OR 22 (W) Expressway Management Plan

Derry Overcrossing (MP 16.94) to Doaks Ferry Road (MP 22.04)

Willamina-Salem Highway No. 30
Polk County, Oregon

Oregon Department of Transportation

March 2010

Facility Plan

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CHAPTER 1

Background

1.1 Plan Purpose

This report documents the results of the transportation facility planning process conducted by the Oregon Department of Transportation (ODOT) for the western segment of OR 22 east from the Derry Overcrossing (MP 16.94) to Doaks Ferry Road (MP 22.04). OR 22 is State Highway No. 30, the Willamina-Salem Highway. The vicinity of the study area is shown in Figure 1-1. For purposes of identifying solutions, the section of highway and future land use between Doaks Ferry Road and College Drive (MP 23.67) were considered. The intersection of OR 22 and OR 51 (MP 20.37) was also included in the expressway planning process.

Facility plans, such as this expressway management plan (EMP), can serve a variety of purposes. In some cases, a facility plan is developed to address an outstanding planning issue or narrow the alternatives that are then advanced into the environmental documentation process required by the National Environmental Policy Act (NEPA). In other cases, a facility plan process may either constitute the first phase of the formal NEPA process or the development process for a non-NEPA project.

The purpose of the OR 22 (W) Expressway Management Plan (Derry Overcrossing to Doaks Ferry Road) was to assess traffic and safety problems within the study area and identify potential solutions to these problems. This effort was a technical exercise to evaluate and screen alternatives prior to conducting project development. The operational feasibility of alternative solutions to identified problems through the year 2030 was the focus of this effort, which was started in 2000 then halted in 2004 prior to completion due to lack of funding by ODOT.

The conclusions in this document have provided direction to the project development process by defining the key features of the alternatives that have been identified for construction at problem locations along the OR 22 study area, including the intersection with OR 51 (Independence Highway No. 193) and local interest road intersections. This report also provides a basis for ODOT to work with Polk County to amend its Comprehensive Plan, Transportation Systems Plan (TSP), and Zoning Ordinance as well as the Regional Transportation System Plan (RTSP) of the metropolitan planning organization, SKATS (Salem Keizer Area Transportation Study). These amendments will acknowledge the project development decisions that have been made and the short-, medium-, and long-term facility management approach (including Polk County land use decisions) that will be implemented to help protect the function of these improvements through the 20-year planning horizon.

The construction projects recommended by this facility plan are expected to be included in the Statewide Transportation Improvement Program (STIP) after adoption by the Oregon Transportation Commission (OTC) and when funding for full development and construction of such projects has been secured.

1.2 Plan Context

This EMP is ODOT's first step in the project development process. Where this plan fits within the ODOT's hierarchy of planning, programming, and project development processes is shown in Figure 1-2. At the top is the Oregon Transportation Plan (OTP), which includes plans for specific modes, such as highway, rail, and aviation. Facility plans are prepared for these modes, and may include plans for a specific interchange, corridor, or expressway, for example. Facility plans often identify projects for inclusion in the Statewide Transportation Improvement Program (STIP), leading to environmental permitting, design, and construction. The OTP sets broad policies for the state transportation system. Included are policies and action steps intended to improve rural highways. Overall, the intent of the OTP is to guide future development and ensure a safe, convenient, and efficient transportation system throughout the state in order to promote economic prosperity and livability for all Oregonians.

Based on Statewide Level of Importance (LOI) designations, the Oregon Highway Plan (OHP) defines specific standards for state highways, including mobility standards, interchange spacing requirements, investment priorities, and access control standards. The operational performance and mobility standards in the OHP can vary by location and adjacent land use type.

The OHP designates OR 22 as having a Statewide LOI as a freight route. OR 22 has also been designated by the OTC as an expressway and is included as part of the National Highway System (NHS). Expressways are a subset of Statewide, Regional, and District LOI highways that are intended to provide a high level of mobility for longer distance travelers. The OHP designates OR 51 as having a District LOI.

