PORTLAND TO LINCOLN CITY CORRIDOR

Oregon Highways 99W and 18
I-5 to U.S. 101

INTERIM CORRIDOR STRATEGY

Oregon Department of Transportation
CH2M HILL
Jeanne Lawson Associates

March 1997
# Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES</td>
<td>Executive Summary</td>
</tr>
<tr>
<td>1</td>
<td>Overview of Corridor Planning</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td>Corridor Planning Description and Purpose</td>
</tr>
<tr>
<td></td>
<td>Planning Requirements</td>
</tr>
<tr>
<td></td>
<td>Corridor Planning Process</td>
</tr>
<tr>
<td></td>
<td>Corridor Planning Participants</td>
</tr>
<tr>
<td>2</td>
<td>Corridor Overview</td>
</tr>
<tr>
<td></td>
<td>General Corridor Description</td>
</tr>
<tr>
<td></td>
<td>Summary of Prior Plans and Studies</td>
</tr>
<tr>
<td></td>
<td>Population and Employment Projections</td>
</tr>
<tr>
<td></td>
<td>Growth of Tourism and Recreational Travel</td>
</tr>
<tr>
<td>3</td>
<td>Existing Conditions</td>
</tr>
<tr>
<td></td>
<td>Highway System</td>
</tr>
<tr>
<td></td>
<td>Railroads</td>
</tr>
<tr>
<td></td>
<td>Air Service</td>
</tr>
<tr>
<td></td>
<td>Public Transit and Intercity Bus Service</td>
</tr>
<tr>
<td></td>
<td>Bicycles</td>
</tr>
<tr>
<td></td>
<td>Pedestrians</td>
</tr>
<tr>
<td></td>
<td>Pipelines</td>
</tr>
<tr>
<td></td>
<td>Environment</td>
</tr>
<tr>
<td>4</td>
<td>Future Conditions</td>
</tr>
<tr>
<td></td>
<td>Highway System</td>
</tr>
<tr>
<td></td>
<td>Rail</td>
</tr>
<tr>
<td></td>
<td>Air Service</td>
</tr>
<tr>
<td></td>
<td>Transit</td>
</tr>
<tr>
<td></td>
<td>Bicycle</td>
</tr>
<tr>
<td></td>
<td>Pedestrians</td>
</tr>
<tr>
<td>5</td>
<td>Issues, Opportunities, and Constraints</td>
</tr>
<tr>
<td></td>
<td>Transportation Balance</td>
</tr>
<tr>
<td></td>
<td>Regional Connectivity</td>
</tr>
<tr>
<td></td>
<td>Highway Congestion</td>
</tr>
<tr>
<td></td>
<td>Safety</td>
</tr>
<tr>
<td></td>
<td>Economic Impacts</td>
</tr>
<tr>
<td></td>
<td>Social Impacts</td>
</tr>
<tr>
<td></td>
<td>Environmental Impacts</td>
</tr>
<tr>
<td></td>
<td>Energy Impacts</td>
</tr>
</tbody>
</table>
## Contents, Continued

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Interim Corridor Strategy</strong></td>
<td>6-1</td>
</tr>
<tr>
<td>Transportation Balance</td>
<td>6-1</td>
</tr>
<tr>
<td>Regional Connectivity</td>
<td>6-5</td>
</tr>
<tr>
<td>Congestion</td>
<td>6-6</td>
</tr>
<tr>
<td>Safety</td>
<td>6-9</td>
</tr>
<tr>
<td>Economic Impacts</td>
<td>6-10</td>
</tr>
<tr>
<td>Social Impacts</td>
<td>6-10</td>
</tr>
<tr>
<td>Environmental Impacts</td>
<td>6-11</td>
</tr>
<tr>
<td>Energy Impacts</td>
<td>6-13</td>
</tr>
</tbody>
</table>

### Appendices

A Summary of Plans and Studies
3 Overview of Portland-Lincoln City Corridor
C Corridor Segment Inventory
D Issues Document
E Open House Summary

### Tables

2-1 Population Forecasts | 2-6
2-2 Employment Forecasts | 2-9
3-1 Highway Accident Rates, 1991-1993 | 3-8
3-2 Highway Fatalities, 1991-1993 | 3-9
3-3 Highway 99W/18 Corridor Bus Travel | 3-15
4-1 Year 2015 Estimated Levels of Service | 4-8

### Figures

ES-1 Corridor Location | ES-3
1-1 Corridors of Interstate and Statewide Importance | 1-2
1-2 Corridor Planning Process and Phases | 1-5
2-1 Highway 99W/18 Corridor | 2-2
2-2 Trends in Population Growth | 2-7
2-3 Trends in Employment Growth | 2-8
3-1 1994 Annual Average Daily Traffic in Vehicles per Day | 3-2
3-2 Existing and Historic Traffic Volumes | 3-4
3-3 Monthly ADT Variation at Newberg ATR (1994) | 3-5
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-4 '1994 Accident Distribution</td>
<td>3-11</td>
</tr>
<tr>
<td>3-5 Rail Carriers in Northwest Oregon</td>
<td>3-12</td>
</tr>
<tr>
<td>4-1 Traffic Volume Projections</td>
<td>4-3</td>
</tr>
<tr>
<td>4-2 Tualatin-Sherwood Highway</td>
<td>4-4</td>
</tr>
<tr>
<td>4-3 Newberg-Dundee Bypass</td>
<td>4-5</td>
</tr>
<tr>
<td>4-4 Projected Travel Times</td>
<td>4-7</td>
</tr>
<tr>
<td>4-5 Present and Future Highway Congestion</td>
<td>4-9</td>
</tr>
<tr>
<td>4-6 Highway Lane Requirements</td>
<td>4-10</td>
</tr>
</tbody>
</table>
Executive Summary

What Is Corridor Planning and Why Is It Being Done

The Oregon Department of Transportation is developing plans for 31 transportation corridors identified in the Oregon Transportation Plan (OTP) as being of statewide or interstate importance.

A corridor plan is a long-range program for managing and improving transportation facilities and services to meet the needs for moving people and goods. A key element of corridor planning is consideration of the linkage between land use and transportation needs.

Highway 99W and Highway 18 extend 75 miles between Portland and Lincoln City, serving accessibility among growing cities and rural communities, freight movement, tourism, and commute and recreational travel. The benefits of long-range planning in this corridor include (a) resolution of planning issues, (b) preservation of transportation rights-of-way, (c) protection of transportation investments, and (d) cooperation among diverse organizations to implement projects and services.

The Oregon Transportation Plan establishes the general policies and planning direction for the development of corridor plans. It also responds to related modal plans for freight movement, rail service, aviation, pedestrian/bicycle, public transportation, and safety that have been adopted. Corridor plans assist in the development of transportation projects for implementation through the Statewide Transportation Improvement Plan (STIP).

Corridor planning is organized into three phases, proceeding from the general to the specific. In the first phase, transportation goals and management objectives are identified in the development of the Corridor Strategy. The second phase includes preparation of General/System Plans, defining the transportation improvement needs and accompanying land use framework. In sections of the corridor with particular environmental, land use, or operational concerns, Refinement Plans can be developed as a third phase.

This interim corridor strategy plan addresses the operation, preservation, and improvement of transportation facilities in the Highway 99W/18 corridor. It covers a 20-year planning period, building upon federal, state, and local transportation and land use policies and plans. The involvement of residents, users, and other participants has resulted in extensive input to the strategy plan. This strategy will guide subsequent development of the Corridor Plan and Refinement Plans, and serve as the basis for selection of individual improvement projects and implementation of new or expanded transportation services.
1. **Corridor Overview**

The corridor extends along Highway 99W from I-5 (Exit 294) in Portland to McDougal's Corner near Dayton, and along Highway 18 west to Highway 101 on the Oregon Coast. It is designated as a Corridor of Statewide Importance in the OTP and as part of the National Highway System. Railroads in the corridor extend from Portland to Fort Hill, but do not reach the coast. The corridor serves the metropolitan areas southwest of Portland, connecting to communities in the Yamhill Valley and west along the Salmon River, as shown on Figure ES-1. The corridor provides commuter access to cities along the route and is a primary link to the Oregon Coast from both Portland and Salem.

Daily traffic volumes on the highway currently range from about 6,000 vehicles per day (vpd) near Highway 101 to 53,000 vpd in Tigard near I-5. Future volumes in these areas are predicted to range from about 10,000 vpd to the west to more than 80,000 vpd in Tigard. Trucks currently comprise 6 to 8 percent of traffic volume in the corridor (940 to 1,740 vpd).

Public transit consists of bus service in the Portland metropolitan area and dial-a-ride service elsewhere. No passenger rail service currently operates in the corridor, but studies have been conducted to investigate commuter rail feasibility and potential connections to the Portland area light rail system. A short-line railroad operates in the corridor as far west as Fort Hill, with connections to Portland and to Albany. Public airports are located in McMinnville, Newberg, and Sheridan, but there is no scheduled commercial air service in these communities. Portland International Airport is located about 15 miles north of the corridor terminus.

Congested traffic operations develop on a recurring basis during weekday commute hours in the Portland metropolitan area and outlying cities, and throughout the corridor on summer weekends and holidays. Two gambling casinos have recently opened in the corridor, adding to the tourist and recreational draw.

Accident experience along the corridor is generally consistent with statewide averages for the various urban and rural segments, but fatality rates exceed statewide averages on Highway 18 west of McMinnville and in the urban areas along Highway 99W. The lack of continuous shoulders or sidewalks discourages pedestrian and bicycle activity.

2. **Major Issues**

The Highway 99W/18 corridor traverses a wide spectrum of landscapes, including the coastal estuary, the Coast Range, the rich farmlands of the Yamhill, Willamette, and Tualatin Valleys, small rural communities, and cities ranging to the state’s largest metropolitan area. Given this diversity of interests, an extensive menu of potential actions was mentioned by participants in the public involvement program. Most frequently cited were problems of congestion, safety, lack of commute alternatives, need for bypass routes, difficulties of access, and uncertainty of funding for improvements. The range of issues is highlighted briefly below, for topics specified in the OTP.
Transportation Balance
Transportation in the corridor is served by a variety of passenger and freight modes, but commuter travel continues to be dominated by the private automobile. Transportation plans in the urban areas emphasize the need to address congestion through measures that reduce the relative demand for single-occupant travel, simultaneously expanding commute options such as carpooling, transit, bicycling, and walking.

Implementation of commuter rail service or connections to the light rail system could prove to be a viable commute option in this corridor at a future time.

Improved freight mobility in the corridor could be achieved with projects to control access, reduce delays, add passing and truck climbing lanes, and reconstruct curves along the highway. Improved railroad transportation could be provided by upgrading tracks to allow higher operating speeds.

Regional Connectivity
Connections among the communities served by Highway 99W/18 are vital to the local and state economy. The highway serves as a major arterial route for commuters, tourists, local users, and freight movement. In many communities, it also is the focus of commercial activity, with the result that conflicts develop between the functions of through movement and local access.

Growth in population, tourism, and employment is increasing travel demand in the corridor, adversely affecting travel times for both commute and recreational purposes. Measures that protect or enhance the capacity of the corridor will be required to maintain efficient connections. These measures could include widening, added lanes for turning, passing, or truck climbing, conversion to full access control with interchanges, development of bypasses, and access management programs.

Highway Congestion
In the Portland metropolitan area, a combination of actions will be required to address traffic congestion. First, aggressive programs to manage transportation demand are available to shift travel to other modes through carpool matching, transit service expansion, park-and-ride facilities, employer trip reduction programs, and elimination of free parking for commuters. Transportation system management measures also will be pursued, consisting of signal coordination, addition of turning lanes, raised medians, shared driveways, and access management.

As these measures succeed, the subsequent needs to widen the highway may be reduced. A travel demand of up to six lanes is projected on Highway 99W north of Sherwood, but there are significant constraints within Tigard, including the cost of right-of-way, impacts on buildings and historic structures, air quality and noise concerns, and land use objectives.

In the rural areas, four lanes may be necessary to accommodate future travel demands. Grade-separated interchanges could be developed at junctions with other highways and arterial streets. Opportunities for widening are limited by natural constraints in the Van Duzer Corridor and along the Salmon River, including habitat for sensitive species, landslide areas, parkland, wetlands, and topographic limitations.
Safety

Safety performance of the corridor could deteriorate as volumes of through and turning traffic grow, unless accident countermeasures are instituted. Safety improvements can be accomplished with programs to modify intersections, add shoulders, grade-separate junctions, rebuild tight curves, control access, and create a multi-lane divided highway. A detailed analysis of accident patterns will reveal appropriate countermeasures to be targeted for implementation in the short term.

Transportation Impacts

The natural environments through which the corridor passes are considered assets to the region. Transportation impacts that impinge on the environmental quality of the corridor should be restricted. Measures to avoid or mitigate adverse impacts will be required. Improvement projects also provide opportunities to correct past environmental damage.

Implementing programs that emphasize alternative modes could contribute to reduced growth of vehicle-miles of travel and promote energy efficiency. These efforts will complement emerging land use principles that emphasize pedestrian-friendly and transit-oriented development.

3. Corridor Strategy

The corridor strategy for Highway 99W/18 consists of a series of actions that respond to its vital role in serving commute and recreational travel and freight movement, and to the numerous constraints associated with corridor improvements. The following measures are envisioned.

Transportation Balance

- Pursue transportation demand and system management strategies as a first course in addressing future needs.
  - Develop support facilities for transit, carpooling, and the use of nonmotorized modes.
- Retain the railroad as an effective means of freight transport, and investigate opportunities for commuter rail service in the corridor.

Regional Connectivity

- Develop and implement access management plans to control future access to the highway.
- Continue study of limited-access bypass routes to enhance connectivity.
- Pursue improvements that enhance truck mobility and safety.
- Support improvement of the rail freight network serving the corridor.

Highway Congestion

- Provide grade-separated interchanges at selected locations.
• Implement a program of transportation system management measures to improve the efficiency of traffic flow.

• Provide capacity improvements in balance with transportation system and demand management and mode shift goals and other community objectives.

Safety
• Target accident countermeasures for short-term implementation.
• Pursue grade-separation, access control, and geometric modifications to reduce accident risk.

Transportation Impacts
• Develop detailed inventories of constraints that influence transportation improvements.
• Consider methods of avoidance and mitigation for projects in the corridor.

A detailed listing of objectives for corridor development is provided in Chapter 6 of this document.

What's Next

Following endorsement of the Interim Corridor Strategy by jurisdictions along the corridor, the Corridor Plan will be developed. It will strive to preserve and enhance the corridor through close coordination with local land use and transportation plans.

The Corridor Strategy identifies a wide range of actions to be implemented by many agencies and service providers. In some areas, Refinement Plans will provide more detailed analysis. Additional public involvement is anticipated in future work phases. These inputs will be reflected in the selection of future projects and services. Decisions concerning priorities, trade-offs, and funding also will influence implementation of projects in the corridor.
CHAPTER 1
Overview of Corridor Planning

Introduction

The Oregon Department of Transportation (ODOT) is developing corridor plans for those highway corridors identified in the Oregon Transportation Plan (OTP) as being of statewide importance. This document proposes a strategy and objectives for the operation, preservation, and enhancement of transportation facilities along Oregon Highway 99W and Oregon Highway 18, which connect Portland and Lincoln City. The corridor strategy covers a 20-year planning horizon, building on federal, state, and local transportation and land use policies and plans, together with a comprehensive consultation with stakeholders in the corridor. The corridor strategy will guide development of the Corridor Plan and Refinement Plans for the specific areas and issues in the corridor.

Plans call for the Corridor Strategy to be endorsed by all of the jurisdictions along the corridor and by the Oregon Transportation Commission (OTC). Implementation of the Corridor Plan will occur through development of future regional and local transportation plans and comprehensive land use plans. This will ensure that the corridor is preserved and enhanced to the benefit of all users and others dependent upon the corridor.

This chapter consists of a general overview of the corridor planning process. Chapter 2 includes a general description of the corridor, a listing of relevant planning already conducted along the corridor, and population and employment projections. The existing condition of transportation and land use is described in Chapter 3, and future conditions are discussed in Chapter 4. Chapter 5 discusses findings and issues, as well as opportunities and constraints identified along the corridor. Chapter 6 identifies strategies that were developed during the planning process.

Corridor Planning Description and Purpose

A corridor plan is a long-range (20-year) program for managing transportation systems that move people, goods, and services within a specific transportation corridor. Corridor plans are currently being developed for the 31 corridors of statewide or interstate importance identified in the OTP, as shown in Figure 1-1. Other transportation corridors will be studied as resources allow. Each corridor planning area includes statewide transportation facilities, systems, and land areas that influence transportation performance. Transportation corridors are defined as broad geographic areas served by various transportation systems that provide important connections between regions of the state for passengers, goods, and services. Transportation facilities are defined as individual modal or multimodal conveyances and terminals; within a corridor, facilities may be of local, regional, or statewide importance. Examples of facilities are highways, rail transit lines, transit stations, and bicycle paths. Transportation systems are defined as networks of transportation links, services, and facilities that collectively are of statewide importance even though the individual
Oregon Coast Highway (US 101)
Portland - Astoria (US 30)
Cannon Beach - Portland (US 10)
Lincoln City - Portland (OR 18/99W)
Willamina - Salem (OR 22)
Newport - I-5 (US 20/OR 34)
Florence - Eugene (OR 126/1-105)
Reedsport - I-5 (OR 36/OR99)
Coos Bay - Roseburg (OR 42)
Grants Pass - California (US 199)

Medford - California (OR 62/140/39)
Eugene - US 97 (OR 58)
Eugene - Santiam Jct (OR 126)
Salem - Bend (OR 22/US 20)
Gresham - Madras (US 26)
Sunrise Corridor (OR 212)
Hood River - Mt. Hood (OR 35)
Madras - Biggs Jct. (US 97)
Sisters - Ontario (OR 126/OR 26)
Bend - Vale (US 20)

Madras - California (US 97)
Klamath Falls - Lakeview (OR 140)
Umatilla - Pendleton (US 395/1-84)
Pendleton - California (US 395)
Washington - Pendleton (OR 11)
LaGrande - Wallowa Lake (OR 82)
Idaho - Nevada (US 95)
Washington - California (I-5)
I-5 - Idaho (I-84)
Washington - I-84 (I-82)
Arlington - US 26 (OR 19)

LEGEND

FIGURE 1-1

Corridors of Interstate and Statewide Importance
components in the system may be of only local or regional significance. Examples include highway, rail, public transportation, and bicycle systems.

ODOT has developed statewide management systems and modal plans for automobile, truck, passenger and freight rail, aviation, bicycle and pedestrian modes, and intermodal facilities, in addition to a transportation safety action plan. While many modes of transportation and transportation facilities are not owned or operated by the state (e.g., railroads, bus systems, port facilities), the state has a special interest in their performance given their interaction with ODOT facilities and collective significance to the statewide transportation system.

Benefits of corridor planning for the Highway 99W/18 corridor include the following.

Resolution of Major Planning Issues Prior to the Initiation of Project Development. Consensus among local, regional, and state governments regarding project purpose and needs is essential to successful project development. Corridor planning provides a framework within which individual projects located in corridor communities can be reviewed and prioritized.

Preservation of Transportation Rights-of-Way. Costs for transportation rights-of-way increase substantially as land suitable for transportation is developed for other purposes. Uncertainty about right-of-way needs may also impact property owners, businesses, and at times entire communities. The scope and 20-year horizon of a corridor plan identify long-range right-of-way needs that serve to direct future development, reducing development costs and environmental, energy, social, and economic impacts.

Protection of Transportation Investments. To prevent premature obsolescence of highways and other facilities, corridor planning examines alternate means to accommodate transportation needs with and without capital-intensive improvements. Alternatives such as access management, utilization of parallel local streets, reconfigured land use patterns and demand management programs (i.e., ride sharing, public transportation, flex-time, etc.) are considered in lieu of or in addition to major capital improvements.

Partnerships With Diverse Public and Private Agencies and Organizations. Corridor planning provides a forum for resolution of policy issues and negotiation of strategic partnerships between organizations striving to fulfill complementary missions with limited resources. Examples include local, state, and federal agencies, Native American tribes, and transportation associations.

Planning Requirements

There are several federal and state mandates affecting how corridor planning is to be undertaken. The three most important of these are the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA), the Oregon Transportation Plan (OTP), and the Oregon Transportation Planning Rule (TPR). While very different policy initiatives, all three share several common themes requiring that: (1) transportation plans include a balanced transportation system providing transportation options; (2) transportation plans reduce reliance on the single-occupant automobile and increase the opportunity for modal choice; and (3) transportation plans be coordinated with land use plans and (4) address the environmental, social, economic, and energy consequences of proposed actions.
A summary of the OTP, the TPR, and ISTEA are provided in Appendix A of this report.

**Corridor Planning Process**

Corridor planning is being carried out in three phases that progress from the general to the specific (see Figure 1-2). It is important to note corridor planning may not occur in a linear fashion; that is, activities described in Phase 1 may occur after Phase 2 or Phase 3 planning for various ongoing projects in the corridor.

**Phase 1: Interim Corridor Strategy**

With requirements to consider a range of transportation modes and impacts on land use and the environment, a corridor strategy is established in order to properly address the goals and policies of the OTP and statewide mode plans. A corridor strategy provides a set of transportation performance and impact objectives for each corridor.

Transportation facilities and systems in each corridor are identified and analyzed for present and future performance in areas of modal balance, intermodal and regional connectivity, congestion, and safety. In addition, characteristics of the corridor and the role it plays in the region are described in terms of land use, social, environmental, energy, and economic development impacts.

From these analyses come key findings and conclusions regarding the present and future performance and impact of the corridor. These findings and conclusions are the basis for a corridor strategy. This strategy, described in detail through a number of corridor objectives, helps ODOT and jurisdictions within each corridor plan for their transportation systems in a manner consistent with the OTP and other plans and policies.

Phase 1 corridor planning concludes with the endorsement of an interim corridor strategy by cities, counties, and metropolitan planning organizations within individual corridors and by the OTC.

**Phase 2: Corridor Planning**

Most of the corridor planning effort occurs in Phase 2 and focuses on developing corridor improvement and management elements and city and county transportation planning (see Figure 1-2).

During Phase 2, a corridor improvement and management element of each corridor plan is developed to test interim corridor strategy objectives, analyze alternatives, provide general cost estimates, and establish implementation priorities. Implementation decisions for each corridor objective may entail transportation improvements, operations and maintenance programs, agency liaison agreements, and management system category assignments. These decisions may be regulatory (e.g., level of importance, access management category assignments, etc.) or advisory (e.g., proposed capital projects, maintenance programs, etc.) in nature.

In conformance with the TPR, transportation systems plans (TSPs) are currently being or will be developed for cities, counties, and metropolitan planning organizations in Oregon. ODOT staff and financial resources are contributing to these local efforts. Portions of TSPs
Phase One

Develop Corridor Strategy

Phase Two

General Planning Process

Produce Corridor Plan

Phase Three

City or County Transportation Systems Planning (TSP) Process

Refinement Planning for Some Sites

Phase Four

Projects and Programs
that affect statewide corridors are incorporated into the corridor improvement and management element of corridor plans to implement the objectives established in the corridor strategy. This process helps link corridor objectives to city and county comprehensive plans.

Counties with populations of less than 25,000 and cities with populations of less than 2,500 may apply to the Land Conservation and Development Commission for a full or partial exemption from the requirements to develop a TSP. In order to meet remaining TPR requirements for these jurisdictions and complete corridor plans in these instances, ODOT is assisting exempt local jurisdictions through a process called general planning. Similar to transportation systems planning, findings of general planning that affect statewide corridors are included in corridor improvement and management elements.

ODOT uses the general planning process to reach implementation decisions in several circumstances: (1) for any corridor where statewide emphasis regarding transportation facilities and systems is needed; (2) for those portions of corridors that lie within exempt jurisdictions; and (3) where non-exempt local jurisdictions desire that ODOT take the lead for transportation planning in the corridor.

At the conclusion of Phase 2 corridor planning, implementation decisions reached through transportation systems planning or general planning are combined in the transportation improvement and management element. The interim corridor strategy is then refined to reflect the implementation decisions made. The corridor improvement and management element, together with the corridor strategy, is adopted by OTC as the corridor plan.

Phase 3: Refinement Planning

Some portions of corridors may require refinement planning during Phase 3 to resolve particular land use, access management, or other issues that require a more in-depth analysis than ordinarily required to prepare a corridor improvement and management plan element. Corridor plans may then be amended to incorporate the products of these refinement plans.

Projects and Programs

Prioritized improvements to corridor facilities, systems, and management activities identified in the corridor plan provide the basis to update the State Transportation Improvement Program (STIP), which distributes limited transportation resources. Corridor planning is helping ODOT, with the cooperation of local governments and the input from the citizens of Oregon, make the difficult funding decisions necessary to build and maintain a statewide transportation system to meet the growing demand for transportation.

Corridor Planning Participants

The Highway 99W/18 corridor traverses six counties and affects several communities and Oregon's largest urban area. Given the diversity of issues and interests along the corridor, a multijurisdictional approach to planning is needed. Equally important has been the involvement of the general public and various groups located both on and off the corridor.

To coordinate and facilitate participation from such a large and diverse group, the following elements were used:
• Corridor Planning Management Team (CPMT) and Corridor Advisory Group (CAG)
• Public Involvement Program
• Statewide Agency Coordinating Committee and Statewide Stakeholders

Corridor Planning Management Team and Corridor Advisory Group
The Corridor Planning Management Team (CPMT) consisted of representatives of Oregon Department of Transportation, Tri-Met, Metro Washington, Yamhill, Polk, Tillamook and Lincoln Counties, Portland, Tigard, King City, Tualatin, Sherwood, Newberg, Dundee, Dayton, Lafayette, McMinville, Sheridan, Willamina, and Lincoln City, Confederated Tribes of the Grand Ronde, Mid-Willamette Valley Council of Governments, State Parks and Recreation, and Siuslaw National Forest. The CPMT has acted as a review and steering committee throughout the planning process in developing the Corridor Strategy. These agencies will be responsible for implementing the programs and projects necessary to implement the plans that will be the final outcome of the corridor planning process.

The Corridor Advisory Group (CAG) was composed of stakeholders and jurisdictions who were not represented on the CPMT, but who have a strong interest in the planning and operation of the Highway 99W/18 corridor.

A listing of CAG and CPMT representatives is provided in Appendix D.

Public Involvement Program
An extensive public involvement program was held as part of the corridor planning process. This included public meetings, direct mailings soliciting input, and print and electronic media coverage. Information was provided to more than 2,800 persons during the course of the project and input received from 350 persons. Issues and concerns identified during the public involvement program are summarized in Appendices D and E.

Statewide Agency Coordinating Committee and Statewide Stakeholders
Federal and state agencies, tribal representatives, and transportation service providers have been invited to participate in a continuing statewide agency coordinating committee to help facilitate their involvement in corridor planning. Public involvement in corridor planning at the state level is being facilitated by a statewide stakeholders group. The stakeholders group includes representatives of many statewide groups in the transportation, land use, environmental, and social service areas. Those interested in a specific corridor participate in corridor planning through involvement on the CPMT or through meeting and corresponding with the corridor planning staff, or both. Copies of draft documents were mailed to these groups for review.
CHAPTER 2
Corridor Overview

General Corridor Description

The Highway 99W/18 corridor extends 75 miles from I-5 (Exit 294) in Portland to U.S. 101 near Lincoln City (see Figure 2-1). In the easternmost segments of the corridor, urbanized land uses predominate along Highway 99W, including the cities of Portland, Tigard, King City, Tualatin, and Sherwood. Throughout this area, the highway consists of four lanes with signalized intersections and turning lanes at major cross streets and driveway access points. The highway traverses rural lands between Sherwood and Newberg. In downtown Newberg, Highway 99W is routed on a one-way couplet, with three northbound lanes and two southbound lanes, and on-street parallel parking. Sidewalks and bike lanes are provided in some of the urbanized areas for pedestrian and bicycle travel, but are intermittent in some areas.

South of Dundee, the corridor assumes a more rural character. Near Dayton, Highway 18 joins 99W at McDougal’s Corner. Highway 99W continues west into Lafayette and McMinnville, but this route is not a part of the current study. Highway 18 bypasses to the south of these communities, Sheridan, and Willamina, then continues west through the rural centers of Bellevue, Fort Hill, Valley Junction, Grand Ronde, Rose Lodge, and Otis. In these rural portions of the corridor, the route passes through farmland in the Yamhill River Valley and the forests of the Coast Range. Throughout the rural areas, the highway consists of two basic travel lanes, with intermittent passing and turning lanes. Grade-separated interchanges and overcrossings are provided in some areas. Shoulders, varying from 1 to 8 feet in width, are provided for pedestrian and bicycle travel.

The Highway 99W/18 corridor provides access to the central Oregon Coast from Portland and surrounding areas. It intersects a number of corridors providing connections to nearby communities, including Highway 217 in Tigard, Highways 240 and 219 in Newberg, Tualatin-Sherwood Road, Highway 221 at Dayton, and Highway 233 south of Lafayette. Near Willamina, Highway 22 from Salem connects into Highway 18. Highway 18 is collocated with Highway 22 to Valley Junction.

Both Highway 18 and the segment of Highway 99W between I-5 and McDougal Corner are included in the National Highway System under the provisions of the federal Intermodal Surface Transportation Efficiency Act (ISTEA). Portions of Highways 99W and 18 are designated as state scenic highways. Both Highway 99W (I-5 to McDougal Corner) and Highway 18 are designated as part of the Access Oregon Highway System.

Public transit service is provided by Tri-Met in Washington and Multnomah counties, and by YAMCO in Yamhill County. Connections between the two systems are made in Sherwood. Intercity bus service is provided twice daily by Greyhound throughout the corridor. Together with several services for disadvantaged travelers, public transit offers basic mobility to those without access to an automobile. In the urbanized areas near Portland, transit provides an option to auto use.
FIGURE 2-1
Highway 99W/18 Corridor
Other modes in the corridor include rail and air transport. No passenger rail service is provided, and there is no continuous rail right-of-way through the entire corridor. A few general aviation airports are located in the corridor, but there is no scheduled air service among cities in the corridor.

A complete description of transportation service and characteristics of the corridor is provided in Chapter 3.

Summary of Prior Plans and Studies

This corridor study was developed using a multitude of local, regional, and state planning documents. The primary tools include local and county comprehensive and transportation plans, traffic studies, and existing Oregon Department of Transportation (ODOT) statewide plans. Prior plans and studies provided by local jurisdictions and state agencies are listed below. Summaries of their relevance to this corridor planning effort are provided in Appendix A.

- **Access Oregon Corridor Study—OR 99 W/OR 18.** Prepared by JRH Transportation Engineering for Oregon Department of Transportation. February 1990.
- **Dayton Comprehensive Land Use Plan:** May 1979, updated December 1986.
- **Demographic and Economic Forecasts,** Oregon Department of Transportation, March 1993.
- **Dundee 1977 Comprehensive Plan and 1987 Periodic Review.**
- **Grand Ronde Reservation Transportation Plan,** Bureau of Indian Affairs, Portland Area Office—August 1993. ASCG, Inc.
- **Grand Ronde Triple Master Plan - Sketch Transportation Analysis,** Gary Spanovich, AICP, February 23, 1996.
- **Lafayette Comprehensive Plan** 1986.
- **Lincoln County Transportation Goals and Policies. Sections 1.0140 and 1.0145.** From Lincoln County Comprehensive Plan.

• Draft McMinnville Corridor Refinement Plan, Three-Mile Lane Corridor, Mid-Willamette Valley Council of Governments, February 1996.


• Newberg Comprehensive Plan, as revised January 9, 1995.


• Oregon Bicycle and Pedestrian Plan: June 1995. Oregon Department of Transportation, Bicycle and Pedestrian Program.


• Oregon Rail Passenger Policy and Plan, Oregon Department of Transportation, 1992.

• Oregon Transportation Safety Action Plan.


• Polk County Comprehensive Plan: 1993 Edition. Polk County Community Development Department, Planning Section.

• Revised Environmental Assessment and Final Section 4(f) Evaluation, SR 18, Rose Lodge to Polk County Line, Oregon Department of Transportation. September 1988.

• Rex Hill-Dayton Junction Reconnaissance Study, Oregon Department of Transportation, 1990.


• Sheridan City - Potential Development Impact Analysis, City of Sheridan, June 1995.
• Tigard, City of; Findings, Policies, and Implementation Strategies, City of Tigard.
• Statewide Transportation Improvement Program, Oregon Department of Transportation, 1995-1998.
• Tigard, City of; Transportation—Comprehensive Plan Report. Prepared by the City of Tigard.
• Tigard Triangle Update Study: Traffic Analysis, DKS Associates, for the City of Tigard, May 1995.
• Highway 99W Transportation System and Access Management Plan, David Evans and Associates, for the City of Tigard, August 1995.
• Tualatin Development Code, City of Tualatin, 1988 and 1993.
• Washington County Transportation Plan, Volume XV. October 1988 (with revisions through 12/94). Washington County Department of Land Use and Transportation, Planning Division, 150 North 1st Ave., Hillsboro, OR 97124.
• Washington County Comprehensive Plan, Volume II-IV.
• Willamina Comprehensive Land Use Plan.
• Draft Yamhill County Transportation System Plan, JRH Transportation Engineering, July 1995.

Details of each of the plans and studies, including their application to the Highway 99W/18 corridor, are provided in Appendix A.

**Population and Employment Projections**

Future population and employment growth along the Highway 18/99W corridor are critical factors to consider in developing effective strategies for improvements to transportation systems. All of the surrounding counties through which the corridor passes are expected to see dramatic increases in both population and employment. Population and employment
for each of seven counties as forecast in ODOT's Demographic and Economic Forecasts 1990–2030 (March 1993) are presented in Tables 2-1 and 2-2.

**TABLE 2-1**
Population Forecasts

<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>2000</th>
<th>2012</th>
<th>Increase 1990-2012</th>
<th>Overall Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multnomah</td>
<td>583,500</td>
<td>658,400</td>
<td>726,200</td>
<td>142,700</td>
<td>24.5%</td>
</tr>
<tr>
<td>Washington</td>
<td>313,000</td>
<td>394,900</td>
<td>498,200</td>
<td>185,200</td>
<td>59.2%</td>
</tr>
<tr>
<td>Clackamas</td>
<td>279,500</td>
<td>349,000</td>
<td>434,740</td>
<td>155,240</td>
<td>55.5%</td>
</tr>
<tr>
<td>Yamhill</td>
<td>65,600</td>
<td>78,900</td>
<td>87,800</td>
<td>22,200</td>
<td>33.8%</td>
</tr>
<tr>
<td>Polk</td>
<td>49,700</td>
<td>58,200</td>
<td>64,300</td>
<td>14,600</td>
<td>29.4%</td>
</tr>
<tr>
<td>Tillamook</td>
<td>21,500</td>
<td>25,100</td>
<td>28,300</td>
<td>6,800</td>
<td>31.6%</td>
</tr>
<tr>
<td>Lincoln</td>
<td>38,900</td>
<td>47,600</td>
<td>54,900</td>
<td>16,000</td>
<td>41.1%</td>
</tr>
</tbody>
</table>

Source: ODOT Demographic and Economic Forecasts (March 1993).

Of the seven counties, Washington County, near the east end of the project corridor, is anticipated to experience the most significant population growth, amounting to nearly 60 percent in the 22-year period. Multnomah County will experience the second-highest growth in absolute terms, corresponding to an increase of about 25 percent. Lincoln County, at the far west end of the corridor, is projected to experience the highest growth rate among the rural counties, but Yamhill County will experience the highest absolute population increase. Figure 2-2 portrays the forecast population growth by county. This growth will place demands for future transportation facility and service improvements on the Lincoln City to Portland Corridor.

As with population, of all the counties along the study corridor, Washington County is forecast to experience the highest growth in employment over the 22-year period. Employment in Washington County is anticipated to double. Lincoln and Yamhill counties are expected to see their employment increase by almost half over the period. Employment growth for each county is presented in Figure 2-3. These increases in jobs will increase the number of commute trips and demand for transportation facilities and services throughout the study corridor.
FIGURE 2-2
Trends in Population Growth
FIGURE 2-3
Trends in Employment Growth
TABLE 2-2
Employment Forecasts

<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>2000</th>
<th>2012</th>
<th>Increase 1990-2012</th>
<th>Overall Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multnomah</td>
<td>401,100</td>
<td>446,300</td>
<td>487,900</td>
<td>86,800</td>
<td>21.6%</td>
</tr>
<tr>
<td>Washington</td>
<td>128,900</td>
<td>181,800</td>
<td>264,500</td>
<td>135,600</td>
<td>105.2%</td>
</tr>
<tr>
<td>Clackamas</td>
<td>89,270</td>
<td>117,500</td>
<td>157,210</td>
<td>67,940</td>
<td>76.1%</td>
</tr>
<tr>
<td>Yamhill</td>
<td>21,800</td>
<td>27,000</td>
<td>31,600</td>
<td>9,800</td>
<td>45.0%</td>
</tr>
<tr>
<td>Polk</td>
<td>11,500</td>
<td>13,700</td>
<td>15,900</td>
<td>4,400</td>
<td>38.3%</td>
</tr>
<tr>
<td>Tillamook</td>
<td>6,200</td>
<td>7,400</td>
<td>8,800</td>
<td>2,600</td>
<td>41.9%</td>
</tr>
<tr>
<td>Lincoln</td>
<td>13,900</td>
<td>17,000</td>
<td>20,700</td>
<td>6,800</td>
<td>48.9%</td>
</tr>
</tbody>
</table>

Source: ODOT Demographic and Economic Forecasts (March 1993).

Growth of Tourism and Recreational Travel

Many areas adjacent to the corridor serve as important tourist and recreational destinations in western Oregon:

- The Oregon Coast offers unparalleled scenic vistas and numerous state parks along its length. The Highway 99W/18 corridor provides access to the Central Oregon Coast from both the Portland and Salem metropolitan areas. Many visitors from the metropolitan areas use this route for popular destinations south along the coast, including Lincoln City and Newport, the Oregon Coast Aquarium, the Sea Lion Caves near Florence, and the Oregon Dunes National Recreation Area. Travel to coast destinations reaches a maximum during the summer, and on holidays and weekends.

