between 19th Street and 26th Street o Adair Village Commuter Route, from transit Mall to Santiam Lane in Adair Village. o Philomath/Bellfountain/ Airport Road. o Downtown Corvallis Circulator o Reservoir Road to Elliot Circle, West Hills, Reservoir, 53rd, Harrison, Circle, Kings, James and Eliot Circle. o Downtown Corvallis to Lewisburg		2010 2020 2020 2020 2030 2030	2010		 2020 2030 2020
Transit service hours will be increased from the current 22,000 hours/yr to 38,000 hours/yr.					2020
Transit service hours will be increased to 83,000 hours/yr					2030
Increase number of buses from 20 to 30 and all routes will have 15 minute headway.		2030			
Annual transit operations[3]	•	•	•	•	•
TDM Improvements and Activities					
New Park and Ride Lots – o Park and Ride lot at S. 15th Street and Applegate Street in Philomath o Park and Ride lot at Highway 99W and Airport Road o Park and Ride lot at Highway 99W and NE Elliot Circle o Park and Ride lot at Harrison Blvd and Walnut/53rd Street o Park and Ride lot at US 20 and OR 34, west of Philomath (TAZ 327) o Park and Ride lot at Pettibone Dr. and Granger Road o Park and Ride lot at Highland Dr. and Lewisburg Ave. o Park and Ride lot at Santiam Lane and Arnold Avenue o Park and Ride lot at West Hills Road at 19th Street o Park and Ride lot at Airport road and Bellfountain Road o Park and Ride lot at Tyler Avenue at 1st Street o Park and Ride lot at Adair Village		2010 2020 2020 2020 2020 2030 2030 2030 2030 2030 2030	 2010 2010 2010		2010 2030 2030 2030 2020
Other TDM Improvements and Activities:[2] o Vigorously increase bikeway and pedestrian facilities throughout the Planning Area. o Provide incentives for ridesharing by the use of transit, carpooling and vanpooling o Provide disincentives for the use of single occupancy vehicle o Maintain and preserve roadway system. o Encourage HP, the hospitals and OSU to charge the true cost of parking o Increase parking around these establishments to $100 per month. o Formation of Transportation Management Associations o Promote carpool and vanpool programs o Develop on-site carpool/vanpool station o Provide communal bicycle program		2030 2030 2030 2030 2030 2030			2010 2010 2010 2020 2020

Land Use Management Component						
o	Higher density residential development					2010
o	Mixed land use developments					2010
o	In-fill developments					2010
o	Access to transit network for new residential developments.					2010
o	Implement a minimum density more conducive to a viable transit service					2010
o	Implement mixed land use					2020
o	Implement grid patterned streets					2020
o	Provide for transit service to the development					2020
						2020

[1] Bus purchases under the No-build Alternative are currently programmed.
[2] "Other" TDM activities are assumed to be ongoing after they are initiated.
[3] Transit operations are assumed to occur on an ongoing basis under all of the alternatives.

C. Evaluation Process

The five identified transportation system alternatives were evaluated with a combination of quantitative and qualitative measures. The quantitative measures were analyzed with the Corvallis Area Travel Demand Forecasting Model. This section describes the Travel Demand Forecasting Model and the Evaluation Measures used in this process.

1. Travel Demand Forecasting Model

The travel demand model is a computer mathematical program that simulates travel behavior and travel demands for a specific time frame according to the socio-economic characteristics of the area. The most common use of travel demand models is in forecasting future travel volumes and patterns at corridor levels. As such, the models are most useful in projecting the impacts of adding a new roadway or lane or removing a connection at a corridor level (what if scenarios).

Although recent improvements to travel demand models have increased their usefulness as a tool of transportation decision-making, model outputs are still subject to technical interpretations. The most notable shortcoming of the models are in the areas of demonstrating impacts of land use management techniques, micro (small area) analyses, transportation policies, improvements to local roads (non-arterial and collector), and construction of bike lanes, and pedestrian facilities.

A travel demand model is based on data of the number of households and employees for the planning area. It also includes the existing transportation network, the average traffic volume on roadways and data on the transit system. For this input, the planning area is divided into smaller socio-economic units called Traffic Analysis Zones (TAZs). The data input is often enriched by the results of a household travel survey that provides empirical data on the area's travel patterns and behavior.

In general, travel demand models compute the volume of demand for any given time through a four-step process that consists of Trip Generation, Trip Distribution, Modal Choice and Trip Assignment.

- **Trip Generation.** Calculates the total number of trips from and to each TAZ by trip purpose, as a function of land uses and household demographics, and other socio-economic factors.

- **Trip Distribution.** This step matches the origins with destinations to develop a "trip table" that displays the number of trips going from one TAZ to another (inter and intra-zonal trips).

- **Modal Choice.** Calculates the proportion of trips between each origin and destination that use a particular mode of transportation.

- **Trip Assignment.** Allocates trips between an origin and destination by a particular mode to a route, whereby each traveler is assigned to the shortest (travel time) path.

a. Corvallis Travel Demand Model

The Corvallis Model was developed by the Transportation Planning Analysis Unit (TPAU) of ODOT and the consulting firm of DKS, on a modified EMME2 platform. The entire Planning Area was divided into 362 TAZs. Using the 2000 US Census data, the population and the number of households for each TAZ were calculated. The Portland State University Certified Population Data was used to develop population projections for each TAZ. Year 2000 was established as the Base Year for the model with future networks built for 2010, 2020 and 2030.

Employment data was obtained from the Oregon Employment Department (OED), Research Center for 2000. The employment data was projected to year 2030 by calculating the historic ratio of employment to population in the area which averaged around 51 percent. This ratio was applied to the projected population to forecast employment. In consultation with the area land use planners and the the adopted land use and zoning maps the projected employment data was allocated to TAZs.

The above methodology produced the following input to the Corvallis Travel Demand Model. It should be noted that Table VII-3 shows the population, number of households, and employment for the 362 TAZs which cover an area slightly larger than the Planning Area.