ODOT corridor-level plans and local Transportation Systems Plans (TSP) define the existing conditions and future improvements necessary to support land use plans 20 years into the future and implement the OHP and other ODOT modal plans. ODOT's OR 22 Corridor Strategy (West) identified the OR 22 with OR 99W and OR 22 with Dallas-Rickreall Highway intersections as areas that needed further solution development work. This corridor strategy covered the portion of OR 22 from its intersection with OR 18 at Willamina to the Deer Park/Gaffin Road Interchange approximately 4 miles east of Interstate 5. These recommendations were further supported by a corridor safety analysis performed in 1999. Other planning efforts cover OR 22 west to the interchange with OR 99W, constructed under the adopted Rickreall Junction Transportation Facility Plan (ODOT, June 2005) and ongoing planning activities for OR 22 extending into Salem and across the Willamette River. The OR 22 study area of this report is Derry Overcrossing to Doaks Ferry Road.

The Polk County TSP identifies both OR 22 and OR 51 as principal arterials in the County road system. It identifies a number of possible road construction projects including the construction of an interchange at the OR 22/51 intersection. The TSP states that the county will work with ODOT on any necessary studies related to these projects. This EMP is based upon earlier planning efforts by ODOT and local agency staff to develop a facility plan focused on the segment of OR 22 between Greenwood Road (MP 18.61) to Doaks Ferry Road (MP 22.04).

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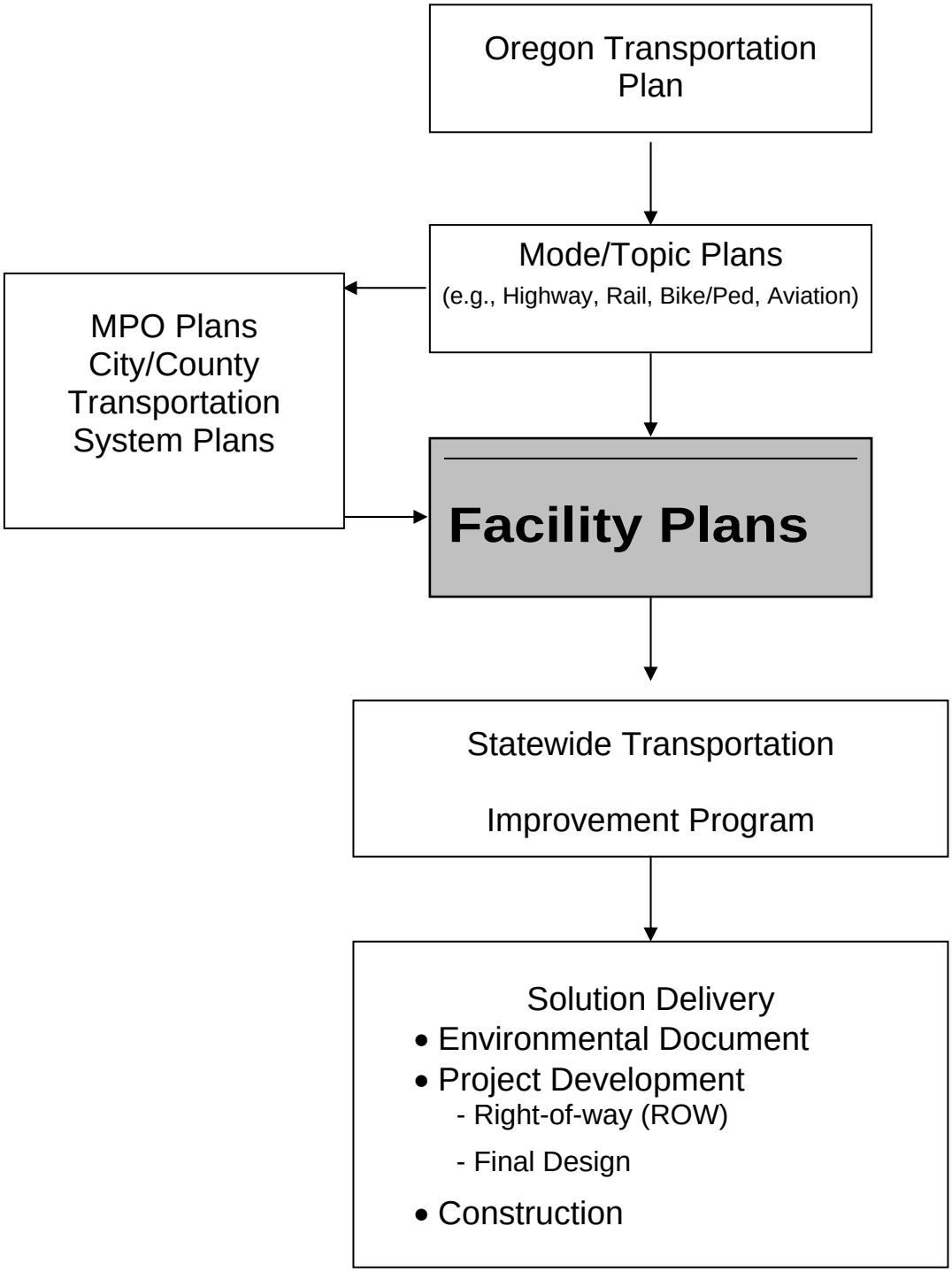