Gambling casinos have opened in Grand Ronde and Lincoln City. These facilities serve as destinations for some visitors and attract travelers already using this corridor for trips to other destinations. Activity at the casinos generally peaks on Fridays and weekends.

Wine grapes and wine production have developed as major industries in the Dundee, Newberg, and McMinnville areas. Wines produced from grapes grown in the region are widely acclaimed for their high quality. Numerous vineyards and wineries serve as tourist destinations for weekend travel. Restaurants, produce stands, and shops contribute to the wine country atmosphere.

- Additional tourist attractions along the corridor include aviation and historical museums, festivals, historic sites, and the Tualatin River National Wildlife Refuge near Sherwood.

Tourist and recreational travel dramatically affect traffic patterns in the corridor. During the summer, heavy travel demand in the corridor reduces speeds and lengthens travel times,
particularly in the two-lane segments. These effects are most acute on Fridays and Sundays as weekend visitors travel to and from the Oregon Coast. In addition, tourist and recreational travel is expanding to the spring and autumn months.

Tourist and recreational activity can be expected to increase as new attractions are developed and as population continues to grow in towns and cities along the corridor and throughout Oregon. Efforts to attract national and international travel to Oregon are gaining new emphasis. Tourism represents the dominant economic base of the Oregon Coast and is expected to supplant or supplement declining resource-based industries. These factors suggest that tourism and recreation will grow as influences on travel along the Highway 99W/18 corridor.
CHAPTER 3
Existing Conditions

Highways 99W and 18 are of critical importance to the movement of passengers and freight to a wide range of statewide, regional, and local users. It is a primary route for travel between the Portland and Salem metropolitan areas and the Central Oregon Coast and surrounding areas. There are connections to other state highways that provide access to communities within and beyond the six counties through which the corridor passes. The route is part of the National Highway System and the Access Oregon Highway System. The corridor serves a significant role in the economic vitality of the state and region.

Multiple modes of travel are available in the corridor. It is used both for commuter and recreational/tourist travel. Substantial levels of freight are moved in the corridor by truck and the various rail facilities. Transit users are served by bus and van routes. Cyclists and pedestrians also use these roadways. This chapter describes the existing conditions for each mode serving the corridor.

Highway System

The corridor extends 75 miles, including 22.4 miles on Highway 99W and 52.6 miles on Highway 18. Highway 99W, from its junction with Interstate 5 near the Portland/Tigard city limits to McDougal Corner, serves substantial local traffic from cities along its route and serves as a significant commuter corridor to and from the Portland metropolitan area. Highway 18, extending between McDougal Corner and Lincoln City, experiences a lower level of commuter and local traffic, thereby maintaining a more rural character. During the summer, and on weekends and holidays, however, the entire corridor caters to tourist traffic between the coast, wineries, restaurants, gambling casinos, and other destinations and the Portland and Salem metropolitan areas.

Through most of the corridor, the highway consists of two or four through lanes, with auxiliary lanes for passing, truck climbing, or turning at many urban intersections, rural crossroads, and driveways. At several locations, grade-separated interchanges and over-crossings have been developed, with full access control. In most other areas, local access for adjacent residential and commercial properties is served by the highway.

Traffic Volumes

ODOT monitors activity on the highway system with daily and peak-hour traffic counts. These counts are used to estimate annual average daily traffic (AADT), which is the average for all days of the year, including holidays and weekends. The 1994 AADT volumes are presented in Figure 3-1.

Traffic volumes are heaviest in the eastern portion of the corridor due to the concentrated urban development. AADT volumes in the Tigard area range from 53,000 vehicles near I-5 to 28,000 vehicles near Sherwood. Traffic volumes slightly increase to about 30,000 vehicles per day (vpd) through Newberg. West of Newberg, average daily traffic volumes decrease to about 18,000 vehicles per day near McDougal Corner. From McDougal Corner to
Bellevue, volumes range between 10,000 and 15,000 vpd, with the annual average dropping below 10,000 vpd south of Sheridan and Willamina. Volumes exceed 11,000 vpd in the overlapping section with Highway 22, dropping below 9,000 vpd west to the junction with the Oregon Coast Highway (U.S. 101).

Highway 99W and Highway 18 carry substantial truck traffic, ranging from 940 to 1,740 vehicles per day. These figures represent 6 to 8 percent of total traffic in the corridor, with the higher percentages typically occurring in the rural areas.

Figure 3-2 depicts current and past average daily traffic volumes along selected points of the corridor. From 1975 to 1994, daily traffic volumes have increased significantly. Daily traffic volumes increased an average of 85 percent over the 19-year period, except just east of the East McMinnville interchange (Three Mile Lane), where traffic grew 125 percent due to the highway bypass widening. These data are intended to indicate trends in travel demand; however, traffic flows are subject to daily, seasonal, and annual variations, and the localized influences of large trip generators. Since 1990, growth rates of AADT in the corridor have averaged 2 to 7 percent annually, with the higher growth rates observed in the Tigard, Newberg, and McMinnville areas. Annual growth rates in the rural portions of Highway 18 have averaged 1 to 4 percent.

There are significant patterns of seasonal, daily, and hourly variation in travel in the corridor. The patterns in the urbanized portion of Highway 99W are demonstrated by data from the continuous traffic count station north of Newberg. During 1994, the AADT was 28,100 vpd, but volumes average greater than 30,000 vpd during August, the peak month. Volumes are elevated 4 to 9 percent above the annual average during the summer months. Figure 3-3 shows monthly ADT variations, comparing volumes on Mondays through Thursdays, Fridays, Saturdays, and Sundays.

On a daily basis, the average Friday traffic volume increases to 32,000 vpd, or about 14 percent above the AADT. Daily counts exceeding 30,000 vpd are observed during every month of the year, and counts exceeding 33,000 vpd are observed in every month from June through October. The maximum 1994 daily volume of 35,400 vpd in 1994 was recorded on the Friday preceding Labor Day.

The thirtieth-highest hourly volume (30 HV) is frequently used as a measure of the peaking characteristics of vehicle traffic. At the Newberg location, the 30 HV represented 9.6 percent of the 1994 AADT. All but 2 of the 30 highest hourly volumes occurred on 23 Fridays and all during the 3 to 6 p.m. hours. All months except December, January, and February are represented among the 30 highest hours. These patterns are typical of the urban commute nature of traffic flow along 99W.

Characteristics of travel in the Highway 18 portion of the corridor are exhibited by the traffic data from Valley Junction, where Highway 18 and Highway 22 occupy a common route. The 1994 AADT was 11,500 vpd, with traffic increasing during August to 15,200 vpd, or 32 percent above the annual average. Traffic volume during July increases 30 percent above average, and in September, 16 percent above average.
FIGURE 3-2
Existing and Historic Traffic Volumes
At Valley Junction, volumes are highest on Sundays (30 percent above AADT) and Fridays (17 percent above AADT). Daily counts exceeding 18,000 vpd are observed in March and May through September. The maximum 1994 daily volume of 20,920 vpd was recorded on a Sunday in August.

All but three of the 30 highest hourly volumes at Valley Junction occurred on Sundays and holidays, most during July, August, and September. The 30 HV represents 14.8 percent of the 1994 AADT, which is typical of rural recreational travel. The 30 highest hourly observations occurred on only 13 days of the year, and most within the hours between noon and 5 p.m.

Peek-hour traffic counts from the continuous count stations indicate 30 HV values of about 1,700 vehicles per hour (vph) in two lanes at Valley Junction and 2,700 vph in four travel lanes at Newberg. Continuous counts are unavailable for other areas, so the 30 HV cannot be quantified at other locations. Isolated weekday traffic counts from other studies are available in several communities. Traffic counts in Tigard indicate peak-hour volumes ranging from 3,600 to 4,000 vph along Highway 99W between I-5 and Highway 217 (four to six lanes). In Sherwood at Sunset Boulevard, 1995 traffic counts show about 2,660 vph (four lanes). In these areas, peak-hour traffic constitutes about 8 percent of the daily total.

Travel Time

The average travel times for the length of the corridor are 115 minutes for autos and 148 minutes for trucks. These times equate to 1.55 minutes per mile (39 mph) for cars and 1.99 minutes per mile (30 mph) for trucks—more than 10 percent higher than statewide average travel times. Travel time per mile is dramatically higher at the east end of the corridor near and in the Portland metropolitan area, with average travel times of 2.6 minutes per mile (23 mph). Travel times are lowest between McMinnville and Highway 22, with an average of about 1.2 minutes per mile (50 mph).

Travel times increase slightly at the west end of the corridor near Lincoln City to 1.6 minutes per mile, or about 37 mph (Section 3, ODOT HPMS Analysis).

Congestion

Traffic congestion can be defined as “the level at which transportation system performance is no longer acceptable due to traffic interference.” Congestion can be of a recurring nature, as in weekday commute conditions, or may be related to incidents, such as vehicle breakdowns or accidents. With high levels of congestion, traffic volumes are at or near capacity, and traffic moves in a stop-and-go fashion. At moderate levels of congestion, traffic flow is stable, but passing is restricted. Low levels of congestion imply free flow of traffic with passing opportunities.

Recurring congestion is most acute in the urban areas during the morning and evening commute periods, and during a secondary mid-day peak. On Fridays and weekends, the additional demands associated with tourist and recreational travel can produce recurring congestion throughout the corridor, particularly during the summer and autumn months. In all cases, congestion is aggravated by incidents that reduce the capacity of the highways, creating queues of vehicles that are slow to discharge.
Currently, 19 percent of the corridor is subject to high congestion levels, primarily in Tigard, Tualatin, Sherwood, and Newberg, but also including McMinnville, the common section of Highway 18/22, and the far western portion near U.S. 101. Moderate congestion levels account for 48 percent of the corridor, including nearly all the remaining areas of Highway 18. Only 33 percent of the corridor experiences low levels of congestion, mostly from Sherwood to Newberg and Dundee to McMinnville. On some weekends and holidays, the entire corridor experiences moderate to high congestion levels. In addition, weekday congestion is reported to be worsening near the newly opened Spirit Mountain Resort, but is not reflected in the 1994 traffic counts.

The effects of congestion include lengthening of travel times, reduced opportunities to pass, and fewer gaps to move into or across highway traffic. At the Valley Junction intersection with Highway 22, motorists regularly experience delays during peak periods turning left onto eastbound Highway 18. These effects, attributable to the uninterrupted nature of traffic flow along Highway 18, also occur at numerous crossroads and driveways.

### Operating Costs and Fuel Consumption

Operating costs and fuel consumption were estimated for vehicles traveling along the corridor. The operating costs reflect the costs of fuel, oil, tires, maintenance and repairs, depreciation, and the value of travel time associated with use of the corridor. The estimated operating costs per vehicle are $385 per year per car and $1,254 per year per truck.

### Safety and Crash Profile

Within the corridor, there were 1,727 crashes recorded between January 1, 1991, and December 31, 1993. Of that total, 862 crashes (50 percent) produced 1,451 injuries and 31 fatalities. Almost 81 percent of the crashes in the corridor occurred on Highway 99W, while 19 percent occurred on Highway 18. Crashes on Highway 99W accounted for 73 percent of the injuries and 42 percent of fatalities in the corridor. Most of the crashes occurred along Highway 99W, while most fatalities occurred on the Highway 18 portion of the corridor.

Detailed analysis of crash patterns was conducted for each route. On Highway 99W, the gross accident rate for the 3-year period was 1.91 accidents per million vehicle-miles (MVM) of travel. Table 3-1 presents the accident rates for the various urban and rural portions of the corridor, together with the statewide averages. Overall accident rates along Highway 99W are slightly elevated in the Tigard and Newberg urban areas.

Most recorded crashes (52 percent) along Highway 99W involved property damage only. The predominant crash types were rear-end (46 percent) and turning (30 percent) collisions. Fewer than 1 percent of crashes were head-on collisions and fewer than 5 percent involved collisions with fixed objects. In general, the accident experience along Highway 99W is consistent with that of an urban setting. Many crashes occur at intersection locations, with 11 locations in the corridor experiencing five to ten crashes annually.

In the Highway 99W portion of the corridor, there were 11 fatal crashes (0.8 percent of the total) producing 13 fatalities. These figures translate to crashes at a rate of 1.78 fatalities/100 MVM. Average fatality rates for the corridor are shown in Table 3-2, together with statewide average fatality rates. Fatality rates in the urban portions of Highway 99W exceed...
TABLE 3-1
Highway Accident Rates, 1991-1993

<table>
<thead>
<tr>
<th>Segment</th>
<th>Limits</th>
<th>Highway</th>
<th>Milepost</th>
<th>Rate $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Urban</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.55</td>
</tr>
<tr>
<td>Statewide Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway 99W</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>I-5 - Highway 217</td>
<td>Pacific Highway West</td>
<td>7.40</td>
<td>8.70</td>
</tr>
<tr>
<td>1a</td>
<td>Highway 217 - Tigard (south city limits)</td>
<td>Pacific Highway West</td>
<td>8.70</td>
<td>11.50</td>
</tr>
<tr>
<td>1b</td>
<td>Tigard (south city limits) - Sherwood (Kreuger Rd)</td>
<td>Pacific Highway West</td>
<td>11.50</td>
<td>16.70</td>
</tr>
<tr>
<td>1c</td>
<td>Sherwood (Kreuger Rd) - Newberg</td>
<td>Pacific Highway West</td>
<td>16.70</td>
<td>21.60</td>
</tr>
<tr>
<td>2a</td>
<td>Newberg - Newberg urban area (west)</td>
<td>Pacific Highway West</td>
<td>21.60</td>
<td>24.31</td>
</tr>
<tr>
<td>2b</td>
<td>Newberg urban area (west) - Dayton Jct.</td>
<td>Pacific Highway West</td>
<td>24.31</td>
<td>29.80</td>
</tr>
<tr>
<td>Highway 18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td>Dayton Jct. - east edge McMinnville urban area</td>
<td>Salmon River</td>
<td>52.65</td>
<td>48.59</td>
</tr>
<tr>
<td>3b</td>
<td>East edge McMinnville urban area - McMinnville (west city limits)</td>
<td>Salmon River</td>
<td>48.59</td>
<td>46.43</td>
</tr>
<tr>
<td>3c</td>
<td>McMinnville (west city limits) - West Durham Lane (McMinnville)</td>
<td>Salmon River</td>
<td>46.43</td>
<td>43.01</td>
</tr>
<tr>
<td>4</td>
<td>West Durham Lane (McMinnville) - Highway 22</td>
<td>Salmon River</td>
<td>43.01</td>
<td>27.08</td>
</tr>
<tr>
<td>5</td>
<td>Highway 22 - East boundary of park (H.B. Van Duzer)</td>
<td>Salmon River</td>
<td>27.08</td>
<td>18.79</td>
</tr>
<tr>
<td>6</td>
<td>East boundary of park (H.B. Van Duzer) - H.B. Van Duzer State Park west edge</td>
<td>Salmon River</td>
<td>18.79</td>
<td>8.51</td>
</tr>
<tr>
<td>7</td>
<td>H.B. Van Duzer State Park west edge - U.S. 101</td>
<td>Salmon River</td>
<td>8.51</td>
<td>0</td>
</tr>
</tbody>
</table>

$^1$ Urban/rural classifications represent Urban Growth Boundaries as of 1992.
$^2$ Number of accidents per million vehicle-miles of travel.
### Table 3-2
Highway Fatalities, 1991-1993

<table>
<thead>
<tr>
<th>Segment</th>
<th>Limits</th>
<th>Highway</th>
<th>Milepost</th>
<th>Number of Fatalities</th>
<th>Rate[^2]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Urban</td>
</tr>
<tr>
<td><strong>Statewide Average</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.54</td>
</tr>
<tr>
<td><strong>Highway 99W</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>I-5 - Highway 217</td>
<td>Pacific Highway West</td>
<td>7.40</td>
<td>8.70</td>
<td>1</td>
</tr>
<tr>
<td>1a</td>
<td>Highway 217 - Tigard (south city limits)</td>
<td>Pacific Highway West</td>
<td>8.70</td>
<td>11.50</td>
<td>2</td>
</tr>
<tr>
<td>1b</td>
<td>Tigard (south city limits) - Sherwood (Creuger Rd)</td>
<td>Pacific Highway West</td>
<td>11.50</td>
<td>16.70</td>
<td>3</td>
</tr>
<tr>
<td>1c</td>
<td>Sherwood (Creuger Rd) - Newberg</td>
<td>Pacific Highway West</td>
<td>16.70</td>
<td>21.60</td>
<td>2</td>
</tr>
<tr>
<td>2a</td>
<td>Newberg - Newberg urban area (west)</td>
<td>Pacific Highway West</td>
<td>21.60</td>
<td>24.31</td>
<td>2</td>
</tr>
<tr>
<td>2b</td>
<td>Newberg urban area (west) - Dayton Jct.</td>
<td>Pacific Highway West</td>
<td>24.31</td>
<td>29.80</td>
<td>3</td>
</tr>
<tr>
<td><strong>Highway 18</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td>Dayton Jct. - <em>east edge</em> McMinnvile urban area</td>
<td>Salmon River</td>
<td>52.65</td>
<td>48.59</td>
<td>1</td>
</tr>
<tr>
<td>3b</td>
<td>East edge McMinnvile urban area - McMinnvile (west city limits)</td>
<td>Salmon River</td>
<td>48.59</td>
<td>46.43</td>
<td>1</td>
</tr>
<tr>
<td>3c</td>
<td>McMinnvile (west city limits) - West Durham Lane (McMinnvile)</td>
<td>Salmon River</td>
<td>46.43</td>
<td>43.01</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>West Durham Lane (McMinnvile) - Highway 22</td>
<td>Salmon River</td>
<td>43.01</td>
<td>27.08</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Highway 22 - East boundary of park (H.B. Van Duzer)</td>
<td>Salmon River</td>
<td>27.08</td>
<td>18.79</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>East boundary of park (H.B. Van Duzer) - H.B. Van Duzer State Park west edge</td>
<td>Salmon River</td>
<td>18.79</td>
<td>8.51</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>H.B. Van Duzer State Park west edge - U.S. 101</td>
<td>Salmon River</td>
<td>8.51</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[^1]: There were 27 fatal accidents resulting in 31 fatalities.
[^2]: Number of fatalities per 100 million vehicle miles of travel.
the statewide urban average by about 15 percent. In addition, about 5 percent of injuries received in crashes along Highway 99W are considered severe.

Along Highway 18, the gross accident rate was 0.73 crashes/MVM over the 3-year period. Overall accident rates on the rural portions of Highway 18 range up to 20 percent above the statewide average in two areas; however, most areas are at or below the statewide average, as shown in Table 3-1. Most reported crashes (59 percent) involved injuries or fatalities. Rear-end collisions accounted for 30 percent of crashes, and turning collisions 12 percent. Head-on collisions occurred in almost 5 percent of crashes and collisions with fixed objects occurred in 23 percent of the Highway 18 crashes.

There were 16 fatal crashes (4.8 percent of the total) producing 18 fatalities along Highway 18. The resulting rate is 3.96 fatalities/100 MVM, about 27 percent above the statewide rural average, as shown in Table 3-2. Six of the fatalities occurred in the Van Duzer portion of the corridor, resulting from two head-on collisions and three collisions with fixed objects. In addition, about 16 percent of injuries received in crashes on Highway 18 were considered severe.

The crash experience along Highway 18 is consistent with the rural nature of the route. Although the overall accident rate is low, the rates of fatality and injury accidents are elevated. No single intersection was identified having more than three crashes per year.

No analysis has been conducted regarding the statistical significance of actual accident rates in comparison to the statewide averages, and no trend analyses have been performed. The review of crash data at the corridor level is intended only to indicate broad patterns. Additional detailed analysis of accident statistics may be performed at the project level.

The entire Highway 99W/18 corridor also exceeds the statewide average for high accident locations. The statewide average is 0.54 location per mile. This corridor averages 1.69 locations per mile.

One method of assessing the safety of roadway sections is through use of the Safety Priority Index System (SPIS). The SPIS is used to identify locations where funds could be spent most beneficially to improve safety. The SPIS is composed of three parameters, each having different weights totaling 100 percent. The parameters are accident frequency (28 percent), accident rate (39 percent), and accident severity (33 percent). SPIS values are calculated on all segments of the State Highway System where there are three or more crashes or one or more fatalities in a 3-year period. Figure 3-4 shows the maximum SPIS along each mile of the corridor. Locations with an index greater than 42.38 are on the SPIS top ten percent list for 1994. These are locations that would most likely be considered for safety improvements. Specific candidate sites for safety improvements are not identified by SPIS. Within each 1-mile segment of concern, specific locations for improvements can be determined by defining, for example, high-accident intersections and sites of fatal accidents.
FIGURE 3-4
1994 Accident Distribution
FIGURE 3-5
Rail Carriers in Northwest Oregon

LEGEND
BN  BURLINGTON NORTHERN SANTA FE
SP  SOUTHERN PACIFIC
UP  UNION PACIFIC
BM  BLUE MOUNTAIN
COP  CITY OF PRINEVILLE
CORP  CENTRAL OREGON & PACIFIC
EPTC  EAST PORTLAND TRACTION CO.
HLSC  HAMPTON RAILWAY
INP  IDAHO NORTHERN & PACIFIC
KN  KLAMATH NORTHERN
LC-GW  LAKE COUNTY–GREAT WESTERN RAILWAY
LPN  LONGVIEW PORTLAND & NORTHERN
MH  MOUNT HOOD
MW  MOLALLA WESTERN
OE  OREGON EASTERN
POTB  PORT OF TILLAMOOK BAY
P&W  PORTLAND & WESTERN
PT  PENINSULA TERMINAL CO.
WCTR  WHITE CITY TERMINAL
WVRY  WILLAMETTE VALLEY RAILWAY
W&P  WILLAMETTE & PACIFIC

STATE HIGHWAYS
Railroads

Several rail freight lines operate in proximity to the corridor between Portland and Fort Hill. These operations include major carriers and short line railroads. These are described below in the context of their traffic density and track classifications. The Federal Rail Administration (FRA) has established six classes of track, representing the maximum speed of operation. Speeds are limited to 10 mph on Class 1 track, 25 mph on Class 2 track, and 40 mph on Class 3 track. Higher speeds are permitted for higher classes, but none exist in this corridor.

The Newberg Branch and Westside Branch are sections of the Southern Pacific’s (SP) former branch line through the Willamette Valley. The Newberg Branch extends from the SP main line in Milwaukie through Tigard and Sherwood to Newberg, and is operated by the Portland and Western Railroad. The Westside Branch connects at Newberg and extends south to Corvallis, and is operated by the Willamette and Pacific Railroad. Traffic density is under two million gross tons of freight annually on the Newberg Branch and under one million gross tons annually on the Westside Branch. Freight moved over these lines include lumber products, agricultural goods, fertilizer, and steel or rolling mill products. The Newberg Branch is maintained to FRA Class 2 standards and the Westside Branch includes segments of FRA Class 2 and 3 trackage.

The Willamina Branch connects to the Westside Branch south of McMinnville and extends 18.7 miles west to Willamina; it is operated by Willamette and Pacific Railroad. Fewer than one million gross tons are carried annually, consisting primarily of timber and agricultural products. It is maintained to FRA Class 1 standards. Weight limits are in effect west of Ballston.

The Hampton Railway (formerly Willamina and Grand Ronde Railroad) operates between Fort Hill and Willamina (approximately 5.3 miles). It connects to the Willamina Branch in Willamina. Fewer than 1 million gross tons are carried annually over this trackage, composed primarily of timber and agricultural products. It is maintained to FRA Class 1 standards.

There are at-grade railroad crossings in the corridor at Newberg, McDougal Corner, and Sheridan. Grade-separated crossings are provided in Tigard south of Sherwood, and near McMinnville. Highway 99W/18 and the rail lines run next to or near each other in the vicinity of Fort Hill and between McDougal Corner and Tualatin.

There is currently no passenger rail service along the corridor.

Air Service

The following general aviation airports are located in the corridor:

- McMinnville Municipal Airport, located next to Highway 18 in McMinnville
- Sheridan Airport, located northwest of Sheridan
- Sportsman’s Airpark, located south of Highway 99W in Newberg
The McMinnville Municipal Airport is the largest of the three airports, with an instrumented primary runway over 5,000 feet in length, and has the ability to accommodate a wide variety of aircraft. All three of these airports are general aviation facilities and none offer scheduled commercial passenger services. Commercial passenger services are available at Portland International Airport, located in north Portland about 15 miles northeast of the corridor's eastern terminus.

Public Transit and Intercity Bus Service

Greyhound Bus Lines provide intercity bus service to communities within the corridor. Two eastbound and two westbound runs are made daily between Portland and Lincoln City. At the east end of the corridor, in Multnomah and Washington counties, Tri-Met operates local bus service as far west as Sherwood. A park-and-ride lot is located in the Tigard Triangle area.

Bus service between Willamina and Sherwood is provided by YAMCO, a bus line operated by the Yamhill County Community Action Program (YCAP). LINK Public Bus, an intercity service along the Highway 99W corridor between the cities of McMinnville, Lafayette, Dundee, Newberg, and Sherwood, is provided jointly by YCAP and by the Chehalem Valley Senior Citizens Council Service, and operated by YAMCO.

Transportation service for the disadvantaged is provided by Tri-Met through the LIFT program. It provides door-to-door service in the Tri-Met service area, and meets ADA requirements. Volunteer Transit, Inc. (VTI) provides service to the elderly, handicapped, and those in need of transportation to medical facilities. VTI augments Tri-Met service and serves outlying areas. In Yamhill County, YAMCO provides transportation to medical facilities.

Public transportation service in Polk County is provided by social services organizations. It consists of a dial-a-ride service operated with volunteer support. In Lincoln County, public intercity service is available on a dial-a-ride basis. Lincoln County has received a developmental grant from the Federal Transit Administration to expand services, and a transit plan is in place.

Shuttle services to the Portland International Airport are operated by Evergreen Aviation in McMinnville. Although it serves as a corporate shuttle, service is available to others in the area.

Service on the transit, intercity, and sightseeing buses is summarized in Table 3-3.

Bicycles

Bicycle use in the corridor generally can be characterized as either short local trips most commonly occurring in the urban areas or longer distance trips taken for recreational purposes. Highway 99W/18 accommodates both commute and touring bicycle traffic. Bicycle facilities, typically shoulder bikeways, are provided throughout most of the corridor. Shoulders are narrow in some locations, including many bridges, resulting in shared operation of bicycles and motor vehicles. Designated bicycle lanes are provided in the urban areas of Tualatin and Tigard.
## Table 3-3: Highway 99W/18 Corridor Bus Travel

<table>
<thead>
<tr>
<th>Transit Provider</th>
<th>Number of Runs/day (weekdays)</th>
<th>Average Daily Ridership</th>
<th>Number of Runs/week</th>
<th>Average Ridership per week</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit</td>
<td>Tri-Met (Routes 12 and 95 X)</td>
<td>148</td>
<td>2,000</td>
<td></td>
<td>Provides bus service along the corridor from downtown Portland to Sherwood. Ridership is the estimated number of riders originating and terminating their trips between Tigard and Sherwood. This is about 30 percent of total route ridership.</td>
</tr>
<tr>
<td>YAMCO (Link)</td>
<td>8</td>
<td>35</td>
<td></td>
<td></td>
<td>McMinnville to Sherwood a.m. roundtrip. McMinnville to Newberg a.m. roundtrip Chehalem Valley Senior Citizens Council provides p.m. return trips. Stops at Lafayette, Dundee, and Newberg</td>
</tr>
<tr>
<td>YAMCO (Sheridan to McMinnville)</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>Monday and Thursday, a.m. and p.m. Tuesday by appointment. Ridership data unavailable.</td>
</tr>
<tr>
<td>YAMCO (Willamina to Sheridan)</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>Daily a.m. and p.m. Ridership data unavailable.</td>
</tr>
<tr>
<td>VTI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Provides service to the elderly, handicapped, and those in need of transportation to medical facilities along the corridor from Tigard to the Washington County Line. Statistics unavailable.</td>
</tr>
<tr>
<td>Greyhound</td>
<td>4</td>
<td>100</td>
<td></td>
<td></td>
<td>Runs two westbound and two eastbound buses per day from Portland to Lincoln City.</td>
</tr>
<tr>
<td>Sightseeing</td>
<td>Gray Line</td>
<td>2</td>
<td>20</td>
<td></td>
<td>Makes two westbound runs per week (Wednesday and Friday) using 47-seat buses from Portland to Newport along the corridor. They average 10 passengers per bus. The buses return via Highway 20.</td>
</tr>
<tr>
<td></td>
<td>Spirit Mountain</td>
<td>12</td>
<td>450</td>
<td></td>
<td>Runs special 47-seat buses Tuesday, Wednesday, and Thursday, and group tours from Portland and Salem to Grand Ronde. Their ridership is expected to increase as the casino becomes more established.</td>
</tr>
<tr>
<td></td>
<td>Chinook Winds</td>
<td>4</td>
<td>100</td>
<td></td>
<td>Runs two 47-seat buses and two 39-seat buses on Monday and Thursday from Portland to Grand Ronde. Their ridership is expected to increase as the casino becomes more established.</td>
</tr>
</tbody>
</table>
Pedestrians

Typically, sidewalks are only provided along some urban segments and intermittently in some rural areas. Sidewalks are provided through most of Tigard and Newberg, but with some missing segments; for example, in Tigard pedestrians often must walk along the highway shoulder. Sidewalks have been added through Sherwood as development occurs. In each of these areas the highway is at least five lanes wide, including a center two-way left-turn lane. Crossing opportunities are limited due to traffic conflicts and a lack of protected traffic control and traffic conflicts.

There are few pedestrian trips within the corridor’s rural sections. Pedestrians tend to use the shoulders in those areas. Provisions for sidewalks along rural sections of Highway 99W/18 are not recommended. There is, however, a need for safe pedestrian crossing opportunities both in the urban and rural areas.

Pipelines

A Santa Fe Pacific high-pressure oil pipeline crosses Highway 99W east of Sherwood. Northwest Natural Gas Company natural gas distribution lines run in the corridor and serve most communities. No other products are shipped by pipeline through the corridor. No need for additional pipeline service has been identified in the corridor.

Environment

This section presents a segment-by-segment inventory of the environmental characteristics along the corridor. The 75-mile corridor was divided into seven distinct segments. The discussion for each segment includes physical and environmental features, land use patterns, cultural features, and transportation and travel features. Maps illustrating this information are included in Appendix C of this report.

The information depicted on the maps was collected by reviewing community and county comprehensive plans, maps, and other information compiled by the Oregon Department of Environmental Quality, State Parks Department, the Department of Fish and Wildlife, and ODOT, including text descriptions of physical features within the corridor. The sources were supplemented, especially for existing land use, by conducting field trips along the corridor.

At the corridor strategy level, these inventories are general. Site-specific environmental and cultural features will be studied in detail when individual improvement projects advance in the project development process. The general inventory is intended to provide an overview of the constraints and characteristics of areas adjacent to the corridor.

Highway 99W from Interstate 5 to Sherwood (Segment 1)

This segment of Highway 99W extends 9.4 miles from I-5 near the Portland/Tigard city limits to the southwest city limits of Sherwood. This segment is principally in Washington County although the far eastern end is in Multnomah County (and in Portland). This
largely urban segment is located in several communities within the Portland metropolitan area, including Portland, Tigard, King City, Tualatin, and Sherwood.

**Physical and Environmental Features**

The terrain generally can be described as the foothills of the Tualatin Mountain. This segment crosses the Tualatin River and Fanno and Rock Creeks. These streams provide habitat for various trout, steelhead, coho, and other game fish. These are classified as water-quality limited streams by DEQ, indicating potential existing or future failure to meet water quality standards. The trees are mostly Douglas fir with a mixture of grand fir and big leaf maples. No unique plant or animal species are reported for Segment 1. The newly created Tualatin River National Wildlife Refuge is located north of Sherwood and west of Tualatin.

**Land Use Patterns**

Land use next to Highway 99W includes a variety of urban residential housing types and urban commercial use in strip development form. The highway passes through the town centers of Tigard and King City. There is a high concentration of commercial uses in the Tigard Triangle area bounded by I-5, Highway 99W, and Highway 217. The character of land use along the highway is changing rapidly in Sherwood, from agricultural uses to new shopping centers and residential subdivisions. Sherwood is one of the most rapidly developing cities in the Portland Metro areas.

**Cultural Features**

This highway segment has several golf courses adjacent to or very near the highway. There are three parks along this segment or very nearby; Main and Fanno Parks at milepost 9.37 and Avalon at milepost 12.20. The Tualatin Valley National Wildlife Refuge is north of the City of Sherwood. St. Paul and Maple Lane Cemeteries are in Sherwood near milepost 15.50, about 3,000 feet northwest of the highway. Historical resources in this segment include the Tigard Grange and Joy Theater, both in Tigard. Although not listed on the National Register of Historic Places, they may require further evaluation. Both could be adversely affected by widening in this segment. Several mobile home and apartment complexes in Tigard could be adversely affected by highway noise and may benefit from soundwalls.

**Transportation and Travel**

Highway 99W is typically a four-lane highway throughout this segment with a continuous center turn lane or median. There are numerous street intersections and driveway accesses. Several are provided with traffic signals. Interchanges connect the route to I-5 and Highway 217. The Westside Branch line of the Southern Pacific Railroad crosses the highway through an underpass at milepost 9.20 in central Tigard. There is a marked bicycle lane in portions of Tigard and Tualatin.

**Highway 99W from Sherwood to Dayton (Segment 2)**

Segment 2 covers 13.17 miles from the southern city limits of Sherwood to the Highway 18 junction (McDougal Corner). This segment leaves Washington County and runs primarily through Yamhill County. Travel in the segment includes daily commuter travel between McMinnville, Newberg, nearby communities, and the Portland metropolitan area.
Physical and Environmental Features
Most of the terrain in this segment can be characterized as foothills. The Willamette River is approximately 1 mile south of the highway near Newberg. From Rex Hill, a vista of Newberg is provided. A number of streams drain the surrounding area and feed into the Willamette River or its tributaries. This segment crosses the Goose, Cedar, Springbrook, Chehalem, and Hess Creeks. Among these, Cedar Creek is considered water-quality limited. Native cutthroat trout are found in all these streams. Douglas fir trees predominate with a mixture of grand fir and big leaf maples. This area is in the Willamette Forest Prairie Zone. No unique plant or animal species are reported for this segment.

Land Use Patterns
Urban development and rural residential use is more prevalent in this segment than in the area further west. Several vineyards and wineries exist and the area is considered to contain some of the best conditions for wine production in the world. Nut orchards are a prevalent agricultural use, as well as grass seed and grain production.

Cultural Features
There are two incorporated cities along this segment: Newberg and Dundee. A childhood home of President Herbert Hoover, the Hoover-Minthorn House, is in Newberg near milepost 23.19. Several homes and farmsteads near Sherwood are listed on the statewide inventory of historic resources. The Hillcrest Cemetery is about 800 feet southeast of the highway at milepost 24.5. Three other cemeteries, Friends Cemetery, Granddaughters of the American Revolution (GAR) Cemetery, and Fernwood Cemetery are south of the road at milepost 25. Dundee Pioneer Cemetery is about 3500 feet northwest of the highway near milepost 25.10. In Dundee, the elementary school is adjacent to the highway. A soundwall may be justified to mitigate future highway noise at this location.

Transportation and Travel
Highway 99W is mostly a four-lane highway throughout Segment 2. Highway 99W is routed through the downtown areas of Dundee and Newberg. Through Newberg’s central business district the highway follows a one-way couplet (Main Street and Hancock Street). Through Dundee the highway is two lanes wide with a center turn lane. Oregon Highways 240 and 219 intersect Highway 99W in Newberg. These highways provide access to and from the north-central portions of Yamhill County and northern Marion County. Highway 99W is a designated scenic route in this area. The railroad is located south of the highway between the western terminus of this segment and Newberg. An at-grade railroad crossing exists at the west end of Newberg. The railroad remains north of the highway until milepost 17.83 when it again crosses the highway at an overcrossing.

Highway 18 from Dayton to Southwest McMinnville (Segment 3)
This segment runs 9.63 miles from McDougal’s Corner to the southwestern edge of McMinnville’s urban growth boundary (UGB) at Durham Lane. Highway 18 serves as a bypass of McMinnville. Highway 99W continues through Lafayette into central McMinnville but is not a part of the current study. This segment extends between Highway 18 mileposts 52.65 and 43.02. Highway 18 milepost 52.65 is the same as Highway 99W milepost 29.84.
Physical and Environmental Features
Segment 3 crosses a generally level portion of the Willamette Valley. Near McMinnville, the highway crosses the South Yamhill River, the Yamhill River, and the Yamhill River Overflow. Both the South Yamhill and Yamhill Rivers contain trout, winter steelhead, coho salmon, and other game fish. Both rivers are considered water-quality limited. The trees along this segment are mostly Douglas fir with a mixture of grand fir and big leaf maples. This area is in the Willamette Forest Prairie Zone. No unique plants are known along this segment. The Oregon giant earthworm has been reported in this segment.

Land Use Patterns
The primary land uses along this segment are farming and forest use. The McMinnville urban area, particularly the area around the McMinnville Airport, is the largest exception to this pattern of land use. West of the McMinnville Airport, a factory outlet shopping center exists, and construction of the new Willamette Valley Medical Center is nearly completed. An Oregon Aviation Museum featuring Howard Hughes’ Spruce Goose airplane is proposed in this vicinity. Residential and industrial uses also exist in this area.

Cultural Features
This highway segment passes south of Lafayette and near Dayton. It also includes McMinnville, the largest community in Yamhill County. McMinnville Airport offers flight instruction and glider rides. Recreational opportunities along this segment include boating, fishing, and picnicking. Several homes along the Highway 18 corridor are listed in the statewide inventory of historic resources.