Table VII –3: Assumptions used in the Corvallis Travel Demand Model

	Population	No. of Household	Employment
2000	70,618	27,396	32,586
2010	77,557	29,185	39,297
2020	81850	31,774	42,167
2030	86,638	33,769	44,249

To interpret the outcome of the model, a description of its terminology is provided below:

- **2000 Network**: A baseline transportation network using Census 2000 demographics, used to portray roughly the present conditions.

- **No-Build (Status Quo) Alternative**: A transportation network using year 2030 demographics with no additional improvements other than the ones programmed for the next three years.

- **Link:** A segment of roadway with similar characteristics.

- **Demand/Capacity ratio:** The demand/capacity ratio is a modeling measure used in transportation planning to analyze the performance of a link or corridor. It is different from the traffic engineering Volume to Capacity (V/C) Ratio that is used to analyze the performance of an intersection. The demand/capacity ratio is determined by dividing the traffic volume on a model link by the capacity of that link.

- **Congestion:** A demand/capacity ratio that is higher than the acceptable level for a particular area.

- **Vehicle Miles of Travel (VMT)**: Total miles traveled by all vehicles which could be measured for a specified transportation facility and during a specified time period.

- **PM Peak**: A measure of the most congested period of traffic. In Corvallis this is generally an hour between 4:00 to 6:30 PM.

- **Lane Miles**: Length of driving lanes multiplied by the number of driving lanes.

- **Trip**: A one-way travel from an origin (e.g. home) to a destination (e.g. work, shop, daycare). Traveling from work to a store and then to home is considered two trips.

- **Mean Travel Time**: A statistical measure of the average length of time required to complete an average trip during a specified period.

2. Evaluation Measures

The evaluation measures developed for weighing and comparing the impacts of the transportation system alternatives are described in this section. These measures were derived from the Plan's Vision and Goals.

a. Accessibility

Accessibility means reaching destinations by the individual's mode of choice with relative ease and within a relatively short time frame. Accessibility not only is desired for person trips, it is also desired for freight movement. Due to the complexity of this concept, the following quantifiable measures were selected to represent various components of accessibility.

- ***Travel Time during PM Peak.***

The amount of time it takes to complete a trip during the PM Peak hours (the most congested time in a 24 hour) is a common measure of traffic flow. The measure could be in terms of the amount of time that it takes to travel certain distances or the mean travel time for the entire transportation system.

- ***Demand over Capacity Ratio.***

Demand over Capacity Ratio is a measure of congestion that describes operational conditions of a roadway. This measure is the ratio of vehicles over the capacity of a roadway. The model has the capability of evaluating overall flow of traffic over the length of a given corridor. The measure is similar to the vehicle/capacity (V/C) ratio that is used for analysis of intersections. Similar to V/C ratio, a Demand/Capacity of less than 0.6 indicates a highly convenient flow of traffic with a great deal of maneuverability, whereas, ratios of higher than 0.8 require modification of driving decisions due to the presence of other vehicles. A Demand/Capacity ratio of 1 indicates significant congestion. The Demand over Capacity ratio was measured for the following variables:

- Percent of lane miles by Demand/Capacity ratio for each Transportation System Alternative
- The total Vehicle Miles of Travel (VMT) by Demand/Capacity ratio for each Transportation System Alternative
- Demand/Capacity ratio for nine selected arterials for each Transportation System Alternative.

- ***Availability of all Modes of Transportation.***

Automobiles and trucks that are dependent on an efficient system of roadways predominantly handle the movement of people and goods in our present transportation system. There is, however, a segment of the population who is dependent on public transportation and special transportation modes for their daily trips. Additionally, a considerable number of people use bicycles as a primary mode of transportation for their daily work commute. Other modes of transportation such as walking and rail are also common in the Planning Area. All these modes are integral components of the area's transportation system and the availability of all modes of transportation is a goal of the Plan. The availability of other modes of transportation was analyzed quantitatively.

b. Vehicle Miles of Travel (VMT)

The Travel Demand Model projects the sum of miles driven by all motor vehicles in the Planning Area. Generally, increased VMT has an inverse relation to the desirability of a transportation scenario. The State Transportation Planning Rule requires Transportation Plans to reduce VMT per capita.

c. Energy Consumption

Energy conservation is a goal of the Plan. Certain transportation system scenarios conserve energy more than others. This criterion assesses the level of energy conservation that could be achieved as a result of the implementation of each transportation system alternative. Although

the model does not directly generate this data, output from the model was used to calculate energy consumption.

d. Financial Cost

The financial cost of each alternative is a critical criterion in a time of scarce public funds. Furthermore, federal regulations require that the total costs of recommended projects in this plan not exceed reasonably anticipated revenues. Using the best financial and engineering judgment, the cost of implementing each alternative was estimated. The Financial Plan for this document provides additional details on the balancing of the costs with anticipated revenues.

e. Environmental Impacts

Most transportation improvement projects have some level of impact on the natural and built environments. The preservation of the natural environment and its natural resources is a goal of the Plan as is preserving the integrity of neighborhoods. This measure will consider the extent and the type of environmental impacts caused by the implementation of each alternative.

- ***Types of Impacts on the Natural Environment.***

  Land - Transportation developments may adversely impact land in many different ways. Among these are the consumption of open and agricultural land for roads and parking, soil contamination due to spills of petroleum products and the creation of impermeable surface due to paving.

  Air - Auto exhaust emissions include carbon monoxide (CO), oxides of nitrogen (NO_x), fine Particulate Matter ($PM_{2.5}$), coarse Particulate Matter (PM_{10}), sulfur dioxide (SO_2), precursors of ozone (O_3) and Volatile Organic Compounds (VOC). These emissions are harmful to human health and to the environment.

  Water - The impacts of transportation on water include contamination of ground water by petroleum products and street runoff. Hard surfaces also prevent replenishment of ground water.

  Natural Habitat - Transportation developments may impact terrestrial and aquatic habitats of plants and animals. New roadway developments may be harmful to rare and endangered species.

- ***Types of Impacts on the Built Environment.***

Transportation developments may adversely impact the built environment. This is reviewed in terms of impacts on:

Neighborhood Integrity - The physical and social integrity of established neighborhoods as a unit of urban life.

Historic Sites or Other Significant Structures - Transportation developments could have an adverse impact on historic or other structures or sites important to the community.