FIGURE 1-2. ODOT Planning, Programming, and Project Development Context

That earlier effort, from 2000-2005, was not completed, but nevertheless provided many of the identified alternatives for evaluation. In addition, a study prepared for Polk County by W&H Pacific, "Project 22: Hwy 22/51 Interchange Implementation Strategy" (June 20, 2005) provided project delivery concepts and a strategy report for phasing the proposed OR 22/51 interchange and frontage/backage roads options.

1.3 Plan Process

A consultant team led by CH2M HILL with Kittelson & Associates was contracted by ODOT to produce the expressway management plan. The team's first efforts were to gather data and information related to the earlier efforts led by ODOT with contributions from Polk County and the Mid-Willamette Valley Council of Governments (MWVCOG). This plan process consisted of the following phases:

- **Project Management Team Formation -** A Project Management Team (PMT) was formed to oversee development of the expressway management plan and also serve as the technical advisors for project alternatives. The PMT consisted of federal, state, and local representatives including Federal Highway Administration (FHWA) staff, ODOT staff, CH2M HILL staff, Kittelson & Associates staff, Department of Land Conservation and Development (DLCD) staff, MWVCOG staff, and representatives from Polk County and the City of Salem. The PMT was responsible for developing project goals and the problem statement, assisting with data collection and analysis, identifying and evaluating alternatives, and making recommendations. The PMT meeting summaries are included as Appendix A.
- Scoping and Inventory - Conducted a review of existing plans, policies, and study documentation related to the existing highway segment to identify pertinent policies and determine data collection needs.
- Conditions Assessment - Conducted an analysis and validation of existing operating and geometric conditions; development of future traffic volumes; and analysis of operating conditions assuming the existing geometric conditions remain in place. From these assessments, deficiencies were identified.
- Alternative Identification - identified a range of improvement alternatives and conducted screening to select the most feasible alternatives for evaluation.
- Alternative Evaluation - Evaluated the operational performance and geometric feasibility of the selected alternatives using the traffic volumes for the years 2015 and 2030.
- Stakeholder Input - Conducted a series of meetings with key stakeholders from the 2000-2002 planning process. These included community residents and local business owners, and emergency response personnel of the study area. The purpose of the meetings was to review preliminary evaluation results and improvement concepts and receive stakeholder feedback. The earlier stakeholder outreach process culminated with an open house at the Eola RV Park in September 2004; the acceptability of many of the project concepts recommended by this expressway management plan was affirmed at this open house; some concepts are newly developed. A more recent public meeting before the Polk County Commission and attended by stakeholders in August 2007 reactivated public

involvement and reaffirmed the continuing validity of the project. An Open House in November 2007 at the Polk County Fairgrounds reaffirmed earlier evaluation results and public preferences. Additional public input can also be provided through the Polk County and OTC adoption processes.

- **Expressway Management Plan Preparation -** The project team prepared the EMP including documenting the previous steps, identifying investment requirements, and making recommendations for adoption.

Figure 1-3 illustrates the facility plan process.

1.4 Transportation Context

1.4.1 OR 22 Characteristics and History

The OR 22 transportation corridor extends for approximately 140 miles, beginning at the intersection with US Highway 101 in Hebo and terminating at Santiam Junction where it intersects with US 20. Between Salem and Willamina, the corridor primarily runs through farmland with little development occurring outside of Salem. OR 22 is of critical importance to a wide range of statewide, regional, and local users and is therefore designated as a highway of statewide importance from Valley Junction to Santiam Junction.

The highway serves as the primary route connecting the Salem-Keizer Metropolitan Area and the mid-Willamette Valley to the Oregon Coast, providing connections to Lincoln City and Tillamook. It is also a major connecting route from the Central Oregon Coast to the Interstate Highway System, and to Central Oregon. The corridor is used by a large number of recreational travelers. It also serves industrial manufacturers and commercial outlets located in the Willamette Valley, the Oregon Coast, and in Central Oregon.