Transportation and Travel
Most of this segment consists of two lanes, although four travel lanes and a center left-turn lane exist for most of the 3 miles between the east McMinnville interchange and Cruickshank Road. Three interchanges exist in the segment: at Salem-Dayton Highway, at East McMinnville (connecting to downtown McMinnville), and at Highway 99W at the western side of McMinnville. Shoulders are narrow on several of the bridges in this area. The Westside branch rail line crosses the segment twice; once near the western end of McMinnville at an underpass, and with an at-grade crossing near Dayton.

Highway 18 from Southwest McMinnville to Highway 22 (Segment 4)
Segment 4 covers the 15.8 miles of Highway 18 between the southwest corner of the McMinnville UGB and the Highway 22 interchange. It traverses the South Yamhill River portion of Willamette Valley. Land use changes from mixed farm and forest use to almost exclusive farmlands.

Physical and Environmental Features
Segment 4 provides scenic vistas of the Coast Range. This segment crosses the South Yamhill River and Muddy, Swale, Deer, and Mill Creeks. These streams provide habitat for trout, steelhead, and coho salmon. The South Yamhill River is listed as water-quality limited. Tree types are predominantly Douglas fir interspersed with a mixture of grand fir, big leaf maple, and valley oak. This area is in the Willamette Forest Prairie Zone. A plant species found in this segment, Nelson’s checkermallow, is listed as a sensitive species.
Land Use Patterns
The primary land use is farming, including nut orchards, vineyards, grass seed, grain, and livestock. Two cities, Sheridan and Willamina, and the rural community of Bellevue are in this segment. A solid waste disposal site is near milepost 41.5. A federal corrections facility is near the east end of this segment.

Cultural Features
This segment passes near two small cities: Sheridan and Willamina. A cemetery, Green Crest Memorial Park, is located just south of the highway at milepost 32.60. This segment of highway provides opportunities for picnicking, camping, and hiking. Erratic Rock State Park is north of the highway near milepost 38.40. The Lawrence Gallery is located in Bellevue. The Stuart Grenfeld County Park is south of the highway in this segment. Several homes and the Bellevue School are listed as historic resources in this segment.

Transportation and Travel
Except for a four-lane section with a grass median between mileposts 27.8 and 29.3, Highway 18 is a two-lane highway between southwest McMinnville and Highway 22. A branch line railroad operation, the Willamette and Pacific Railroad, serves this area using the Southern Pacific’s Willamina Branch and Westside Branch lines. The Willamina Branch connects to the Westside Branch near Whiteson, about 4 miles south of McMinnville. Between Willamina and Sheridan, the railroad is north of the South Yamhill River and away from the Highway 18 alignment. The railroad crosses the river in Sheridan, and then crosses Highway 18 in Sheridan at an at-grade railroad crossing. The Sheridan Airport is northwest of Sheridan.

Highway 18 from Highway 22 to East End of Van Duzer Corridor (Segment 5)
This segment covers 8.38 miles from the Highway 22 interchange near Willamina to the eastern boundary of the H. B. Van Duzer State Park. It traverses a spur of the Willamette Valley while generally following the course of the South Yamhill River. This area can be characterized as farm and forest land with a few small rural communities along the highway. This segment extends between Highway 18 mileposts 27.17 and 18.79.

Physical and Environmental Features
Highway 18 runs the length of a relatively level, narrow valley containing the South Yamhill River. The highway crosses the South Yamhill River four times: just east of Grand Ronde, at the Valley Junction Highway 22 intersection, in the Fort Hill area, and again at the Highway 22 interchange. The South Yamhill River provides habitat for steelhead and coho salmon, but is considered water-quality limited from its headwaters. Surrounding terrain is mountainous as the highway leaves the Coast Range and enters the Willamette Valley. The Willamette daisy and Nelson’s checkermallow are listed sensitive plant species in this segment, and the western pond turtle also is a likely inhabitant of the South Yamhill River.

Land Use Patterns
Most of the land in the segment is in farm or forest use. The rural communities of Fort Hill and Grand Ronde are in the segment, as are tribal lands of the Confederated Tribes of the Grand Ronde. Commercial land uses exist in the two communities, including restaurants,
automobile service stations, and retail stores. Wood processing facilities exist north of Highway 18 in the Fort Hill area, and in the Willamina area, and other wood processing facilities operate in the Grand Ronde area. The Spirit Mountain casino, located along the south side of Highway 18 west of Valley Junction, opened for business in October 1995.

Cultural Features
There are two unincorporated communities—Fort Hill and Grand Ronde. The Sheridan Mennonite Cemetery is south of Highway 18 at milepost 27. Tribal offices are about 1 mile north of the highway on Grand Ronde Road. The Grand Ronde Elementary School also is north of the highway at Grand Ronde Road.

Transportation and Travel
Between the Highway 22 interchange and Fort Hill, the highway includes a westbound passing lane. Bridges over the Yamhill River in central Fort Hill and over the Rogue River have narrow shoulders. A 20-mph school zone is posted in Grand Ronde. An interchange exclusively serving the Grand Ronde gaming facility was recently constructed. Through Grand Ronde, the highway includes a continuous center turn lane. The highway is fairly level. The Willamina and Grand Ronde Railway is next to the highway from the east end of the segment to Fort Hill. It meets the Southern Pacific’s Willamina Branch line in Willamina. Less than one million gross tons are transported over the line annually, and the line is maintained to (FRA) Class I standards.

Highway 18 Through the Van Duzer Corridor (Segment 6)
Segment 6 begins at the eastern boundary of the H. B. Van Duzer State Park and continues to the west park boundary. This segment traverses Polk, Tillamook, and Lincoln Counties. Except for about a 1-mile distance near the Polk County/Tillamook County line at the middle of the segment, it is entirely within the state park.

Physical and Environmental Features
This segment crosses the Bear, Indian, and Sulphur Creeks and the Rogue and Little Nestucca Rivers. No water quality problems are noted in this segment. The predominant tree types are western hemlock, western redcedar, red alder, and big leaf maple with Pacific silver fir in the hills up to 1,000 feet while western hemlock is found at elevations ranging from 1,000 feet to 1,500 feet above sea level. The topography is fairly hilly and the highway crosses hills up to approximately 900 feet in elevation. Opportunities to improve highway geometries by widening and flattening curves in this area are limited by policies that protect parks and recreational land. There is also potential river habitat for salmon and terrestrial habitat for the spotted owl and for marbled murrelets in this vicinity.

Land Use Patterns
Land outside the state park is in forest and farm use. The Van Duzer State Park provides recreational opportunities and protects this scenic corridor segment.
Cultural Features
There are campsites very close to Highway 18 in Segment 6 that provide many opportunities for picnicking, hiking, and camping. A highway rest stop is located at the western end of the park.

Transportation and Travel
Highway 18 along Segment 6 contains several climbing and passing lanes. There are steep cut and fill embankments along the side of the roadway, with steep drops to drainage ditches or the adjacent terrain. The highway climbs to a summit elevation of 760 feet in this segment. There is a chain-up area eastbound in advance of the summit. Some areas provide a narrow cross section with retaining walls. There are deceleration lanes at the park entrance.

Highway 18 from West End of Van Duzer Corridor to U.S. 101 (Segment 7)
Segment 7 covers 8.51 miles from the west boundary of the Van Duzer State Park to U.S. 101, just north of Lincoln City. Linkages to campgrounds in the Siuslaw National Forest occur in this segment.

Physical and Environmental Features
In this segment, Highway 18 generally parallels the Salmon River. It is near the southern boundary of the Cascade Head Experimental Forest in the western portion of the segment. Several streams are crossed, including Widow, Alderbook, Willis, Slick Rock, Bear, Kinnaman, Baxter, and Frazer Creeks, as well as the Salmon River. No water quality problems are noted in this segment. The predominant tree types are western hemlock, western redcedar, red alder, and big leaf maple with Pacific silver fir in hills up to 1,000 feet and western hemlock 1,000 feet to 1,500 feet elevation above sea level. The topography is mostly river basin floodplain between coastal mountains. Habitat for salmon, marbled murrelet, bald eagle, and spotted owl also are found in this segment. There are extensive wetland areas adjacent to the Salmon River.

Land Use Patterns
Most of the surrounding land is used for forest purposes. Rural homesites are found throughout this section. Land primarily is in private ownership on both sides of the highway. A fish hatchery is north of the Salmon River.

Cultural Features
Opportunities for boating, fishing, and camping are found in areas next to this segment, along its entire length as well as off into the hills. Two unincorporated communities are in this segment: Rose Lodge (milepost 5.28) and Otis (milepost 1.26).

Transportation and Travel
Highway 18 through Segment 7 is primarily a two-lane road with some intersection improvements to accommodate turning movements. In Rose Lodge, highway curvature combined with steep embankments and narrow shoulders reduces sight distance at several intersections and driveways. Areas with abutting homes and driveways are accompanied by open drainage and culverts. No shoulders are provided on the bridge crossing the Salmon River.
Salmon River at milepost 6.5. North Bank Road, north of the Salmon River, also runs east-west through this area between Otis and Rose Lodge.
CHAPTER 4
Future Conditions

With the projected growth in population and employment in the state and region, travel demand for all modes can be expected to increase in the Highway 99W/18 corridor. Highway use will be affected by added commute travel, personal travel, and freight movement. Continuing development within urban areas will generate tripmaking by automobile, bus, walking, and cycling. Shifts in travel among the various modes may affect the relative rates of growth; however, in the absence of improvements, deterioration in travel times, service levels, and safety can be expected. Efficient and safe movement of persons and goods in this corridor is crucial from statewide, regional, and local perspectives.

In this chapter, the long-term outlook for travel demand and transportation service in the corridor is reviewed. The analysis is based on broad trends at the corridor strategy level. Each mode of travel is discussed briefly in the overview below.

Highway System

The Federal Highway Administration requires each state to collect information about selected sections of highway. ODOT has developed the Oregon Highway Monitoring System (OHMS) for the collection, updating, and submittal of this data. The OHMS is designed to provide information on both present and future operating characteristics of a highway system under a variety of situations. It is based on the Highway Performance Monitoring System (HPMS) developed by the Federal Highway Administration. This chapter summarizes the OHMS analysis for future conditions along the Highway 99W/18 corridor. A more detailed overview of the highway performance analysis methodology and results is provided in Appendix B.

Using traffic projections to the year 2016, future travel times and the extent of congestion were estimated for the corridor. Using ODOT's OHMS analytical tool, performances were evaluated for the year 2016 considering no capacity-related improvements were made in the corridor.

The analytical data indicate that substantial improvements will be needed in the future to maintain current service, safety, and economy along the study corridor. This is due to the increased volume and congestion projected for passenger trips and increased truck traffic due to expanding economic development. Additional information on traffic volumes, travel times, congestion, and safety is presented below.

Traffic Volumes

Traffic volumes are projected to continually be heaviest in the urbanized eastern portion of the corridor due to the concentrated residential and commercial development. Annual average daily traffic (AADT) projections for the year 2016 range from 55,300 vehicles near Newberg (more than double the current AADT) to 95,600 vehicles near Interstate 5.
Figure 4-1 depicts current and projected growth trends in daily traffic volumes along selected points of the corridor. Between now and 2016, traffic volumes are expected to increase significantly. During the 20-year period, traffic volumes are expected to increase an average of 75 percent along both Highway 99W and Highway 18.

Other forecasts of future traffic volumes have been prepared by METRO for the years 2010 and 2015, using the EMME/2 predictive model. These forecasts cover only the portion of the corridor east of Sherwood. The focus of the METRO projections is on peak-hour forecasts, while the OHMS trend analysis is based on daily figures. At the more general level of the corridor analysis, the OHMS estimates are used because they cover the entire corridor. As specific projects in the urbanized area are identified, the more detailed peak-hour estimates from Metro can be adopted for project planning and design.

Several major transportation projects under consideration in the corridor could affect future traffic volumes. In the Portland metropolitan area, studies of a Western Bypass, connecting U.S. 26 in Beaverton to I-5 near Wilsonville, were completed in 1995. The recommendations from that study included a variety of arterial improvements within southern Washington County and an expressway connection from Highway 99W in Tualatin to I-5 near the I-205 interchange. This facility, known as the Tualatin-Sherwood Highway, would be a four-lane limited access facility with an intermediate interchange at the Tualatin-Sherwood Road. Potential routes are shown in Figure 4-2. This project would respond to the increasing travel demands among the southern and western suburbs of Portland and offer a direct connection between I-5 and Sherwood and Tualatin. This project is intended to shift through traffic onto the Tualatin-Sherwood Highway, alleviating the need for future widening along 99W north of the new highway connection. The Tualatin-Sherwood Highway is included in the adopted 2040 Growth Concept and the Regional Transportation Plan (RTP). An amendment to the RTP is now being considered.

To address building traffic volumes along Highway 99W in Newberg, a program of signal improvements and access management has been developed for the segment from Brutscher to Main Streets. Over the long term, volumes are likely to grow beyond the capacity offered by these improvements, and additional widening would produce adverse community impacts. To address these concerns, a new roadway has been proposed to bypass to the south of Newberg and Dundee. Known as the Yamhill County Parkway, it would extend from north of Newberg to south of Dundee as a limited-access facility. Potential routes and access points are shown in Figure 4-3. This project is intended to shift through traffic onto the bypass route, alleviating the need for future widening along Highway 99W in Newberg and Dundee.

The significant weekly and seasonal variations in traffic volume are likely to continue into the future, given the numerous recreational and tourist destinations served by the corridor. As a general rule, the extreme seasonal peaking patterns could be expected to reduce, in relative terms, as traffic volumes increase. Thus, in the urbanized eastern areas of the corridor, peak monthly averages might range 5 to 10 percent above the annual average, and along Highway 18 to the west, 20 to 30 percent higher.

**Travel Times**

The OHMS data describe highway performance measures for the year 2016, depending on the level of access management and roadway improvements provided. Currently, travel
FIGURE 4-1
Traffic Volume Projections
FIGURE 4-2
Tualatin-Sherwood Highway
FIGURE 4-3
Newberg-Dundee Bypass
times between Portland and Lincoln City are approximately 115 minutes (39 mph) for automobiles and 147 minutes (30 mph) for trucks. These times are estimated to degrade to 127 minutes (35 mph) for cars and 156 minutes (28 mph) for trucks based on the continuation of current growth trends and an assumption of no major improvements or changes in maintenance and operation practices. This represents a travel time increase of 10 percent for cars and 6 percent for trucks (see Figure 4-4).

**Congestion**

In 1996, 19 percent of the corridor was subject to high levels of congestion. The balance of corridor mileage was subject to moderate (48 percent) and low levels of congestion (33 percent). At present rates of traffic growth, many of the moderately congested areas will become even more congested in the future. The OHMS projections suggest that without highway improvements, but with high levels of corridor management, high congestion levels would be expected along 64 percent of the corridor by 2016. Poor traffic operations would be experienced in Tigard, Tualatin, Sherwood, Newberg, and McMinnville, as well as significant portions of the rural mileage. These effects are demonstrated in Figure 4-5 and Appendix B (p. 3-16).

Based on the generalized OHMS trends in future traffic volumes, the lane requirements were estimated for the 20-year planning horizon. These lane requirements are presented in Figure 4-6. In the Portland metropolitan area, the daily traffic projections would indicate a need for six lanes on Highway 99W in Tigard, King City, Tualatin, and Sherwood. At the extreme north end of the corridor, north of Highway 217, the daily demands exceed the capacity of a six-lane arterial. Six lanes also would be needed in north Newberg and the downtown couplet. Four lanes would be adequate south of Newberg and through Dundee to the Highway 18 junction.

On Highway 18, the trend analysis indicates that four lanes would be required throughout the length of the highway. It should be noted that OHMS estimates of future traffic do not explicitly account for the growth of casinos and other Coast attractions. These effects will be considered in detail in the refinement planning analysis.

Estimates of traffic operations for the corridor have been prepared for the year 2016, both for the existing number of lanes and for the improved condition. Without widening, many locations will experience deterioration to poor levels of service, as shown in Table 4-1. In the improved configuration, nearly all segments would operate satisfactorily.

It should be emphasized that the results of the trend analysis provide a guideline for future capacity needs in the corridor. Individual projects undertaken in the corridor will be subjected to refinement planning in which proposed lane configurations will be developed in detail. In this process, the effects on capacity of various traffic and access management programs can be reflected, and opportunities to attract trips to other modes assessed. To the extent that these measures reduce congestion, lane requirements could be modified in response.

Increasing levels of congestion can be expected to result in extending the morning and afternoon peak travel periods. Without improvements, weekday commute congestion could extend four to six hours daily north of Highway 217. Simultaneously, the percentage of traffic occurring during the peak hour could be expected to drop, since no further volume increases are possible beyond the maximum capacity. In broad terms, the corridor...
FIGURE 4-4
Projected Travel Times
<table>
<thead>
<tr>
<th>Segment</th>
<th>Highway Location</th>
<th>Milepost&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Existing 1994</th>
<th></th>
<th></th>
<th>Future 2015</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AADT</td>
<td>Lanes</td>
<td>LOS&lt;sup&gt;1&lt;/sup&gt;</td>
<td>AADT</td>
<td>Lanes</td>
<td>LOS&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>1</td>
<td>Hwy 99W w/o I-5 at Portland city limits</td>
<td>7.61</td>
<td>53,000</td>
<td>4</td>
<td>F</td>
<td>87,300</td>
<td>4</td>
<td>F</td>
</tr>
<tr>
<td>1</td>
<td>Hwy 99W w/o Beaverton-Tualatin Hwy</td>
<td>8.84</td>
<td>44,000</td>
<td>4</td>
<td>F</td>
<td>56,600</td>
<td>4</td>
<td>F</td>
</tr>
<tr>
<td>1</td>
<td>Hwy 99W SW of Six Corners intersection</td>
<td>15.33</td>
<td>25,400</td>
<td>4</td>
<td>B</td>
<td>39,150</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>Hwy 99W at Newberg ATR site</td>
<td>21.65</td>
<td>28,100</td>
<td>4</td>
<td>C</td>
<td>49,700</td>
<td>4</td>
<td>E</td>
</tr>
<tr>
<td>2</td>
<td>Hwy 99W east of Hwy 18 intersection</td>
<td>29.59</td>
<td>18,000</td>
<td>2</td>
<td>F</td>
<td>33,350</td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>3</td>
<td>Hwy 18 south of Hwy 99W intersection</td>
<td>52.55</td>
<td>10,300</td>
<td>2</td>
<td>E</td>
<td>16,900</td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>3</td>
<td>Hwy 18 east of McMinnville Spur</td>
<td>46.46</td>
<td>15,000</td>
<td>5</td>
<td>B</td>
<td>26,450</td>
<td>5</td>
<td>F&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>4</td>
<td>Hwy 18 west of Bellevue-Hopewell Hwy</td>
<td>36.92</td>
<td>11,200</td>
<td>2</td>
<td>F</td>
<td>14,800</td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>5</td>
<td>Hwy 18 at Valley Junction ATR site</td>
<td>23.76</td>
<td>11,500</td>
<td>2</td>
<td>F</td>
<td>18,550</td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>7</td>
<td>Hwy 18 at Bear Creek Bridge</td>
<td>3.96</td>
<td>7,000</td>
<td>2</td>
<td>E</td>
<td>10,500</td>
<td>2</td>
<td>F</td>
</tr>
</tbody>
</table>

Note:
1 Level of service analysis based on 1994 Highway Capacity Manual Multi-lane and Two-lane Highway methods. Levels of service A, B, and C represent low congestion; D, moderate congestion; and E and F, high congestion.
2 Additional lanes or high levels of management would be required to meet OTP/OHP level of service standards.
3 Mileposts for two highways (different directions).
4 With signalized intersection at Norton Lane.
5 With elimination of signalized Norton Lane intersection.
1. Low congestion corresponds to free flow conditions at or near posted speed.
2. Moderate congestion corresponds to unstable traffic flow with restricted passing and increasing delays.
3. High congestion corresponds to forced flow conditions at or near capacity.

FIGURE 4-5
Present and Future Highway Congestion
Highway Lane Requirements
roadways will be busy all day, as the peak period expands and discretionary travel shifts to adjacent hours.

Rising congestion levels also increase the likelihood of diversion to other roads. These effects are already being observed with the use of the Tualatin-Sherwood Road and I-5 as an alternate route in the eastern portion of the corridor. Although the number of potential alternate routes is limited, motorists will seek any route that provides competitive travel times.

Congestion in the rural areas will likely remain focused on weekend and holiday periods. The probable effects here will be a lengthening of the Friday and Sunday peak periods and possibly increasing traffic levels on Thursdays and Mondays. There are no parallel continuous alternate routes to Highway 18 that could serve diversion traffic. Congestion in this corridor could shift trips to other statewide routes or to other coastal destinations.

ODOT has studied several alternatives to reduce future congestion levels in the corridor. These alternatives were framed in terms of both corridor management and capital investment programs. Generally, the programs that provide for low management of the corridor resource and the least investment produce the highest levels of congestion. With high levels of both management and investment, travel times in the corridor in 2016 could be improved to 100 minutes (44 mph) for cars and 131 minutes (34 mph) for trucks. In this scenario, 11 percent of the corridor mileage would experience moderate congestion and 89 percent low congestion. Other options would have intermediate effects on travel time and congestion.

The baseline 2016 scenario (without improvements in the corridor) considers only committed and funded projects in the travel time and congestion analyses. The programs with high levels of corridor management would involve reforms in land use practices and higher utilization of transit modes. Programs with high levels of investment would involve geometric and capacity improvements along Highways 99W and 18. Individual improvement projects are not specifically identified in the OHMS studies.

**Safety**

Without improvements, safety is likely to deteriorate compared to current conditions. However, street improvements, access management, and overall safety awareness could result in lower accident rates. Currently the corridorwide accident rate is greater than the statewide average rate for study segments in Tigard, Newberg, and west of the Van Duzer corridor.

In areas experiencing congestion, it is typical that increasing numbers of rear-end and turning/angle accidents would occur. The number of conflict points could increase as additional cross streets and driveways are constructed. The overall accident rate and the associated level of economic loss are likely to rise in the absence of improvements.

In the rural areas, increasing congestion manifests itself in a reduced number of opportunities to pass slower vehicles. Travel speeds are higher, and thus the severity of accidents is much greater. Along Highway 18, higher traffic levels are likely to translate to higher numbers of fatalities unless improvements and countermeasures are implemented.
Operating Costs and Fuel Consumption

Operating costs will increase in the future due to inflation and costs associated with traveling more slowly (and less efficiently) due to greater congestion. Without improvements, operating costs will increase 32 percent for cars and 22 percent for trucks by the year 2016 (see Appendix B, pp. 3-14, 3-15).

Rail

There are currently no plans for expansion or abandonment of the rail lines in the corridor. If the market demands, additional service could be provided, or the lines upgraded to higher track classifications. Planning and funding for improvements on these light-density lines is assisted by ODOT and federal sources, through periodic updates of the Rail Freight Plan.

It is not yet clear how the Southern Pacific/Union Pacific consolidation will affect rail operations in the corridor. Experience on the national scale suggests that short-line operators will grow by returning lines to profitability through a combination of customer service and aggressive marketing.

Passenger rail service could be initiated using the rail rights-of-way in the corridor, although no proposals for such an operation have been developed. The portion of the corridor between Portland and McMinnville is most likely to provide a market for commuter rail service in the future. Reconstruction of the rails and roadbed would probably be required to provide acceptable operating speeds. Additional sidings and improved signaling systems would be needed to allow concurrent movement of freight and passengers.

A 1992 study examined the feasibility of commuter rail operation in the corridor between Portland and McMinnville as an initial phase of service throughout the Willamette Valley. Routing options through Tigard or Lake Oswego were presented. With the Tigard routing, connections with future light-rail transit extensions could be accomplished in Tualatin (to the proposed South-North Light Rail Transit line in Milwaukie) or Tigard (to the West LRT line in Beaverton). Daily ridership for the initial service between Portland and McMinnville was estimated at 1,200 to 2,400 passengers.

Another potential option would operate commuter rail between Beaverton and Wilsonville in addition to the Portland-McMinnville service. The interface between the two services would occur in Tualatin. Riders could connect to LRT in Beaverton or in Milwaukie. Ridership estimates for this scenario also range between 1,000 to 2,400 passengers daily.

Air Service

No appreciable change in air service or facilities is foreseen within the corridor limits. The airport in McMinnville is physically capable of supporting commuter air service, but the close proximity to Portland and seasonal nature of travel demand make it unlikely that scheduled air service would be offered in the near future. Commercial air service to coastal communities also is unlikely to relieve summer or weekend congestion, given the short trip length, waiting time, and high costs relative to highway travel. Charter service and private
aviation activity are likely to experience growth at all airports in the corridor over the planning horizon; however, the impact on highway travel will be minimal. Airport facilities will require investment to provide convenient surface access to the corridor, and facilities that serve multi-modal connections.

**Transit**

Much of the corridor west of McMinnville is characterized by low-density rural development. Because of this low density, these western areas do not readily lend themselves to the provision of public transit service. As a result, residents west of McMinnville will continue to rely principally on private automobiles for transportation.

With the increasing residential growth in Newberg and McMinnville, and employment base in the Portland metropolitan area, expanded transit service could be very effective in reducing congestion along Highway 99W. Future transit operations in the corridor are likely to consist of trunk bus routes along 99W, with feeder bus service. Metro’s 2040 Growth Concept Plan indicates a potential high-capacity transit connection from Portland and Lake Oswego to Tualatin, Sherwood, and beyond Newberg. This service could be provided with commuter rail as discussed above.

A variety of LRT routings have been proposed beyond the south-north line currently being studied. The 2040 Framework Plan includes LRT service to Tigard using Barbur Boulevard and Highway 99W. Other connections via Lake Oswego and Tualatin also are available. Some proposals have considered both LRT and commuter rail service along a common route. Further study of the various route and technology options is necessary before the impacts on tripmaking and modal use can be estimated.

Revisions to local and express bus service could be expected to accompany any commuter rail or LRT plan. In the interim, transit service will be expanded in accordance with customer demand and resource availability.

The levels of activity on intercity buses could be expected to increase as overall travel demand grows, particularly if passenger rail and airline service are not forthcoming. Growing levels of congestion in the corridor can be expected to increase the scheduled travel times of buses and reduce their schedule reliability.

**Bicycle**

Local bicycle use in the urban areas and recreational bicycle use throughout the corridor is expected to increase. Within the urban areas the highway typically consists of bike lanes or wide shoulders. New bike lanes are planned through Newberg as part of the Highway 99W reconstruction project. In the rural segments of the highway, many sections of highway exist with only 2-foot-wide shoulders. Improved bicycle facilities could be expected to stimulate bicycle activity, both for commuting in the urban areas and for touring elsewhere in the corridor. Conversely, the absence of adequate facilities could serve as a deterrent effect to bicycle use.
Pedestrians

Because of a lack of pedestrian trip generators or destinations within the predominantly rural sections of the corridor, the provision of sidewalks along the roadway in the rural sections of Highway 99W/18 is not warranted. Pedestrians use the shoulders in those areas. Within rural communities such as Grand Ronde, there are limited areas where sidewalks will be warranted.

Within the urban areas of the corridor, continuous sidewalks and pedestrian crossing improvements would encourage pedestrian travel. The planned Highway 99W improvements in Newberg would replace the existing sidewalks on both sides of the highway with 6-foot-wide sidewalks. In addition, up to three traffic signals would be added safer crossing opportunities. Pedestrian safety will be improved with refuge areas on raised medians. These projects are scheduled for 1998.
The Highway 99W/18 corridor provides mobility among urban areas and the central Oregon Coast, and serves freight movement, commute travel, and tourist traffic. For each mode of transportation, issues of concern have been identified through a public involvement program and consultation with agencies. Limited technical data have been developed to assist in framing the issues.

Based on the physical and service inventories of the corridor, opportunities for future improvements were identified through the public process, together with potential constraints related to their implementation. A number of improvement options might involve institutional or legislative actions for implementation, or increased cooperation and coordination among stakeholders in the corridor. Other strategies include physical or service improvements with uncertain sources of funding or subsidy. At this stage of planning for the corridor, a wide range of alternatives addressing all modes of travel is sought for later evaluation.

The discussion of issues, opportunities, and constraints is grouped according to categories corresponding to the policies and objectives of the Oregon Transportation Plan. This discussion may pertain to general conditions in the corridor, or only to the urban or rural portions, or to individual segments of the corridor. These limitations are noted where applicable.

**Transportation Balance**

The Oregon Transportation Plan states that a balanced transportation system is one that provides transportation options at appropriate minimum service standards, reduces reliance on the single occupant automobile where other modes or choices can be made available, particularly in urban areas, and takes advantage of the inherent efficiencies of each mode. What follows is an evaluation of the modal balance within the Highway 99W/18 corridor and the goals and objectives for altering service levels as appropriate.

The transportation balance goal is:

*Provide for a balanced mix of modes of transportation within the corridor in order to provide a range of modal choice for urban and rural users of the transportation system.*

**Findings and Issues**

The private automobile is the predominant mode of passenger transportation in the corridor. Although transit and intercity bus service are available, they compete poorly with the automobile relative to travel time and convenience. In this corridor, Tri-Met provides service in Washington and Multnomah Counties, extending west to Sherwood. Transit users between Willamina and Sherwood are served by YAMCO. Riders from Yamhill County with metropolitan destinations must connect and transfer onto Tri-Met at Sherwood.
Commuting is a primary contributor to congestion in the urban portions of the corridor during the morning and evening peak hours. To the extent that the origins and destinations of these trips are served by bus routes and schedules, transit may be available as a measure to reduce congestion. Research indicates, however, that origins and destinations for suburban travel are widely dispersed and therefore difficult to serve with transit.

To make transit modes more attractive to commuters, the Oregon Transportation Plan emphasizes a combination of actions, including (1) changes in the development and land use practices of the suburban and exurban communities in the corridor, (2) elimination of free parking at employment sites, (3) investment in new or expanded transit services, and (4) provision of incentives to use transit. These actions would be oriented to providing compact urban centers in the corridor, with residential densities exceeding eight dwelling units per acre and employment densities of at least 35 jobs per acre. Most current suburban communities are developed at residential densities of four dwelling units per acre and fewer than 15 jobs per acre. As a result, suburban mode splits to transit generally range below 3 percent of trips. With higher densities in town centers along the corridor, transit could be expected to capture a larger share of commute travel.

Opportunities and Constraints

Land and development markets in the suburban communities along Highway 99W have been historically oriented to low-density residential and commercial land uses. These markets respond to the desires of a large segment of the population for a suburban lifestyle, and to the availability of relatively inexpensive raw land. Easy accessibility on uncongested highways has been a major factor in shaping current development patterns. The low land prices make higher density development unlikely in the short term, and perpetuate the ubiquity of free parking at suburban employment and shopping sites.

Change is likely to occur slowly in these suburban land markets. The adoption of the Metro 2040 Framework Plan will accelerate the shift to integrated land use and transportation policies in the metropolitan area. Outlying and rural communities are also influenced by statewide land use and transportation planning guidance. Nevertheless, land use and development patterns from past eras can be expected to influence tripmaking habits for some time into the future.

As population and employment increase in the metropolitan area, inner suburbs could be expected to experience increasing land values. This will create incentives for higher density land use and reduce the utility of land for parking. Over the long term, these effects could produce a higher mode split for transit modes in the urbanized portions of the corridor.

There are opportunities for extension of the Tri-Met LRT system to serve the north end of the corridor. After completion of the west LRT line, the south line to Milwaukie is next among the regional LRT priorities. Extension of a line to Tigard as shown in the 2040 Framework Plan is probably beyond the 20-year planning horizon.

Implementation of commuter rail service along existing rail lines could precede LRT service in the corridor. A variety of connections are possible in the metropolitan area to interface with LRT. In the initial stages, service would be oriented to the morning and evening commute hours. Later phases could offer increased service through the day, but service frequency would not approach that offered by LRT modes. Rather, commuter rail would serve the market of longer-distance commuters.
CHAPTER 5: ISSUES, OPPORTUNITIES, AND CONSTRAINTS

It is unlikely that higher levels of transit usage would produce congestion relief in these inner suburbs. With the higher densities necessary to achieve transit ridership, the overall level of travel demand will be higher. Unless the local street networks are enhanced to support these densities, worsening congestion could be anticipated along Highway 99W. In addition, in saturated urban street networks, there is frequently a latent demand for travel in the primary arterial corridor that will immediately shift to that corridor if capacity is made available. These effects diminish the strength of the direct relationship between increased transit patronage and congestion relief.

It has been suggested that congestion itself could produce a shift to transit modes. Over the long term, congestion affects people's choices about where they live. In the Highway 99 corridor, buses experience travel times no better than the private automobile. An exclusive lane or dedicated right-of-way would be required to provide a meaningful travel time advantage for buses in this corridor. Exclusive lanes for high-occupancy vehicles (HOV) such as buses, carpools, and vanpools, have been developed in many urban areas. In some applications along urban arterials, they consist of bypass lanes upstream of congested points. The preferential treatment of HOV modes serves as an incentive to their use, given the travel time advantage that accrues to the user.

Other approaches to transportation balance in the corridor could focus on ridesharing strategies that are tailored to suburban conditions. Carpooling is an effective strategy for commute trips of greater than 6 miles in length, and vanpooling for trips up to 50 miles. It is likely that many commute trips in the corridor fall in these ranges. Ridesharing programs are typically organized by large employers. In the Portland metropolitan area, the Oregon Department of Environmental Quality has established the Employee Commute Option Rule. It requires employers of more than 50 workers to provide information and incentives for the use of alternative commute modes. This minimum size increases the potential for finding rideshare partners with common destinations.

If many commuters in a corridor are attracted to a single employment destination, express bus or subscription bus services may be appropriate. These services could extend south to McMinnville to provide commuters with an alternative to driving. The express services could be configured to interface with local bus service in individual communities along the route.

Ridesharing and transit usage also can benefit from the development of support services such as park-and-ride lots or transit centers. These facilities would provide a site for carpool formation or for express bus service to downtown Portland or other outlying employment centers. Locations in Newberg and McMinnville might be best positioned to capture express transit riders or long-distance carpoolers. Additional lots in Sherwood or Tualatin could serve local carpool formation within the metropolitan area. Sites adjacent to the highway and rail lines could be identified in local comprehensive plans and acquired. In this way, flexibility is provided to address future needs for park-and-ride capacity, express transit service, or rail stations.

Measures to reduce transportation demand have been effectively developed in most urban areas, including Portland. Transportation Demand Management (TDM) strategies include:

- Employer transit subsidies
- Reduced parking charges for carpools
• Preferential parking for carpools
• **Staggered work hours or flextime** schedules
• Telecommuting and teleconferencing

These measures are frequently implemented by employers, typically those with more than 50 employees at the worksite. Large employers in the corridor include several industrial and commercial employers in the northernmost corridor, several firms in Newberg and McMinnville (including seasonal employers), and the gambling casinos to the west. The effectiveness of an aggressive TDM plan typically ranges between a 4 to 12 percent reduction in driving alone, but can exceed a 50 percent reduction if market-rate pay parking is implemented.

Measures to improve bicycle and pedestrian facilities might encourage more usage both for commuter and recreational purposes. In urban areas, sidewalks and bike lanes or bikeways prove most practical for implementation. Bicycle paths could be used along limited-access portions of the route, such as the possible bypass of Newberg and Dundee. Throughout the corridor, actions could be implemented to widen shoulders, develop bike lanes or bikeways, improve bicycle/railroad crossings, and provide secure bicycle parking at employment centers, park-and-ride lots, transit centers, and bus terminals.

It may be possible to attract recreational travel to intercity bus, passenger rail, or airline modes. There is currently no continuous rail connection extending throughout the corridor. Rail service could be implemented in the urban commute corridor between Portland and McMinnville. Development of these markets could be initiated as a recreational or seasonal service.

Airline connections serving communities within the corridor seem a rather remote possibility, given the costs and limited market. Even if air service were implemented between Portland and coastal communities, it would probably offer little relief to demands of tourist traffic during peak periods. The intermodal function of airports in the corridor can be enhanced with improved ground access and transit connections.

Needs for the transportation-disadvantaged can be identified and fulfilled with additional services as appropriate. In this process, opportunities may exist to retrofit existing facilities to comply with the Americans with Disabilities Act (ADA). All new construction will be consistent with the ADA guidelines.

For freight modes, maintenance and upgrading of the existing tracks will be important to serve the growing industries in the region. Simultaneously, highway improvements must respond to the growth of trucking to serve those communities without rail service. The rapid expansion of air freight for shipping of perishable agricultural products also could increase the importance of the highway connections to airports.

Highway improvements must incorporate adequate geometric standards to safely accommodate the diverse mix of modes operating in the corridor. Operational strategies to prohibit truck use during peak hours have been adopted in some urban areas in other states. This measure can increase the efficiency of vehicular movement in the commute periods, but it has undesirable economic consequences for product distribution.

Some low-cost strategies are available to address safety and capacity deficiencies, including a class of actions referred to as Transportation System Management (TSM) measures. These
include intersection improvements, additional turning lanes, truck climbing lanes, shoulder widening, signing, striping and signalization, and signal coordination. Similarly, low-cost improvements to reduce hazards might include lighting, guard rails, and rumble strips, combined with aggressive law enforcement. These actions can produce incremental increases in capacity, but would be inadequate to serve the 20-year growth in travel demand.