D. Evaluation Results

The following is a summary of the evaluation of each of the transportation system alternatives for the horizon year of the Plan:

1. Accessibility.

The model provided the following data for the components of the Accessibility Measure. It should be noted that the impacts of Land Use Management techniques have not been incorporated into these tables. The impacts of Land Use Management techniques are shown at the end of this section.

a. Travel Time.

Table VII-9 shows projected travel time during the most congested time of the day, in this case during the PM Peak hour, and for selected common trips. Mean travel time is also shown for the base year in the tables below. The model travel time does not include the amount of time spent at each intersection along the selected routes. According to the table below, travel time on selected routes is best reduced by the Capacity Enhancement Alternative. The TDM and the Multi-prong approaches have nearly the same impact on reducing travel time.

Table VII-9: Projected Minutes of Travel Time During PM Peak Hour

	2000 Base Year	2030 No-Build Total and (% Increase over Base Year)	2030 TDM Total and (% Increase over Base Year)	2030 Capacity Expansion Total and (% Increase over Base Year)	2030 Multi-Prong Total and (% Increase over Base Year)
Downtown Corvallis to Hewlett-Packard Campus	4.9	5.5 (12.24%)	5.4 (10.20%)	5.0 (2.04%)	5.4 (10.20%)
Oregon State University Campus to Hewlett-Packard Campus	6.9	7.8 (13.04%)	7.7 (11.59%)	7.1 (2.90%)	7.7 (11.59%)
Downtown Corvallis to Downtown Philomath	10.5	12.1 (15.24%)	12.0 (14.29%)	10.5 (0.00%)	12.0 (14.29%)
Downtown Corvallis to Adair Village	12.2	16.5 (35.25%)	15.4 (26.23%)	12.6 (3.28%)	15.8 (29.50%)

b. Demand to Capacity Ratio.

Tables VII-10 shows the ratio of Demand to Capacity, a measure of congestion, for each of the alternatives in selected corridors during the PM Peak hour. The shaded boxes show the best ratios relative to the base year. (D/C of less than 0.7 indicates no congestion, 0.8 may impose changes in driving decisions, 1.0 or greater indicates significant congestion.)

Table VII-10: Demand/Capacity Ratio for Selected Corridors During PM Peak Hours

	2000 Base Year	2030 No-Build	2030 TDM	2030 Capacity Expansion	2030 Multi-Prong
Kings Blvd. Monroe Ave. to Walnut Blvd.	0.71	0.91	0.91	0.85	0.88
9th Street Harrison Blvd. To Walnut Blvd.	0.59	0.94	0.90	0.77	0.86
Walnut Blvd. OR 99W to 29th Street	0.41	0.61	0.50	0.48	0.58
Circle Blvd. OR 99W to 29th Street	0.37	0.46	0.47	0.47	0.49
Western Blvd. Hwy 20/34 to 2nd Street	0.63	1.02	0.99	0.80	0.98
US 20/OR 34 From OR 99W Interchange to US 20/OR 34 Fork	0.88	1.11	1.08	0.84	1.09
OR 99W From S. MPO Boundary to US 20/OR 34/OR 99W Int.	0.44	0.87	0.86	0.75	0.85
OR 99W, From US 20/OR 34/OR 99W Int. to Buchanan Ave.	0.69	1.06	1.02	0.98	1.04
OR 99W Buchanan Ave. to Walnut Blvd.	0.84	1.12	1.09	0.81	0.82

Table VII-11 indicates the number of lane miles that have a D/C ratio of 0.8 or greater during the PM Peak hour. The shading shows the lowest number of congested lane miles.

Table VII-11: Congestion by Lane Miles During PM Peak Hours

	2000 Base Year	2030 No-Build	2030 TDM	2030 Capacity Expansion	2030 Multi-Prong
Total of All Lane Miles	401.8	406.4	414.8	457.0	421.4
Total Congested Lane Miles	23.8	82.2	77.4	52.8	75.2
Percentage of Congested Lane Miles	5.9%	20.2%	18.7%	11.6%	17.8%

Table VII-12 shows the levels of congestion by lane mile for each alternative during the PM Peak hour.

Table VII-12: Percentage of Total Lane Miles by Demand/Capacity Ratio During PM Peak Hour

Demand to Capacity Ratio Range	2000 Base Year		2030 No-Build		2030 TDM		2030 Capacity Expansion		2030 Multi-Prong	
	Lane Miles	% of Total Lane Miles	Lane Miles	% of Total Lane Miles	Lane Miles	% of Total Lane Miles	Lane Miles	% of Total Lane Miles	Lane Miles	% of Total Lane Miles
0.0 - 0.79	366.7	91.2	40.4	75.9	320.2	77.3	375.6	82.3	324.4	76.9
0.80 - 0.99	18.4	4.6	31.1	7.7	36.4	8.8	46.2	10.1	37.2	8.8
≥1.0	16.7	4.2	66.5	16.4	58.2	14	35.3	7.7	59.9	14.2
Total	401.8	100	406.4	100	414.8	100	457	100	421.4	100

Based on the data shown in Tables VII 10 through VII-12, the Capacity Expansion Alternative is the most effective alternative in reducing congestion. The impacts of the TDM and the Multi-prong approach are mixed, although the Multi-prong approach is slightly more effective.

c. Availability of All Modes.

Table VII-13 shows the results of evaluating the alternatives by four more evaluation measures. Of particular note is the measure of transit share for each alternative.

Table VII-13: Additional Evaluation Measures

	2000 Base Year	2030 No-Build	2030 TDM	2030 Capacity Expansion	2030 Multi-Prong
Mean travel time during the most congested hour of the day in minutes and (% increase over Base Year)	7.8 (NA)	10.2 (30.76%)	10.0 (28.21%)	8.5 (8.97%)	9.9 (26.92%)
Total number of miles people traveled by during the most congested hour of the day.	83,474	136,786	135,185	133,696	133,144[1]-
Total number of hour's people traveled during the most congested hour of the day.	2,409	4,739	4,577	3,907	4,563
Daily percentage of trips made on transit	0.9%	0.8%	2.2%	1.7%	2.1%

[1] Includes the impact of land use management techniques.