OR 22 is frequently used by local farmers as they move equipment from farm to field and serves as an important farm-to-market road. The highway also serves a number of local businesses that transport gravel or lumber from source to processing facilities. Additionally, the corridor serves as a vital link for area residents needing health care and emergency services.

For the communities located along or within several miles of OR 22, the corridor west of Salem serves as a major commuting route. A large number of commuters use the corridor to get from their residences in outlying communities like Dallas, Monmouth, and Willamina to their jobs in Salem. A smaller number of Salem area residents also use the corridor to commute to employment in outlying communities.

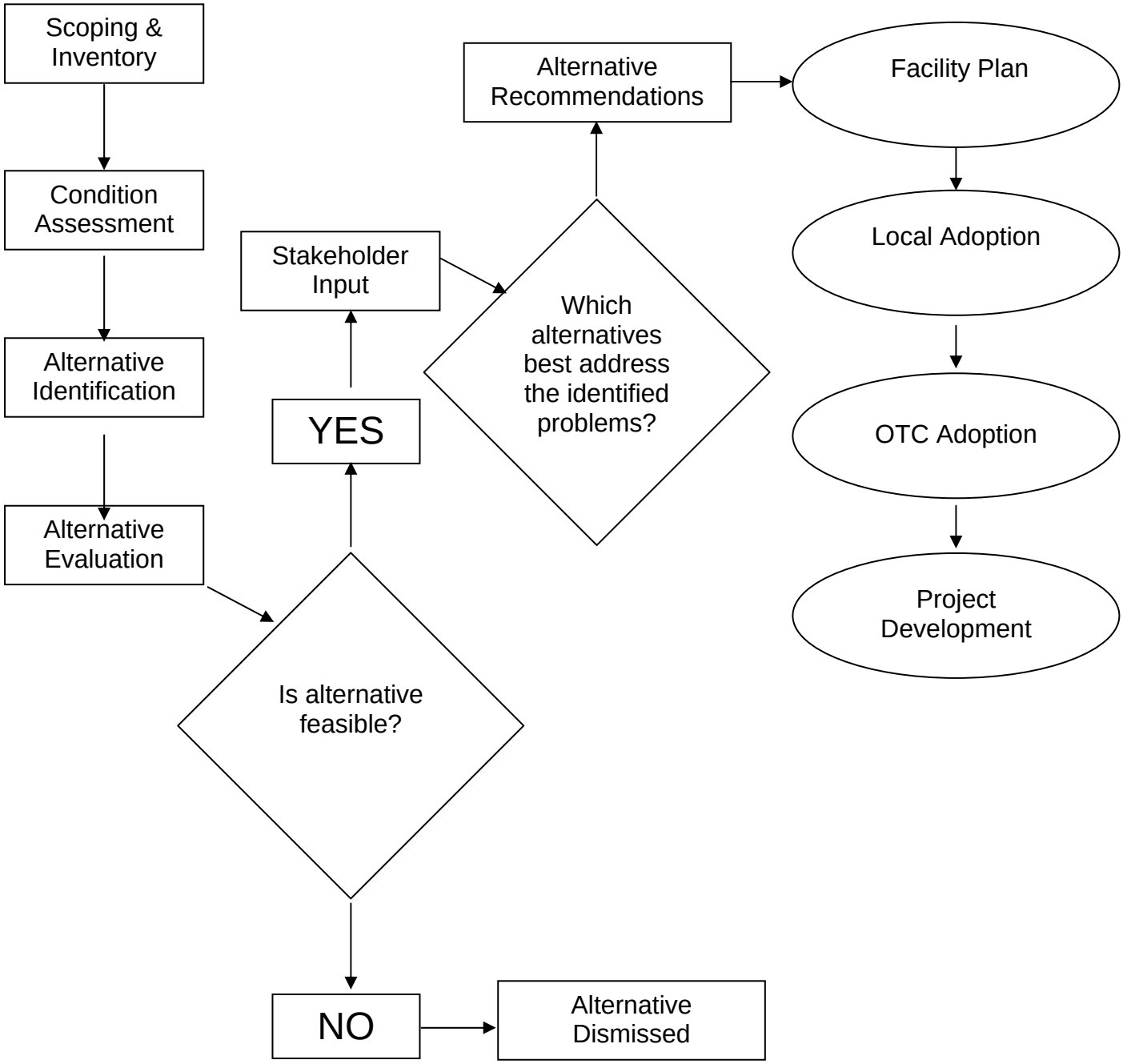

Figure 1-3. Facility Plan Process Flowchart

West of Salem and north of Rickreall, OR 22 (MP16.12) intersects with OR 99W, forming a new interchange (construction completed 2006). Closer to Salem at MP 20.37, OR 22 intersects with OR 51 (Independence Highway). Intersections of OR 22 with local interest roads within the study section are listed below:

- Greenwood Road (MP 18.61)
- Rickreall Road (MP 19.32)
- Old Knoll Golf Course Driveway (MP 19.54)
- Oak Grove Road (west access) (20.03)
- Oak Grove Road (east access) (MP 20.10)
- 55th Avenue (MP 20.37)
- 52nd Avenue (MP 20.84)
- State Farm Road (east access) (MP 21.19)
- 50th Avenue (west access) (MP 21.19)
- Shaw Street (MP 21.86)
- Access to EOLA Bend RV Park (MP 21.85)
- Riggs Street (MP 21.66)
- Spring Street (MP 21.72)
- Mill Street (MP 21.78)
- OR 22/Doaks Ferry Road (MP 22.04)

1.4.2 OR 51 Characteristics and History

OR 51 is a district highway, known as the Independence Highway (State Highway No. 193), that runs for 6.34 miles from Monmouth at the intersection with OR 99W, through Independence, and ends at its connection with OR 22.

Similar to OR 22 and OR 99W, OR 51 serves as a farm-to-market route for agricultural interests and a support route for rural resource industries. Commuters also use the route to travel between Monmouth and Independence to Salem (or vice-versa).

1.4.3 Study Area

The purpose of identifying the study area is to define the transportation analysis area. The study will complete coverage of OR 22 in the West Salem area by linking-up to adjacent planning areas including, the OR 22/OR 99W Rickreall Junction Transportation Facility Plan study area farther west; and planning efforts involving OR 22 and a third Willamette River crossing to the east. Thus, the project study area and coverage of this plan is the western segment of Oregon Route 22 east from the Derry Overcrossing (MP 16.94) to Doaks Ferry Drive (MP 22.04). The study area includes the area approximately one-half mile on either side of the highway. However, the focus of the study and potential improvements identified in this document are somewhat more than one-mile inwards of those termini, between Greenwood Road (MP 18.61) and Doaks Ferry Road (MP 22.04), including the intersection with OR 51 (MP 20.37) and local interest roads. The westernmost study area, between the Derry Overcrossing and Greenwood Road, has no

intersecting roadways of significance. For purposes of identifying solutions, the highway between Doaks Ferry Road and College Drive (MP 23.67) was included. The area east of College Drive is considered to be part of the planning area for the Salem Willamette River Crossing. However, future development in this area associated with possible rezoning could affect traffic patterns involving College Drive as well as Doaks Ferry Road, which connect indirectly north of OR 22. For that reason, study of potential improvements to College Drive are deferred to other or subsequent planning efforts, though existing traffic conditions for OR22/College Drive were considered. The project study area is shown in Figure 1-1.

1.5 Document Structure

This first chapter, Background, describes the content and purpose of the OR 22 (W) Expressway Management Plan (Derry Overcrossing to Doaks Ferry Road). The chapter also describes how the document is organized and how the project was staffed.

Chapter 2, Problem Statement and Plan Goals, defines the problems this facility plan is intended to address and outlines project goals.

Chapter 3, Existing Policies, Plans, and Standards, provides an overview of the plans, policies, and standards related to this segment of OR 22. This chapter is organized into sections that address federal, state, and local (county) information. Hyperlinks may be embedded in the chapter text to take the reader to related federal and state web sites.

Chapter 4, Condition and Deficiency Assessment, provides an assessment of year 2007 and 2030 traffic conditions and deficiencies within the study area. These include safety, operational, and geometric data for the OR 22 mainline as well as intersections with OR 51 and local interest roads. This chapter also includes an assessment of future conditions (year 2030) for each of these areas. Based on the assessment of deficiencies, the chapter concludes with a finding on whether or not the transportation problem statement has been validated by the assessment (or needs revision).

Chapter 5, Alternatives Identified, outlines the approach used to identify alternatives. The chapter includes an inventory of study area constraints. This inventory includes existing land use as well as significant natural and cultural resources and known hazardous materials sites in the area. The purpose of this inventory is to identify any fatal flaws in existing conditions that could limit the range of alternatives considered. This chapter also describes several alternatives that were considered and dismissed by the PMT after preliminary evaluation.