**Regional Connectivity**

Regional connectivity is a measure of how well the corridor connects various parts of the state and nation. This is usually quantified in terms of travel times, or described by reflecting the level of transportation services available. The issue of travel time overlaps with the congestion and transportation balance performance measures. Both of those measures can affect regional connectivity. Increased congestion may result in slowed travel times and discontinuity between regions. Congestion may be the result of a transportation system that is not in balance; that is, people or goods are moving via the wrong or an inefficient mode. The regional connectivity goal is:

*Develop transportation facilities within the corridor to provide a high degree of regional connectivity for all corridor users, both internal to the corridor as well as those passing through the corridor to other parts of the state and nation.*

**Issues and Findings**

The corridor connecting Portland to Lincoln City is one of statewide significance, both for the communities directly served and for travel beyond these communities. For passenger travel, commute trips and tourist/recreational trips are the primary components of peak-hour activity in the urban and rural portions, respectively. Movement of freight in this corridor serves many of the state's vital industries, including tourism, timber, seafood/fishing, agriculture, viticulture, steel, bakery products, and manufactured homes, as well as distribution functions among the local communities.

The Highway 99W and Highway 18 roadways comprise the principal arterial routes in each of the communities through which they pass. These patterns reflect the historical origin of the routes, which predate the interstate system, when Highway 99W was the primary north-south route through western Oregon. The variety of arterial environments ranges from the main street settings in Dundee and central Newberg; to the suburban strip centers of Tigard, King City, and north Newberg; to central Tigard with its streetfront development immediately adjacent to the right-of-way. In other communities such as McMinnville, Sheridan, and Willamina, Highway 18 has bypassed the central business districts. There are, however, burgeoning development pressures along Highway 18 in the McMinnville area. In the smaller communities further west, Highway 18 serves as the focus of local activity.

These corridor roadways are required to serve the dual functions of through movement and local access, with the occasional result that neither function is well-served. In particular, conflicts between these different functions are aggravated as traffic volumes approach capacity, and are manifested as congestion and safety problems. Ideally, where volumes of through traffic are high, the through movement can be separated completely from local
access functions, as with a freeway. By controlling or limiting local access, higher capacities can be achieved for the movement of through traffic.

If the capacity constraints remain unaddressed, motorists will seek routes that offer competitive travel times. An example is the use of the Tualatin-Sherwood Road between I-5 and Six Corners. For some trips, this route is preferable to Highway 99W through Tigard. In lieu of improvements to Highway 99W, this roadway could replace the regional role of the state highway. Even with the addition of the Tualatin-Sherwood Highway, Highway 99W will continue to serve through travel among the metropolitan area, Yamhill County, and the Oregon Coast.

It has been determined that a western bypass will not be developed in Washington County to serve circumferential travel between the western and southern suburbs of Portland. Demand for this travel will be served instead by a package of arterial improvements and development of the Tualatin-Sherwood Highway. The effects of this program of improvements on through travel along Highway 99W are uncertain.

In the Highway 99W corridor, capacity improvements could involve widening or the construction of bypass segments. The 1990 Access Oregon Highways study included proposals for widening to six through lanes in Tigard, from Sherwood to Newberg, and for a third lane in the southbound one-way segment in Newberg. More recently, proposals for a bypass of Newberg and Dundee have been advanced.

South of Dundee, capacity improvements to Highway 99W might consist of additional travel lanes and intersection modifications.

Along Highway 18, the 1990 studies anticipated a four-lane roadway to meet future capacity needs. This type of improvement also would address the safety needs along Highway 18 relating to fatal and injury accidents. Development along Highway 18 in the McMinnville area has resulted in adoption of a plan for additional grade separation at Three Mile Lane and full access control along the state highway, using an ancillary road network for local access. This improvement also will serve access to the airport. Interchange access also is provided farther west at the casino. These measures protect the capacity of the existing highway investment and reduce conflicts associated with traffic crossing, entering, or exiting the highway.

In the Willamina vicinity, the removal of the Steel Bridge has affected accessibility to Highways 18 and 22. Alternatives to this connection include the use of other routes, improvements to Sawtell Road, reconstruction of the bridge, or reconfiguration of the Highway 18/22 interchange.

Connections among other modes in the corridor can be provided at transit hubs and park-and-ride lots in the short term, and potential commuter rail and LRT stations in the long term.

**Opportunities and Constraints**

Within the Highway 99W/18 corridor, a number of improvement strategies have been conceived to maintain the integrity of the regional connections it provides. An important consideration with respect to the regional role is the continuity of the improvements throughout the corridor. In each segment, it is desirable to have the number of travel lanes
in balance with traffic volume demand, so that a minimum level of service can be main-
tained over the planning horizon.

The northern urbanized portions of the corridor offer opportunities to attract trips to transit or carpool modes. In addition, policy guidelines are in place that restrict the ability to increase capacity, in response to Clean Air Act requirements. Roadway widening in densely developed corridors also is very expensive. These factors suggest that transit and/or rail investments, together with aggressive TSM and TDM programs should be the focus of refinement plans in the Tigard, Tualatin, and Sherwood areas. Without widening, however, these segments may not meet the current level of service standards.

As noted above, corridor capacity is determined not only by the number of lanes, but also by the type of access control. Widening for six travel lanes in the Tigard area will increase capacity, but the increase will be tempered by the close spacing of driveways and signalized intersections along this route. Dramatic improvements in lane capacity are achievable only if driveways are consolidated or eliminated and signal spacing is increased for better progression of traffic.

Given that these ideal conditions are not likely to be obtained, strategies should be oriented to optimizing traffic flow in the corridor. Examples include traffic signal coordination for progressive traffic flow, construction of median islands, restriction of turning movements, and the use of shared driveways. In this way, maximum efficiency is gained from the transportation investment, and the capacity of the corridor is protected and enhanced.

There could be considerable difficulty in retrofitting access control strategies to existing development fronting Highway 99W, particularly where the highway provides the only access for a parcel. In this context, access control measures may be applied most effectively to new development and redeveloped parcels, creating a discontinuous access treatment, and reducing the potential benefits in the corridor. The implication would be a longer schedule to achieve these measures in the overall corridor.

Six travel lanes will be required through Newberg on the one-way couplet. The Newberg-Dundee Bypass would serve the long-term need for a limited-access route in the 2040 Growth Concept. In areas where a bypass is considered to meet current level of service standards, continuity of the regional route can be maintained with design features and signing that attract through traffic onto the bypass route. Construction of a new bypass permits access policy to be determined from the outset. The Newberg-Dundee Bypass would incorporate full access control.

The feasibility and costs of highway widening are related to the availability of right-of-way. As noted, development adjacent to Highway 99W in the metropolitan area increases the cost of right-of-way. Other areas of Highway 99W could be widened within existing right-of-way. Along Highway 18 between McMinnville and Dayton, ODOT generally owns right-of-way for a four-lane facility. From McMinnville to Sheridan, right-of-way is restricted to only the existing two lanes. Between Willamina and Sheridan, a four-lane right-of-way is available.

Along Highway 18 east of Willamina to McMinnville and Dayton, there is an opportunity for ultimate conversion to limited access, with grade-separated interchanges. Imposition of access control west of Willamina could prove problematic, because the street systems in the rural communities are less developed and fewer access alternatives are available. Peak traf-
fic demands are lower in this portion of the corridor, so four travel lanes would be sufficient to serve projected future demands.

**Highway Congestion**

Congestion is defined as the level at which transportation system performance is no longer acceptable due to traffic interference.

The highway congestion goal is:

*Operate all transportation facilities within the corridor at a level of service which is both cost-effective and appropriate for the area they serve.*

**Findings and Issues**

The combined effects of high volumes of through traffic and local circulation traffic lead to congested conditions in the corridor between Portland and Lincoln City. North of Newberg on Highway 99W, congestion consists of recurring commuter activity, with highest volumes on Friday afternoons. On Highway 18 west of McMinnville, congestion is primarily a seasonal summer and weekend feature, with highest volumes on Sundays. The seasonal effect may diminish with continuing development in rural communities, but seasonal peaking is expected to remain a feature of traffic flow along Highway 18. Each of these conditions could require different strategies of congestion management.

Commuting in the urban portion of the corridor extends congestion over several hours each day, primarily northbound in the morning and midday hours, and primarily southbound in the afternoon and evening hours. As growth continues, without capacity improvements, congestion could extend to additional hours of the day. In these situations, little traffic volume growth can occur during peak hours because capacity is limited, and growth expands into hours not previously considered the peak period.

An associated effect of congestion is diversion of traffic to alternative routes with available capacity. In the urbanized area, the Tualatin-Sherwood Road serves this function, with motorists accessing this route via I-5 to avoid congestion in Tigard and King City. Other collector streets that experience this effect include 72nd Street, Durham and McDonald Roads, and 121st Street. Farther south, congestion is less extensive, and few alternative routes are available. This lack of alternatives in Sherwood, Newberg, and Dundee could aggravate future congestion in the absence of corridor capacity improvements.

**Opportunities and Constraints**

The response to congestion along Highway 99W may involve widening for six through lanes between Tigard and Newburg. Future traffic volumes from I-5 to Highway 217 will exceed the capacity of six arterial lanes in the long-term (year 2020). These projected demands may be partially mitigated by transit/carpooling actions (the Metro 2040 Growth Concept Plan identifies an employment center and light-rail extension to Tigard) and by potential impacts of a proposed Tualatin-Sherwood Highway.

Using generalized estimates of daily (AADT) capacities for arterial roadways developed by the Florida Department of Transportation, a six-lane arterial could carry over 60,000 vpd under ideal conditions, but reduces to 51,000 vpd with only one signal per mile, and to
48,000 vpd with three signals per mile. Further reductions in capacity are associated with closely spaced driveway openings.

For four-lane roadways in urban areas, a four-lane arterial can carry between 32,000 and 38,000 vpd, with one to three signals per mile. These levels of demand will be exceeded in King City and Sherwood, indicating a need for six lanes south to Sherwood unless signal progression, access management, transit/carpooling, and other strategies are successfully implemented.

Metro is currently in the process of developing proposed roadway design standards for highways in the metropolitan area. A boulevard standard that emphasizes pedestrian and transit amenities may be applied to segments of Highway 99W in the Tigard and King City areas.

Likewise, if a four-lane bypass of Newberg and Dundee is constructed, it would be expected to eliminate any need for future widening (for capacity increases) of the existing route in these communities through the year 2020. Until a bypass is provided, intersection improvements and access management measures will be needed along Highway 99W. The traffic projections south of Dundee also indicate a need for four travel lanes between Dundee and the Highway 18 junction. In the interim, safety and intersection improvements may be sufficient in this segment.

Along Highway 18, future (2020) demand is projected to exceed 20,000 vpd in many areas west to Valley Junction, indicating a need for four travel lanes. Although volumes decline farther west, widening to four lanes in these areas could effectively address safety issues. There are, however, serious environmental constraints associated with widening Highway 18 in the Van Duzer Corridor. These environmental constraints, including sensitive species, landslides, and costs of mitigation, may prove insurmountable.

Congestion effects along the rural route may be less amenable to transit and ridesharing strategies as compared to the urban areas. Transit modes are less attractive for recreational and tourist trips due to their widely dispersed origins and destinations. This type of travel also exhibits high existing levels of auto occupancy, and time-shifting of these trips could prove difficult.

### Safety

The improvement of transportation safety is a constant goal of all agencies involved in the provision of transportation services. Improvements are sought through vehicle design, operating systems, operating environment, training, enforcement, and education.

The safety goal is:

*Continually improve all facets of transportation safety within the corridor*

### Findings and Issues

Overall accident rates on Highway 99W and Highway 18 are within the ranges typically cited for similar roadways. On Highway 99W, intersection accidents predominate, reflecting the increased conflicts in the urban setting. Along Highway 18, the fatality rate is a concern, reflecting head-on and fixed object collisions, typically involving higher speeds.
Opportunities and Constraints

Throughout the corridor, there are safety issues related to the access functions of Highway 99W and Highway 18. The multiple driveways and open medians create hazards associated with local access. Experience has shown that center two-way left-turn lanes become hazardous at traffic volume levels above 25,000 to 35,000 vpd. At higher volumes, a raised island or median barrier could be required to maintain acceptable safety levels. With a raised island, openings to major streets and driveways could be allowed intermittently for local access. Other streets and driveways would then be restricted to right turns in and out. If complete closure of the median is warranted, the design should allow for U-turns at the signalized intersections. These types of treatments are extremely controversial among owners of adjacent property who perceive these actions as diminishing access.

Median barriers find limited applications in arterial corridors because they must be interrupted at intersections, and the exposed ends of the barrier can become a safety hazard. Protective end treatments are expensive and involve frequent maintenance. Barriers would be appropriate along Highway 18 where they could be installed for longer distances. For instance, closing the median in four-lane portions of the corridor could be accomplished with a narrow barrier, and would be effective in reducing head-on collisions.

Other safety treatments might find general application throughout the corridor. Actions to provide continuous and consistent shoulder widths would reduce hazards for pedestrians, bicyclists, and emergency stops. This widening should include bridges crossing the numerous rivers and streams.

Accidents related to collisions with fixed objects can be reduced by establishing a clear zone adjacent to the roadway or by protecting these areas with guardrail. Opportunities for clear zone treatments might be limited through the Coast Range, and particularly the Van Duzer corridor, due to environmental constraints.

Projects to rebuild tight curves and improve sight distance could find general application along both Highway 99W and Highway 18.

Economic Impacts

Transportation systems can have a significant positive or negative economic impact. New transportation services can act as a catalyst of the siting of new businesses and the creation of jobs and for promoting access to recreational opportunities. Conversely, changes in the transportation system, such as the elimination of some type of modal choice, can have the opposite effect and result in the loss of businesses and jobs.

The economic impact goal is:

*Promote economic health and diversity through the efficient and effective movement of goods, services, and passengers in a safe energy efficient and environmentally sound manner.*

Findings and Issues

The Highway 99W/18 corridor is one of vital importance for commerce and trade in the state. Without improvements to accommodate future demands for passenger and freight transportation, the ability of the corridor to efficiently serve these movements could be
jeopardized. There are enormous economic costs associated with congestion, including the value of lost time, excess vehicle operating costs, and external costs of added air pollution and lost productivity. Costs related to congestion and accidents would increase, both for users and non-users. The presence of congestion and hazards also could threaten the development and vitality of communities in the corridor.

**Opportunities and Constraints**

With decreases in funding available for transportation projects, decisions regarding investment in infrastructure are subject to increased public scrutiny. Recent research in transportation investment has been directed at defining benefits of proposed projects and assigning priorities for implementation. Estimates of the benefits and costs of various projects can be developed to assist decisionmaking. Still, competing projects in urban and rural areas can be difficult to compare using these methods.

Economic impacts associated with access management are especially difficult to assess. Concerns have been expressed that access control will reduce the value of commercial property or reduce sales revenues of the affected properties. However, these effects have not been conclusively demonstrated, nor have they been firmly rejected. Debate on these topics can be expected to be emotionally charged as a result.

Better information is available regarding the economic impacts of bypass routes. In general, these results indicate an economic decline among businesses along the bypassed route in favor of growth along the new bypass. In all instances, this has occurred because the bypass makes land development possible in new areas that are made accessible by the new route. If development is restricted along the new route, a bypass might be less disruptive to existing central business districts.

Funding of new highways can be accomplished wholly or partially with revenues from toll charges under new provisions of Oregon law. It should be noted, however, that private financing for a tollway sometimes depends on the increased land values of adjacent property as a source of revenue. Tight control of land use along the bypass may not be feasible in these cases.

**Social Impacts**

Transportation systems can have far reaching but sometimes very subtle social impacts on a community. A highway bypass can isolate one community but connect others. A street improvement can provide a benefit for persons traveling on the street but can have an adverse impact on an adjacent land use. Thoughtful analysis is needed to understand potential impacts both positive and negative when transportation system changes are planned.

The social impacts goal is:

*Provide a transportation corridor that has positive social impacts by providing for the safe movement of goods and people while reducing the negative impacts caused by transportation/land use conflicts.*
Findings and Issues

Transportation needs are strongly bound to the land use actions of communities in the corridor. Under the guidance of state and regional plans, cities are evaluating ways to develop compact urban forms that favor alternative travel modes.

In some instances, the suburban street networks are insufficiently developed to serve local travel within communities in the corridor, relying instead on the highway for local trips. If alternatives to the main highway can be provided, travel can be more evenly distributed among a system of minor arterial and collector streets.

Conditions for pedestrian and bicycle travel on the main highway can be intimidating in these settings. The width of the highway, combined with the infrequency of crosswalks, constitute a barrier to pedestrian crossings. As a result, it is often more expedient to drive among suburban destinations.

A bypass of an existing community can produce unfavorable effects on the vitality of an existing central business district, but the reduced traffic levels are viewed by others as a benefit. If economic growth is strong, these central areas can thrive as interesting, pedestrian-friendly destinations.

Opportunities and Constraints

The interrelationship between land use policies and transportation needs is a complex one involving the preferences and decisions of individual households and investors. Land use patterns in the corridor are not likely to change quickly in response to the difficulties associated with suburban development styles. Nor is the proposal for denser local street networks likely to be popular. These alternative routes can facilitate cut-through traffic in neighborhoods, to the detriment of quality of life.

Pedestrian travel can be served with a system of sidewalks in the urban areas and on shoulders in rural areas. Shared lanes or shoulder bikeways generally provide the most effective system for cycling.

Environmental Impacts

The fact that transportation systems have an impact on the adjacent environment is undeniable. This impact can be in the form of noise, water pollution, air pollution, or physical disruption of the environment caused by the construction of a facility. Through careful management of the operation or modifications of a design for a facility, it is sometimes possible to reduce the impacts to acceptable levels. Accidents are another source of environmental impact upon the corridor when vehicle fuels or vehicle cargoes are spilled.

The environmental impacts goal is:

Provide a transportation system throughout the Highway 99W/18 corridor which is environmentally responsible and encourages protection of natural resources.
Findings and Issues
Environmental impacts associated with motor vehicle use include noise and air pollution, effects on stormwater quality, and taking of agricultural, forest, and wetland areas for improvement projects. The highway is routed through areas with known populations of threatened and endangered species, and in proximity to the Salmon River salmon habitat. Creation of the proposed Tualatin River National Wildlife Refuge also poses implications for future highway-related actions, including protection of water quality and wildlife habitat protection.

Opportunities and Constraints
In the urban areas, with their characteristic higher traffic volumes and lower speeds, noise and air quality impacts will be proportionately higher. Transportation control measures that encourage transit use and ridesharing could be specified in areas that fail to comply with air quality standards.

Noise impacts are related to vehicle speeds and the number of trucks in the traffic stream. In urban areas, acceleration and speed changes are responsible for highway noise. Noise may reach higher levels with the uninterrupted traffic flows further south on Highway 99W and on Highway 18.

Widening for additional travel lanes, passing and turning lanes, shoulders or sidewalks could be problematic at crossings of rivers and streams, where wetland areas may exist. Throughout the westernmost portions of Highway 18, the corridor parallels the Salmon River, with steep embankments on both sides of the highway. Any widening in these areas also would impact public and private forest land.

The presence of threatened and endangered species in the Van Duzer Corridor, together with physical constraints, wetlands, unstable soils, and policies to protect parkland, suggest that further widening will pose serious difficulties and be very costly.

The Governor’s Salmon Initiative will require extensive coordination with ODFW and local watershed councils. All culverts and stream crossings will be studied to improve or correct fish passage problems.

Energy Impacts
Transportation systems and modal choices can have a significant impact on energy consumption. The lack of an appropriate mode may result in people, goods, or services moving in an inefficient manner. Transportation facility design may result in improved efficiency or diminished efficiency.

The energy impacts goal is:

Provide a transportation system which minimizes transportation-related energy consumption through the use of energy efficient and appropriate modes of transportation for the movement of people and goods.
Findings and Issues
Throughout the corridor, several modes of transportation are available. The opportunity to select energy efficient modes is variable because a choice of modes does not exist throughout the corridor.

One opportunity for increased transportation efficiency is public transit and intercity bus service. As was identified in other sections of this strategy, park-and-ride or express bus service from the Newberg and McMinnville areas and intercity bus service from outlying communities may be viable options that shift people out of single occupancy vehicles. Carpooling is also an important option for increasing energy efficiency within the corridor.

Opportunities and Constraints
As was noted in other sections of the strategy, transit and carpooling opportunities exist and warrant further study to determine their cost-effectiveness.
The Highway 99W/18 corridor provides mobility for commuters and tourists between Oregon's largest metropolitan area and the central Oregon Coast, and serves freight movement among communities within and beyond the corridor. For each mode of transportation, issues of concern have been identified through a public involvement program and consultation with agencies. Limited technical data was available to assist in framing the issues.

Based on the physical and service inventories of the corridor, opportunities for future improvements were identified, together with potential constraints related to their implementation (see Chapter 5). A number of improvement options could involve institutional or legislative actions for implementation, or increased cooperation and coordination among stakeholders in the corridor. Other programs include physical or service improvements with uncertain sources of funding or subsidy.

At this stage in planning for the corridor, a wide range of alternatives addressing all modes of travel is sought for later evaluation. More detailed studies will be conducted in Phase 2 Corridor Planning and Phase 3 Refinement Planning processes (see Chapter 1). Individual projects can then advance through project development to implementation. The implementation stage for some projects and programs will involve many agencies and diverse funding sources. The corridor plan will provide a basis for coordinating actions among the participants.

Specific actions, activities, or projects are included in the strategy based on the current available information. Their inclusion does not preclude future reconsideration or addition of other actions, activities, or projects. Rather, it is intended to present information useful in responding to travel demands in the corridor.

The overall corridor strategy consists of interim objectives that address each of the categories in the Oregon Transportation Plan. In some cases, individual objectives may respond to several of these categories. For example, some projects to improve regional connectivity also could be expected to ease future congestion. Similarly, programs to address transportation balance through demand management also would affect energy and environmental objectives. For these overlapping effects, the reader is urged to review the related categories.

The discussion of improvement options may pertain to general conditions in the corridor, or only to the urban or rural portions, or to individual segments of the corridor. These limitations are noted where applicable.

**Transportation Balance**

The Oregon Transportation Plan states that a balanced transportation system is one that provides transportation options at appropriate minimum service standards, reduces reliance on the single occupant automobile where other modes or choices can be made avail-
able, particularly in urban areas, and takes advantage of the inherent efficiencies of each mode. In the Highway 99W/18 corridor, many modes of travel are available, but travel remains dominated by the private automobile. Plans and policies to encourage alternative commute modes have been adopted in the metropolitan area, and more widespread acceptance can be expected in the urban centers during the next 20 years.

The transportation balance goal is:

*Provide for a balanced mix of modes of transportation within the corridor in order to provide a range of modal choice for urban and rural users of the transportation system.*

**Actions and Objectives**

For each travel mode, objectives were developed that respond to identified issues. These strategies are outlined briefly below.

**Automobile**

A1. Increase vehicle occupancy through expanded rideshare programs.

A2. Develop other transportation demand management techniques, such as vanpooling, telecommuting, and flexible work schedules.

A3. Consider implementation of "guaranteed ride home" programs in conjunction with ridesharing efforts.

A4. Establish park-and-ride lots at selected locations in the corridor to serve carpool formation. Sites could be chosen based upon their proximity to major intersections or interchanges and for their market potential in attracting park-and-ride users. Candidate locations include Sherwood, Newberg, McMinnville, and Willamina.

A5. Evaluate potential use of high-occupancy vehicle (HOV) lanes and HOV bypass lanes upstream of congested intersections and highway on-ramps.

A6. Improve highway connections to existing and future transit and intercity bus terminals, airports, and trucking terminals.

**Public Transit**

B1. Identify ways to improve commuter transit service between the Portland metropolitan area and cities in Yamhill County.

B2. Maintain and improve bus service between cities in Yamhill County and connections to Washington County at levels consistent with market demand and funding availability.

B3. Investigate the feasibility of linking proposed park-and-ride lots with express transit service to major employment centers in the metropolitan area.

B4. Expand intra-urban public transit service in McMinnville if feasibility is demonstrated in the studies currently under way.

B5. Connect transit service to and between passenger terminals for existing and future rail, intercity bus, and airports.
B6. Maintain or expand intercity bus service to communities in the corridor.

B7. Resort-oriented bus operations such as those serving the casinos should be expanded, possibly to include other destinations at the Oregon Coast.

B8. Coordinate all bus pull-out needs with transit and school bus system operators.

**Passenger Rail**

C1. The feasibility of commuter rail and intercity passenger rail services between Portland area light rail stations and cities in the corridor should be further evaluated. Excursion service to the Spirit Mountain Casino also should be evaluated.

C2. Preserve or acquire abandoned rail lines for possible future use.

**Transportation Services for the Transportation-Disadvantaged**

D1. Improve the mobility of the transportation-disadvantaged population living within the Highway 99W/18 corridor using a coordinated approach involving state, local, and private providers of specialized social and medical services.

D2. Continue dial-a-ride service for patrons in the corridor.

D3. Support Volunteer Transit Incorporated and other volunteer services for handicapped and elderly throughout the corridor.

D4. Consider expansion of dial-a-ride service for the transportation-disadvantaged in Polk County.

D5. Design all passenger intermodal transportation hubs to comply with the Americans with Disabilities Act.

D6. Improve coordination and sharing of equipment among special transportation providers.

**Truck and Rail Freight**

E1. Maintain and promote the use of existing freight rail lines (Portland and Western, Willamette and Pacific) in the corridor as a viable means for freight movement.

E2. Determine if intermodal truck and railroad facilities are feasible in the corridor.

E3. Support improvement of the Westside branch line to FRA Class 3 standards between McMinnville and Tigard.

E4. Enhance truck freight mobility by providing highway improvements such as truck climbing lanes and curve realignments.

**Pedestrian**

F1. Provide sidewalks where determined appropriate on both sides of the highway in urban and rural communities, as well as convenient and safe pedestrian crossing opportunities.

F2. Consider planting strips between the curb and sidewalk in urban areas.
F3. Link sidewalks together by completing intermittent sections, particularly in Tigard, Tualatin, Sherwood, Newberg, and Dundee.

F4. Pedestrian refuge islands should be provided where crossing distances are wide, and in conjunction with raised median installations.

F5. Consider developing separate multi-use paths for pedestrians and bicyclists along limited-access or heavily traveled portions of the corridor, or along new bypasses.

F6. Consider grade-separated pedestrian crossings at convenient locations in areas where high travel speeds limit safe opportunities for at-grade crossings.

F7. Visually distinguish areas of high pedestrian activity. Evaluate using alternative paving materials for crosswalks that contrast with the road surface.

F8. Replace or upgrade pedestrian facilities where improvements are made to increase the mobility or safety of other transportation modes.

F9. Include pedestrian access and facilities in the design of transit and park-and-ride facilities.

F10. In areas where complete access control is developed, provide pedestrian and bicycle facilities on overcrossing structures or in association with interchanges so that barriers are not created.

**Bicycle**

G1. Provide continuous bicycle facilities (bike lanes or shoulder bikeways) along the Highway 99W/18 corridor using 6-foot paved shoulders wherever feasible.

G2. Incorporate bikeways into future highway and bridge projects, including bypasses.

G3. Provide connections to local bicycle facilities where feasible.

G4. Provide safe bicycle crossings with railroads (i.e., even surfaces, right-angle crossings).

G5. In areas where shoulders are narrow and levels of recreational bicycling are high, consider “Watch for Bikes on the Roadway” or similar signs.

G6. Clean roadway shoulders when debris accumulates, particularly in the peak summer cycling months.

G7. Provide secure bicycle parking at all transit and park-and-ride facilities.

G8. Outfit transit and intercity buses with bike racks.

G9. Encourage employers to provide secure bicycle parking, showers, and lockers for bicycle commuters.

G10. See also F5 and F10.

**Airports**

H1. Ensure that airports in the corridor continue to be protected by airport overlay zoning to prevent construction or growth of obstructions into the Federal Aviation Administration Part 77 Airspace around the airports.
H2. Aviation easements should be dedicated to the airport operators before any new
development is allowed within the land beneath the FAR Part 77 Approach Surfaces.

H3. Encourage cities and counties to adopt land use regulations that protect existing
public use airports from land use conflicts and provide compatible land use near the
airport.

H4. Support intrastate and interstate passenger flights in new markets (for example,
McMinnville or coast communities).

H5. Expansion of McMinnville Municipal Airport facilities should be considered to
accommodate increased regional demands, together with shuttle van services to the
airport to improve airport access and usage. A master planning effort for the airport is
now under development.

H6. Evaluate appropriate shuttle bus service to Portland International Airport. Encourage
service expansion in ways that best respond to demand.

Pipeline

I1. Coordinate with utility contractors, maintaining and/or replacing utility lines in the
corridor.

Regional Connectivity

Regional connectivity is a measure of how well the corridor connects various parts of the
state and nation. This is usually quantified in terms of travel times, or described by reflect-
ing the level of transportation services available. The issue of travel time overlaps with the
congestion and transportation balance performance measures. Both of those measures can
affect regional connectivity. Increased congestion may result in slowed travel times and
discontinuity between regions. Congestion is caused when demand exceeds available
capacity and may be the result of a transportation system that is not in balance (that is,
people or goods are moving inefficiently).

The regional connectivity goal is:

*Develop transportation facilities within the corridor in order to provide a high degree of
regional connectivity for all corridor users, both internal to the corridor as well as those
passing through the corridor to other parts of the state and nation.*

Actions and Objectives

J1. Improve operations at highway-to-highway junctions and major intersections. If
necessary, provide grade-separated interchanges in response to operation and safety
needs.

J2. Continue project development efforts related to the Newberg-Dundee Bypass to assist
in relieving congestion in the Newberg/Dundee area. If ongoing analysis indicates
feasibility, this bypass could be constructed as a limited-access tollway.
J3. Continue project development efforts of a limited-access expressway from I-5 to Highway 99W (Tualatin-Sherwood Highway). If constructed, this limited-access facility could be operated as a tollway.

J4. Identify locations for Highway 99W’s interchanges with the proposed Newberg-Dundee Bypass and Tualatin-Sherwood Expressway.

J5. Maintain or improve travel times for both autos and freight through high levels of facility management, including speed change lanes, turn refuges, synchronized signals, and access management.

J6. Implement planned access management projects in Tigard and Newberg.

J7. Implement the three-phase facility plan to convert Three Mile Lane in McMinnville to a limited-access facility. The plan includes an interim signal installation near the airport in Phase 1, to be replaced with a grade-separated interchange in Phase 2, together with an ancillary road network for local access. In Phase 3, the East McMinnville interchange would be reconstructed as a full-service interchange, eliminating the Cruikshank Road intersection. An interchange also would be developed at the Lafayette Highway to the east in Phase 2.

J8. Investigate conversion of the Highway 99W/18 junction to a limited-access facility.

J9. Evaluate Highway 18 between McMinnville and the Van Duzer State Park to determine needs for passing lanes, capacity improvements, intersection improvements, grade-separated interchange at Highway 22 (Valley Junction), and access management applications.

J10. Investigate alternative access between Willamina and Highway 18 to address concerns related to the loss of the Steel Bridge.

J11. Take action to reserve right-of-way needed for future transportation projects.

J12. Use the ODOT Pavement Management System to implement state policy to maintain road surfaces at a 90 percent fair-to-good rating.

J13. Use the ODOT Bridge Management System to maintain bridges in adequate structural and operational conditions.

**Congestion**

Congestion is defined as the level at which transportation system performance is no longer acceptable due to traffic interference. Both recurring and incident congestion are included.

The highway congestion goal is:

*Operate all transportation facilities within the corridor at a level of service that is both cost-effective and appropriate for the area they serve.*
Actions and Objectives

K1. Manage transportation demand using techniques such as:
   - Increased use of carpools and vanpools through carpool-matching and marketing activities
   - Increased use of transit
   - Adoption of measures to provide travel time advantages to buses
   - Examine means to shift travel demand to off-peak hours with flex-time or shortened work weeks
   - Include employer trip reduction programs in planning, development review, and access permitting processes
   - Investigate the feasibility of congestion pricing in the Portland metropolitan area and on potential tollway facilities
   - Promote increased use of telecommunication and intelligent transportation system technologies

K2. Evaluate travel demand and highway capacity from I-5 to the southern Sherwood UGB.
   - First, implement an aggressive TSM program that improves the flow of traffic. Determine which of the following techniques are appropriate for individual locations:
     - Provide raised median, turn lane, and signal modifications.
     - Limit traffic movements crossing the corridor or turning left to arterials and major collectors only.
     - Adopt signal timing/interconnection plans that emphasize through movements on the facility.
     - Restrict new signal installations.
     - Provide major intersection improvements.
   - Second, investigate widening of Highway 99W to six lanes north of Sherwood only if (1) the Tualatin-Sherwood Highway cannot be constructed, and (2) implementation of the TDM and TSM programs do not result in acceptable travel conditions.

K3. Widen Highway 99W to four through lanes from the Highway 99W/18 intersection at (McDougal Corner) to Dundee, particularly if the bypass study calls for connection in south Dundee.

K4. Consider the use of frontage roads and grade-separated interchanges in the ongoing development of a plan in the Sherwood area.
K5. Identify capacity and safety needs between Sherwood and Rex Hill, including access management measures.

K6. Develop Highway 18 as a fully access-controlled facility between the Van Duzer Corridor and Highway 99W at McDougal Corner.

K7. Construct passing lanes and truck climbing lanes at appropriate locations throughout the corridor (for example, eastbound passing lane from Fort Hill to Wallace Bridge).

K8. Upgrade merge lengths at intersections and ramps where difficulties are revealed (for example, Dayton on-ramp going north; Sheridan on-ramp going north).

K9. Investigate lengthening turnouts for slow-moving vehicles, particularly where passing lanes are infeasible.

K10. Improve safety and reduce congestion by providing turn lanes. Evaluate the following locations:
- Extend center turn lane at west end of Grand Ronde further west
- Add left-turn lanes at Rowell Creek Road, Fort Hill Road, and Masonville Road

K11. Improve local street systems to provide alternatives to the use of Highway 99W/18 for intra-area travel. These alternative street networks could reduce the need for highway capacity improvements and can be identified through the Transportation System Planning process.

K12. Provide signal installations in rural areas only as an interim measure, accompanied by a long-range plan for interchanges or overcrossings.

K13. Improve or provide traffic signal coordination in urban areas, specifically along Highway 99W in Tigard, Sherwood, and in Newberg.

K14. Maintain responsive and efficient traffic signal settings throughout the corridor; e.g., improve settings at the Highway 99W/Fifth Street intersection in Dundee.

K15. Develop access management plans for critical highway segments. Adopt the most restrictive access management category for each highway segment, consistent with existing and planned adjacent land uses and consistent with local TSPs and state provisions.


K17. Evaluate the need for grade-separated interchanges at existing locations along Highway 18, including Highway 22 at Valley Junction and Highway 221 near Dayton.

K18. Develop and implement an incident management program to address prevention, response, site management, incident clearance, motorist information, emergency services, and alternative route planning.
Safety

The improvement of transportation safety is a continuing goal of all agencies involved in the provision of transportation services. A Safety Management System is under development at ODOT to identify the potential for accident reduction for different kinds of improvements and at various levels of investment. It will help define the extent to which roadway design features and operating practices contribute to accident hazards.

The safety goal is:

*Continually improve all facets of transportation safety within the corridor.*

Actions and Objectives

L1. Target safety improvement projects to sections of the corridor with the highest accident rates. Analyze the accident types at all SPIS accident index sites and develop solutions that reduce accident rates.

- Consider the appropriate posted speeds through developed areas (for example, Sherwood, Dundee, Fort Hill, and Grand Ronde)
- Increases in traffic enforcement
- Minor design modifications such as change in striping, geometric layout, or illumination
- Signalization and signing modifications to reduce potential hazards
- Major redesign, including grade separations (for example, overpass and bridge structures, alignment changes, and passing lanes)
- Improved maintenance practices such as sanding and debris removal

L2. Develop a strategy to improve the Highway 99W/18 intersection at McDougal Corner, including consideration of realignment, grade-separation, and future connection to the Newberg-Dundee Bypass.

L3. Review citizen input on accident or problem locations and identify what action might be taken to improve safety at those locations.

Specifically study the following accident/problem locations:

- Highway 99W through Sherwood, including Meinecke Road
- Valley Junction
- Bear Creek
- Slick Rock Creek
- North Bank Road

L4. All roadway surface striping, including fog lines, should be maintained to be highly visible.

L5. Widen shoulders throughout the corridor to standard widths and rebuild curves with sight distance deficiencies, including through the Van Duzer Corridor, if practical.
L6. Eliminate median openings along Highway 99W, particularly between King City and Newberg, where safety history demonstrates potential problems. Consider retaining median openings only at public streets.

L7. Provide public telephones or call boxes at approximately 5-mile intervals throughout the length of the corridor. Phones can be located at grocery stores or gas stations, or may be needed as stand alone phone booths (well lit and maintained) where no development exists.

**Economic Impacts**

Transportation systems can have a significant positive or negative economic impact. New transportation services can act as a catalyst of the siting of new businesses and the creation of jobs and for promoting access to recreational opportunities. Conversely, changes in the transportation system, such as recurring congestion or the elimination of some type of modal choice, can have the opposite effect and result in the loss of businesses and jobs.

The economic impact goal is:

*Promote economic health and diversity through the efficient and effective movement of goods, services, and passengers in a safe energy efficient and environmentally sound manner.*

**Actions and Objectives**

M1. Enhance development of planned industrial and commercial sites through road facility and transportation service improvements.

M2. Support timely and efficient truck movements by maintaining minimum levels of service.

M3. Address congestion affecting access to town centers (for example, King City, Sherwood, and Newberg) with transportation improvements that emphasize transit, pedestrian, and bicycle modes.

M4. Minimize adverse impacts to farmland and forest land along the corridor.

M5. Enhance tourist travel to the Oregon Coast and other destinations in the corridor.

M6. Provide adequate advance signing for businesses affected by actions to manage access.

**Social Impacts**

Transportation systems can have far reaching but sometimes very subtle social impacts on a community. A highway by-pass can isolate a community while improving regional connectivity. A street improvement can provide a benefit for persons traveling on the street but can have an adverse impact on an adjacent land use. Thoughtful analysis is needed to understand potential impacts both positive and negative when transportation system changes are planned.

The social impacts goal is:
Provide a transportation corridor that has positive social impacts by providing for the safe movement of goods and people while reducing the negative impacts caused by transportation/land use conflicts.