2. Vehicle Miles of Travel.

Table VII-14 shows the increased VMT during the PM Peak for each of the alternatives. It also indicates that a higher percentage of the VMT will be driven under higher congestion levels

(compared to base year). The smallest increase in VMT will occur with the Capacity Enhancement Alternative while 45.8 percent of the VMT will be driven in conditions where the D/C ratio equals or exceeds 0.80. The TDM and Multi-prong Alternatives show nearly equal increases in VMT, but the TDM Alternative has a slightly lower percentage (59.2 percent) of VMT that are driven in congestion. The No-build Alternative will have the highest increase in VMT and percentage of miles driven under higher D/C ratios. The Multi-prong Alternative in this table does not reflect the impacts of Land Use Management techniques. These techniques will reduce VMT.

Table VII-14: Vehicle Miles of Travel (VMT)
by Demand/Capacity Ratio Range during PM Peak Hour

Demand to Capacity Ratio Range	2000 Base Year		2030 No Build		2030 TDM		2030 Capacity Enhancement		2030 Multi-Prong	
	VMT	% VMT	VMT	% VMT	VMT	% VMT	VMT	% VMT	VMT	% VMT
0.0 -0.79	57,181	68.6	52,768	38.6	55,276	40.9	72,468	54.2	53,756	39.7
0.80 - 0.99	12,122	14.5	19,874	14.5	23,327	17.3	31,136	23.3	24,163	17.8
≥1.0	14,170	17.0	64,142	46.9	56,578	41.9	30,090	22.5	57,487	42.5
Total	83,474	100	136,784	100	135,182	100	133,695	100	135,405	100

3. Energy Consumption

The vehicle miles of travel (VMT) was used as a surrogate for the consumption of energy in Table VII-15. The Travel Demand Model produced the following VMT for each alternative:

Table VII-15: Energy Consumption Represented by VMT

	2000 Base	2030 No-Build	2030 TDM	2030 Capacity Enhancement	2030 Land Use Management	2030 Multi-Prong [1]
VMT (% increase from Base)	834,740 (NA)	1,367,840 (63.9%)	1,351,820 (61.9%)	1,336,950 (60.2%)	1,353,939 (63.2%)	1,340,149[2] (60.5%)
Model Assumed Population (% increase from Base) [2]	70,286 (NA)	86,638 (23.26%)	86,638 (23.26%)	86,638 (23.26%)	86,638 (23.26%)	86,638 (23.26%)

[1] Includes the impact of land use management techniques. See Table VII-16

[2] The boundaries of the Planning Area in the model are based on the Traffic Analysis Zones. These zones in some cases extend beyond the actual Planning Area boundaries.

According to the VMT numbers, the energy consumption will be the highest with the No-build alternative and the lowest with the Multi-prong Alternative. The Capacity Expansion Alternative ranks as the second lowest energy consumption, followed by the TDM Alternative.

4. Financial Cost.

The No-Build and the Land Use Management Alternatives require the least amount of public investment in transportation. There may be some administrative costs with the implementation of land use policies. The Capacity Enhancement Alternative requires the highest amount of public dollars ($555 million), followed by the TDM Alternative. The cost of implementing all TDM measures will amount to $312 million. It should be noted that the TDM measures would demand a relatively higher portion of local dollars than the Capacity Enhancement Alternative. This is because the federal dollars for transit operation must be matched one to one by local dollars. Also transit capital improvement projects financed through federal funds require a 20 percent local match as opposed to the roadway projects that require 10 percent or less of local dollars.

The total cost of implementing all projects in the Multi-prong Approach is approximately $366 million over the next 30 years ($262 million roadways + $104 million TDM). The reason for the lower cost of the Multi-prong Approach is the placing of high cost projects under the category of Illustrative Projects. Illustrative projects are projects for which no funding sources have been identified, but will be considered if additional funding becomes available.

Sources of funding and project costs are outlined in the Financial Plan included as Appendix F.

5. Environment.

In general, transportation capacity expansion through roadway construction has greater impacts on the natural and built environment than the implementation of Transportation Demand Management techniques. Roadway construction consumes a considerable amount of land for right of way and parking and creates impermeable surfaces. This conversion adversely affects green space, natural habitats, wetlands, soil, and underground water. Roadway expansions in the built area may require relocation of residents and may damage the integrity of neighborhoods. The motor vehicles using roadways also pollute the ambient air by emitting hazardous pollutants such as, carbon monoxide (CO), oxides of nitrogen (NO_x), ozone (O_3), hydro-carbon (HC), sulfur dioxide (SO) and Particulate Matter ($PM_{10\ \&2.5}$).

TDM techniques, on the other hand, impact land and other natural resources far less. They are mostly designed to work within the context of the existing transportation system. As such, the adverse impacts of the TDM Alternative on air, soil and ground water are almost negligible.

Similar to the TDM Alternative, Land Use Management techniques have the smallest impact on the natural environment. This is due to the fact that these techniques emphasize optimization of existing urban land and prevention of urban sprawl. The Land Use Management Alternative, in most cases, is combined with the implementation of TDM measures. Although some may consider higher density as having a detrimental effect on neighborhoods, land use management techniques in general are designed with respect for the integrity of neighborhoods.

The Multi-prong Approach replaces some of the roadway projects with a host of TDM measures and results in fewer adverse environmental impacts than either the Capacity Expansion or No Build Alternatives.

6. Impacts of Land Use Management Measures

In spite of recent advancements in linking transportation and land use decision-making, the existing travel demand models are still not quite capable of measuring the impacts of land use management policies and municipal requirements. Therefore, the impacts of the land use management approach were calculated by post-processing the outcome of the model. A summary of the results is shown in Table VII-16.