Chapter 6, Alternatives Evaluation, describes the evaluation criteria and range of alternatives evaluated by the PMT. This chapter also includes a summary of key findings from the stakeholder meeting process.

Chapter 7, Recommendations, identifies the preferred alternative and associated recommendations for managing the expressway. Such recommendations may address strategies such as modernization, maintenance, preservation, access management, land use management, transportation demand management, local circulation improvements, and phasing. This chapter provides specific recommendations for improving and protecting the transportation facility function throughout the 20-year planning horizon.

Chapter 8, Next Steps, provides a summary of actions and responsibilities that will be taken by ODOT and Polk County prior to project construction. For example, the EMP must be adopted by

the affected local jurisdictions into transportation system plans (TSPs) and by the Oregon Transportation Commission (OTC) into the OHP. Depending on the management strategies and measures identified, additional amendments to local comprehensive plans and zoning codes may also be necessary to implement EMP recommendations. This chapter also discusses the implementation of the Access Management Plan (AMP), as defined in OAR 734-051-0155 (5). Information in the chapters and appendixes of this EMP address the requirements for an AMP for the expressway facility; thus, this EMP is the AMP, too.

The appendices include relevant plans and reports, references, technical information, including alternative evaluation tables, diagrams, and analysis, and PMT and stakeholder meeting summaries.