Actions and Objectives

N1. Examine methods to reduce the negative impacts and increase the positive impacts of Highway 99W/18 corridor transportation systems on neighborhoods, parks, and community facilities.

N2. Improve pedestrian crossing opportunities, particularly in the urban sections of Highway 99W/18, to reduce the "barrier" effect of the roadway and to foster safe pedestrian connections between both sides of the road.

N3. Include landscaped medians to improve the "friendliness" of the streetscape (e.g., plant trees to separate sidewalk from curbs).

N4. Plant trees alongside portions of the highway where it does not impair sight distances.

N5. Address impacts on historic properties related to widening the highway.

N6. Coordinate transportation improvements with scenic byways programs.

Environmental Impacts

The fact that transportation systems have an impact on the adjacent environment is undeniable. This impact can be in the form of noise, water pollution, air pollution, or physical disruption of the environment caused by the construction of a facility. Through careful management of the operation or modifications of a design for a facility, it is possible to reduce the impacts to acceptable levels. Accidents are another source of environmental impact upon the corridor when vehicle fuels or vehicle cargoes are spilled.

The environmental impacts goal is:

Provide a transportation system throughout the Highway 99W/18 corridor which is environmentally responsible and encourages protection of natural resources.

Actions and Objectives

O1. Avoid or minimize transportation system improvement impacts to sensitive natural resource areas (e.g., Tualatin River National Wildlife Refuge, Van Duzer State Park Corridor, the Salmon River estuary, Cascade Head Scenic Research Area, etc.). Evaluate the benefit of capacity improvements outside these areas before considering similar capacity improvements in these areas.

O2. Inventory sensitive environmental and cultural resources throughout the length of the corridor. Identify the resources that should be avoided if possible when developing transportation improvement projects. Items to inventory should include at least the following:

- Rare, threatened, and endangered plants and animals or their known habitats
- Wetland resources
- Water quality in adjacent creeks, streams, and rivers
- Parks, schools, and churches
- Wildlife refuges or significant wildlife habitat
- Hazardous materials sites
- Archeological, historic, and cultural resources
- Soil and slope stability

O3. Consider enhancements or management techniques that maintain or enhance the visual quality of the corridor by the following actions:
- Improve directional and informational signing for existing attractions.
- Construct additional roadside turnoffs at scenic and historic locations.
- Use vegetation management resources to create and protect scenic vistas (e.g., scenic buffers for timber harvests) and to replace or redesign vegetation lost to transportation system projects.
- Seek restrictions on scenic intrusions such as billboards and other non-essential signs.
- Implement Green Corridor protection through intergovernmental agreements in county plans.

O4. Develop a coordinated accident response plan with the jurisdictions along the corridor to reduce the impact of hazardous material spills.

O5. Design roadway improvements and new facilities to minimize surface runoff pollutants in adjacent streams and rivers. In addition, review maintenance and sanding practices near bridges.

O6. To achieve regional, state, and federal air quality standards, institute measures to reduce vehicle miles traveled and congestion, particularly within the Portland metropolitan area airshed portion of the corridor.

O7. Consider the need to construct berms or walls, if warranted, to reduce noise levels as traffic levels increase.

O8. Develop a corridor signing program in transitional/rural areas to reflect services available.

O9. Consider parkway style improvements to complement the rural character of the corridor and to mitigate visual impacts.

O10. Develop a strategy to improve fish passage through streams and culverts in compliance with the Governor’s Salmon Recovery Initiative.

O11. Address environmental impacts of new roadway routes with a thorough analysis of alternatives and programs to mitigate adverse impacts.
Energy Impacts

Transportation systems and modal choices can have a significant impact on energy consumption. The lack of an appropriate mode may result in people, goods, or services moving in an inefficient manner. Transportation facility design may result in improved efficiency or diminished efficiency.

The energy impacts goal is:

Provide a transportation system that minimizes transportation-related energy consumption through the use of energy efficient and appropriate modes of transportation for the movement of people and goods.

Actions and Objectives

P1. Give priority to those projects that reduce energy consumption.

P2. Examine methods to reduce energy consumption through the use of TDM techniques such as:

- Carpooling and vanpooling
- Increased use of public transit for commute trips
- Increased use of intercity transit and rail modes
- Reduction of trips through strategies such as telecommuting, flex-time, and variable work schedules
APPENDIX A

Summary of Plans and Studies
Appendix A—Summary of Plans and Studies

Statewide and Regional Plans

Oregon Transportation Plan (September 1992)

The Oregon Transportation Plan is a policy document developed by the Oregon Department of Transportation (ODOT) in response to the federal and state mandates calling for systematic planning for the future of Oregon’s transportation system. It serves as a take-off point for all general, corridor-specific, and local transportation policy and system planning projects in Oregon.

The OTP defined four goals:

- System characteristics including balance, efficiency, accessibility, environmental responsibility, connectivity among places and modes, safety and financial stability.
- Livability. To develop a multimodal transportation plan that provides access to the entire state, supports acknowledged comprehensive land use plans, is sensitive to regional differences, and supports livability in urban areas.
- Economic development through expansion and diversity
- Implementation through flexible and stable financing, good management practices, and cooperation with public and private sector organizations and interests.

The OTP Steering Committee selected one of several alternatives considered in the OTP, as the Preferred Plan for adoption: The Livability Approach. This alternative includes many general goals for the entire state transportation system and several elements specific to the Portland-Lincoln City corridor:

- Commuter Transit Service between Portland and McMinnville by the year 2012
- Urban transit minimum levels of service for urban areas of over 25,000 persons (McMinnville)
- Intercity bus or commuter bus service available to cities of over 2,500 population

Oregon Highway Plan (June 1991)

The Oregon Highway Plan (OHP) represents one modal element of the overall transportation planning effort. As a modal plan, the OHP will feed into the OTP by carrying Oregon Transportation Commission directions and policies relating to Highways. Goals for modernization, preservation, maintenance, operations and safety were developed for state Highways. This primary document called for the development of corridor plans such as the Portland-Lincoln City corridor plan.
The OHP includes a Level of Importance Policy. This policy classifies the state Highway system into four levels of importance (LOI). The policy provides overall direction for managing the system and provides a basis for developing funding strategies for improvements. Each LOI is described in terms of its primary and secondary functions, key characteristics, and objectives for managing the operations of that class of Highway. Highway 99W/18 is classified as having “Statewide” Level of Importance. Thus, the corridor’s management objective is to provide for safe and efficient high-speed continuous-flow operation in rural areas (minimum Level of Service “C”) and high to moderate-speed operations with limited interruptions of flow in urban and urbanizing areas (minimum Level of Service “D”).

The OHP also contains an Access Management Policy. The policy provides a framework for making access decisions which will be consistent with the function and operation levels of service identified in the Level of Importance policy. Interchange control and spacing, at-grade intersection control and spacing, traffic signal spacing, and median control guidelines are provided for six Highway categories. The categories span from a freeway with full access control to a partially controlled roadway with signals at one-quarter mile spacing. Three of the categories cover roadways with a “Statewide” Level of Importance. Access management guidelines applicable to Highway 99W/18 are shown in the following table.

<table>
<thead>
<tr>
<th>Access Category</th>
<th>Access Treatment</th>
<th>Urban/Rural</th>
<th>Public Road Intersection Type</th>
<th>Public Road Intersection Spacing</th>
<th>Private Drive Intersection Type</th>
<th>Private Drive Intersection Spacing</th>
<th>Signal Spacing</th>
<th>Median Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Full Control (Expressway)</td>
<td>Urban</td>
<td>At grade/Intch</td>
<td>1/2-2 Mi.</td>
<td>None</td>
<td>NA</td>
<td>1/2-2 Mi.</td>
<td>Full</td>
</tr>
<tr>
<td>2</td>
<td>Full Control (Expressway)</td>
<td>Rural</td>
<td>At grade/Intch</td>
<td>1-5 Mi.</td>
<td>None</td>
<td>NA</td>
<td>None</td>
<td>Full</td>
</tr>
<tr>
<td>3</td>
<td>Limited Control (Expressway)</td>
<td>Urban</td>
<td>At grade/Intch</td>
<td>1/2-1 Mi.</td>
<td>Rt. Turns</td>
<td>800’</td>
<td>1/2-1 Mi.</td>
<td>Partial</td>
</tr>
<tr>
<td>3</td>
<td>Limited Control (Expressway)</td>
<td>Rural</td>
<td>At grade/Intch</td>
<td>1-3 Mi.</td>
<td>Rt. Turns</td>
<td>1200’</td>
<td>None</td>
<td>Partial</td>
</tr>
<tr>
<td>4</td>
<td>Limited Control</td>
<td>Urban</td>
<td>At grade/Intch</td>
<td>1/4 Mi.</td>
<td>Lt./Rt. Turns</td>
<td>500’</td>
<td>1/2 Mi.</td>
<td>Partial/None</td>
</tr>
<tr>
<td>4</td>
<td>Limited Control</td>
<td>Rural</td>
<td>At grade/Intch</td>
<td>1 Mi.</td>
<td>Lt./Rt. Turns</td>
<td>1200’</td>
<td>None</td>
<td>Partial/None</td>
</tr>
</tbody>
</table>
Access Oregon Highways Corridor Studies (February 1990)

In March 1988, the Oregon Transportation Commission adopted the Access Oregon Highways (AOH) Program, which focuses funds from a recently enacted gas tax revenue on 15 of the state’s important Highway corridors. Highway 18 was designated as part of the Access Oregon Highway (AOH) by the OTC. The system was approved in 1988 after an extensive public review process. The goal of the AOH system is to provide for economic growth of Oregon by moving through-traffic safely and efficiently (55 mph), between geographic and major economic areas within Oregon, between Oregon and adjacent states, and to and through major metropolitan areas. The Oregon State Highway Division identified improvement needs on the AOH corridors to ensure that the entire corridor needs were being addressed and that program goals were being met. The following major Highway improvements were recommended:

- Construction of a six-lane section on the easternmost three miles of the corridor (in Tigard) and addition of a third southbound lane through downtown Newberg.
- Construction of four-lane sections between the north Highway 99W/Highway 18 junction and Airport Road (in McMinnville), between the Highway 18/Highway 22 junction and the east end of the Van Duzer Corridor, and from the west end of the Van Duzer Corridor to U.S. 101.
- Realignment of low speed curves and shoulder widening at various locations throughout the corridor.

Application of the Passing Lane and Access Management Strategies throughout the corridor.

The study also recommends that bridge widening and repair, traffic signals, guardrail, rock/slope stabilization, left turn channelization and passing lanes at various locations throughout the corridor. Specific Highway 99W intersections identified for realignment include: SW Villa Road/SW 72nd Avenue, Gaarde Avenue. Specific Highway 99W intersections identified for added left-turn lanes include: Masonville Road, Bellevue-Hopewell Highway, Loganberry Lane, and Red Prairie Road.

Oregon Bicycle and Pedestrian Plan (June 1995)

The Oregon Bicycle and Pedestrian Plan is a statewide plan that provides direction and guidance to bikeway and pedestrian programs in Oregon. Goals of the plan include:

- To provide safe, accessible and convenient bicycling and walking facilities
- To support and encourage increased levels of bicycling and walking.

These goals will be implemented through the following three actions:

- Provide bikeway and walkway systems that are integrated with other transportation systems
- Create a safe, convenient, and attractive bicycling and walking environment
- Encourage and promote bicycle and pedestrian safety education programs
For the Portland to Lincoln City corridor, locations of bicycle and pedestrian activity will have to be identified. In the rural portions of the corridor, the primary issue will be the provision of minimum 6 foot wide shoulders. In more urban areas, the need for bike lanes, sidewalks, pedestrian crossings and transit access will be key issues to be addressed.

**Oregon Rail Freight Plan (ODOT, 1994)**

The Oregon Rail Freight Plan describes the existing rail system in Oregon, and analyzes possible rehabilitation improvements to the system. This plan is used to help qualify improvement projects for federal funding. The Willamette & Pacific Railroad, Whitson to Willamina project has been included as eligible for a rehabilitation assistance project.

A policy plan is also established, including policies addressing economic development, retention of local rail service, protection of abandoned rights-of-way, and integration into state and local land use planning processes.

**Oregon Rail Passenger Policy and Plan (ODOT, 1992)**

This report provides a policy basis for expanded rail passenger service in the state. It reviewed the feasibility of commuter rail service between McMinnville and Portland and several other potential routes. The plan emphasizes the need for efficient, reliable intercity rail passenger transport and investigates the feasibility of expanded rail passenger service in several corridors.

**Oregon Transportation Safety Action Plan (ODOT, 1995)**

**Statewide Transportation Improvement Program, 1995-1998**

The Statewide Transportation Improvement Program (STIP) supports the OTP through scheduling funding for high priority Highway, transit, and bikeway capital improvement projects (including transit vehicle acquisition). Within MPO areas, it also identifies regionally significant local projects.

The STIP includes three categories of funding authorization. Projects listed for construction have been approved by the Oregon Transportation Commission for development and construction financing in the federal fiscal year indicated. The Development section includes projects for which a need has been identified, but a final solution has not been determined. Projects are typically funded only through the completion of environmental studies or through the preparation of construction plans. The Reconnaissance category provides for studies to determine the feasibility of a proposed improvement, or for the determination of needed improvements within a study area that would yield more than one project.

Programmed improvements for the 1995 Federal Fiscal year include:

- Highway 18 Longfiber Road-AR Ford Road, Salmon River (Milepost 11.3-20.0) Surface Preservation Project.

No improvements are programmed for the 1996 and 1997 Federal Fiscal years. Programmed improvements for the 1998 Federal Fiscal year include:

- Highway 99W Everest St.-Main St. Yamhill (Milepost 22.8-23.9) Construct a left-turn lane and additional southbound lane, and reconstruct signals.
Development:

- Highway 99W Newberg Area Transportation EIS, Pacific Highway West, Look at improvements to existing Highways, city streets, county roads and bypass routes.

**Oregon Benchmarks (December 1992)**

The Oregon Benchmarks is a planning guide used by all State agencies to track quality of life issues throughout the State. The Benchmarks planning process evolved out the Oregon Futures Commission’s Emerging Trends 2010 Report in 1986, and former Governor Goldschmidt’s Oregon Shine Strategic Plan in 1989. The first Oregon Benchmarks were published in 1991. Former Governor Roberts directed State agencies to give priority to critical near term benchmarks in 1992. In that same year, The Governor’s Task Force on State Government recommended in their report, New Directions, that Oregon Benchmarks be integrated into the goals of state agencies, and their planning and budgeting be directed towards addressing the significant benchmarks.

There are a number of transportation related benchmarks that guide planning efforts by ODOT. One of the core benchmarks is to provide livable communities. An important component of this core benchmark is to provide transportation facilities to points near where people live and work. This same theme on improving transportation access options appears under the developed environment benchmark. In addition, this benchmark also emphasizes access to alternative transportation modes. Under this same developed environment benchmark, there are specific goals to improving state highways, transit facilities, and air service. Under the benchmark to maintain Oregon’s capacity for expansion and growth, transportation related goals are considered to be critical. Specifically, this benchmark calls for improvements in air, ground, and marine transportation; as well as improvements to telecommunication networks throughout the State. All these benchmark goals are considered important to improving the livability, the developed environment, and the capacity for expansion and growth of communities throughout Oregon.

**Metro 2040 Growth Concept Plan**

The Metro Council adopted the 2040 Growth Concept Plan in December, 1994. The adoption of this plan was the culmination of a 3 year planning effort to address growth management issues on a regional basis. The 2040 Growth Concept Plan will guide long term growth management within the region including future expansion of the urban growth boundary, and the identification of areas that should be protected as open space. Metro will now move ahead to amend existing functional plans and the regional framework plan to conform with the growth management concepts adopted in the 2040 Plan. A fundamental principal of the 2040 Growth Concept Plan is a multimodal transportation system which assures mobility of people, goods, and services throughout the region. The 2040 Growth Concept Plan was prepared to comply with ISTEA and the Oregon Transportation Planning Rule. The portion of the Lincoln City to Portland Corridor between Portland and Newberg falls within the 2040 planning area.

The 2040 Framework Plan includes the following components for the Lincoln City to Portland corridor:

- From Portland through Tigard, 99W is proposed as a future light rail alignment with a light rail station at the end point just west of Tigard.
Boones Ferry Road, where it crosses 99W is identified for a light rail alignment to the north and a possible HCT line to the south; a light rail station is shown where 99W and Boones Ferry Road meet. A rail distribution network is also shown crossing 99W from north to south at this location.

There are four Town Centers identified within the study corridor: east of Tigard, Tigard, King City and Sherwood. Most of 99W between Portland and Sherwood is identified as a “corridor”. These are areas where future employment and population growth will be concentrated.

Newberg is identified as a Neighboring City.

Sections of 99W between King City and Sherwood, and Sherwood and Newberg are identified as Green Corridors. The broader area in this vicinity is identified as rural reserve.

There are small urban reserve areas located west of Sherwood and west of King City. These are areas targeted for possible future expansion of the Urban Growth Boundary.

**Willamette Valley Transportation Strategy (1995)**

The Willamette Valley Strategy is strategy developed to address the problems and opportunities of “transportation interdependence” among the Valley communities. The Portland to Lincoln City Corridor passes through the study area. Three goals were identified for the valley: mobility, industrial growth, and livability. The transportation development portion of the strategy focuses on: the development of urban transit, intercity rail passenger systems and other alternatives to the single-occupant automobile; improved intermodal domestic freight facilities and rail connection to the Port of Portland; travel demand management; and user fees. The coordination portion of the strategy calls for the formation of a Valley Livability Council and continuation of the Willamette Valley Policy Advisory Committee on Transportation (VPACT) to council ODOT Regions 1 and 2 on valley-wide issues and projects.

None of the individual strategy elements are specific to the Portland to Lincoln City Corridor. However their overall intent of the Willamette Valley strategies should be considered as the corridor strategies are developed.

**County Plans**

**Washington County Comprehensive Plan**

The Washington County Transportation Plan (1988) classifies Highway 99W in two categories. The easternmost section, from the county line almost to Six Corners is a major arterial. The remaining portion within the county is classified as a principal route of a regional arterial. Both of these segments are identified currently as five lanes, and planned in the future to be five lanes. The entire corridor is identified as a through truck route and the portion east of Sherwood as a transit street. The plan identifies a long range light rail transit extension in the section from Tigard east. With the exception of a section through Tigard, the rest of the corridor is identified by Washington County as an on street bicycle route (ultimately to have 6 foot bicycle lanes in each curbside travel lane). In the County’s
transportation plan, both safety and capacity problems have been identified along the portion of the plan through Tigard.

Regional arterials are intended to move traffic and not to provide direct access to land use activities. Access to principal routes is to be managed to minimize the degradation to capacity while providing access to abutting land uses. Major arterials are intended to serve as primary routes for travel between areas of principal traffic generation and major urban activity centers, and for trips between non-adjacent areas.

Washington County’s Transportation element expresses the County’s widespread support for the Western Bypass.

There are no specific policies within the Urban Area Framework Plan (1993) addressing Highway 99W.

The Rural/Natural Resource Plan identifies Onion Flats, located on both sides of 99W just east of Sherwood, as a significant water area and wetland resource. West of Sherwood, Cedar Creek which runs parallel to and crosses Highway 99W, is identified as a significant water area and wetlands, and fish and wildlife habitat. Rock Creek, which crosses through Onion Flats, also has this designation. It is Washington County’s policy to protect and enhance its significant natural areas.

Yamhill County Transportation System Plan (1995 Draft)

As summarized in the Transportation System Plan, the Yamhill County Comprehensive Plan (1974) recognizes Highway 99W/18 as “a dominant feature of their road network, serving local and inter-city traffic, commuter traffic oriented to the Portland metropolitan area, and tourist and weekend vacation traffic between Portland and the Coast, as well as providing direct access to abutting properties throughout much of its length.” It also recognizes the need for “cooperation between Yamhill County and the State Highway Division is needed to better serve programmed urban development as provided by the Plan, while preventing compromises elsewhere in the massive public investments already made and yet to be made in the arterial highway system.”

The Transportation System Plan indicates that it is the County’s policy to “limit access points on highways designated as arterials when alternative access points are feasible.” It supports to continued and increased support of the YAMCO transit system. Following are a list of projects identified in the plan on or adjacent to Highway 18-99W:

Construction of 6 foot wide paved shoulders for bicycles contiguous to each outside travel lane of Highway 99W and Highway 18 from the Washington County line to the Polk County line, Salem-Dayton Highway 221 from Highway 18 to Polk County line, Salmon River Highway 18 from 99W to Polk County line, Yamhill-Newberg Highway 240 from 99W to Highway 47, Amity-Dayton Highway 233 from 99W to Highway 221, Lafayette Highway No. 154 from Highway 18 to Bellvue-Hopewell Highway, Bellvue-Hopewell Highway 153 from Highway 18 to Highway 221, McMinnville Highway 156 from 99W to 3rd Street (McMinnville), and Willamina-Sheridan Business Highway 18 from Highway 18 to Polk County line.

\[^{1}\text{JRH Transportation Engineering, Yamhill Transportation System Plan, July 1995.}\]
• Realignment of Old Sheridan Highway to relocate the intersection at Masonville Road to reduce potential hazard for motorists pulling off Highway 18.

• Expand Ride Share, and Van Pool Service by installing signs on Highway 99W, Highway 18, and the Lafayette Highway to Salem.

• Commuter Rail between McMinnville and Sherwood, and in 50 years between Salem and McMinnville.

• Maintain the dial-a-ride service in all of the communities in the County, expand the commuter routes between communities. In addition, specific park and ride lot locations are specified for McMinnville.

• The County supports building a limited access Newberg-Dundee bypass.

• Improvements to McDougal Corner including: eliminating the left turn lane from Highway 18 to Highway 99W, constructing new access for McDougal Road, constructing raised medians on both state Highways, increasing illumination, restriping section and improving signage. And at Kreeder Road: establishing a left turn refuge on Highway 18 to give local drivers access to Kreeder Road and restriping section and improving signage.

**Polk County Comprehensive Plan (1993)**

The transportation element of the Polk County Comprehensive Plan makes only one specific reference to Highway 99W:

"Polk County will require that minimum setbacks of 75 feet from the public right-of-way of principal arterials (such as Highway No. 22 and No. 99) be observed when considering the development of commercial and industrial uses along such facilities."

Other policies that would effect the Lincoln City to Portland Corridor include:

"Polk County will discourage direct access from adjacent properties onto those Highways designated as arterials whenever alternative access can be made available."

"Polk County will resist the abandonment of railroad lines which contribute to the economic viability of the County and will preserve and protect rail rights-of-way where needed for future public use."

The Comprehensive Plan designates land within the corridor for agriculture, farm forest, forest rural community and rural land. Policies in the plan focus on protection of these lands for their intended uses. Extension of "utilities" are allowed in agricultural lands, only if appropriately sized and necessary for agriculture, farm uses, or permitted nonfarm uses. Within designated forest lands, the plan policies "discourage the construction of new roads within areas designated as forest lands, with the exception of secondary roads necessary for harvesting purposes."

The Natural Resource section of the plan makes specific reference to the Van Duzer Corridor:

"Polk County recognizes the value of the Van Duzer Corridor and the Willamette River Greenway and will designate these resources significant (1-C) and, because there are no
conflicting uses, will encourage the protection of these resources through intergovernmental coordination and implementation of Statewide Goal 15, Willamette River Greenway (Amended by Ord. 89-18, dated Dec. 20, 1989).”

Lincoln County Comprehensive Plan (Transportation Goals only) (undated)
The westernmost ten miles of Highway 18 is within Lincoln County. The Lincoln County Comprehensive Plan calls for widening and improvement of Highway 99W/18 in the following transportation policy:

“Lincoln County shall encourage the Oregon Department of Transportation to widen and improve valley access Highways”

Other transportation policies of interest to this planning effort include:

“Lincoln County shall review improvements to the state Highway system within the county for consistency with this plan.”

“In response to applications for the Highway access permits for abutting properties from the State of Oregon, Lincoln County shall respond with the following condition: “This Highway access permit shall be valid only as long as alternative access from a collector or local street is not available. Upon development or improvement of a collector or local street, this permit shall be terminated and the driveway shall be abandoned.”

“Adequate setbacks from arterial and collector roads shall be required in order to provide for future purchase of additional right-of-way.”

“Lincoln County shall encourage designation and improvement of pedestrian and bicycle routes.”

“Lincoln County shall promote the expansion of the railway system capability.”

Local Plans

City of Tigard, Transportation Comprehensive Plan Report (undated)
Pacific Highway is designated as an arterial (In RTP it is a major arterial). Standards for an arterial are:

- Right-of-Way Width: 60-90 feet
- Pavement Width: 12 feet per lane
- Moving Lanes: 2-4
- Volume: 6,000-20,000 vehicles per day
- Driving Speed: 40-55 miles per hour


In this Plan, it was noted that lacking road improvements will contribute to major congestion along 99W, causing traffic diversions onto internal streets.
The plan calls for upgrading the following existing collector streets:

- Walnut from 135th to 121st and possibly 121st to 99W
- Gaarde from Walnut to 99W
- 72nd north of 217 to 99W
- Portion of McDonald from 99W to Hall
- Durham from 99W to Hall
- Portions of Bull Mountain Road from 99W
- Naeve Street from 99W

The following Collector Connections are recommended:

- Connection between 99W at 78th south to Dartmouth
- Consideration of use of Eide Road as a connector between I-5 and 99W

The plan recommends the following Pedestrian and Bike Priorities:

Phase I:

- No projects related to 99W are listed in this phase

Phase II:

- Greenburg Road from Tiedeman to 99W
- 72nd Avenue from Cherry Street to 99W
- 99W from 65th to Durham Road
- McDonald Street from 99W to Hall Blvd

Phase III:

- Pine Street from 80th to 72nd – 72nd to 99W
- 121st from Scholls Ferry to Gaarde – Gaarde to 99W
- Bull Mountain Road from 161st Avenue to 99W
- 99W from Durham to Tualatin Road
- Beef Bend Road from 99W to 137th

Phase IV:

- Frewing from 99W to O’Mara
- Durham Road from 98th to 99W

**City of Tigard, Findings, Policies, and Implementation Strategies (undated)**

The City of Tigard has the following policies relative to the roadway system:

“The City shall plan for a safe and efficient street and roadway system that meets current needs and anticipated future growth for development.”

“The City shall require as a precondition to development approval that:

- Street right-of-way be dedicated where the street is substandard in width
- The developer commit to the construction of the streets, curbs and sidewalks to City standards within the development
Street improvements be made and street signs or signals be provided when the development is found to create or intensify a traffic hazard.

Transit stops, bus turnout lanes and shelters be provided when the proposed use of a type which generates transit ridership.

Land be dedicated to implement the bicycle/pedestrian corridor in accordance with the adopted plan.

Some Relevant Implementation Strategies include:

- "Consider a variety of transit modes within the rights-of-way."
- "The City shall maintain the carrying capacity of arterials and collectors by reducing curb cuts and other means of direct access and requiring adequate right-of-way and setback lines as part of the development process."
- "The City shall control and limit the number of access points and will signalize trafficways in a manner that provides for a consistent flow of traffic and therefore minimizes or reduces vehicular emissions."
- "The City shall include provisions in the Tigard Community Development Code which addresses the aesthetic quality of the transportation system to ensure community livability and to minimize the effects of abutting priorities. This can be accomplished through:
  - Building setback requirements
  - Requirements for landscaping and screening and through other site design criteria for visual enhancement
  - Limiting residential land uses along major arterial trafficways
  - Sign controls"

"The City shall coordinate with Washington County to connect the City’s Pedestrian/Bike Pathway system to the County’s system."

"The City shall review and update the adopted Pedestrian/Bikeway Plan on a regular basis to ensure all developing areas have accessibility to the Pedestrian/Bikeway system."

**Highway 99W Transportation System and Access Management Plan (Draft - August 1995) City of Tigard**

Access management strategies were developed and evaluated along Highway 99W between Highway 217 and Hall Boulevard. Various signal control alternatives and geometric improvement options are considered and analyzed. Specific channelization recommendations are presented for several critical intersections.

**City of Tualatin Development Code (1988 and 1993)**

The City of Tualatin Development Code Chapter 11 deals with transportation, and Chapter 75 deals with access management. Street standards and functional classification...
system are discussed. Tualatin is committed to working on a multi-jurisdictional basis to develop arterial bypass routes connecting I-5 and Highway 99W south of Highway 217, and to improving transit connections to adjacent communities. The code recognizes the importance of access management along Highway 99W, and presents specific plans for frontage road development in some areas.

**Sherwood Transportation Plan Update (June 1991)**

"The City of Sherwood encourages close coordination with ODOT on the issue of access to Pacific Highway. The City’s current land use plan along Highway 99W has been established to provide for a mix of land uses that do not necessarily require direct freeway access.

"In discharging its land use planning responsibilities, the City shall utilize the following guidelines in both property owner and ODOT negotiations:

- City minor arterial roadways shall be provided with full, all directional access to Highway 99W and may, depending on growth in traffic volumes, be signalized at a future date.
- City collector roadways shall be provided with the fullest access to Highway 99W.
- City local roadways shall not generally be designated to intersect with 99W. Where they do intersect, they should be served by frontage roads whenever possible.
- Private drives intersecting with 99W shall generally be discouraged."

Specific projects called out in the Update include:

- Possible signalization of West Sunset Blvd with Old Highway 99W.
- Possible modification at Meinecke Road and 99W. This may occur once traffic volumes reach higher levels.
- Retain and enhance the current bus route to Portland via 99W.

  The present 99W route should be enhanced to include express buses from Sherwood to the Tigard light rail tunnel.

- The City needs to be fully integrated into the regional transit system. One potential route for rail transit is Highway 99W with a single rail terminus in the vicinity of Six Corners or conversion or joint use of the Southern Pacific Railroad line.


Highway 99W intersects the City of Sherwood. For a number of reasons, it is believed there will be constant future demand in development of the Sherwood area. These reasons, are: large tracts of developable land, reconstruction of Six Corners, the Western Bypass Study (if developed) will intersect with 99W in Sherwood increasing City access, and that 99W is a direct link to the Oregon Coast.

Land use changes along or near 99W in Sherwood were incorporated into the 1990 Sherwood Comprehensive Plan. Those changes increased industrial and commercial zoning in four areas: 1) just north of the Six Corners area, 2) the vicinity of Six Corners, 3) the Meinecke Road area, and 4) south of the Highway (south of Meinecke Road).
Once the Western Bypass Study is complete, the project forwarded in the study should be re-evaluated and amended into the Transportation Plan.

The following specific information is outlined in the Sherwood Transportation Plan:

- Change in designation of existing streets that intersect with 99W.
- Development of the Steeplechase County Estates will improve the “Y” intersection with Old 99W.
- 99W has a median strip through Sherwood that is breached in seven locations by two-way crossings. These crossings are only reasonably safe while they have low traffic demands.
- There are some projects underway to improve the arterial intersections with 99W.
- There is a Washington County and ODOT project to reconfigure the Six Corners intersection.
- There are recommendations for the median crossings through Sherwood at: Meinecke Road and Old 99W/Elwert Road; Six Corners and Meinecke Road; Meinecke Road and Old 99W; and south of Elwert.

**Newberg Comprehensive Plan: (Jan. 1995)**

Highway 99W is viewed, within the City of Newberg, as an arterial, and therefore should follow the listed criteria:

- 100 feet of right-of-way
- Direct access is minimized (no residential access).
- Signalization at intersections with arterials and with collectors as warranted.
- Bike lanes may be provided on both sides of the street. Bike lanes should be 5 to 6 feet wide on both sides.
  
  Seven-foot sidewalks are required on both sides of the street.
- Parking allowed on one side in some areas; no parking allowed within 20 feet of curb return.

The following policies directly tie to 99W:

- “The City shall coordinate with the State of Oregon to synchronize all signals on Highway 99W.”
- “The City will continue to work with the State, Yamhill County, and the City of Dundee on alternatives for routing the Highway 99W traffic through or around Newberg/Dundee.”

Other policies that, although indirectly tied to 99W, have direct implications to the corridor planning effort include:
"The City shall:

- Coordinate a Transportation System Plan with the planning process of other jurisdictions to assure adequate connections to streets and transportation outside City boundaries.
- Participate in the planning efforts to bring light rail transit to Newberg.
- Plan for a network of transportation facilities and services including but not limited to air, water, auto, pedestrian, bicycle and public transit.
- Encourage more use of existing transportation systems including car pooling, park and ride stations, and bus service.
- Enhance the efficiency of the existing collector/arterial street system to move local traffic off the regional system.
- Impose a design overlay zone on those areas adjacent to major and minor arterials.
- Provide alternative routes for regional traffic.
- Minimize the use of local streets for regional traffic.
- Provide safe, convenient, and well maintained bicycle and pedestrian transportation system.
- Public sidewalks shall be provided along all public street frontages. Pedestrian traffic shall be separated from auto traffic whenever possible.
- Encourage pedestrian access through commercial zoned areas.
- Designate new development to accommodate integrated multiple modes of transportation facilities where appropriate.
- Design transportation facilities to minimize impacts on: present and planned land use patterns; natural and scenic resources; air resource quality; water and land resource quality; and existing and planned transportation facilities."

City of Newberg Transportation System Plan and Addendum Report (June 1994)
The City of Newberg contains 22 miles of arterial and collector streets, with 99W being one of those arterials. 99W is the largest transportation facility to cross the City of Newberg. Traffic volume of 99W has grown significantly since 1988. It was also identified that "the level of service analysis of the major intersections on the Newberg arterial system show that minor street movements onto or across 99W experience significant delay."

The criteria for arterials are as follows:

- Feet of right-of-way
- Minimized direct access
- Signalization at intersections with arterials
- Bike paths may be provided on both sides of the street and should be 4-6 feet wide.
One reasoning for the development of the Transportation System Plan was the City wanting to take a proactive role in defining the 99W bypass. "Other issues were also associated with the proposed bypass, and include:

- Highway 219 and 240 alignment, a connection with a Highway 99W bypass
- Purpose and design of existing Highway 99W route through Newberg after the bypass is completed
- Interim transportation improvements to address Highway 99W through-traffic prior to the completion of the bypass
- Pedestrian and/or bicycle access to the Highway 99W bypass
- Role and form of public transit service for local and inter-city travel in association with the Highway 99W bypass"

The following roadway sections of 99W have been identified as “hazardous” based on critical roadway section analysis:

- Meridian Street to College Street
- College Street to Main Street

The plan identifies the following planned transportation improvements:

- Westbound lanes of 99W between Villa Road and Harrison Street (includes addition of one through westbound travel lane and a new bicycle lane beginning just east of Villa and continuing west on Hancock until Main Street)
- Existing westbound 90-degree turn of Highway 99W at River and Hancock will be reconstructed with reverse curves to 30 mile per hour standards
- Additional northbound left-turn lane and reconfiguration of the southbound lanes on Villa Road and 99W
- Reconstruct Elliot Road from Highway 99W to the Newberg High School to full collector standards between 99W and the Newberg High School and also a stripe for bicycle lanes and school crosswalks on Haworth Street
- Install two new semi-actuated traffic signals on Howard at Hancock and 1st. "This will ensure that adequate traffic progression can be maintained on 99W, while allowing for pedestrian access across 99W at more regular intervals."
- Prior to construction on Hancock, remove on-street parking on:
  - Main (between Hancock and 1st)
  - Meridian (between Hancock and 1st)
  - College (between Hancock and 1st)

The following are recommended in Newberg’s existing functional classification plan:

- Upgrade Illinois Street to a collector street. Illinois Street provides connection for local industrial and residential traffic to Highway 240 and Highway 99W.
Capacity Improvements:

- Springbrook Road: widen to full collector street standards between 99W and Crestview. Improvements to this street will also provide greater non-auto access from the Crestview and Springbrook neighborhoods to shopping and work locations along 99W and Springbrook south of 99W.

- Brutscher Street: extend Brutscher Street south from Highway 99W to Fernwood Street.

- Extend minor arterial east of Springbrook to Highway 99W connecting north Newberg with Highway 99W.

- Install new traffic signal at Elliot Road/Highway 99W intersection to provide additional intersection capacity for vehicles, bicycles, and pedestrians.

- Newberg-Dundee Bypass

Non-Capacity Improvements:

- Widen Elliot Road to full, three lane collector street standards between Highway 99W and Newberg High School to include sidewalks and bicycle lanes on each side of River Road.

- Reconstruct Villa Road to full collector street standards between Highway 99W and Fulton Street.

The Public Transportation Plan makes the following statement:

"If commuter travel demand to downtown Portland from Newberg and McMinnville warrants enhanced transit service and is supported by the community, it is likely that a significant portion of costs in providing transit service can be recovered at the farebox."

In the Plan it was recommended that further study is warranted to determine the demand and needs for commuter transit service.

The following Bicycle/Pedestrian Facilities Projects are identified in the plan:

- There is a portion of the bike system route along 99W and along Highway 219 that is not signed or visually designated as bike facilities—the City has plans for future bike routes.

- A new bike/ped pathway along Hess Creek that begins near Winooski Street and crosses 99W and ends near the Southern Pacific Railroad.

- New on-street bike lane to be developed in conjunction with the Newberg Dundee Bypass.

- The plan makes the following comments about air and rail service:
  
  - If the facility remains an airport, one project directly tied to 99W would be an improvement to Springbrook to handle increased traffic and to bring it up to standards and intersection improvement with Highway 219 and 99W.

  - One of the options for future passenger rail service includes: a new rail alignment in the existing Highway 99W and future Newberg-Dundee Bypass corridor.
Dundee Comprehensive Plan (1987)

The Dundee Comprehensive Plan recognizes that Highway 99W dominates the traffic circulation in the city. A significant portion of the transportation section is devoted to the issues of safety and capacity along 99W. The community is concerned about increasing traffic projections and the need for improvements. The plan indicates support for the Newberg-Dundee Highway 99W Bypass, as well as a traffic signal at 9th Street. Other alternatives to the bypass which have been considered, are widening Highway 99W through Dundee to 4 lanes, or constructing a one way couplet through town using Main Street and a new parallel street to the west. The issues of traffic congestion along Highway 99W are also addressed in the energy section the increased traffic and congestion on Highway 99W are identified as Unavoidable Adverse Impacts in the Environmental Assessment on Dundee’s Comprehensive Plan.