A review of the land use and zoning maps identified candidate residential land for the implementation of land use management techniques. It was assumed that these areas, when developed according to land use management, would show a 15 percent reduction in travel demand. The impacts of land use management was calculated based on the following assumptions:

- The increase in the number of households from 2006 until 2030 = 6,374.
- Half of the new residences (3,187) will be developed according to the Land Use Management measures of the 3Ds (Design, Density and Diversity).
- Each household on average makes 8.85 personal trips per day or 6.15 vehicle trips (based on a 1996 ODOT study).
- Total number of daily trips (3,187 X 6.15 = 19,600).
- Land Use Management techniques reduce single occupancy vehicle trips by 15 percent (19,600 X 15% = 2,940 total trip reduction).
- The average length of a trip in the Planning Area is 4.73 miles (2,940 X 4.73 = 13,906 total vehicle miles (VMT) saved).
- The peak hour VMT is generally 10 percent of daily VMT. 13,906 X 10% = 1,391 PM Peak VMT saved.
- The above savings was subtracted from the No-Build VMT in the table below.

Table VII-16: Reduction of Trips and Vehicle Miles of Travel with Land Use Management Techniques (During PM Peak)

	2030 No-Build	2030 Land Use Management	Percent Change From No-Build
Total Vehicle Miles of Travel	136,784	135,393	1.7%
Total Number of Daily Trips	28,918	25,979	16.5%

The above assumptions and calculations show that the impacts of land use measures in reducing the vehicle miles of travel and the number of daily trips may not be realized unless they are implemented vigorously and hand in hand with TDM techniques.

E. Summary Findings of Evaluation

An overarching issue in the analysis of transportation system alternatives is the depencency of our current transportation system on the availability of crude oil. This dependency and its socioeconomic implications are significant enough to warrant a brief review of the present supply and demand of oil.

Transportation alone consumes about five million more barrels of petroleum daily than are produced domestically[4]. The recent surges in gasoline price have raised serious concerns about the demand and supply equation of crude oil. Most recent studies indicate that with the increased demand by the developing nations, the supply of inexpensive oil is nearly depleted, and we are at the peak of oil supply. The severity of this issue warrants a brief review of the energy outlook.

We are entering a period of uncertainty in oil supply and hence unstable gasoline prices. This will have significant impacts on our way of life, economy, land use, and particularly on our transportation system. Our short term planning must be mindful of higher gasoline prices. The long-term outlook for petroleum supply is much more uncertain, and presents challenges to long range transportation planning. However, there are measures that could be taken to be better prepared for uncertain times. As such, the Policy Section of this document includes recommendations on the use of energy.

1. No-Build Alternative

The Planning Area transportation system will deteriorate under the No-Build Alternative as accessibility decreases due to more frequent and higher levels of congestion, longer travel time and smaller share of transit trips. Congestion will also contribute to higher levels of carbon monoxide emissions. As the arterial roadways become more congested the traffic will spillover into local streets and will begin to disturb the tranquility of neighborhoods. The advantages of this alternative are the minimal financial investment and comparatively little impact on the natural environment. The delivery and movement of goods will be disrupted as well. Finally, this alternative will not help the Planning Area move toward its Vision and Goals.

2. TDM Alternative

The TDM Alternative is friendly to the environment as it produces little pollution and conserves energy, land and other natural resources. Under this scenario, the share of trips made by transit will increase from the current 0.9 percent to 2.2 percent, an increase of 175 percent at the cost of approximately $312 million. The TDM alternative, however, does little in the way of mitigating congestion. The average travel time will be slightly higher under this scenario. Most importantly, the TDM Alternative does not provide for the movement of goods within, to and from the area, as freight traffic relies heavily on a network of roadways. Although, this alternative provides for the availability of mode choices and addresses environmental concerns, it does not help the region move toward all of its goals.

[4] US DOT, Bureau of Transportation Statistics. 2004 Pocket Guide to Transportation.

3. Capacity Expansion Alternative

This alternative is the most effective of all alternatives in reducing congestion, travel time and vehicle hours of travel. It also provides for the movement of commerce through and within the area. However, even with construction of all improvement projects under this alternative, the congestion levels will increase from the 2000 base year levels. Ironically, the vehicle miles of travel will be lower than those projected for the No-build and TDM Alternatives. This is because several of the recommended projects, such as the extension of Circle Blvd to Harrison Blvd and the extension of Kings Blvd to Lester Ave, will reduce the amount of circuitous driving that currently occurs. This alternative has the greatest adverse impact on the natural and built environment. It also requires the highest amount of energy and other natural resources compared to the other alternatives. Given the current technology of the internal combustion engine, this alternative is also detrimental to air quality. The cost of this alternative is approximately $555 million. Finally, in spite of its congestion reduction benefits, this alternative is associated with heavy environmental and financial costs.

4. Land Use Management Alternative

This alternative showed the lowest positive impacts on most evaluation criteria. The advantages of land use management techniques are low cost, limited environmental impact, and low energy consumption. However, this alternative does not significantly reduce congestion, or provide for the movement of freight. Land use management techniques are more effective when implemented in conjunction with TDM measure than as stand-alone measures. Land use measures can be controversial, as they may be perceived as making changes to people's life styles and choices. Additionally, it will take a long period of time before the impacts of land use measures can be realized. For its slow and steady benefits, this alternative should be used in conjunction with other alternatives.

5. Multi-Prong Alternative

The Multi-prong Alternative represents a combination of necessary roadway projects with an emphasis on a variety of Transportation Demand Management projects and programs and land use management techniques. It provides for a host of transportation needs that were specified in the Plan's Vision and Goals. Due to the shortcoming of the Travel Demand Model, the land use management component of this alternative could not be analyzed. Therefore, the tables above do not truly reflect the impacts of this alternative. However, the qualitative and quantitative analyses of the combined effects of land use management techniques, TDM measures and the construction of most needed roadways showed that this alternative is highly effective in reducing VMT. It is noteworthy that this alternative does not include all the roadway projects included in the capacity expansion alternative.

F. Preferred Alternative

The Multi-prong Alternative for its closest alignment with the Plan's Vision and Goals, its appropriate mixture of projects and the lower VMT was selected as the Preferred Alternative. The Alternative was enhanced with a heavy emphasis on transit, TDM and land use management measures in accordance with the values held by the community and relative to the area's projected financial ability. Some of the findings that led to this selection are listed below:

1. The Planning Area's transportation needs are diverse and therefore, no single alternative is capable of fully delivering the multimodal and multi-faceted transportation system described by the Plan's Vision and Goals.
2. Each alternative has some merits when evaluated by certain measures and negative aspects by other evaluation measures.
3. Achieving the Plan's Vision and Goals requires the optimal use of all transportation system alternatives analyzed.
4. The Multi-prong Approach that uses all techniques described under each transportation system alternative addresses a greater share of the areas transportation needs.