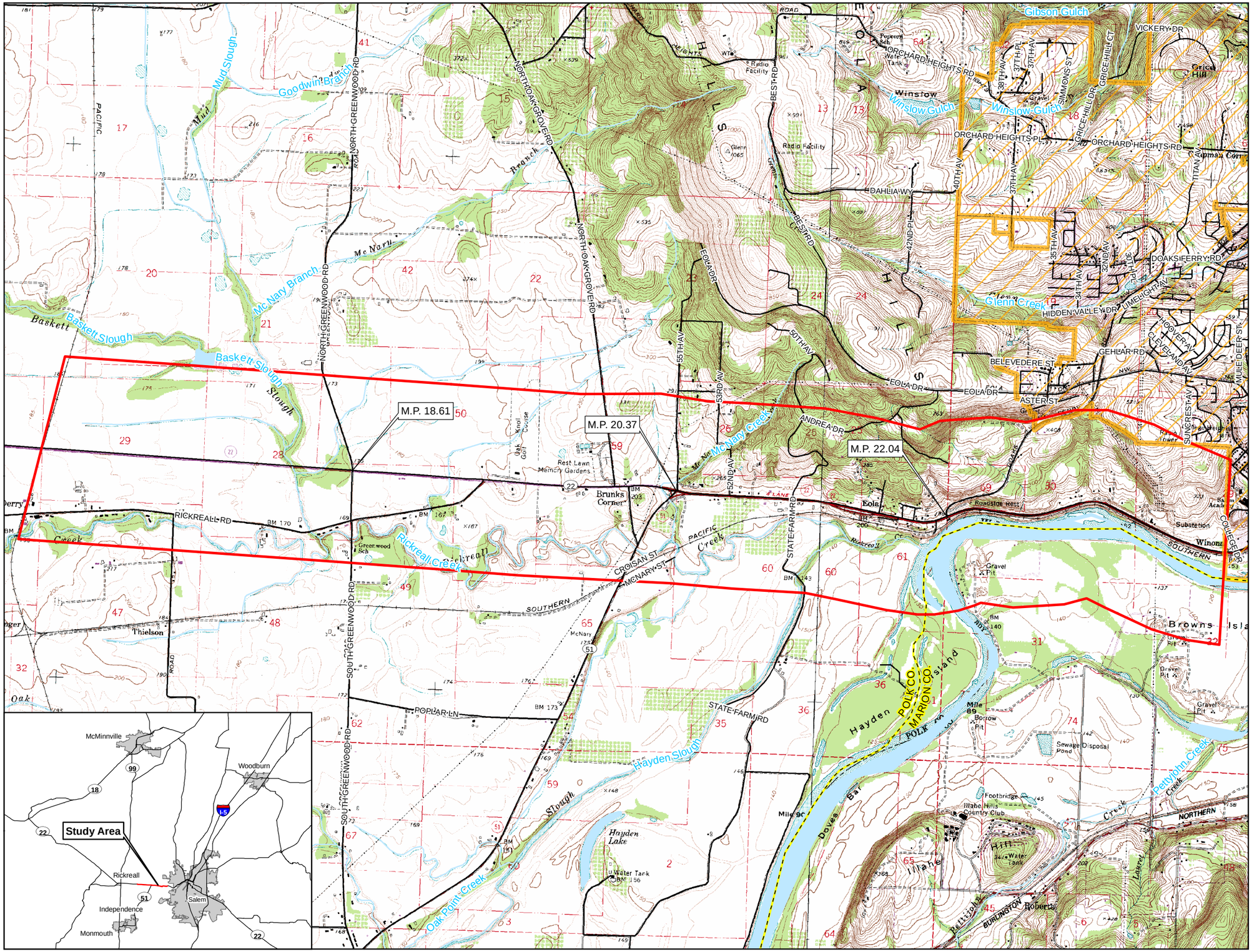

Figure 1-1
Project Vicinity
OR 22 West EMP

LEGEND

- Study Area
- Highways and Roads
- Creeks and Streams
- Willamette River
- Urban Growth Boundary
- Counties

SOURCE: POLK COUNTY GIS

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CHAPTER 2

Transportation Problem Statement and Facility Plan Goals

2.1 Transportation Problem Statement

From 2000-2005 planning efforts to develop a facility plan for this segment of OR 22 included several meetings between ODOT, local agency staff, and the public to discuss what problems this project is intended to address. A problem statement was developed in 2004 and subsequently revised slightly for this current study. The Project Management Team (PMT) agreed on the following problem statement in June-July 2007 and later presented it for public comment and input:

The area of OR 22 (Willamina – Salem Highway, State Highway No. 30) from the Derry Overcrossing (MP 16.94) east to College Drive (MP 23.67) is a high-speed, high-volume highway which has experienced significant safety problems. Crash data indicate that the safety problems between Greenwood Road (MP 18.61), the intersection with OR 51 (MP 20.37), and Doaks Ferry Road (MP 22.04) are generally related to vehicles entering or exiting the highway (i.e., turning movements). These problems are attributable but not limited to: 1) increased traffic volumes on the highway; 2) the large number of public and private accesses to the highway; and 3) poor geometry in some locations. While the 1999 Oregon Highway Plan (OHP) mobility standards are currently being met in most locations, it is expected that traffic volume growth will reduce operations below these standards at some intersections within the 20-year planning horizon (year 2030). It is expected that safety will become a bigger issue in the future as traffic volumes and congestion increase on this highway. OR 22 has been designated as a statewide "expressway" and freight route, which further emphasizes its role in the state system as a high-speed, high-volume facility intended to primarily carry regional traffic, rather than to provide local access. While the eastern study limit is currently defined as Doaks Ferry Road, it is possible that potential solutions could extend farther east. For purposes of identifying solutions, the highway between Doaks Ferry Road and College Drive (MP 23.67) will be included.

2.2 Facility Plan Goals

The goals for the OR 22 (W) Expressway Management Plan were directly derived from the Oregon Transportation Plan (OTP) and the Oregon Highway Plan (OHP). The goals were presented to the PMT, stakeholders, and the Polk County Board of Commissioners.

The goals of this facility plan are to:

- Conduct credible analysis of the problems within the study area.
- Identify, analyze, and narrow the number of feasible alternatives that address operational, safety, and geometric problems, meet applicable Highway Design Manual

(HDM) standards, and are consistent with the 1999 Oregon Highway Plan (OHP) Major Investment Policy.

- Incorporate findings, recommendations, and improvements into City of Salem and Polk County transportation system plans (TSPs) as well as the Salem Keizer Area Transportation Study (SKATS) regional TSP.
- Conduct sufficient environmental analysis to identify potential “red flag” constraints and validate the feasibility of the various alternatives.
- Meet the HDM mobility standards and OHP policies (Mobility, Access, Circulation, Major Investment, etc.).
- Meet access spacing requirements of OAR 734-051 to the maximum extent feasible.
- Meet applicable geometric standards of the Oregon Highway Design Manual.
- Develop improvements that will facilitate the continued operation of the highway as an expressway through the year 2030.
- Provide an access management plan as defined in OAR 734-051-0155.
- Incorporate findings and recommendations into the City of Salem and Polk County TSPs.
- Prepare and obtain adoption of the Expressway Management Plan by the Oregon Transportation Commission.
- Optimize short-term investment to provide the highest overall long-term value per dollar invested.