The following policies make specific reference to Highway 99W:

“Special setback requirements will be developed along Highway 99W to reflect probable future expansion of the right-of-way between 5th and 12th Streets.”

“The City supports the concept of expanding Highway 99W to 4 lanes in the future.”

In addition, the following policies relate to the Lincoln City to Portland corridor:

“The City will promote alternative transportation modes to private auto use, including car-pooling, pedestrian traffic, and bicycling.”

The Comprehensive Plan identifies and area adjacent to Highway 99W on the northwest as a natural hazard, because it is subject to occasional flooding. Special design features may be required in this area.

During the 1987 periodic review of Dundee’s Comprehensive Plan, there were conflicting views on the need for setbacks from 99W, in anticipation of future widening. The City of Dundee did not support the setbacks requested by ODOT because of the impact to an existing historic structure, as well as a significant number of existing businesses.

Dayton Comprehensive Plan (adopted December 1986)

Highway 18 is classified in the Dayton Comprehensive Plan as a Principal Arterial. Maintenance is assumed to be the responsibility of ODOT. The plan states that “the function of arterial streets is to facilitate traffic movement between communities.” Policies support the state bicycle plan and the promotion of alternative modes, although it recognizes that “Dayton is dependent on private automobiles as the primary source of transportation...”
Lafayette Comprehensive Plan (1986)
The City of Lafayette is off the main portion of the Portland to Lincoln City corridor. Highway 99W goes through the center of Lafayette, serving as its main urban arterial, while the study corridor follows Highway 18 to the south. The plan identifies excessive speeding, a high traffic volume, on-street parking, and a poor pedestrian network as the city’s primary transportation problems. None of the policies in the transportation section specifically address Highway 99W. Policies encourage promotion of alternative modes of transportation, and improvements that address the special needs of low-income, the handicapped and senior citizens. They also encourage off-street parking for future developments, recognizing the traffic hazards created by on-street parking. Lafayette promotes bicycle transportation and supports the Yamhill County Bicycle Plan.

The Lafayette Comprehensive Plan identifies several historic resources adjacent to Highway 99W. These include, the Fletcher Residence, the Kelty House, and a 1913 School Building.

City of McMinnville Transportation Master Plan (June 1994)
McMinnville, the largest city in Yamhill County, is served by both Highways 18 and 99W. Highway 18 provides a bypass for through traffic around McMinnville and is a part of the corridor study. Highway 18 serves the McMinnville Airport and surrounding planned industrial area, while providing a southerly bypass of the City. Highway 99W bisects central McMinnville, provides local access, has four travel lanes through most of the city, and becomes a north-to-south one-way couplet through the center of town. This segment of Highway 99W is not a part of this corridor study.

The plan identifies the following committed street improvements:

"The Oregon Department of Transportation will widen Highway 99W between Old Sheridan Road and the Adams/Baker Street couplet to four lanes plus left turn lanes and bike lanes..."

99W and Highway 18 are viewed by the City of McMinnville as major arterials, which is comparable to ODOT’s classification of principal arterial. A major arterial is:

- 74-foot-wide roadway
- Curb face-to-curb face, which provides for two travel lanes and bike lanes in each direction, plus left-turn lanes at intersections or throughout the roadway.
- Right-of-way width is 100 feet.
- In commercial areas, the sidewalks should be eight feet wide and adjacent to the curb; otherwise they should be five feet wide located five feet from the curb to provide a planting strip.
- A 14-foot-wide left-turn median could also be developed with a raised median between left-turn lanes.

The following Goals and Policies are relevant to this Corridor Planning process:

- Major and minor arterials shall:
  - Have controlled access
- Have designs that minimize impacts on existing neighborhoods
- Have sufficient street right-of-ways obtained prior to development of adjacent lands
- Limit on-street parking wherever necessary
- Install bike lanes on all arterials

- Improve intersections and signalization along 99W
- Improve and protect the integrity of arterials and collectors throughout
- "McMinnville encourages development of roads that include the following design factors:
  - Minimal adverse effects on, and advantageous utilization of, natural features of the land
  - Reducing the amount of land necessary for streets with safety, maintenance, and convenience standards
  - Emphasis placed on existing and future needs of the area to be serviced
  - Provide planting strips between sidewalks and roadways except in commercial areas
  - Installation of bike lanes on collector and arterial streets and bike parking areas
  - Installation of sidewalks on both sides of all streets and direct pedestrian connections to all buildings and shopping centers
  - Accommodation of buses operating on collector and arterial streets by providing adequate radius curb return and bus stop areas."

- "The City of McMinnville shall cooperate with other governmental agencies and private interest to ensure proper development and maintenance of the road network within the UGB"

- "The City of McMinnville shall examine measures to control access onto 99W from heavy traffic-generating developments"

- "The City of McMinnville shall place major emphasis on the land use development implications of large-scale regional mass transit proposals. Systems which could adversely affect the goals and policies as set forth in the plan should be closely evaluated"

The following street improvements were identified in the Plan:

Highway 99W:
- Widen to five lanes, the Adams/Baker Couplet to Old Sheridan
- Install new traffic signals when warranted at the intersections with Lafayette Avenue, Evans Street, and 1st Street
- Access management strategies and striped bike lanes should be implemented on the section between Lafayette Avenue and Adams/Baker Couplet
- Realign Baker Street intersection with 99W to provide more of a right angle approach to 99W
- Construct a new minor arterial with two travel lanes and bike lanes from Highway 99W to West Side Road
- Improve to minor arterial with three lanes from Highway 99W to Cypress Street
- Modify the intersection of 99W and 19th to accommodate left-turn phasing or separate phases for each approach of 19th Street (19th would be widened)

Highway 18:
- Construct a new interchange near Durham Lane on Highway 18 and provide a direct connection to Hill Road as part of future City Ring Road
- The interchange would be designed as part of the interchange to 99W when Highway 18 needs to be widened to four lanes
- This Highway is classified as a major arterial but would be constructed to a four to five lane standard of ODOT

Highway 18 Spur:
- Reclassify as a minor arterial, following design standard E with three lanes and implement access control standards

Northeast Ring Road:
- Construct a new minor arterial with two travel lanes and bike lanes from 99W to West Side Road

Norton Lane Extension:
- Construct a new minor arterial road with two travel lanes and bike lanes from Highway 18 to 99W

Bikeway Plan:
- The bikeway plan includes a designation on all arterial and collector streets. When installed, they would be one-way and five or six feet wide and would be located adjacent to the curb except where there is curb parking or a right turn lane

Pedestrian Plan:
- A recreation walking transit system is recommended to be planned for the City to maximize pedestrian trip-making

Public Transportation:
- Public transportation is provided within the City by YAMCO and is recommended that services be improved within the near future
Effect of Other Projects:

- Decisions regarding the Western Bypass Study are likely to have an impact on accessibility to the Portland area.

Sheridan Comprehensive Plan (July 1980)

Highway 18 passes through Sheridan's city limits, but primarily south of the developed city core area. About 95 percent of the Sheridan planning area is SCS Agricultural Capability Class I-IV soils. The city developed goals and policies to protect such land. Policies that are of particular relevance to State Highway 18 are:

Agricultural-related Policies:

- "The City shall establish agricultural zones and 'holding' zones until agricultural lands are needed for urban uses"
- "Ensure that new roads, bridges and access right-of-ways be designed to avoid restriction of channel capacity and minimize removal of shoreline vegetation"

Environment-related Policies include:

- "To minimize damage to public facilities and utilities, such as water, electric, telephone and sewer lines and streets and bridges located in areas specific to flood hazard"
- "The City shall develop appropriate zoning and subdivision ordinances as a way to guide development within the flood plain. The City shall encourage expansion into areas not affected by the flood plain hazard."

Zoning/Land-Use-related Policies:

- "The City shall ensure that transportation improvements are used to guide urban development and are designed to serve anticipated future needs"
- "The City shall coordinate with Yamhill County and ODOT with regard to City actions and needs which may affect traffic on state and county roads within the urban growth boundary"
- "The cluster development of commercial and industrial activities shall be encouraged and minimum setbacks established from the public right-of-way"
- "Off-street parking shall be provided by all land uses to improve traffic flow, promote safety, and lessen sight obstruction along the streets"

Transportation-related Policies:

- "The City shall promote transportation improvements and actions which address the special needs of low income, the handicapped and senior citizens"
- "Transportation facility siting and design shall be done in a manner that will minimize adverse effects on the existing land uses and natural features"
• "The City shall examine hazardous traffic conditions in detail, including the lack of adequate walkways and make recommendations for improvements through a systematic capital improvement plan"

• "The City shall coordinate with Yamhill County and the Oregon Department of Transportation with regard to city activities and needs which may affect traffic on state and county roads within the Urban Growth Boundary"

Alternative Mode-related Policies:

"The City shall promote alternative modes of transportation that will be energy conserving and will provide maximum efficiency and utilization"

"The City shall support and encourage mass transit and public transportation programs"

"The City shall encourage walking by providing for, through appropriate measures, the maintenance of existing walkways and the development of walkways in future developments"

"The City shall investigate all funding services which would promote bicycle transportation within the urban growth boundary"

Access-related Policies:

• "Access control along Highways can often provide the most cost-effective means of maintaining Highway capacity, and shall be implemented whenever possible"

• "New direct access to arterials shall be granted only after consideration is given to the land use and traffic patterns in the area of development, not just at the specific site. Frontage roads and access collection points shall be implemented wherever feasible"

• "Access control techniques shall be used to coordinate traffic and land use patterns and to help minimize the negative impacts of growth"

• "In order to minimize traffic flow and to protect safety, the number of access points to arterials shall be kept to a minimum"

Sheridan City—Potential Development Impact Analysis, Phase III (June 1995)

Sheridan is located on State Highway 18 (business about 40 miles west of Portland. Sheridan is bypassed to the south by State Highway 18.

"Growth in Sheridan will result in minimal impact on the Highway 18 Corridor between the eastern and western interchanges of Highway 18 business bypass, yet there are other findings regarding the buildout scenario that can be drawn: a) the impact of Sheridan on the Highway 18 Corridors is manageable because of the Highway 18 bypass; b) buildout attractions are significantly greater than are productions; c) capacity problems will arise on the portion of Highway 18 east of the eastern interchange with Highway 18 Business, and potentially, on the short section of the Highway between Sheridan Street and the eastern interchange; and d) increased traffic traveling to and from the Salem/Keizer area will impact Highway 18 at, primarily two intersections: the Ballston Road interchange and the intersection of Red Prairie Road with Highway 18.”
"The projected growth of Sheridan presents ODOT with difficult challenges that are in no way unique to Sheridan. ODOT's concern here is the continued viability of Highway 18 as a through-traffic corridor. The projected growth of Sheridan indicates the need for either expansion of capacity or effective management of peak-hour demand."

"In accordance with the Transportation Planning Rule, ISTEA, and the Corridor Planning Overview, ODOT should plan transportation improvements for the Highway 18 Corridor within a regional development context and primary goal of reducing dependence on single occupancy vehicles."

City of Willamina Comprehensive Land Use Plan (undated)

Alternative Mode-related Policies:

- "When possible, the City shall encourage alternative forms of transportation to reduce automobile emission pollution"
- "Development of bicycle and pedestrian pathways shall be examined as a potential recreational resource for Willamina residents"
- "... Willamina shall encourage use of alternate mode, including small mass transit systems, bicycle and pedestrian pathways"
- "Willamina shall encourage future operation of County public transit system(s)"

Environment-related Policies:

- "The City shall ensure that new roads, bridges, and access right-of-way be designated to avoid restriction of channel capacity and to minimize shoreline vegetation removal"
- "Transportation facilities shall be sited, designed, and constructed so as to minimize visual and environmental impacts on the natural and social features of the area"

Land Use/Zoning-related Policies:

- "Transportation facilities shall respect adjacent land uses and shall be designed to be an asset to an area rather than a disruptive feature"

Other Policies:

- "The City will make appropriate amendments [on its comprehensive plan for street, road and Highway maintenance and improvement allowances and to coordinate the local review of Highway projects with the Oregon Action Plan] as soon as possible after the Oregon Department of Transportation develops modal plan policies and model ordinances to guide the City in correcting the problem"

Grand Ronde Reservation Transportation Plan (Draft 1993)

The Grand Ronde Reservation comprises 9,811 acres in Yamhill County, north of the Highway 18 corridor. The Tribe also has acquired over 500 acres in the Grand Ronde Community. These lands are tribal fee and tribal trust lands.

The tribe has just completed the construction of a new interchange at Highway 18 to provide access to the new Spirit Mountain Gaming Facility. The transportation plan
identifies Highway 18 as the “highest traffic volume route in the Grand Ronde community” and as “the main east-west arterial route.” The plan makes recommendations regarding the road system throughout the reservation, including Highway 22. There are no specific recommended actions regarding Highway 18, but two ODOT projects in the STIP are identified:

- Construction of a 4 lane section from Grand Ronde to Fort Hill (milepost 21.20-24.30)
- Add an eastbound passing lane from Fort Hill to Wallace Bridge (milepost 24.30-27.26)

**Grand Ronde Homelands Master Plan (Draft July 1990)**

The Homelands Master Plan is a comprehensive plan for the use and development of a “homeland” area within the reservation.

(Awaiting more complete copy of this document)

**Lincoln City Transportation Master Plan (January 1995)**

Lincoln City lies at the westernmost end of the Lincoln City to Portland Corridor. The Highway 18/Highway 101 intersection is at the very edge of the Transportation Master Plan study area. The plan primarily addresses the needs of the local street system and needs related to Highway 101. Lincoln City does support the idea of a bypass around the city, returning Highway 101 to the local arterial system. If a bypass was planned, it would route traffic east of Highway 101 and south of Highway 18.

**Other Documents**

**Rex Hill-Dayton Junction Reconnaissance Study (ODOT, 1990)**

Preliminary review of several alternative Highway bypass routes around Newberg. Cursory analysis of traffic, accidents, environmental, and geotechnical were conducted. Study concluded a bypass would be effective in relieving congestion. Study recommended the most favorable designs to be the “South” and “Extended South” routes.

**Draft Recommended Alternative Report: Western Bypass Study**

The Western Bypass Study has been a comprehensive analysis of multi-modal alternatives to resolving the transportation issues in a portion of Washington County. The study area is roughly bounded on the north by the Washington County-Multnomah County line, on the east by Highway 217 and I-5, on the south by the Willamette River and the Washington County-Yamhill County line, and on the west by Highway 219. The study area is approximately 200 square miles. Highway 99W passes through the southern portion of the study area.

The recommended alternative includes the following planned projects directly effecting Highway 99W:

- A series of intersection improvements on 99W between Greenburg Road and Fischer Road, near the Tualatin River.
- Addition of an approach lane on Bull Mountain Road
- Construct a new 132nd Avenue (2 lane) between Bull Mountain Road and Walnut Street
- Widen 99W from Pfaffle Street to Commercial Street to six lanes
- Widen Tualatin Road from 99W to Upper Boones Ferry to three lanes
- Widen Durham Road from Highway 99W to Hall Blvd. to three lanes
- Improve alignment, widen and add turn lanes to Beef Bend Road between Highway 99W and 131st Avenue
- Add turn lanes and sidewalks to McDonald Street between Highway 99W and 97th Avenue

In addition, the recommended alternative includes the following improvement projects:

- Widen Highway 99W from Durham Road to Commercial Street to six lanes
- Upgrade 99W from Six Corners to Durham Road to a limited access facility
- Construct a new four-lane, grade-separated limited-access expressway with interchanges at Tualatin/Shenwood-Edy Road and ramps at I-5/I-205 and Highway 99W.

The Recommended Alternative will next be advanced to Metro for consideration and action by TPAC, JPACT, the Transportation Planning Committee, and Metro Council.

**Lincoln City to Portland Transportation Corridor Plan: Corridor Inventory and Overview (ODOT, May 1996)**

Provides an overview of the corridor's transportation facilities and services; analysis of travel time, congestion, safety and operating costs; estimates of traffic volume trends, etc.


In 1994, surveys were conducted using roadside interviews, roadside mailbacks, and videotape surveys at various locations throughout the State. The intent of the surveys was to determine origins and destinations of trips (to the nearest city or, if within the metropolitan area, to the nearest intersection), trip purposes, time of trips, number of occupants in vehicles, trip-making frequency, type and age of vehicle, and type of fuel used (for air quality planning considerations). For the Newberg-Dundee area, limited weekday and Saturday surveys were conducted. Two survey stations were set up on Highway 99W, one near Newberg's northern city limits and one near Newberg's southern city limits.

Results showed that average weekday vehicle occupancy (averaged for both survey locations) is 1.59, while on weekends this measure increases to 2.08, reflecting the shift from commuter uses to recreational uses. On weekdays, approximately 62 percent of the vehicles are passenger cars, 24 percent are light trucks, and 12 percent are large trucks, RV's, buses or other vehicle types. On weekends, almost 94 percent of the vehicles consist of passenger cars.

A mailback survey was also conducted. A question regarding perceived level of congestion showed that 48 percent of those polled believed the Highway 99W through Newberg has a "critical" rating and 31 percent responded with a "very serious" rating. Fifty-six percent of
those polled recommend a bypass or new road is needed and 31 percent preferred additional lanes on the existing facility.

1993 Oregon Department of Transportation Corridor Planning Public Opinion Survey

The University of Oregon Community Planning workshop undertook an effort to measure public opinion about specific transportation issues. Their primary tool was a mailed survey that was sent to a sample of 800 in each of ODOT's regions. The results are organized by corridor, and the Portland to Lincoln City Corridor is identified as corridor 4. Following are some of the conclusions reached:

- Most of the respondents use the corridor for recreation or pleasure
- Over half of the respondents only use the corridor a few times a year
- Over 40 percent of the respondents feel that scenery is the most important aspect of the corridor, another 25 percent feel short travel time is most important, and 20% believe ease of access is the feature they most like
- Respondents were generally satisfied with Highway conditions on the corridor
- There were mixed responses to the issue of travel time. There appears to be concern about congestion in towns and lack of passing opportunities, although signal delays are viewed as reasonable, and speeds are not too fast
- Wildlife habitat along the corridor is perceived as well protected
- Respondents feel accommodation of alternative modes on this corridor needs improvement
- When asked about the allocation of funds to improvements, improved travel times received the greatest support, followed by improved safety.

Oregon Department of Transportation Demographic and Economic Forecasts (March 1993)
Estimates of population and employment are developed at the county level for the period 1990 to 2030, using a variety of demographic and economic projections.

Tigard Triangle Update Study (May 1995)
Updated land use projections were prepared to examine future traffic conditions in the area bounded by I-5, Highway 99W, and Highway 217. Alternative intersection configurations and access revisions were investigated. The capacity analysis revealed a need for 6/7 lanes along Highway 99W in the future.

I-5/Highway 217 Subarea Transportation Plan (October 1995)
Improvements to the I-5/Highway 217 interchange are recommended to serve future traffic volumes. The study also recommends widening of Highway 99W to six travel lanes and left-turn lanes from I-5 to south of Highway 217. The plan recognizes the difficulties, in terms of cost, feasibility, and impacts, of this project.
For two-mile long segment of Highway 99W through Newberg, two alternative access management plans were developed. One plan concentrated on driveway treatments and the other plan focused on a raised center median option with fewer driveway treatments. The existing segment currently carries 35,000 vehicles per day and traffic demand is continuing to increase. The roadway has about 70 driveways per mile, creating congested conditions and a high number of driveway-related accidents. Year 2000 and year 2020 traffic forecasts were developed and detailed traffic operations assessments, including development of a TRAF-NETSIM model were performed for the entire corridor. Intersection and signal modifications are recommended at Villa Road, but the signalized intersection at Springbrook Street is likely to constitute a future bottleneck.

Highway 99W/Meinecke Road Intersection Study (February 1994)
A traffic impact analysis was prepared for properties abutting Highway 99W within Sherwood. Various intersection alternatives are examined, including an interim unsignalized operation, at Meinecke Road. Signalization will be warranted at project buildout.

Woodhaven Transportation Impact Study (August 1993)

Highway 18 (McMinnville) Three-Mile Lane Refinement Study (1996 Draft)
Traffic projections, including peak hour turning movements, were developed for several alternative Highway and local roadway configurations in this quickly developing corridor. Working closely with the MWVCOG and ODOT’s Preliminary Design Unit, several alternative crossings and Highway 18 alignment and phasing schemes were brainstormed and tested. The recommended alternative is to eliminate signals along Highway 18 and grade-separate all crossings. A new interchange is proposed to be built to accommodate access to the surface street network. The preferred plan is to phase all the improvements, including reconfiguring frontage roads to the north and creating a new local street network to the south, in three steps. “Trigger points” to initiate each phase were determined.

Washington County and ODOT staff analyzed traffic flow problems within the Tualatin area and recommended signal system and transportation system management measures to improve traffic flow. The following Phase 1 improvements are currently being implemented: (1) twelve traffic signals are being interconnected and upgraded for coordination, (2) three intersections are being modified, including: turn lane revisions, signal phasing changes, and signing additions, and (3) a left-turn movement is being slightly re-routed to increase the capacity on Tualatin-Sherwood Road. Under this project, Washington County is assuming maintenance of all twelve signals which were previously maintained by the City, County and State. Phase 2 improvements, which include further TSM and signal enhancements outside of the CBD, will be implemented next year.
Grand Ronde Tribal Master Plan - Sketch Transportation Analysis (February 1996)

Identifies traffic to be generated by the Master Plan: 8,674 vehicles per day from a community center/administration building, wellness center and health clinic, museum, residential care facility and elder housing, and 500 single family residential units. In addition, another 11,952 trips per day are expected from the expansion of the Spirit Mountain Casino due to expanded uses at the gaming center, 150 unit RV park, 200 unit motel, 18 hole golf course, and 5,000 square feet of retail development.

The analysis indicated that major transportation improvements will be needed to Grand Ronde Road and its intersections with Highway 18 and Highway 22. The analysis also notes that Highway 18 would need to be widened to five lanes.

The analysis recommends an access management plan be prepared for the Highway 18/Spirit Mountain Casino Corridor, a more detailed Transportation System Plan be conducted, site impact analyses be conducted, and an alternative mode study be commenced.

Rose Lodge-Polk County Line, Salmon River Highway (ORE 18), Project Update

Package of documentation extending from 1986 to 1994, including environmental assessment and Section 4(f) Evaluation of a project to modify the alignment of Highway 18 within the Van Duzer Corridor.
APPENDIX B

Overview of Portland-Lincoln City Corridor
Portland - Lincoln City

Transportation Facilities and Services

Highways

This corridor includes Oregon Route 18 between the junction with US Route 101 (north of Lincoln City) and Dayton Junction, and Oregon Route 99W between Dayton Junction and the junction with Interstate 5 in Portland.

Rail Lines

The Willamina and Grand Ronde Railroad connects to the Willamette and Pacific Railroad near Newberg and terminates at Fort Hill. The Southern Pacific branch line follows the corridor to northeast of Newberg and connects with the Southern Pacific main line in Milwaukie. The Willamette and Pacific branch line connects to the Southern Pacific branch line near Newberg as well. There are rail crossings south of Sherwood, in Newberg, at Dayton Junction, in McMinnville and in Sheridan. OR 18/99W and the rail lines run next to or near each other in the vicinity of Fort Hill and between Dayton Junction and Sherwood.

Airports and Air Passenger Service

The Portland International Airport is located to the north of the northern end of the corridor. Nonstop air passenger flights are available to: North Bend (4 flights), Medford (7 flights), Klamath Falls (4 flights), Eugene (7 flights), Salem (airport limousine), Redmond (1 flight), Pendleton (3 flights), Boise (5 flights), and Pasco (7 flights). Connecting out of Klamath Falls are 3 flights to Redmond. Connecting out of Pasco are three flights to Pendleton.

The following general aviation airports are located in the vicinity of the corridor:
McMinnville Municipal Airport located next to OR 18 in McMinnville. (Level 3)
Sheridan Airport located north of Sheridan. (Level 5)
Sportsman's Airpark located south of OR 99W in Newberg. (Level 3)

Note: The level numbers shown in parentheses identify the state importance levels of the respective airports.

Ports

There are no ports in or near this corridor.

Intercity Surface Public Transportation

Greyhound provides service along the length of this corridor. Two east bound and west bound daily bus runs are made between Lincoln City and Portland with stops in Lincoln City, Willamina, McMinnville, Newberg and Portland. Portland is an intercity transit hub at the east end of the corridor.

Oil and Gas Pipelines

The Southern Pacific oil pipeline crosses OR 99W east of Sherwood. Northwest Natural Gas Company natural gas distribution lines run in the corridor and serve most communities.
Portland - Lincoln City

Travel In The Corridor *

1992 Highway Traffic Volumes* in the Corridor

<table>
<thead>
<tr>
<th>Traffic Volume (ADT)</th>
<th>Corridor Mileage (miles)</th>
<th>Corridor Mileage (percent)</th>
<th>Statewide Average (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 1,999</td>
<td>-</td>
<td>-</td>
<td>37</td>
</tr>
<tr>
<td>2,000 - 4,999</td>
<td>-</td>
<td>-</td>
<td>36</td>
</tr>
<tr>
<td>5,000 - 9,999</td>
<td>42.9</td>
<td>58</td>
<td>16</td>
</tr>
<tr>
<td>10,000 - 19,999</td>
<td>10.2</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>20,000 - 29,999</td>
<td>10.6</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>30,000 - 49,999</td>
<td>10.3</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>&gt;50,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Includes all motorized traffic

1992 Highway Truck Traffic Volumes in the Corridor

<table>
<thead>
<tr>
<th>Truck Volume (ADT)</th>
<th>Corridor Mileage (miles)</th>
<th>Corridor Mileage (percent)</th>
<th>Statewide Average (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 499</td>
<td>-</td>
<td>-</td>
<td>52</td>
</tr>
<tr>
<td>500 - 1,499</td>
<td>66.0</td>
<td>89</td>
<td>41</td>
</tr>
<tr>
<td>1,500 - 2,999</td>
<td>8.0</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>&gt;3,000</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

1972 - 1992 Annual Highway Traffic Growth Rates

<table>
<thead>
<tr>
<th>Growth Rate (percent)</th>
<th>Corridor Mileage (miles)</th>
<th>Corridor Mileage (percent)</th>
<th>Statewide Average (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 1.99</td>
<td>-</td>
<td>-</td>
<td>38</td>
</tr>
<tr>
<td>2.00 - 2.99</td>
<td>56.8</td>
<td>77</td>
<td>46</td>
</tr>
<tr>
<td>3.00 - 4.00</td>
<td>17.2</td>
<td>23</td>
<td>16</td>
</tr>
</tbody>
</table>

1992 Freight Movement in the Corridor

<table>
<thead>
<tr>
<th>Travel Mode</th>
<th>Freight Moved (thousands net tons)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Truck</td>
<td>5,600</td>
<td>ATR 27-001 Valley Junction</td>
</tr>
<tr>
<td></td>
<td>5,900</td>
<td>ATR 36-004 East of Newberg</td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Does not include Segment 0
Portland - Lincoln City

Analysis of Highway Travel Time

<table>
<thead>
<tr>
<th>Year/Scenario*</th>
<th>Travel Time</th>
<th>Average time</th>
<th>Statewide Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minutes/Trip (car/truck)</td>
<td>Minutes/Mile (car/truck)</td>
<td>Minutes/Mile (car/truck)</td>
</tr>
<tr>
<td>1996</td>
<td>115 / 147</td>
<td>1.56 / 2.00</td>
<td>1.35 / 1.80</td>
</tr>
<tr>
<td>2016 No Improvements</td>
<td>127 / 155</td>
<td>1.72 / 2.13</td>
<td>1.47 / 1.87</td>
</tr>
<tr>
<td>2016 Improvements</td>
<td>100 / 131</td>
<td>1.37 / 1.79</td>
<td>1.23 / 1.66</td>
</tr>
</tbody>
</table>

*All Scenarios Assume High Management

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Time Change</th>
<th>Time Change</th>
<th>Statewide Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minutes (car/truck)</td>
<td>Percent (car/truck)</td>
<td>Percent (car/truck)</td>
</tr>
<tr>
<td>1996 to 2016 No Improvements</td>
<td>12 / 9</td>
<td>10 / 6</td>
<td>8.2 / 4.4</td>
</tr>
<tr>
<td>1996 to 2016 Improvements</td>
<td>-15 / -16</td>
<td>-13 / -11</td>
<td>-8.8 / -7.1</td>
</tr>
</tbody>
</table>

Comparison of the Effects of Management and Improvements on Time Travel

<table>
<thead>
<tr>
<th>2016 Scenario</th>
<th>Travel Time Minutes/Trip Average All Vehicles</th>
<th>Travel Time Reduction* Minutes/Trip</th>
<th>Travel Time Percentage of Maximum Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Improvements/Low Management</td>
<td>140</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No Improvements/High Management</td>
<td>129</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Improvements/Low Management</td>
<td>115</td>
<td>25</td>
<td>58</td>
</tr>
<tr>
<td>Improvements/High Management</td>
<td>103</td>
<td>37</td>
<td>100</td>
</tr>
</tbody>
</table>

*Reduction from Worst Case Scenario of No improvements/Low Management

Time Savings* at Various Capacity Improvement Investment Levels

<table>
<thead>
<tr>
<th>Improvement Costs (thousands)</th>
<th>Time Saved* Minutes Per Trip</th>
<th>Time Saved* 1000 Vehicles Hours Per Year</th>
<th>Statewide Average 1000 Vehicles Hours Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000</td>
<td>1</td>
<td>195</td>
<td>108</td>
</tr>
<tr>
<td>$5,000</td>
<td>5</td>
<td>858</td>
<td>415</td>
</tr>
<tr>
<td>$10,000</td>
<td>8</td>
<td>1332</td>
<td>688</td>
</tr>
<tr>
<td>$25,000</td>
<td>12</td>
<td>1758</td>
<td>1159</td>
</tr>
<tr>
<td>$50,000</td>
<td>17</td>
<td>2172</td>
<td>1581</td>
</tr>
<tr>
<td>$100,000</td>
<td>23</td>
<td>2713</td>
<td>2037</td>
</tr>
</tbody>
</table>

*2016 improvements vs. 2016 No improvements

Average Cost of Capacity Improvements that Compensate for Low Management: $48 Million*

*2016 No Improvement/Low Management vs. 2016 No Improvement/High Management: (100,000/23) x 11.

*Does not include Segment 0.
Portland - Lincoln City

Analysis of Highway Congestion, Safety and Operating Costs *

Proportion of Corridor Subject to Congestion in 1996 and 2019 (percent)

<table>
<thead>
<tr>
<th>Congestion Level</th>
<th>1996</th>
<th>2016 No Improvements</th>
<th>Statewide Average 2016 No Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Congestion</td>
<td>19</td>
<td>64</td>
<td>17</td>
</tr>
<tr>
<td>Moderate Congestion</td>
<td>48</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Low Congestion</td>
<td>33</td>
<td>22</td>
<td>62</td>
</tr>
</tbody>
</table>

Congestion Reduction at Various Capacity Improvement Investment Levels

<table>
<thead>
<tr>
<th>Improvement Costs (thousands)</th>
<th>Reduction in Percent Of Corridor With High Congestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000</td>
<td>3</td>
</tr>
<tr>
<td>$5,000</td>
<td>9</td>
</tr>
<tr>
<td>$10,000</td>
<td>15</td>
</tr>
<tr>
<td>$25,000</td>
<td>23</td>
</tr>
<tr>
<td>$50,000</td>
<td>33</td>
</tr>
<tr>
<td>$100,000</td>
<td>49</td>
</tr>
</tbody>
</table>

Number of High Accident Locations

<table>
<thead>
<tr>
<th>Corridor (locations/mile)</th>
<th>Statewide Average (locations/mile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.69</td>
<td>0.54</td>
</tr>
</tbody>
</table>

Comparison of Accidents and Accident Rates

<table>
<thead>
<tr>
<th>Year/Scenario</th>
<th>Accidents (per year)</th>
<th>Accident Rate*</th>
<th>Statewide Average Accident Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>478</td>
<td>1.34</td>
<td>0.83</td>
</tr>
<tr>
<td>2016 No Improvements</td>
<td>691</td>
<td>1.34</td>
<td>0.83</td>
</tr>
<tr>
<td>2016 Improvements**</td>
<td>666</td>
<td>1.29</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Comparison of Car and Truck Total Yearly Operating Costs

<table>
<thead>
<tr>
<th>Year/Scenario*</th>
<th>Total Operating Costs (thousands) (car/truck)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>156,441 / 48,409</td>
</tr>
<tr>
<td>2016 No Improvements</td>
<td>239,148 / 70,968</td>
</tr>
<tr>
<td>2016 Improvements</td>
<td>217,893 / 63,683</td>
</tr>
</tbody>
</table>

*Accidents Per Million Vehicle Miles of Travel
**All sharp curves realigned

*Does not include Segment 0.
OVERVIEW OF STATEWIDE CORRIDORS

Portland - Lincoln City

Motorist Survey Results

Reason for Using Corridor

Frequency of Corridor Use

What Users Like Most About Corridor

Allocation of Discretionary Funds

□ All Statewide Corridors  □ Portland - Lincoln City Corridor
OVERVIEW OF STATEWIDE CORRIDORS

Portland - Lincoln City

Traffic Volume Trends

All Traffic

Trucks

Automatic Recorder 36-004
Hwy #1W
M.P. 21.55
(East of Newberg)
Portland - Lincoln City

Traffic Volume Trends

**All Traffic**

![Graph showing traffic volume trends for all traffic.](image)

**Trucks**

![Graph showing traffic volume trends for trucks.](image)

Automatic Recorder 27-001
Hwy #39
M.P. 23.76
(East of Valley Junction)
Portland - Lincoln City

**Automobile and Truck Travel Times**

### Car

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>115</td>
<td>127</td>
<td>122</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### Truck

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>147</td>
<td>156</td>
<td>153</td>
<td>131</td>
<td>131</td>
</tr>
</tbody>
</table>

*Does not include Segment 0.*
Portland - Lincoln City

Effects of Management on Travel Time +

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Time (Min)</td>
<td>117</td>
<td>140</td>
<td>129</td>
<td>115</td>
<td>103</td>
</tr>
</tbody>
</table>

*Does not include Segment 0.*
Portland - Lincoln City

Relative Cost Effectiveness of Saving Travel Time +
Time Saved Per Day

+Does not include Segment 0.
Portland - Lincoln City

Relative Cost Effectiveness of Saving Travel Time

Time Saved Per Trip

+CUMULATIVE COST ($000)

+Does not include Segment 0.
Portland - Lincoln City

Present and Future Highway Congestion *

1996 - Existing

- Low Congestion: 33%
- Moderate Congestion: 48%
- High Congestion: 19%

2016 - No improvements

- Low Congestion: 22%
- Moderate Congestion: 14%
- High Congestion: 64%

*Does not include Segment 0.
Portland - Lincoln City

Relative Cost Effectiveness of Reducing Congestion *

*Does not include Segment 0.
Portland - Lincoln City

**Total Yearly Operating Costs**

*Total operating cost is the sum of travel time, ownership and vehicle running costs.