VIII. Recommended System

This section includes the recommendations of the Corvallis Area Metropolitan Transportation Plan through the horizon year 2030. These projects and policies were developed within the framework of the Preferred Alternative and are in accord with the Plan's Vision and Goals. Maps VIII-1 through VIII-5 show the locations of the recommended improvements.

A. Recommended Transportation System Improvements

2010 Network

Transit Component

- *Increase number of buses by 3 to 11 buses*
  - o One bus will be added to Route #7
  - o One bus will be added to Route #1
  - o One bus will be added to Route #3
- *Modify transit routes regularly to serve the highest number of passengers*
- *Construct a new bus maintenance and operation facility*

TDM Component

- *Establish new Park and Ride lot at S.15th Street and Applegate Street in Philomath*[1]
- *Expand TDM promotion and coordination*
  - o Promotion of carpool/vanpool programs
  - o Formation of Transportation Management Associations
- *Continue construction/promotion of bicycle and pedestrian facilities*

Land Use Management Component

- *The MPO will encourage jurisdictions within the Planning Area to strengthen existing and /or adopt new land use policies and development standards to promote:*
  - o Higher density residential development
  - o Mixed land use developments
  - o In-fill developments
  - o Access to the transit network for new residential developments.
  - o Development with minimum densities more conducive to a viable transit service

Roadway Component

- o 53rd Street at railroad overpass – realign and relocate 53rd Street and Reservoir Road intersection (Design and R-O-W acquisition completed)
- o Circle Boulevard at 9th Street – add right-turn lane on eastbound
- o 35th Street, US 20/OR-34 to Orchard – widen, realign and add bike lanes (Partially completed)
- o Kings Boulevard – Extend Kings Boulevard to Lester Avenue (SDC Candidate)

- Intersection of 53rd Street and Philomath Boulevard – add turning lane
- Replace Van Buren Avenue Bridge (Preliminary Engineering)

2020 Network

Transit Component

- *Increase number of buses from 11 to 15*
  - One bus will be used as the Downtown Corvallis Circulator
  - One bus will be added to Route #8
  - One bus will be added to Philomath Connector.
  - One bus will serve on the Adair Village Route
- *New Route - Increase number of transit routes by 2 to 10 routes (2 more than existing)*
  - Adair Village Commuter Route, from transit Mall to Santiam Lane in Adair Village.
  - Downtown Corvallis Circulator
- *Service Hours - The transit service hours will be increased from the current 22,000 hours/year to 38,000 hours/year as follows:*
  - During the 9 months of School Year - 6:30 AM to 11:00 PM
  - During Summer Time – 6:30 AM to 7:00 PM
  - Saturdays – 9:30 to 5:00 PM

TDM Component

- *Establish a new Park and Ride lot in the City of Adair Village*[1]
- *Other TDM Activities*[2]
  - Form Transportation Management Associations (TMA)
  - Develop on-site carpool/vanpool station
  - Enhance the network of bicycle and pedestrian facilities
  - Provide communal bicycle program

Land Use Management Component

- *The MPO will encourage jurisdictions within the Planning Area to adopt land use policies that would require new residential developments of substantial size to capture at least 5 percent of trips. This could be achieved through the implementation of some or all of the following measures:* [3]
  - Implement a minimum density more conducive to a viable transit service
  - Implement mixed land use
  - Implement grid patterned streets
  - Provide for transit service to the development

Roadway Component

- US 20/OR-34, Newton Creek to 53rd Street, complete final design; acquire right-of-way (Preliminary Engineering only, construction in the list of Illustrative projects)
- Country Club Drive, Barley Hill Drive to US 20/OR 34 - widen to add bike lanes sidewalks, improve alignment
- Crystal Lake Drive, Alexander to Park - widen and reconstruct street to standard with

bike lane
- Replace Van Buren Avenue Bridge
- Circle Boulevard - Extend to Harrison Boulevard (SDC Candidate)
- OR 99W, railroad over crossing to Circle Boulevard. - widen to four lanes with left turn refuges
- US 20/OR 34, 53rd Street to Western - complete final design and acquire right-of-way
- OR 99W at both Goodnight and Rivergreen Avenue – install traffic signal when warranted
- West Hills Road, 35th Street /Western Boulevard to 53rd Street – enhance to urban standards
- Country Club Drive, 35th to 53rd– widen to add bike lanes sidewalks, improve alignment
- Grant Avenue, Highland Street to 9th Street– widen to add bike lanes sidewalks, improve alignment
- Buchanan at 9th Street– construct left turn lanes on Buchanan (eastbound)
- Witham Hill Drive, Grant to Walnut – widen/improve bike lanes
- Extend Plumley Street from Airport Avenue to the extension of Rivergreen
- Airport Avenue, OR 99W to Airport Place – Upgrade to urban standards (SDC)
- 13th Street, Chapel Drive to Main Street – reconstruct to urban standards to accommodate truck traffic, add bike lanes 'signed and striped'

2030 Network

Transit Component

- *Increase number of buses by 3 to 18 buses (10 more than existing).*
  - One bus will be added to Route # 2
  - One bus will be added to Route # 4
  - One bus will be added to the fleet to serve as the spare
- *New Route - Increase number of transit routes to 11 routes (3 more than existing)*
  - Philomath/Bellfountain/ Airport Road
- *Service Hours - The transit service hours will be increased from 38,000 hours/year in 2020 Network to 83,000 hours/year as follows:*
  - Around the year - 6:30 AM to 11:00 PM
  - Saturdays - 9:30 AM to 11:00 PM
  - Sundays – 9:30 to 5:00 PM

TDM Component

- *Establish 3 new Park and Ride lots:*[1]
  - New Park and Ride lot at (TAZ 327) Hwy20/34 split
  - New Park and Ride lot at (TAZ 319) Airport Road at OR 99W
  - New Park and Ride lot at Harrison Boulevard at Walnut/53rd