*Does not include Segment 0.*
Portland - Lincoln City

Yearly Fuel Consumption *

### Car

<table>
<thead>
<tr>
<th>Year</th>
<th>GALLONS (1,000's)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>24,273</td>
</tr>
<tr>
<td>2016 No Improvements</td>
<td>33,241</td>
</tr>
<tr>
<td>2016 Geometric Improvements</td>
<td>33,295</td>
</tr>
<tr>
<td>2016 Capacity Improvements</td>
<td>34,682</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity Improvements</td>
<td>34,477</td>
</tr>
</tbody>
</table>

### Truck

<table>
<thead>
<tr>
<th>Year</th>
<th>GALLONS (1,000's)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>9,048</td>
</tr>
<tr>
<td>2016 No Improvements</td>
<td>12,827</td>
</tr>
<tr>
<td>2016 Geometric Improvements</td>
<td>12,767</td>
</tr>
<tr>
<td>2016 Capacity Improvements</td>
<td>11,612</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity Improvements</td>
<td>11,576</td>
</tr>
</tbody>
</table>

*Does not include Segment 0.*
Portland - Lincoln City

Highway Congestion

Low Congestion  Moderate Congestion  High Congestion

1996 Existing

2016 No Improvements, High Management

2016 Geometric Improvements, High Management

2016 Capacity Improvements, High Management

2016 Geometric and Capacity Improvements, High Management

Segments  Scenario
Portland - Lincoln City

Highway Congestion

<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>SEC. 1</th>
<th>SEC. 2</th>
<th>SEC. 3</th>
<th>SEC. 4</th>
<th>SEC. 5</th>
<th>SEC. 6</th>
<th>SEC. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996 Existing</td>
<td>4.1</td>
<td>3.4</td>
<td>0.0</td>
<td>2.8</td>
<td>3.4</td>
<td>0.0</td>
<td>1.5</td>
</tr>
<tr>
<td>2016 No Improvements, High Management</td>
<td>6.7</td>
<td>5.5</td>
<td>2.7</td>
<td>13.5</td>
<td>6.0</td>
<td>5.3</td>
<td>8.7</td>
</tr>
<tr>
<td>2016 Geometric Improvements, High Management</td>
<td>6.7</td>
<td>5.5</td>
<td>2.7</td>
<td>13.5</td>
<td>5.0</td>
<td>5.2</td>
<td>7.1</td>
</tr>
<tr>
<td>2016 Capacity Improvements, High Management</td>
<td>1.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity Improvements, High Management</td>
<td>1.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>SEC. 1</th>
<th>SEC. 2</th>
<th>SEC. 3</th>
<th>SEC. 4</th>
<th>SEC. 5</th>
<th>SEC. 6</th>
<th>SEC. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996 Existing</td>
<td>0.7</td>
<td>1.9</td>
<td>2.9</td>
<td>10.7</td>
<td>4.8</td>
<td>7.0</td>
<td>7.2</td>
</tr>
<tr>
<td>2016 No Improvements, High Management</td>
<td>0.0</td>
<td>0.3</td>
<td>4.5</td>
<td>0.0</td>
<td>2.2</td>
<td>3.7</td>
<td>0.0</td>
</tr>
<tr>
<td>2016 Geometric Improvements, High Management</td>
<td>0.0</td>
<td>0.3</td>
<td>4.5</td>
<td>0.0</td>
<td>2.2</td>
<td>3.6</td>
<td>1.4</td>
</tr>
<tr>
<td>2016 Capacity Improvements, High Management</td>
<td>1.8</td>
<td>4.7</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity Improvements, High Management</td>
<td>1.8</td>
<td>4.7</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>SEC. 1</th>
<th>SEC. 2</th>
<th>SEC. 3</th>
<th>SEC. 4</th>
<th>SEC. 5</th>
<th>SEC. 6</th>
<th>SEC. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996 Existing</td>
<td>4.5</td>
<td>7.9</td>
<td>6.8</td>
<td>2.3</td>
<td>0.0</td>
<td>3.3</td>
<td>0.0</td>
</tr>
<tr>
<td>2016 No Improvements, High Management</td>
<td>2.6</td>
<td>7.4</td>
<td>2.5</td>
<td>2.3</td>
<td>0.0</td>
<td>1.3</td>
<td>0.0</td>
</tr>
<tr>
<td>2016 Geometric Improvements, High Management</td>
<td>2.6</td>
<td>7.4</td>
<td>2.5</td>
<td>2.3</td>
<td>0.0</td>
<td>1.3</td>
<td>0.0</td>
</tr>
<tr>
<td>2016 Capacity Improvements, High Management</td>
<td>6.3</td>
<td>8.5</td>
<td>9.7</td>
<td>15.8</td>
<td>6.2</td>
<td>10.3</td>
<td>8.7</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity Improvements, High Management</td>
<td>6.3</td>
<td>8.5</td>
<td>9.7</td>
<td>15.8</td>
<td>6.2</td>
<td>10.1</td>
<td>8.5</td>
</tr>
</tbody>
</table>
Portland - Lincoln City

**Travel Time**

- **1996 Existing**
- **2016 No Improvements, High Management**
- **2016 No Improvements, Low Management**
- **2016 Geometric Improvements, High Management**
- **2016 Capacity Improvements, High Management**
- **2016 Geometric and Capacity Improvements, High Management**
- **2016 Geometric and Capacity Improvements, Low Management**

**Segments**

**Scenario**
Portland - Lincoln City

Travel Time

ALL VEHICLES

1996 EXISTING

2016 NO IMPROVEMENTS, HIGH MANAGEMENT

2016 NO IMPROVEMENTS, LOW MANAGEMENT

2016 GEOMETRIC IMPROVEMENTS, HIGH MANAGEMENT

2016 CAPACITY IMPROVEMENTS, HIGH MANAGEMENT

2016 GEOMETRIC AND CAPACITY IMPROVEMENTS, HIGH MANAGEMENT

2016 GEOMETRIC AND CAPACITY IMPROVEMENTS, LOW MANAGEMENT

SEGMENTS       SCENARIO

3.19
Portland - Lincoln City

Travel Time

Car Travel Times in Minutes Per Mile By Section

<table>
<thead>
<tr>
<th>CAR MINUTES</th>
<th>SEC. 1</th>
<th>SEC. 2</th>
<th>SEC. 3</th>
<th>SEC. 4</th>
<th>SEC. 5</th>
<th>SEC. 6</th>
<th>SEC. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996 Existing</td>
<td>2.5</td>
<td>1.6</td>
<td>1.3</td>
<td>1.2</td>
<td>1.5</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td>2016 No Improvements, High Management</td>
<td>2.9</td>
<td>1.9</td>
<td>1.5</td>
<td>1.3</td>
<td>1.6</td>
<td>1.4</td>
<td>1.7</td>
</tr>
<tr>
<td>2016 No Improvements, Low Management</td>
<td>3.1</td>
<td>2.2</td>
<td>1.9</td>
<td>1.3</td>
<td>2.0</td>
<td>1.4</td>
<td>1.7</td>
</tr>
<tr>
<td>2016 Geometric improvements, High Management</td>
<td>2.9</td>
<td>1.9</td>
<td>1.5</td>
<td>1.3</td>
<td>1.6</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>2016 Capacity Improvements, High Management</td>
<td>2.6</td>
<td>1.6</td>
<td>1.2</td>
<td>1.0</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity improvements, High Management</td>
<td>2.6</td>
<td>1.6</td>
<td>1.2</td>
<td>1.0</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity improvements, Low Management</td>
<td>2.7</td>
<td>1.9</td>
<td>1.6</td>
<td>1.0</td>
<td>1.5</td>
<td>1.1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Truck Travel Times in Minutes Per Mile By Section

<table>
<thead>
<tr>
<th>TRUCK MINUTES</th>
<th>SEC. 1</th>
<th>SEC. 2</th>
<th>SEC. 3</th>
<th>SEC. 4</th>
<th>SEC. 5</th>
<th>SEC. 6</th>
<th>SEC. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996 Existing</td>
<td>3.2</td>
<td>2.2</td>
<td>1.8</td>
<td>1.6</td>
<td>1.9</td>
<td>1.8</td>
<td>2.0</td>
</tr>
<tr>
<td>2016 No Improvements, High Management</td>
<td>3.6</td>
<td>2.4</td>
<td>1.9</td>
<td>1.6</td>
<td>2.0</td>
<td>1.9</td>
<td>2.1</td>
</tr>
<tr>
<td>2016 No Improvements, Low Management</td>
<td>3.7</td>
<td>2.7</td>
<td>2.2</td>
<td>1.5</td>
<td>2.4</td>
<td>1.9</td>
<td>2.1</td>
</tr>
<tr>
<td>2016 Geometric improvements, High Management</td>
<td>3.6</td>
<td>2.4</td>
<td>1.9</td>
<td>1.6</td>
<td>1.9</td>
<td>1.8</td>
<td>1.7</td>
</tr>
<tr>
<td>2016 Capacity Improvements, High Management</td>
<td>3.2</td>
<td>2.1</td>
<td>1.6</td>
<td>1.4</td>
<td>1.4</td>
<td>1.6</td>
<td>1.4</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity improvements, High Management</td>
<td>3.2</td>
<td>2.1</td>
<td>1.6</td>
<td>1.4</td>
<td>1.4</td>
<td>1.6</td>
<td>1.4</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity improvements, Low Management</td>
<td>3.3</td>
<td>2.5</td>
<td>2.0</td>
<td>1.4</td>
<td>1.9</td>
<td>1.6</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Average Travel Times in Minutes Per Mile By Section

<table>
<thead>
<tr>
<th>ALL MINUTES</th>
<th>SEC. 1</th>
<th>SEC. 2</th>
<th>SEC. 3</th>
<th>SEC. 4</th>
<th>SEC. 5</th>
<th>SEC. 6</th>
<th>SEC. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996 Existing</td>
<td>2.5</td>
<td>1.7</td>
<td>1.4</td>
<td>1.2</td>
<td>1.5</td>
<td>1.4</td>
<td>1.6</td>
</tr>
<tr>
<td>2016 No Improvements, High Management</td>
<td>3.0</td>
<td>1.9</td>
<td>1.5</td>
<td>1.3</td>
<td>1.6</td>
<td>1.5</td>
<td>1.8</td>
</tr>
<tr>
<td>2016 No Improvements, Low Management</td>
<td>3.1</td>
<td>2.2</td>
<td>1.9</td>
<td>1.3</td>
<td>2.0</td>
<td>1.5</td>
<td>1.8</td>
</tr>
<tr>
<td>2016 Geometric improvements, High Management</td>
<td>3.0</td>
<td>1.9</td>
<td>1.5</td>
<td>1.3</td>
<td>1.6</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>2016 Capacity Improvements, High Management</td>
<td>2.6</td>
<td>1.6</td>
<td>1.2</td>
<td>1.1</td>
<td>1.2</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity improvements, High Management</td>
<td>2.6</td>
<td>1.6</td>
<td>1.2</td>
<td>1.1</td>
<td>1.2</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>2016 Geometric &amp; Capacity improvements, Low Management</td>
<td>2.8</td>
<td>1.9</td>
<td>1.6</td>
<td>1.1</td>
<td>1.5</td>
<td>1.1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

3.20
Portland - Lincoln City

Highway Accident Analysis

Highway Accident Rates
1991 - 1993

<table>
<thead>
<tr>
<th>CORRIDOR AND CORRIDOR SEGMENTS</th>
<th>ACCIDENT RATE¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>URBAN³</td>
</tr>
<tr>
<td>STATEWIDE AVERAGE²</td>
<td>3.69</td>
</tr>
<tr>
<td>PORTLAND - LINCOLN CITY</td>
<td></td>
</tr>
<tr>
<td>SEGMENT 1A</td>
<td>4.16</td>
</tr>
<tr>
<td>SEGMENT 1B</td>
<td>1.07</td>
</tr>
<tr>
<td>SEGMENT 1C</td>
<td>.44</td>
</tr>
<tr>
<td>SEGMENT 2A</td>
<td>4.06</td>
</tr>
<tr>
<td>SEGMENT 2B</td>
<td>1.26</td>
</tr>
<tr>
<td>SEGMENT 3A</td>
<td>.86</td>
</tr>
<tr>
<td>SEGMENT 3B</td>
<td>1.05</td>
</tr>
<tr>
<td>SEGMENT 3C</td>
<td>.98</td>
</tr>
<tr>
<td>SEGMENT 4</td>
<td>.65</td>
</tr>
<tr>
<td>SEGMENT 5</td>
<td>.71</td>
</tr>
<tr>
<td>SEGMENT 6</td>
<td>.56</td>
</tr>
<tr>
<td>SEGMENT 7</td>
<td>1.03</td>
</tr>
</tbody>
</table>

¹Reported accidents.
Rate expressed as number of accidents per million vehicle miles of highway travel.

²For all non-freeway sections of primary highways.

³Only includes cities over 5,000 population.
Portland - Lincoln City

Highway Accident Analysis

Highway Fatalities
1991 - 1993

<table>
<thead>
<tr>
<th>CORRIDOR AND CORRIDOR SEGMENTS</th>
<th>NUMBER&lt;sup&gt;1&lt;/sup&gt;</th>
<th>RATE&lt;sup&gt;2&lt;/sup&gt;</th>
<th>URBAN&lt;sup&gt;3&lt;/sup&gt;</th>
<th>RURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATEWIDE AVERAGE&lt;sup&gt;2&lt;/sup&gt;</td>
<td>27</td>
<td>1.43</td>
<td>3.11</td>
<td></td>
</tr>
<tr>
<td>PORTLAND - LINCOLN CITY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 1A</td>
<td>1</td>
<td>.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 1B</td>
<td>2</td>
<td>2.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 1C</td>
<td>2</td>
<td>1.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 2A</td>
<td>3</td>
<td>3.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 2B</td>
<td>2</td>
<td>2.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 3A</td>
<td>1</td>
<td>2.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 3B</td>
<td>1</td>
<td>4.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 3C</td>
<td>2</td>
<td>7.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 4</td>
<td>6</td>
<td>4.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 5</td>
<td>1</td>
<td>1.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 6</td>
<td>6</td>
<td>8.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT 7</td>
<td>1</td>
<td>1.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>1</sup> Number of accidents that involved only fatalities.

<sup>2</sup> Number of fatalities per hundred million vehicle miles of travel.

<sup>3</sup> Only includes cities over 5,000 population.
Portland - Lincoln City

Highway Accident Analysis

Highway Accidents By Accident Type
1991 - 1993

<table>
<thead>
<tr>
<th>CORRIDOR AND CORRIDOR SEGMENTS</th>
<th>PEDESTRIAN</th>
<th>FIXED OBJECT</th>
<th>ANGLE</th>
<th>HEAD-ON</th>
<th>TURNING</th>
<th>SIDESWIPE MEETING</th>
<th>SIDESWIPE OVERTAKING</th>
<th>REAR-END</th>
<th>PARKING</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORTLAND - LINCOLN CITY</td>
<td>1</td>
<td>10</td>
<td>8</td>
<td>2</td>
<td>23</td>
<td>2</td>
<td>5</td>
<td>45</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>SEGMENT 1A</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>25</td>
<td>0</td>
<td>5</td>
<td>63</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SEGMENT 1B</td>
<td>0</td>
<td>7</td>
<td>19</td>
<td>0</td>
<td>31</td>
<td>0</td>
<td>5</td>
<td>35</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>SEGMENT 1C</td>
<td>0</td>
<td>25</td>
<td>14</td>
<td>7</td>
<td>17</td>
<td>0</td>
<td>8</td>
<td>20</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>SEGMENT 2A</td>
<td>3</td>
<td>1</td>
<td>14</td>
<td>1</td>
<td>30</td>
<td>0</td>
<td>7</td>
<td>39</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>SEGMENT 2B</td>
<td>0</td>
<td>14</td>
<td>3</td>
<td>2</td>
<td>16</td>
<td>1</td>
<td>11</td>
<td>53</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SEGMENT 3A</td>
<td>0</td>
<td>21</td>
<td>24</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>33</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>SEGMENT 3B</td>
<td>0</td>
<td>14</td>
<td>23</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>45</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>SEGMENT 3C</td>
<td>0</td>
<td>22</td>
<td>9</td>
<td>9</td>
<td>17</td>
<td>0</td>
<td>13</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SEGMENT 4</td>
<td>0</td>
<td>16</td>
<td>11</td>
<td>2</td>
<td>21</td>
<td>7</td>
<td>7</td>
<td>26</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>SEGMENT 5</td>
<td>3</td>
<td>23</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>3</td>
<td>26</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>SEGMENT 6</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>7</td>
<td>27</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>SEGMENT 7</td>
<td>0</td>
<td>36</td>
<td>0</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>1</td>
<td>32</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>
Portland - Lincoln City

Highway Accident Analysis

Highway Accidents By Vehicle Type  
1991 - 1993

<table>
<thead>
<tr>
<th>CORRIDOR AND CORRIDOR SEGMENTS</th>
<th>PERCENT OF ACCIDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AUTO</td>
</tr>
<tr>
<td>PORTLAND - LINCOLN CITY</td>
<td></td>
</tr>
<tr>
<td>SEGMENT 1A</td>
<td>77</td>
</tr>
<tr>
<td>SEGMENT 1B</td>
<td>74</td>
</tr>
<tr>
<td>SEGMENT 1C</td>
<td>74</td>
</tr>
<tr>
<td>SEGMENT 2A</td>
<td>74</td>
</tr>
<tr>
<td>SEGMENT 2B</td>
<td>72</td>
</tr>
<tr>
<td>SEGMENT 3A</td>
<td>70</td>
</tr>
<tr>
<td>SEGMENT 3B</td>
<td>83</td>
</tr>
<tr>
<td>SEGMENT 3C</td>
<td>60</td>
</tr>
<tr>
<td>SEGMENT 4</td>
<td>67</td>
</tr>
<tr>
<td>SEGMENT 5</td>
<td>67</td>
</tr>
<tr>
<td>SEGMENT 6</td>
<td>63</td>
</tr>
<tr>
<td>SEGMENT 7</td>
<td>68</td>
</tr>
</tbody>
</table>

* Bicycle, pedestrian, motorcycle, farm vehicle, etc.
Portland - Lincoln City

Highway Accident Analysis

Highway Accidents By Environmental Factors
1991 - 1993

<table>
<thead>
<tr>
<th>CORRIDOR AND CORRIDOR SEGMENTS</th>
<th>PERCENT OF ACCIDENTS RELATED TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACCESS OR INTERSECTION²</td>
</tr>
<tr>
<td>PORTLAND - LINCOLN CITY</td>
<td>49</td>
</tr>
<tr>
<td>SEGMENT 1A</td>
<td>55</td>
</tr>
<tr>
<td>SEGMENT 1B</td>
<td>70</td>
</tr>
<tr>
<td>SEGMENT 1C</td>
<td>36</td>
</tr>
<tr>
<td>SEGMENT 2A</td>
<td>62</td>
</tr>
<tr>
<td>SEGMENT 2B</td>
<td>34</td>
</tr>
<tr>
<td>SEGMENT 3A</td>
<td>46</td>
</tr>
<tr>
<td>SEGMENT 3B</td>
<td>64</td>
</tr>
<tr>
<td>SEGMENT 3C</td>
<td>61</td>
</tr>
<tr>
<td>SEGMENT 4</td>
<td>44</td>
</tr>
<tr>
<td>SEGMENT 5</td>
<td>18</td>
</tr>
<tr>
<td>SEGMENT 6</td>
<td>2</td>
</tr>
<tr>
<td>SEGMENT 7</td>
<td>21</td>
</tr>
</tbody>
</table>

¹These accidents were attributed to the intersection or driveway and were reported as such in the accident data.
# Portland - Lincoln City

## Highway Accident Analysis

### Highway Accidents By Driver Factors

1991 - 1993

<table>
<thead>
<tr>
<th>CORRIDOR AND CORRIDOR SEGMENTS</th>
<th>% SAFETY BELT USE</th>
<th>% DUI FATALITY AND INJURY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORTLAND - LINCOLN CITY</td>
<td>85</td>
<td>2</td>
</tr>
<tr>
<td>SEGMENT 1A</td>
<td>85</td>
<td>0</td>
</tr>
<tr>
<td>SEGMENT 1B</td>
<td>89</td>
<td>1</td>
</tr>
<tr>
<td>SEGMENT 1C</td>
<td>84</td>
<td>3</td>
</tr>
<tr>
<td>SEGMENT 2A</td>
<td>83</td>
<td>2</td>
</tr>
<tr>
<td>SEGMENT 2B</td>
<td>85</td>
<td>2</td>
</tr>
<tr>
<td>SEGMENT 3A</td>
<td>88</td>
<td>9</td>
</tr>
<tr>
<td>SEGMENT 3B</td>
<td>75</td>
<td>0</td>
</tr>
<tr>
<td>SEGMENT 3C</td>
<td>81</td>
<td>4</td>
</tr>
<tr>
<td>SEGMENT 4</td>
<td>88</td>
<td>0</td>
</tr>
<tr>
<td>SEGMENT 5</td>
<td>84</td>
<td>2</td>
</tr>
<tr>
<td>SEGMENT 6</td>
<td>80</td>
<td>7</td>
</tr>
<tr>
<td>SEGMENT 7</td>
<td>96</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Percent of persons involved in accidents who were wearing safety belts

2. Percent of fatality or injury accidents that involved a driver who was driving under the influence (DUI) of alcohol or drugs.
Portland - Lincoln City

Highway Performance Characteristics

<table>
<thead>
<tr>
<th>CORRIDOR SEGMENT</th>
<th>SPEED REDUCTION</th>
<th>TIME SAVED - COST EFFECTIVENESS</th>
<th>CONGESTION LEVEL - 1996</th>
<th>CONGESTION LEVEL - 2016</th>
<th>ACCIDENT LEVEL</th>
<th>HORIZONTAL CURVATURE INADEQUACY</th>
<th>VERTICAL GRADE INADEQUACY</th>
<th>ROADWAY WIDTH INADEQUACY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACIFIC HWY WEST (OR-99W)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SALMON RIVER HWY (OR-18)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Interstate & Statewide Corridors

### Portland - Lincoln City

<table>
<thead>
<tr>
<th>0</th>
<th>I-5 - OR 217</th>
<th>Pacific Highway West</th>
<th>7.40</th>
<th>8.70</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>OR 217 - Tigard (South City Limits)</td>
<td>Pacific Highway West</td>
<td>8.70</td>
<td>11.50</td>
</tr>
<tr>
<td>1b</td>
<td>Tigard (South City Limits) - Sherwood (Kreuger Rd)</td>
<td>Pacific Highway West</td>
<td>11.50</td>
<td>16.70</td>
</tr>
<tr>
<td>1c</td>
<td>Sherwood (Kreuger Rd) - Newberg</td>
<td>Pacific Highway West</td>
<td>16.70</td>
<td>21.60</td>
</tr>
<tr>
<td>2a</td>
<td>Newberg - Newberg urban area (East)</td>
<td>Pacific Highway West</td>
<td>21.60</td>
<td>24.31</td>
</tr>
<tr>
<td>2b</td>
<td>Newberg urban area (East) - Dayton Jct.</td>
<td>Pacific Highway West</td>
<td>24.31</td>
<td>29.80</td>
</tr>
<tr>
<td>3a</td>
<td>Dayton Jct. - East edge McMinnville urban area</td>
<td>Salmon River</td>
<td>52.65</td>
<td>48.59</td>
</tr>
<tr>
<td>3b</td>
<td>East edge McMinnville urban area - McMinnville (West City Limits)</td>
<td>Salmon River</td>
<td>48.59</td>
<td>46.43</td>
</tr>
<tr>
<td>3c</td>
<td>McMinnville (West City Limits) - West Durham Lane (McMinnville)</td>
<td>Salmon River</td>
<td>46.43</td>
<td>43.01</td>
</tr>
<tr>
<td>4</td>
<td>West Durham Lane (McMinnville) - OR 22</td>
<td>Salmon River</td>
<td>43.01</td>
<td>27.08</td>
</tr>
<tr>
<td>5</td>
<td>OR 22 - East boundary of Park (H.B. Van Duzer)</td>
<td>Salmon River</td>
<td>27.08</td>
<td>18.79</td>
</tr>
<tr>
<td>6</td>
<td>East boundary of Park (H.B. Van Duzer) - H.B. Van Duzer State Park W. Edge</td>
<td>Salmon River</td>
<td>18.79</td>
<td>8.51</td>
</tr>
<tr>
<td>7</td>
<td>H.B. Van Duzer State Park W. Edge - US 101</td>
<td>Salmon River</td>
<td>8.51</td>
<td>0.00</td>
</tr>
</tbody>
</table>

### Willamina Junction - Salem

| 1 | Jct. OR 18/22 - Jct. OR 223 | Willamina - Salem | 0.00 | 12.72 |
| 2a | Jct. OR 223 - Jct. OR 51 | Willamina - Salem | 12.72 | 20.37 |
| 3a | Jct. OR 99E Bus. - Interstate 5 | Salem | 5.80 | 8.50 |
| 3b | I-5 Interchange ramps | I-5 | 253.50 | 254.20 |

### Newport - I-5

| 1 | Jct. US 20/US101 - OR 229 (Siletz Hwy.) | Corvallis - Newport | 0 | 5.74 |
| 2 | OR 229 (Siletz Hwy.) - Elk City Road | Corvallis - Newport | 5.74 | 15.62 |
| 3 | Elk City Road - Eddyville-Blodgett Hwy. | Corvallis - Newport | 15.62 | 23.18 |
| 4 | Eddyville-Blodgett Hwy. - Spout Creek Road | Corvallis - Newport | 23.18 | 33.23 |
| 5 | Spout Creek Road - OR 34 | Corvallis - Newport | 33.23 | 49.76 |
| 6 | OR 34 - OR 99W | Corvallis - Newport | 49.76 | 55.98 |
| 7 | OR 99W - I-5 | Corvallis - Lebanon | 0.35 | 10.10 |
### Interstate & Statewide Corridors

#### Florence - Eugene

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>DESCRIPTION</th>
<th>HIGHWAY</th>
<th>START MILEPOINT</th>
<th>END MILEPOINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jct. US 101/OR 128 - OR 36</td>
<td>Florence - Eugene</td>
<td>0.00</td>
<td>14.40</td>
</tr>
<tr>
<td>2</td>
<td>OR 36 - Chickahominy Creek (Walton)</td>
<td>Florence - Eugene</td>
<td>14.40</td>
<td>32.40</td>
</tr>
<tr>
<td>3</td>
<td>Chickahominy Creek (Walton) - Territorial Highway (Veneta)</td>
<td>Florence - Eugene</td>
<td>32.40</td>
<td>46.92</td>
</tr>
<tr>
<td>4</td>
<td>Territorial Highway (Veneta) - Belt Line Highway</td>
<td>Florence - Eugene</td>
<td>46.92</td>
<td>52.69</td>
</tr>
<tr>
<td>5a</td>
<td>Belt Line Highway - W. 11th</td>
<td>Beltline</td>
<td>0</td>
<td>3.10</td>
</tr>
<tr>
<td>5b</td>
<td>Belt Line Highway - OR 99W (W. 6th &amp; W 7th, Eugene)</td>
<td>W. 11th to Garfield to 6th &amp; 7th</td>
<td>City Street</td>
<td>City Street</td>
</tr>
<tr>
<td>5c</td>
<td>OR 99W (W. 6th &amp; 7th) - I-105</td>
<td>Pacific Highway West</td>
<td>122.26</td>
<td>123.37</td>
</tr>
<tr>
<td>5d</td>
<td>I-105 - I-5</td>
<td>Eugene - Springfield</td>
<td>0.00</td>
<td>3.50</td>
</tr>
</tbody>
</table>

#### Reedsport - I-5

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>DESCRIPTION</th>
<th>HIGHWAY</th>
<th>START MILEPOINT</th>
<th>END MILEPOINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reedsport - Umpqua River (Scottsburg)</td>
<td>Umpqua</td>
<td>0</td>
<td>16.43</td>
</tr>
<tr>
<td>2</td>
<td>Umpqua River (Scottsburg) - Jct. OR 38/138 (Elkton)</td>
<td>Umpqua</td>
<td>16.43</td>
<td>36.44</td>
</tr>
<tr>
<td>3</td>
<td>Jct. OR 38/138 (Elkton) - Cedar St. (Drain)</td>
<td>Umpqua</td>
<td>36.44</td>
<td>50.24</td>
</tr>
<tr>
<td>4</td>
<td>Cedar St. (Drain) - I-5 Interchange</td>
<td>Umpqua</td>
<td>50.44</td>
<td>57.13</td>
</tr>
</tbody>
</table>

#### Coos Bay - Roseburg

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>DESCRIPTION</th>
<th>HIGHWAY</th>
<th>START MILEPOINT</th>
<th>END MILEPOINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jct. US 101 - Jct. Powers Hwy.</td>
<td>Coos Bay - Roseburg</td>
<td>0.00</td>
<td>23.43</td>
</tr>
<tr>
<td>2</td>
<td>Jct. Powers Hwy. - Coquille River</td>
<td>Coos Bay - Roseburg</td>
<td>23.43</td>
<td>53.06</td>
</tr>
<tr>
<td>3</td>
<td>Coquille River - Tenmile</td>
<td>Coos Bay - Roseburg</td>
<td>53.06</td>
<td>64.01</td>
</tr>
<tr>
<td>4a</td>
<td>Tenmile - Jct. Brockway Rd.</td>
<td>Coos Bay - Roseburg</td>
<td>64.01</td>
<td>71.74</td>
</tr>
<tr>
<td>4b</td>
<td>Jct. Brockway Rd. - I-5</td>
<td>Coos Bay - Roseburg</td>
<td>71.75</td>
<td>77.00</td>
</tr>
</tbody>
</table>
## EXISTING CONDITIONS
### CORRIDOR MAP LEGEND

<table>
<thead>
<tr>
<th>Federal Functional Classification</th>
<th>For Further Information Regarding Federal Functional Classification, Contact the O.D.O.T. Region Office.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstate</td>
<td></td>
</tr>
<tr>
<td>Principal Arterial</td>
<td></td>
</tr>
<tr>
<td>Minor Arterial</td>
<td></td>
</tr>
<tr>
<td>Urban Collector / Rural Major Collector</td>
<td></td>
</tr>
<tr>
<td>Functionally Classed Road Within Federal Aid Urban Boundary</td>
<td></td>
</tr>
<tr>
<td>Minor Collector</td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td></td>
</tr>
</tbody>
</table>

### # OF LANES

<table>
<thead>
<tr>
<th># of Lanes</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Center Lane Info.

- Left Turn Lane
- Continuous Left Turn Lane
- Painted Median
- Non-Traversal Median
- Does Not Apply

### Paved Shoulder Widths

<table>
<thead>
<tr>
<th>Paved Shoulder Widths</th>
<th>Sidewalks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 6'</td>
<td>Under 4'</td>
</tr>
<tr>
<td>4' - 6'</td>
<td>Over 6'</td>
</tr>
<tr>
<td>Under 4'</td>
<td>4' - 6'</td>
</tr>
</tbody>
</table>

### Pavement Conditions

- Very Good
- Good
- Fair
- Poor
- Very Poor

### Level of Service

- "C" or Better
- "D"
- "E" - "F"

### Structure Condition

- SD = Structurally Deficient
- FO = Functionally Obsolete
- ND = Not Deficient
- NA = Not Applicable

### Accident Locations

- By Milepoint (1992-94)
- Accidents
- Sites Top 10%

### ADT (1993)

<table>
<thead>
<tr>
<th>ADT (1993)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 1,499</td>
</tr>
<tr>
<td>1,500 - 2,999</td>
</tr>
<tr>
<td>3,000 - 4,999</td>
</tr>
<tr>
<td>5,000 - 9,999</td>
</tr>
<tr>
<td>10,000 - 19,999</td>
</tr>
<tr>
<td>20,000 - 45,000</td>
</tr>
<tr>
<td>OVER 45,000</td>
</tr>
</tbody>
</table>
The Corridor Planning Management Team, together with the Oregon Department of Transportation, solicited input on the 99W/18 Corridor to identify community issues. The issues were identified through: response cards from newsletters; response forms in display advertisements from eight newspapers; comments from four open houses; and letters.

Four questions were asked in the newsletter response cards and the display ad response cards. For this document, answers from question number four have been categorized by ODOT's performance objectives. These objectives are listed with bold, underline and large type. In some instances, the objectives are further categorized, with sub-categories listed in bold type.

The specific outreach tools used and their response rates are as follows:

- A total of 74 newsletter response cards were returned.
- Display ads were placed in the Sheridan Sun, The Oregonian's Metro West edition, the Polk County Itemizer-Observer, the Newberg Graphic, the Tigard Times Publication, the Dayton Tribune, the Wilsonville Spokesman, and the News Guard based in Lincoln City. A total of 17 display ad response forms were returned.
- Three open houses were held in the month of October and one in November. The open houses on 10/24 in Rose Lodge had 23 attendees; 31 people attended the 10/25 open house in McMinnville; 32 people attended the 10/30 open house in Tigard; and 45 people attended the 11/16 open houses in Grande Ronde. The Grande Ronde meeting was in conjunction with the Polk County Community Development Department.
- Issues identified at Corridor Planning Management Team Meetings and ODOT Internal Review Team Meetings.
- Six letters were also received.

Please Note: Issues are not listed in priority. When more than one person identified an issue, the total number of respondents are listed at the end of each issue in parentheses.
Question 1: Most of the time people travel from/to:

Inside Portland

Portland to Siletz

Beaverton
Tualatin to Neskowin
Tualatin to Lincoln City
Durham to Sherwood
Sherwood to Tigard

Inside Tigard (2)
Tigard to Portland (4)
Tigard to Dundee
Tigard/Bull Mtn. to Newberg
Tigard to Lincoln City

Inside Hillsboro

Wilsonville to 217 and 26

Newberg to Portland (2)
Newberg to McMinnville (3)
Newberg to Lincoln City
Newberg to Dundee
Dundee to Portland
Dundee to McMinnville
Dundee to Lincoln City
Newberg to I-5

Sherwood to McMinnville

Polk County to Marion County

Inside McMinnville (3)
McMinnville to Newberg and coastal towns
McMinnville to Salem (2)
McMinnville to Willamina
McMinnville to Newberg (2)
McMinnville to Portland (7)
McMinnville to Tigard
Lincoln City to Portland (3)
Lincoln City to Salem and Portland (3)
Lincoln City to Salem (3)

Sheridan to Portland
Sheridan to Newberg

Dayton to Grande Ronde
Dayton to McMinnville

Salem to Lincoln City (2)
Salem to Rose Lodge

Portland to McMinnville
Southwest Portland area to Portland Metro

Grande Ronde to McMinnville or Newberg
Grande Ronde to NE Portland
Grande Ronde to Salem

Rose Lodge
Yamhill to Beaverton
Rose Lodge to Gleneden
Otis to Lincoln City
Bull Mountain to Portland
Neotsu to Salem
Neskowin to Salem or Portland

Fort Hill to Salem-McMinnville

Inside Valley Junction
Valley Junction to Salem or McMinnville
Valley Junction to Sheridan

Depot Bay to I-5 to I-205

Newport
Question 2: Most of the time (respondents):
Drive alone (66)
Walk (2)
Carpool (15)
Bus
Drives farm machines
Bike

Question 3: On average (respondents) drive daily the miles categorized below:

<table>
<thead>
<tr>
<th>Miles</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10</td>
<td></td>
</tr>
<tr>
<td>2 (5)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Less than 5</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6 (3)</td>
<td></td>
</tr>
<tr>
<td>0 (3)</td>
<td></td>
</tr>
<tr>
<td>10-39</td>
<td></td>
</tr>
<tr>
<td>10-100</td>
<td></td>
</tr>
<tr>
<td>15 (2)</td>
<td></td>
</tr>
<tr>
<td>16 (2)</td>
<td></td>
</tr>
<tr>
<td>20-40</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
</tr>
<tr>
<td>25 (7)</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td></td>
</tr>
<tr>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td>30 (3)</td>
<td></td>
</tr>
<tr>
<td>30-40 (3)</td>
<td></td>
</tr>
<tr>
<td>40+</td>
<td></td>
</tr>
<tr>
<td>40 (3)</td>
<td></td>
</tr>
<tr>
<td>40-60</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>60 (3)</td>
<td></td>
</tr>
<tr>
<td>70 (2)</td>
<td></td>
</tr>
<tr>
<td>75 (2)</td>
<td></td>
</tr>
<tr>
<td>84</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td></td>
</tr>
<tr>
<td>100 (5)</td>
<td></td>
</tr>
<tr>
<td>100-150</td>
<td></td>
</tr>
<tr>
<td>140 (2)</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

Other:
Miles vary
Question 4: The most important corridor-wide issues are:

Note - these issues are from Question 4 of the response forms/newspaper ad forms, the Open Houses, and the Management Team and the Internal Review Team.

Safety:

Safety:

General:
- Safety. (6)
- Congestion is also a safety issue.
- Blending needs of traffic flow and safety with needs of adjacent landowners for access, convenience and/or customer visibility.
- Provide safe, convenient and uncongested passage along the corridor and through the local community while at the same time, provide for safe, convenient, and uncongested local access and movement within the local community.
- Don't sacrifice local safety for greater through-speeds.
- Move people and commerce quickly and safely.
- Clearly define what the problems are - don't mix up problem identification with solutions. Congestion is not necessarily a problem - getting people safely to services is a problem.

Specific:
- Dundee and Newberg bottlenecks are dangerous and slow.
- Safety issues: Highway 18 intersects with Bear Creek and Slick Rock Roads
- North Bank Road is unsafe.
- Please don't wait until someone gets killed on 99W entering Dundee, heading north.
- Skinny center median in front of casino is dangerous (needs reflectors) and turn off to Dundee.
- Highway 212/99W area is rolling terrain. This causes a lot of accidents on 99W. Level/grade 99W to eliminate rolling condition.
- Highways 18 and 22 need bus stop signs for students. Current pickup and drop off areas are very unsafe for all.
- Speed needs to be lowered near mile marker 22. Add signs and step up enforcement in the area -- there is a high accident rate.
- Safety problems at McDougall Corner, Meinke Road (Sherwood), and Valley Junction.
- 99W/18 intersection (McDougals corner) - big safety concern for county citizens.

Speed:
- Speed limits vary.
- Control speed, more enforcement is needed. (4)
- Place markers to mark fatalities along the highway -- people may slow down and not make bad judgement decisions.
- Reduce VMT and auto speeds.
- Need 40-mile speed limit from Fort Hill through Grande Ronde past Thole's commercial property. The 55 MPH zone is .4 mile before church/school, residences and John Road entrance.
- Better enforcement of speed zones.

**Left Turn Lanes:**
- Left turn lanes are needed.
- Left turn lanes are needed anywhere traffic enters or leaves the highway.
- Inability to turn left on 99W creates a safety hazard to turn left.
- Address issue of turn lanes from McDougal Corner to the four-lane going to Dundee.
- Extend center turn-lane at the west end of Grande Ronde, further west.
- Left turn lane needed at Rowell Creek Road and at Fort Hill Road (ROW at Rowell Creek Road is wider due to purchase for South Yamhill Bridge (should be a left-turn to the corridor).

**Intersections/Crossings:**
- Can't get onto Highway 18 from Highway 22 at Valley Junction.
- Impossible to cross 18 with farm equipment (3 lane segment west of Willamina).

**Acceleration/Deceleration Lanes:**
- Provide speed up and slow down lanes anywhere traffic leaves or enters the highway (best example is the Dayton on ramp going north.
- Need pullout areas if the highway isn't widened.
- Turn-out lanes all the way to Lincoln City or four lanes all the way.

**Pullouts:**
- Consider a bus pullout for school buses and mail delivery.
- Turn outs are not readily visible until you are on top of them.

**Interchanges:**
- Improve 1-5 interchange at Mile post 278.
- Provide an interchange at Highway 219.
- Exit to Donald.
- Lower highway elevation through Sherwood and build interchanges.
- Move new interchange to Lafayette Highway.

**Overpasses and Underpasses:**
- Overpass Burlington railroad crossing.

**Traffic Lights and Signals:**
- In Sherwood: the Meineke Road exit needs signalization due to rapid development. AOH issues conflict with city's plan. Meineke was on the STIP at one time and Metro 2040 Plan, AOH, and Sherwood Plan.
Altering the traffic lights after school through rush hour (in Newberg and Dundee).
Remove any traffic control lights such as the one at the McMinnville interchange which
is now timed to be green the majority of the time for cross traffic.
- No more lights -- traffic needs to keep moving on this corridor.
- Need lights at important side roads.
- Need a signal light at Fort Hill and Highway 18.
- Need signalization or signs so we may depart from driveways onto 18.
- Need a traffic light at Grande Ronde and Highway 22 Valley and Fort Hill Road. (2
people commented)
- Install a signal at Fort Hill.