Roadway Component

- Harrison Boulevard, 29th to 36th, Widen to add bike lanes and Urban Section
- Brooklane Drive., Chintimini to US 20/OR-34 – reconstruct and realignment bring to urban standards
- Lester Avenue - extend to OR 99W
- Satinwood Drive - extend to Lester
- Alexander from 3rd to Crystal Lake – widen to add bike lanes sidewalks, improve alignment
- OR 99W at Kiger Island Drive – Install traffic signal when warranted
- Circle Boulevard, Hewlett-Packard campus to US 20 – widen to 4 lanes
- Clemens Mill Road - relocate road across from 26th Street (Clemens Mill Rd. and 26th Street and US- 20/34 to improve access
- US 20/OR-34 and Alsea Highway Intersection– Install traffic signal when warranted
- Main Street at 26th Street – Install traffic signal when warranted
- West Hills Road, Wyatt Lane to N. 19th Street – Add bike lanes 'signed and striped'
- Chapel Drive, Bellfountain Road to 13th Street - upgrade to urban standards

Land Use Management Component

- *The MPO will encourage jurisdictions within the Planning Area to adopt land use policies that would require new residential developments of substantial size to capture at least 10 percent of trips they generate. This could be accomplished through the implementation of the measures listed previously and providing incentives for Transit Oriented Developments (TODs).*[3]

In addition to the above Recommended System, the following projects are listed as Illustrative. Illustrative projects are projects for which no funding sources have been identified and are listed here in case additional funding becomes available. The Corvallis Travel Demand Model evaluated these projects and the results are shown in Appendix E.

[1] The most important criteria in selecting Park and Ride sites were the potential for capturing the highest number of commuter trips and accessibility to transit routes. The locations of Park and Ride projects are not intended to point to specific sites. The actual Park and Ride lot may be selected at any location in the vicinity of the described locations. In many cases, the site could be the nearest feasible gas station, a church parking lot or a vacant lot.

[2] "Other TDM Activities" are assumed to be ongoing after they are initiated.

[3] Land Use Management recommendations for each network are incremental and are additional activities to those recommended for previous networks.

B. Recommended Illustrative Improvements

Transit Component

- *Increase number of buses by 1 to 19 buses (11 more than existing)*
- *New Route - Increase number of transit routes to 12 routes (4 more than existing)*
  - o Downtown Philomath Circulator – serving Philomath Boulevard and Applegate Street

TDM Component

- o Establish Park and Ride Lot at NE Elliot Circle and OR 99W

Roadway Component (the costs are rough estimates for 2030)

- o US 20/OR-34 - Newton Creek to 53rd Street - reconstruction to four lanes with left-turn refuges, bike lanes and sidewalks ($54M)
- o OR 99W, Rivergreen Avenue to Airport – Widen OR 99W from 2 lanes to 4 with left turn lanes at major intersections to 500 ft. south of Airport ($58M)
- o US 20/OR-34, Western Boulevard to OR 99W - widen to four lanes with left turn refuges (Neer to bypass) ($34.7M)
- o US 20/OR-34 —53rd Street to Western-reconstruction to four lanes with left-turn refuges, bikelanes and sidewalks ($31.9M)
- o OR 99W/Circle Drive—construct northbound right-turn lane ($800K)
- o College/Main/Applegate Streets, Phase II of the Philomath Couplet ($20M)
- o US 20, MPO Boundary (Steele Avenue) to N. Albany Road – Widen US 20 from 2 lanes to 4 lanes with left turn refuges OUTSIDE MPO ($24M)
- o Ponderosa Avenue from Skyline to Glenridge – widen to add bike lanes sidewalks, improve alignment ($700K)
- o US 20 Downtown Corvallis to MPO Boundary (Steele Avenue) – widen to 4 lanes with left turn lanes ($148M)
- o OR 99W, Conifer to Lewisburg Road - widen to four lanes ($99M)
- o OR 99W, Lewisburg to Adair Village – Construct bikeway (cost not available)
- o Corvallis to Albany Rail with Trail – construct bikeway along the Willamette Pacific Railroad tracks from Corvallis to Albany (cost not available)
- o OR-34 at South bypass – Construct an interchange in place of current at grade crossing (provide ramps for south to west and west to south movements – two lanes each) ($28M)
- o Corvallis Bypass—construct north leg of bypass as 2-lanes ($87.9M)

C. Recommended Policies

The Transportation Plan includes recommended policies throughout the document that are either implied or explicitly stated. This section provides a summary of the recommended policies. The policies listed below are for implementation throughout land use and transportation decision-making processes, when opportunities arise.

A. Transportation System Management

1. Provide for the safety of motorists, bicyclist and pedestrians.

2. Provide for the economic vitality of the area.

3. Provide for accessibility, instead of mobility.

4. Promote alternative modes of transportation and take measures to reduce reliance on SOVs.

5. Preserve, protect and maintain the existing transportation system.

6. Provide for roadway connectivity when it results in reducing vehicle miles of travel.

7. Provide for movement of people and freight within and to destinations outside of the Planning Area.

8. Construct bike and pedestrian facilities as a component of all arterial and collector construction.

9. Implement Transportation Enhancement projects to improve gateways to the area and preserve historic transportation structures.

10. Implement Transportation Enhancement projects to construct trails, bikeways and pedestrian facilities.

B. Transportation Demand Management

1. Provide transportation choices for all people.

2. Provide public transportation for both interurban and intraurban trips.

3. Enhance transit service throughout the Planning Area by adding new bus routes, extending transit routes, extending transit service hours, providing higher service frequencies and better bus stops, shelters and amenities.

4. Provide a coordinated transit service throughout the Planning Area and to neighboring destinations.

5. Regularly monitor and modify transit routes to serve the highest number of passengers.

6. Allocate the majority of the area's annual allotment under the Surface Transportation Program (STP) to the maintenance and preservation of the existing transportation system.