Passing Lanes (based on safety issues):
- Vehicles passing farm equipment. Shoulders are non-existent on sections through Grande
Ronde-Fort Hill area.
- Passing lanes are needed -- safety.
- People are crossing between travel lanes.

Signs:
- Improve warning for the second curve (westbound) in the Van Deer.
- Implement large signs showing the driver's speed (although expensive, it will slow down
some drivers).
- Casino needs better signs with arrows. There is currently no sign marking the exit. (2
people commented)
- Billboards! Must there be so many Fort Hill? -- Billboards hide the natural beauty of
Grande Ronde. They must go.
- Improve approaches to resources - signage.

Highway Maintenance:
- Poor surface visibility.
- Striping on the road needs to be refreshed.
- Highway maintenance is primary with road being used for weekend travel and weekday
destination of a casino.

Other:
- More policing is necessary in the Newberg/Dundee area in rush hour -- it seems to bring
out rude and obnoxious people.
- Adequate shoulders for disabled vehicles.
- Increase law enforcement.
- Enforce no parking on the outside curb in front of Fort Hill gas station and restaurant --
safety issue. (2 people commented)
Regional Connectivity:
- Loss of local interconnection.
- Discourage commuting -- live and work in the same community.
- Change where Lafayette to Portland stops and Portland to coast doesn’t stop. After all Highway 18 is supposed to be a bypass.
- Necessary to consider the impact of an inadequate north/south road system upon this largely east/west corridor.
- An effective link between 1-5 and Highway 101.
- Linkages to other regional projects (Barbur Blvd and 99W).
- Used for weekend traffic not to mention Casino weekday travel.
- Connectivity from residential street to freeway.
- Bear Creek/ Schooner Creek, to the Siletz bridge could be an extension to Hwy 18 (a bypass)
- Need to look at reclassifying 99W - not a rural "Access Oregon Highway" anymore
- Possibly extend boundaries of the corridor study to include other route options at Sherwood, 1-5, 1-205, and the "Triangle."
- Lack of planning in the 70’s & 80’s lead to interchanges/intersections with roads that don’t connect to major system links.
- Need to resolve the issue of better regional connections through developed areas.

Congestion (travel time/access management)

Congestion Areas:
General:
- Commuter travel.
- Daily trips to and from the coast on Highway 18 are increasing.
- Relieve congestion/traffic has increased. (7)
- Traffic is awful: 99W is the most important; 18 is second.
- When there are four lanes, the traffic flows (except in Newberg).
- Traffic congestion is causing increased use of neighborhood streets for through-traffic.
- Livability problems due to excessive traffic.
- This corridor needs to be two lanes each way, all the way. The current situation: slow camps, RV’s, boats, trucks, older citizens are confronted with faster, younger drivers who flash bright lights and seem angry when you are not going over 55 mph.
- Congestion in area results in local residents choosing to walk to local destinations.
- Congestion management.
- Potential for a strategy to say that congestion is not all that bad and that communities need to live with it.
Access Issues:
- Access management.
- **Cannot continue to develop** commercial properties immediately adjacent to Highway 99. These properties need to be side roads with limited access.
- Improve access to I-5 (from 99W area).
- On 99W, from I-5 to the six corners in Sherwood: close off the center land and allow U-turns at intersections. Design frontage roads and combined driveways.
- Assurance that limited access does not impede economic development.
- Use left turn restrictions, access control, combined access points, connected driveways on Highway 99W through Tigard. Don’t widen to six lanes.
- Use frontage roads as much as practical to serve adjacent development. Deny further direct access requests.
- 99W/Tualatin Road proposed revision would prohibit access to Mobile Vista and trailer sales store and car sales.
- Provide for turns and U-turns at major intersections only. Driveways to businesses are right turns only. Raised median between intersections I-5 to the Tualatin River
- Access through Dundee and Newberg without so much wait.
- Improve access to Highway 99W from Southwest Portland.
- Safe access.
- Simple four-lane divided highway with safe enter and exit lanes.
- Highway access not available to Rowell Creek.
- Residential access to Highway 22 and 18 is impossible and very unsafe. (2)
- Better access needed to Willamina from Highway 18. (2 people commented)
- People are driving over medians near the strawberry patch/casino area.
- People turn around on private property to enter the casino (first property west of casino). (2)
- Limit entrance points onto existing and future four lane corridors with the use of frontage roads.
- Discourage building on property expected to be used for future corridor easements and frontage roads.
- Utilization of recreational resources/access and development
- Intersecting local streets in rural areas: Bear Creek, Slick Rock Creek
- AOH status for 99W/18
- Consider: at grade (signalized) vs. separated grade (no signal); medians; and substandard vertical alignments.
- Overall access management
  - Newberg
  - McMinnville
  - Dundee
  - Grande Ronde
  - Some rural areas
  - Spirit Mountain
- Strategy needs to address limiting access points, and looking at a bypass or other option
Passing Lanes (based on capacity issues):
- Passing lanes are needed. (3)
- Need more opportunities to pass slow moving vehicles from Portland to Lincoln City. Please consider the need for turn-outs and passing lanes in the low lands as well as the mountains.
- Additional lanes on 99W.
- Two lanes each way is needed.
- More passing lanes are needed particularly between Grande Ronde and Newberg (now that the casino is open).
- Need passing lane (east and west bound) between Sheridan and McMinnville.

Widen Road:
- Widening should be confined to areas in the corridor where residential progress has not been started and leave the small urban areas as they are. If the corridor is widened, Otis, North Bank, and Rose Lodge (residents and business owners) would be required to use an already heavily travelled highway when their preference would be to not do so.
- Widen to four lanes from Dayton to the three mile lane and from McMinnville to the Wallace Bridge.
- Doesn’t want a "big, wide road"
- Four lanes to the coast. (2)
- Two lane highway between Mac and Sheridan
- Widen 18 to four lanes from Valley Junction like promised when government gave public notice to widen the Valley Junction bridge.
- Increase Highway 18 to four lanes.
- More travel lanes.
- Widen road from Otis to Lincoln City.
- Not encouraging more traffic by building more lanes.

New Road Alignment:
- Concern about too much attention paid to alternate routes and other improvements that are not feasible.

- Newberg/Dundee Bypass:
  - Newberg/Dundee bypass (19)
  - Need to eliminate the Dundee backup -- what a hassle; should have a four lane connection from Newberg to McMinnville.
  - We often wait to make a left turn lane in the Newberg/Dundee area. The same as well for right turns -- a bypass is needed or local jobs need to keep going south. No more studies, use the money to build the bypass.
  - Focus on building the long-term solution around Newberg and Dundee. Not a toll road.
  - Construct Newberg/Dundee bypass as an optional tollway (this may be a consideration for bypass need through many inter-urban areas in the future).
- Bypass Lincoln City:
  - Lincoln City bypass (2)
  - Include Depoe Bay in bypass.
  - Bear Creek to Drift Creek.
    Bypassing Lincoln City road is a top priority. Could even be included in Toll Road Bill if necessary.
  - Four lane highway from 99W and Highway 18 to Lincoln City.

- Western Bypass:
  - Western Bypass (5)
  - North and south bypass in Washington County for commerce travel.
  - Western Bypass recommendation "limited access" - what does that mean?

- Other bypass ideas:
  - Highway 18 bypass from Rose Lodge to Kernville Bridge.
  - Four lanes from Portland to the coast. (2)
    Design the highway so it can tie in with highway bypassing.
    Bypass Tualatin -- it seems that vehicles coming from Sherwood to I-5 are coming from McMinnville to Portland, trying to bypass Tigard. When they get to Tualatin, it is gridlocked.
  - Bypass 99W around Tigard commercial area and four-lane it.
  - Connection between Yamhill County and I-5, possibly between or through Dayton or Wheatland Ferry.
  - Bypass downtown business areas.
  - No tolls.
  - Bypass from McDougals to Rex Hill.
  - Potential for Toll Road facilities (Newberg, Dundee, 1-5/99W expressway)
  - Alternative routes (bypass, relief routes, frontage roads, etc.)
  - McDougal Corner

Other Capacity Improvements:
- No toll road in Yamhill County.
- There are many areas of poor circulation. It appears that the proposed improvements are on track.
- Improvement of our arterial and collector roads to accommodate and preserve transportation livability inside the rapidly growing urban areas. This is a growing problem in Washington County.
- Review the number of cars for a two lane road.
- Consider the curves through the Rose Lodge area and Otis area for improvements.
- Re-align (straighten) Fort Hill intersection.
- Expeditious link with I-5.
**Transportation Balance (alternative modes)**

**Bikes/Pedestrian:**
- There are barriers to pedestrian travel.
- Pedestrian safety in Newberg and Dundee.
- Have bikers pay some kind of license/tax -- they are a hazard on Highway 18 and cause more problems in the busy highway time than other vehicles.
- Consideration of bikeways as an important alternative mode destroys ODOT's credibility.
- If building more highway lanes, also implement bike lanes too. Bike safety - lanes stop at bridges on highway.
- More crosswalks in Grande Ronde - a lot of children/community.
- Improve bike lanes (2).
- Bike lane from Salem or Portland to Lincoln City.
- Keep bikers/pedestrians safe by providing paths.
- Bikes could be used a great deal within the urban areas. Bike lanes also serve as emergency parking for autos.
- Build bike lanes on parts of Scenic Highways and 101 byways for shorter overnight or daily round trips.
- Provide parking areas for vehicles transporting bicycles to various scenic tour areas. Promote this is available and that food and lodging are available for overnight bikers.
- The strategy should reflect design issues in urban areas that are pedestrian friendly.
- Pedestrian crossing/safety - urban areas.
- Extending shoulders for bikeways - question the value since a portion is taken up with gravel left over from the winter.

**Light Rail/Transit:**
- Offer more/better public transit choices on the corridor.
- Economical mass transit.
- Share R-O-W with future rail, bus.
- Consider future commuter travel needs -- such as rail options and light rail when acquiring R-O-W.
- Rail link along 99W and 18.
- Provide bus service from the Fort Hill area to Portland.
- Have casino-goers park outside of Grande Ronde and commute in by bus to reduce traffic impacts. (2)
- Providing alternative transportation to and from Portland/Lincoln City with frequent, dependable, flexible transportation options once arrived at either end.
- No reliable public transportation from Portland to Lincoln City and Newport.
- Implement Park-and-Ride bus stops along corridor for Sheridan, Willamina and other towns where pickups occur now by traveling through each little town. This will gain time and make the trip from 101 to Portland shorter.
- Don't dismiss the possibility of alternative modes (e.g., light rail) along the corridor.
- Transit in general.
- Inter/Intra city transit.
- **Three railroad crossings** - Newberg/Sheridan.
- More congestion on the corridor possibly due to lack of bus service to the coast. A large elderly population on the coast is frustrated with lack of bus service. Current facilities are not built to accommodate busses.

**Connection to Alternative Modes:**
- Ped/bike connections and designing transit; have good links in the corridor.
- Design roadway to serve all transportation modes -- walking, hiking and local needs as well as through traffic. (2)
- Commuter service - express transit/carpooling/TDM.

**Other:**
- Alternative transportation modes are mostly wasted money and are not a realistic solution.
- Encourage alternate modes

---

**Economic Impact**

**Business Impacts:**
- **Dundee and Newberg bottlenecks do not encourage business.**
- Business route versus travel-through route.
- Economic support for small towns.
- Freight.
- **How do we know the difference between freight trips and other?**

**Recreation Impacts:**
- **Highways 99 and 18 are a main tourist route to the coast.** It should be a scenic route with turn-outs/wayside parks with interpretive signage. The valley and the coast mountains are both worthy of interpretation (I, along with the Lincoln County Interpretive Association, would be willing to help study and make recommendation concerning this matter).
- Lincoln City’s only industry is tourism. Therefore, if the corridor isn’t maintained and improved, Lincoln City’s economic….(sic).
- Tourist traffic flow.
- **Small tours desire far slower speeds.**
- Tourism.
- Tour route/scenic route.
- Regional tourism opportunity.
- Programmatic opportunity for resources.
- **Opportunity for regional tourism with destination point of the casino.**
Agriculture Impacts:
- Loss of houses and valuable farm land.
- Preserve farm land. (2)
- Opposed to three-mile lane conceptual plan because of tremendous loss of valuable farm land.
- Inability to cross 18 due to traffic.
- Need local road network to move farm equipment and local traffic from Valley Junction to Grande Ronde.
- Need to keep a corridor of agricultural lands between Dundee and Newberg.
- Moving farm equipment along shoulder.

Environmental Impacts:
- Do not pave over the land that borders Highway 18.
- Concerned about the impact of transportation issues will have on the Tualatin River National Wildlife Refuge and the quality of life in Tualatin and Sherwood.
- Minimize/protect impacts of rivers and creeks. (2)
- Maintain scenic nature of VanDuzer corridor (i.e., minimizing widening and limit passing lanes).
- Pixiland area covered with asphalt is in estuary (possible mitigation sit)
- Estuary is close to Otis Cafe site.
- Cascade Head scenic research area extends 1 1/2 miles east of Highway 101, about 100 yards east of Otis Junction.
- Preserve the natural environment and rural character.
- Water quality - especially in Washington County.
- Air quality (within especially Metro urban growth boundary).
- Protection of environmental resources.
- Van Duzer - park protection.
- Resource extraction - logging.
- Air quality.
- Lincoln County (section between river and cliff). There are environmental constraints.
- Idea for Erratic Rock State Park: build a protective wire structure that is the size the rock was before people started carrying it away.
- Erratic Rock State Park - need protection of this area. The site is highlighted on the highway by signs. Perhaps there are some protective measures that ODOT can work on with State parks to minimize the use of this area.
- Minimal access opportunities for resources.
- Problem with dumping just about anywhere.

Social Impacts:
- Keep from running the I-5/99W connection down the middle of Tualatin - we are trying to create a town area.
- Balance urban/rural - local vs. through traffic
- ID socio economic impacts related to early row dedication
Energy Use
- Utility relocations.

Specific Concern Areas
Newberg/Dundee area:
- To avoid Dundee, Newberg, Sherwood, and Tigard and re-route 70% of the traffic:
  Extend Highway 18 at McDougal's corner to I-5. This is a distance of 12 miles starting
  at Dayton; cross the Willamette at Dayton then skirt St. Paul to McKay Road; then via
  McKay road to I-5 at Champeog Exit.
- The gridlock at Dundee and Newberg.
- Improve traffic flow in Newberg and Dundee. (2)
- Getting through Dundee both ways -- its terrible!
- Something has to be done with the back-up traffic in Newberg and Dundee.
- In the Dundee area, motorists are trying to bypass traffic through Dundee by using
  County Road that connects Edwards Street and on to the light In Dundee. At times on
  Sunday around 3-5, many motorists are using this road. The road has many sharp turns
  and motorists drive too fast. The road connects several farms to Highway 99 and
  Dundee.
- Congestion in Newberg/Dundee area is outrageous.
- Couplet issues (interim to bypass).
- Development along bypass route - using up potential alignments.
- Bypass route could go at the base of Rex Hill - how close to the cut off is important
  because of the difficulties of the grade.
- Residential developments occurring on the north side of town, increase in normal
  residential traffic of of Trout Creek Rd increase in potential for accidents.
- Can a bypass route be identified and protected? A footprint needs to be identified with
  considerable setback requirements for development and intersections could be identified
  Pedestrian crossings and circulation.
- Two-way left turn lanes.
- Business traffic acceleration and deceleration.
- Access in proximity to intersections.
- Bus access/bus stops.
- Downtown access/ped conflicts/traffic movement-couplet.
- Right turn exiting turning radius.
- Need wider shoulders.
- Intersections of Corral Creek and Parrot Mountain - conflicts/safety.
Dayton:
- Need to ensure that smaller jurisdictions don’t get overwhelmed by the needs of the larger communities.
- Lack of highway improvements in the smaller communities effects economic development potential.
- Smaller communities need good access to the highway.
- Mass transit - rail, how usable as a commuter line? The possibility of rail on the corridor.

Tigard/Tualatin/Sherwood area:
- **Congestion on 99W in Tigard.**
- Need flow and congestion control on Highway 99W in Tigard.
- What will happen at already clogged interchanges (I-5/205 and 217/1-5)?
- Tualatin/Sherwood/I-5 exit is already overused despite improvements as well as the north Wilsonville/I-5 exit. This is compounded by poor signal control intervals. Suggest having a traffic engineer learn how the large eastern cities manage these issues.
- Create a new arterial or freeway connection between I-5 and 99W, connecting to I-205 or thereabouts.
- Make the Tigard portion of 99W more livable for the businesses and residents in the area -- this section is one of the most congested roadways in the area.
- The gridlock at Tigard/Sherwood.
- Sherwood issues - develop on both sides of highway.
- Need a better expressway/connection to I-5. Highway 99W needs to include different connections to I-5.
- Be mindful of ODOT/Tigard history.
- Analysis needs - through vs. "peel off" traffic at Tualatin /Sherwood - need to know what the traffic counts are.

Sherwood:
- Pedestrian crossings will become more important as development occurs on both sides of the highway; although does not see the highway becoming a major pedestrian facility.
- The highway is wide and fast, difficult to cross on one light change.
- Cherry Tree Fruit Stand intersection (Meineke) needs improvements.
- Tualatin Valley Wildlife Refuge is in the acquisition state, the boundary has not been defined absolutely.
- Frontage roads are needed, particularly in Sherwood. Limit access to 99W, provide back access roads to businesses.
- Rural vs. Urban status - speed limit should be reduced to 45 as urbanization occurs.
- Proposed land use, how underdeveloped highway divides the community. Future commercial and manufacturing.
- Crossings at Sunset/Elwert and Meinecke (also needs signalization).
- Pedestrian crossing safety - Cedar Creek crossing for pedestrians and bicycle only.
- Vertical alignment results in sight distance deficiency at Meinecke.
- Rail use as commuter line from Sherwood to Portland.
Need detail of inventory work to make corrections to the overview document.

Sherwood is growing 12% per year - mostly residential in the past, now services are being added on both sides of the highway.

Impact of I-5/99W connection on TVNW Refuge.

Median crossings are needed.

Relax standards as appropriate for signal warrants. People are frustrated with ODOT's rules. Why wait until accidents and fatalities to provide a signal. If an intersection doesn't meet the warrant but a signal would improve traffic flow than the city supports signal installations. Note: maintaining travel times is often a conflict point with ODOT and local jurisdictions - travel time is not everything.

McMinnville area:

- Consider alternative route that takes Highway 18 around McMinnville by using Highway 233 and Belle-Hope Highway.
- Shorter, more direct route from McMinnville to Salem.
- The time it takes from 217 to McMinnville is unacceptable.
- Continue four lanes from to McMinnville from Highway 22 junction.
- Crossing Lafayette Avenue is an issue.
- McMinnville Belt Line - 3 mile lane to 99W - East side of McMinnville (new bridge interchanges.
- McMinnville Airport, Newberg/Dundee Airport.
- 99W/18 interchange in McMinnville.
- Highway 219 intersection in McMinnville.
- McDougal Corner.

Grande Ronde/Willamina area:

- Valley Junction traffic -- can't get on the highway either here or at the Grande Ronde Road.
- McDougal Corner (north end of the Highway 18 bypass).
- There is a better alternative than your present three-mile plan.
- Weekend traffic volumes are very high.
- Highway 99W/18 system does not have adequate capacity to deal with traffic conditions.
- Concerns with Highway 22 from 18 through Greater Grande Ronde area in Yamhill County. Lots of residents with more and more traffic going to coast on 22.
- Different traffic pattern needed at Fort Hill intersection - study alternatives.
- Specifically in the Fort Hill area, commercial land development needs to be timed so the road network has been improved to accommodate traffic before development occurs.
- Highway 22, coming from the Hebo area.
- Congestion needs to be dealt with in the Grande Ronde community and want a commitment on working together to resolve issues.
- Highway 22 intersection - Valley Junction -- include the intersection of 18/22 in this planning process. (2)
Getting from Newberg to I-5 a bottleneck.
Concern about ability to ship goods from Willamina to the Port of Portland properties.
What will ODOT's involvement in monitoring the railroads be? (All transportation functions will become a part of ODOT).
The population increase in Yamhill Co. is mostly at the North end.
Grande Ronde should be a dry community (no booze).

Lincoln City/Otis/Rose Lodge area:
- Traffic volumes are growing very quickly in the Salmon River area.
- Four lanes are needed from Lincoln City to the VanDuzer corridor.
- VanDuzer Corridor wayside to Lincoln City: widen all the way; turning lane in Rose Lodge areas (like the turning lane at Otis).
- Turn-out (slow vehicle) east of 18/101 interchange.
- Widen Slick Rock Creek Bridge. Slow traffic through Rose Lodge. Stop lights at North Bank and Rose Lodge; stoplight at Otis Junction.
- Either change intersection at Slick Rock Creek Road or put a bridge up the creek to bring us around to North Bank Road.
- Use North Bank Road for a west bound detour between North Bank Road and Otis when maintenance work requires.
- Concerns focus on section of Highway between 101 and Fort Hill area, MP 1 through 25. There are minimal concerns with the Willamette River Greenway area.

Siuslaw Forest:
- Access management and recreation volume (high) at Forest Service Rd #17 (county connection Highway 106 Bear Creek Rd).
- Forest Service will make some minor improvements at road 17 this year.
- Land acquisition for Cascade Head goes according to a management plan, unless a new development goes counter to the goals of the plan, than acquisition can happen as needed.

Lincoln County:
- Rose Lodge area is not covered under any "city plan", alot of development is proposed off of Bear Creek Rd, Slick Rock Creek Rd, and North Bank Rd, more to come soon.
- Slick Rock Creek Rd and the Hwy 18 intersection is bad. Access for older developments in that area (which is 60% developed).
- Commercial development concerns - there is no vacant commercial land. Possibly some redevelopment of existing uses will occur. Otis Cafe has wanted more commercial zoning and has not been able to get it.
Sheridan:
- ODOT has effectively stopped economic development by not allowing access to the highway without big price tags which prohibit anything from being done.
- Smaller communities are very concerned about not getting needed funds to make highway improvements to open access.
- If a bypass is built, it will encourage more people to live in the area.

Other Issues
- Noise.
- Route 217.
- **The State** must be responsible for helping fund needed improvements.
- New bridge needed in area of Wheatland Ferry.
- Appreciate the new surfacing completed in the corridor and implementing new lanes near the Murphy Hill area. The new fog lines and reflective center lines help immensely during rain and darkness. Also pleased with the one lane each way (removal of passing lane going east) in the Boyer areas. Please consider the curves through the Rose Lodge area and Otis, for improvements when planning.
- Eliminate new road construction.
- **County Roads/State Highways** - what's connected and how.

Land Use:
- **Shrink** the UGB -- land use planning.
- Look at land use and development patterns as possible solutions to traffic problems. Including land use as part of the solution would fit in with Governor's recent charge to ODOT to include growth management as part of its mission.
- How is the Metro 2040 plan being incorporated in the transportation planning?
- Land use issues.
- Contain sprawl.
- Growth management/land use planning.
- Allow short-term development in smaller communities. Relax standards and restrictions to allow for this kind of development.
- Smaller developments - combined along the corridor - represent a considerable impact on the corridor yet, these smaller developments are not required to help build the infrastructure they are impacting (like the large shopping centers for example.)
- Find a way to "front end" comments from ODOT regarding what highway improvements are required for certain development. Plan for highway impacts and give developers early information.
- Highway improvements often leave remnant parcels which poses a problem for jurisdictions.
- Need better coordination regarding ODOT's disposal of questionable property that isn't large enough to do something beneficial with.
- Involve ODOT in site review meetings to review plans with developers, jurisdictions, etc.
to identify issues early.

- Casino impacts the local community. These impacts include residential transportation, and economic (850 new jobs). Develop alternative modes related to the casino (shuttles).

Landscaping:
- Pay attention to aesthetics, such as landscaped medians, street trees and good signage.
- Visual aesthetics.
- Work with local jurisdictions on landscaping and signage for private development proposals to improve aesthetics and reduce confusion. Especially through Tigard
- US 101 and Lincoln Beach Parkway is in need of landscaping maintenance. Consider a signal at the north end of Lincoln Beach Parkway.
- Tree canopy.

Right-Of-Way Issues:
- Work on solutions for corridor in phases -- if only enough money for right-of-ways, buy the r-o-w for the long-term solution.
- R-O-W impacts from any additional lanes.
- R-O-W preservation will allow public to see what could be the solution with increased likelihood of financing.
- Purchase right-of-way early where projects are identified. This is a more efficient use of money than planning.
- Dedicate row early - develop a step by step or phased process

Public Involvement:
- Thanks for the opportunity to bring forth my ideas.
- Ensure everyone's input is gathered including tribe community members. (2)
- Need to improve communication/understanding in this process. Smaller communities have seen recent examples of lack of communication/understanding regarding developing property along the highway.

Coordination/Partnering:
- Want more information on 99W and Tigard Road -- the signal is needed at that intersection and what is planned in this project for that intersection?
- Communication between (among agencies - working together "partnership")
- Need to have support/agreement within ODOT regarding design issues.
- Regular meetings with ODOT and the jurisdictions are important to coordinate development issues before they occur.
- Important to consider how the highway relates to the local area.
- What is the function of the highway through the different communities? Be sensitive to local needs.
- Local governments, ODOT, and Metro 2040 all need to be talking the same language
- Need ODOT to be responsive and a partner in this.
• Hopeful about a more holistic approach to planning - balance engineering with programmatic changes and opportunities.
• This planning effort is a good start - right direction for the process and working together
• Improve communication/delivery of information so that communities with varied levels of technical expertise can understand and work with ODOT better.
• Partnerships with ODOT, counties, etc., about how to package the corridors resources so people understand the linkages.
• ODOT needs to be flexible/LOS is not the right way to evaluate a road.
APPENDIX D

Corridor Planning Management Team
99W/18

Mike McKillip
City of Tualatin
P.O. Box 369
Tualatin, OR 97062

Dwayne Cole
City Manager
City of Newberg
414 E First Street
Newberg, OR 97132

Jamie Damon
Jeanne Lawson Associates
PO Box 14631
Portland, OR 97239

City of Dayton
Attn: Sue Hollis
P.O. Box 339
Dayton, OR 97114

Sue Engels
Community Dev Director
City of Sherwood
90 NW Park Street
Sherwood, OR 97140

Robert Hansen
Public Works Director
Marion County
220 High St NE, #300
Salem, OR 97301

Neil Cohen
City of Dundee
P.O. Box 220
Dundee, OR 97115

Laura Wentworth
Portland Office of Trans.
1120 SW 5th Street
Room 702
Portland, OR 97204

Wayne Rickert
MWVCOG
105 High Street, SE
Salem, OR 97301

Andy Back
Washington County
155 N 1st Avenue
Hillsboro, OR 97123

Jim Hendryx
City of Tigard
13125 SW Hall Blvd
Tigard, OR 97223

Michael Ray
Oregon Dept of Transportation
Region 1
123 NW Flanders St.
Portland, OR 97209

Mark Brown
Washington County
155 N 1st Avenue
Hillsboro, OR 97123

Jane Aamold
City of King City
15300 SW 116th Avenue
King City, OR 97224

John deTar
Oregon Dept of Transportation
Region 2
2960 State Street
Salem, OR 97310

Mark Gervasi
City Administrator
City of Lafayette
P.O. Box 55
Lafayette, OR 97127

Randy Hammond
CH2M Hill
825 NE Multnomah, Suite 1300
Portland, OR 97232

Dan Fricke
Oregon Dept of Transportation
District 3
885 Airport Road
Salem, OR 97310

Martin Chrout-Masin
Yamhill Co Plan Dept
Yamhill Co Courthouse
335 E Fifth St, Room 17
McMinnville, OR 97128

Tom Kloster
METRO - Transportation
600 NE Grand Avenue
Portland, OR 97232

Al Tocchini
Dept of Parks & Recreation
1115 Commercial St, NE
Salem, OR 97310

Bill Gille
Co Public Wks Dir
Yamhill County
P.O. Box 9
McMinnville, OR 97128

Rich Ledbetter
METRO
600 NE Grand
Portland, OR 97232

Gene Clemens
Community Devel Dept
Polk County Courthouse
350 Main Street
Dallas, OR 97338
Richard Highsmith
Planning Director
City of McMinnville
230 E Second
McMinnville, OR  97128

Matt Spangler
Planning Director
Lincoln County
210 SW 2nd Street
Newport, OR  97365

Mayor Smokey Aschenbrenner
City of Lincoln City
P.O. Box 431
Lincoln City, OR  97367

Mike Sauerwein
City Manager
City of Sheridan
120 SW Mill Street
Sheridan, OR  97378

Joe Walsh
Tri-Met
710 NE Holliday
Portland, OR  97232

Mary Kacy
2815 East Slope Road
Otis, OR  97368

Mayor Twila Hill
City of Willamina
P.O. Box 629
Willamina, OR  97376

Michael Russell
Public Works Dept
PO Box 50
Lincoln City, OR  97367

John Mercier
Public Wks Div Mgr
Grand Ronde Conf Tribes
9615 Grand Ronde Road
Grand Ronde, OR  97347

Nelson Witt
Siletz Tribe
P.O. Box 549
Siletz, OR  97380-0549

Max J. Ross
Lincoln City Planning Commis.
P.O. Box 1195
Lincoln City, OR  97367

Dan Mummey
Waldport Ranger Station
Suislaw National Forest
PO Box 400
Waldport, OR  97394
The Corridor Planning Management Team, together with the Oregon Department of Transportation, sponsored three open houses in the month of October (an additional open house is scheduled for November 16 and will be incorporated into this summary). The purpose of these open houses was to provide an opportunity to the communities bordering the corridor to tell us the issues important to them. The Open Houses included background information about the Corridor Planning Process as well as other local transportation activities.

Prior to the open houses, 2805 newsletters were mailed to residents, businesses, jurisdictions, interest groups and agencies along the 99W/18 corridor. In the newsletters, a response card was included asking people to answer transportation-related questions and list their corridor issues (45 response cards have been received to date.) Display ads were placed in the Sheridan Sun, The Oregonian's Metro West edition, the Polk County Itemizer-Observer, the Newberg Graphic, the Tigard Times Publication, the Dayton Tribune, the Wilsonville Spokesman, and the News Guard based in Lincoln City (15 display ad response forms have been received to date.)

**Rose Lodge Open House**

On October 24, 1995, an open house was held at the Salmon River Grange in Rose Lodge. 23 people signed in at the meeting and listed issues on flip charts. Their issues include:

- **Bear Creek to Drift Creek.** Bypassing Lincoln City road is a top priority. Could even be included in Toll Road Bill if necessary.

- **Maintain scenic nature of VanDuzen corridor** (i.e., minimizing widening and limit passing lanes).

- **Skinny center median in front of casino is dangerous** (needs reflectors) and turn off to Dundee.

- **Striping on the road needs to be refreshed.**

- **Traffic volumes are growing very quickly in the Salmon River area.**

- **Cascade Head scenic research area** extends 1 1/2 miles east of Highway 101, about 100 yards east of Otis Junction.
Pixiland area covered with asphalt is in estuary (possible mitigation sit)

Estuary is close to Otis Cafe site

In Sherwood: the Meineke Road exit needs signalization due to rapid development. AOH issues conflict with city's plan. Meineke was on the STIP at one time and Metro 2040 Plan, AOH, and Sherwood Plan.

Safety issues: Highway 18 intersects with Bear Creek and Slick Rock Roads

Idea: Highway 18 bypass from Rose Lodge to Kernville Bridge.

Four lanes are needed from Lincoln City to the VanDuzen corridor.

Continue four lanes from to McMinnville from Highway 22 junction.

Either change intersection at Slick Rock Creek Road or put a bridge up the creek to bring us around to North Bank Road.

Use North Bank Road for a west bound detour between North Bank Road and Otis when maintenance work requires.

VanDuzer Corridor wayside to Lincoln City: widen all the way; turning lane in Rose Lodge areas (like the turning lane at Otis).

Turn-out (slow vehicle) east of 18/101 interchange

Widen Slick Rock Creek Bridge. Slow traffic through Rose Lodge. Stop lights at North Bank and Rose Lodge; stoplight at Otis Junction.

North Bank Road is unsafe.

US 101 and Lincoln Beach Parkway is in need of landscaping maintenance. Consider a signal at the north end of Lincoln Beach Parkway.
McMinnville Open House

On October 25, 1995, an open house was held in McMinnville at Yamhill County Public Works. 31 people signed in at the meeting and listed issues on flip charts, with their issues being:

Weekend traffic volumes are very high. R-O-W impacts from any additional lanes.

Highway 99W/18 system does not have adequate capacity to deal with traffic conditions.

Opposed to three-mile lane conceptual plan because of tremendous loss of valuable farm land.

Lower highway elevation through Sherwood and build interchanges.

Consideration of bikepaths as important alternative mode destroys ODOT’s credibility.

Move new interchange to Lafayette Highway

Focus on building the long-term solution around Newberg and Dundee

Work on solutions for corridor in phases -- if only enough money for right-of-ways, buy the r-o-w for the long-term solution.

R-O-W preservation will allow public to see what could be the solution with increased likelihood of financing.

Consider future commuter travel needs -- such as rail options and light rail when acquiring R-O-W.

Share R-O-W with future rail, bus

Build the Newberg/Dundee bypass as priority #1

Valley Junction traffic -- can’t get on the highway either here or at Grande Ronde Road

Consider alternative route that takes Highway 18 around McMinnville by using Highway 233 and Belle-Hope Highway.

New bridge needed in area of Wheatland Ferry
Tigard Open House

On October 30, 1995, an open house was held in Tigard at the Water District Building. 32 people signed in at the meeting and listed issues on flip charts. Those issues are as follows:

Highway 212 area with 99W is rolling terrain on 99W and causes alot of accidents. This should be leveled/graded to eliminate rolling condition.

Purchase right-of-way early where projects are identified. This is a more efficient use of money than planning.

99W/ Tualatin Road proposed revision would prohibit access to Mobile Vista and trailer sales store and car sales.

Bypass 99W around Tigard commercial area and four-lane it.

Design roadway to serve all transportation modes -- walking, biking and local needs as well as through traffic. Don’t sacrifice local safety for greater through-speeds.

Use left turn restrictions, access control, combined access points, connected driveways on Highway 99W through Tigard. Don’t widen to six lanes.

Pay attention to aesthetics, such as landscaped medians, street trees and good signage

Work with local jurisdictions on landscaping and signage for private development proposals to improve aesthetics and reduce confusion. Especially through Tigard

Create a new arterial or freeway connection between I-5 and 99W, connecting to I-205 or thereabouts.

Use frontage roads as much as practical to serve adjacent development. Deny further direct access requests.

Please don’t wait until someone gets killed on 99W entering Dundee, heading north.

Provide for turns and U-turns at major intersections only. Driveways to businesses are right turns only. Raised median between intersections I-5 to the Tualatin River

Traffic congestion is causing increased use of neighborhood streets for through-traffic.
Grande Ronde

On November 15, an open house was held in conjunction with the Polk County Community Development Department. 45 people signed in at the open house and listed the following issues on flip charts:

- Concerns with Highway 22 from 18 through Greater Grande Ronde area in Yamhill County. Lots of residents with more and more traffic going to coast on 22.
- Impossible to cross 18 with farm equipment (3 lane segment west of Willamina).
- Residential access to Highway 22 and 18 is impossible and very unsafe. (Two people commented)
- Need local road network to move farm equipment and local traffic from Valley Junction to Grande Ronde.
- Vehicles passing farm equipment. Shoulders are non-existent on sections through Grande Ronde-Fort Hill area.
- Left turn lane needed at Rowell Creek Road and at Fort Hill Road (ROW at Rowell Creek Road is wider due to purchase for South Yamhill Bridge (should be a left-turn to the corridor).
- Highways 18 and 22 need bus stop signs for students. Current pickup and drop off areas are very unsafe for all.
- Need signalization or signs so we may depart from driveways.
- Consider a bus pullout for school buses and mail delivery.
- Congestion in area results in local residents choosing to walk to local destinations.
- Better enforcement of speed zones.
- Enforce no parking on the outside curb in front of Fort Hill gas station and restaurant -- safety issue.
- 40-mile speed limit from Fort Hill through Grande Ronde past Thole’s commercial property. The 55 MPH zone is .4 mile before church/school, residences and John Road entrance.
- More travel lanes.
If building more highway lanes, also implement bike lanes too. Bike safety - lanes stop at bridges on highway.

Billboards! Must there be so many Fort Hill? -- Billboards hide the natural beauty of Grande Ronde. They must go.

Different traffic pattern needed at Fort Hill intersection - study alternatives.

In the Fort Hill area, commercial land development needs to be timed so that the road network has been improved to accommodate the traffic before the development occurs.

Better access needed to Willamina from Highway 18. (three people commented)

Extend center turn-lane at the west end of Grande Ronde, further west.

Install a signal at Fort Hill.

Provide bus service from the Fort Hill area to Portland.

Re-align (straighten) Fort Hill intersection.

Increase Highway 18 to four lanes.

More crosswalks in Grande Ronde - a lot of children/community.

Grande Ronde should be a dry community (no booze).

Have casino-goers park outside of Grande Ronde and commute in by bus to reduce traffic impacts.

Increase law enforcement.

People are driving over medians near the strawberry patch/casino area.

Need a traffic light at Grande Ronde and Highway 22 Valley and Fort Hill Road. (two people commented)

Need passing lane (east and west bound) between Sheridan and McMinneville.

People turn around on private property to enter the casino (first property west of casino). (Two people commented)

Casino needs better signage signs with arrows. There is currently no sign marking the
exit. (Two people commented)