7. Engage with employers to reduce vehicular trips by developing transportation management associations.

8. Seek funding to enhance TDM activities.

9. Promote carpool and vanpool programs.

10. Require connectivity of transit, bicycle routes and pedestrian facilities to new developments.

11. Require a network of bikeway and pedestrian facilities within new developments (internal circulation).

12. Construct Park and Ride facilities on the periphery of the Planning Area and adjacent to transit routes.

13. Establish a communal bicycle program.

C. Land Use Management

1. Coordinate land use and transportation decision making processes.

2. Promote higher residential density standards to make land use compatible with operation of viable public transportation.

3. Promote mixed land use developments.

4. Promote in-fill developments.

5. Promote development of a grid patterned streets.

D. Environment Protection

1. Preserve and protect the natural environment (air, water and soil).

2. Promote sustainability and livability throughout the transportation decision making process.

3. Preserve and protect the natural beauty of the area.

4. Preserve and protect the integrity of neighborhoods.

E. Energy Conservation

1. Remain apprised of the energy outlook and its impacts on the transportation system to update the Transportation Plan every five years.

2. Promote the use of renewable and alternative energy sources, i.e. bio-diesel, ethanol and windmills to reduce dependency on petroleum-based products.

3. Promote sustainability as a means of reducing demand on petroleum products.

4. Promote alternative modes of transportation through their land use and transportation decision-making processes to reduce demand for vehicular trips and particularly, single occupancy vehicle trips.

F. Parking Management

1. Encourage major employers to use incentives that promote greater use of alternative transportation modes by employees, and disincentives for the use of workplace parking.

2. Actively manage parking supply at public offices to provide parking spaces only to those employees who have no alternatives to driving alone.

3. Give priority to the parking needs of those who carpool or vanpool, while accommodating visitors and persons with disabilities.

4. Reduce the number of parking spaces required for new developments.

5. Strengthen requirements for new developments to provide accessibility for public transportation, bicycles and walking.

6. Require new developments to provide for internal circulation of transit, bicycles and pedestrians.

7. Provide incentives for public employees to use public transportation, carpool or vanpool.

8. Set requirements for new developments to provide parking spaces relative to proximity to the central business district. New developments near the central business district would not be required to provide as many parking spaces as new developments on the periphery of the Planning Area.

9. Require new developments to locate buildings near the street and provide parking behind buildings.

10. Position parking in a manner that does not conflict with bicycle and pedestrian access.

11. Encourage shared parking among neighboring businesses.

12. Provide for telecommuting of employees.

13. Provide and promote construction of park and ride lots on the periphery of the Planning Area and adjacent to public transportation routes.

Allow on-street parking, where appropriate, and factor that into parking requirements for new developments.

D. Recommended Studies

Upon the adoption of this document in September 2006, the MPO Policy Board recommended following studies and transportation planning activities.

1. Study the most efficient means of moving people and freight on an east-west corridor, along Highway US 20, through the Urbanized Area and beyond. The exact termini of this project will be determined later.

2. Study the role and function of north-south and east-west railroad services through the Urbanized Area to identify more efficient movement of freight and people.

3. Investigate the potentials to improve the safety, security, efficiency, cost effectiveness and energy savings through operations and maintenance of the transportation system.

Glossary of Acronyms

30 HV	the 30th Highest Volume (within one hour)
AASHTO	Association of American State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
ATR	Automatic Traffic Recorder
BCTSP	Benton County Transportation System Plan
BETC	Business Energy Tax Credit
CAMPO	Corvallis Area Metropolitan Planning Organization
CBD	Central Business District
CFR	Code of Federal Regulations
CMP	Campus Master Plan
CO	Carbon Monoxide
CTP	Corvallis Transportation Plan
CTS	Corvallis Transit System
D/C Ratio	Ratio of Demand to Capacity
DEQ	Department of Environmental Quality
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	Fiscal Year
HC	Hydro Carbon
HCM	Highway Capacity Manual
HDM	Highway Design Manual
HPPP	High Priority Project Program
IOF	Immediate Opportunity Fund
ITS	Intelligent Transportation System
JARC	Job Access and Reverse Commute
LOS	Level of Service
M&O	Maintenance and Operation
MP	Mile Post
MPO	Metropolitan Planning Organization
MTIP	Metropolitan Transportation Improvement Program
MUTCD	Manual on Uniform Traffic Control Devices
NCAP	North Corvallis Area Plan
NF	New Freedom program
NHS	National Highway System
NO_x	Oxides of Nitrogen
O_3	Ozone
OAR	Oregon Administrative Rule
OBPP	Oregon Bicycle and Pedestrian Plan
OCWCOG	Oregon Cascades West Council of Governments
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OED	Oregon Employment Department

OHP	Oregon Highway Plan
ORS	Oregon Revised Statutes
OSU	Oregon State University
OTIA	Oregon Transportation Investment Act
OTP	Oregon Transportation Plan
P&W	Portland & Western railroad
PCI	Pavement Condition Index
PDO	Property Damage Only
PE	Preliminary Engineering
PIP	Public Involvement Plan
PM_{10}	Particulate Matter smaller than 10 microns in diameter
PM Peak	The most congested time of traffic during afternoon hours
PNWR	Portland and Western Railroad
R-O-W	Right of Way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient, Transportation Equity Act, A Legacy for Users
SCARP	South Corvallis Area Refinement Plan
SDC	System Development Charges
SO_2	Sulfur Dioxide
SOV	Single Occupancy Vehicle
SPIS	Safety Priority Index System
STA	Special Transportation Area
STF	Special Transportation Fund
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
STP-E	Surface Transportation Program – Enhancement
STP-R	Surface Transportation Program – Rural
STP-S	Surface Transportation Program – State
STP-U	Surface Transportation Program – Urban
TAC	Technical Advisory Committee
TAZ	Traffic Analysis Zone
TDM	Transportation Demand Management
TDR	Transportation Demand Reduction
TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TOD	Transit Oriented Development
TPAU	Transportation and Planning Analysis Unit of ODOT
TPR	Transportation Planning Rules
TRO	Travel Reduction Ordinance
TSM	Transportation System Management
TSP	Transportation System Plan
UGB	Urban Growth Boundaries
USC	United States Code
V/C Ratio	Ratio of Volume to Capacity
VMT	Vehicle Miles of Travel
VOC	Volatile Organic Compounds