CHAPTER 3

Existing Policy, Plans, and Standards

3.1 Purpose and Organization

This chapter reports on a review of existing planning and policy background documents that are relevant to the OR 22 (W) Expressway Management Plan (EMP. This chapter is divided into the following sections:

- State and Federal Plans and Policies
- Regional Plans and Policies
- Local Plans and Policies
- Conclusions

3.2 State and Federal Plans and Policies

3.2.1 NEPA

Summary

In 1969, the National Environmental Policy Act was signed into law. The Act, considered the basic "National Charter" for protection of the environment, sets national environmental policy and establishes a basis for environmental impact statements (EISs).

NEPA has two main thrusts. First, NEPA requires meaningful participation of the public and governmental agencies in developing alternatives to federal actions, and actions funded by federal agencies. Second, NEPA requires consideration of an action’s impacts to the human environment, both the natural and social environment. This is accomplished by evaluating the project or action using an interdisciplinary approach in planning and decision-making for actions that impact the environment. NEPA requires the preparation of an EIS on all major federal actions significantly affecting the human environment. In general, NEPA requires that, to the extent possible, the policies, regulations, and laws of the federal government be interpreted and administered in accordance with the protection goals of the law.

NEPA is applicable to all federal agencies, including the Federal Highway Administration (FHWA), but each agency has been allowed to tailor NEPA to the needs of the agency, while staying within general guidelines adopted by the Council on Environmental Quality (CEQ). For highway projects using Federal funds, NEPA requires the examination and consideration of potential impacts on sensitive social and environmental resources when considering the approval of a proposed transportation facility. The decision-making process takes into account the potential impacts on the human and natural resources and the public's need for safe and efficient transportation improvements.

Relevance

The OR 22 (W) Expressway Management Plan (EMP) is an effort to assess traffic and safety problems within the study area and identify potential solutions to these problems. It is not a NEPA-level analysis or document. After selection of an alternative identified by this process, it may be determined by the ODOT Environmental Section that a NEPA environmental document would be needed to advance this project. A categorical exclusion determination would not exempt this project from obtaining any necessary permits or approvals (as determined during project development) prior to construction.

3.2.2 SAFETEA-LU

Summary

The Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law in 2005, and authorizes highway, highway safety, transit, and other surface transportation programs for 6 years (2004-2009). SAFETEA-LU builds on the initiatives of the Transportation Equity Act for the 21st Century (TEA-21), which in kind built on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). This Act combines the continuation and improvement of current programs with new initiatives to meet the challenges of improving safety, protecting and enhancing communities and the natural environment, and advancing America's economic growth and competitiveness domestically and internationally through efficient and flexible transportation. The act also streamlines the environmental review and project delivery process, even while the definition of participating agencies has been expanded.

SAFETEA-LU assures a guaranteed level of federal funds for surface transportation through FY 2009. The core metropolitan and statewide transportation planning requirements remain intact under SAFETEA-LU, emphasizing the role of state and local officials, in cooperation with transit operators, in tailoring the planning process to meet metropolitan and state transportation needs.

Continuing at both the metropolitan and statewide level are provisions concerning fiscal constraint, planning horizon, and public involvement. The statewide planning process establishes a cooperative framework for making transportation investment decisions throughout the state and is administered jointly by Federal Highway Administration (FHWA) and Federal Transit Authority (FTA). Congress will develop a new Act to be in place for FY 2010.

Relevance

SAFETEA-LU provides a significant funding source for transportation improvements on the National Highway System, of which OR 22 is a part. The Act establishes requirements for the planning process used to identify needed improvements. Section 6002 requires cooperating agencies to collaborate on methodologies for determining environmental impacts.

3.3.3 Oregon Transportation Plan, 2006

Summary

The purpose of the Oregon Transportation Plan (OTP) is to guide the development of a safe, convenient, and efficient transportation system that promotes economic prosperity and livability

for all Oregonians. The OTP sets broad policies for the state transportation system. Included are policies and action steps intended to improve rural highways.

The Oregon Transportation Plan (OTP) is the state's long-range multimodal transportation plan. The OTP is the overarching policy document among a series of plans that together form the state transportation system plan. The OTP considers all modes of Oregon's transportation system as a single system and addresses the future needs of Oregon's airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation, and railroads through 2030. It assesses state, regional, and local public and private transportation facilities. The OTP establishes goals, policies, strategies and initiatives that address the core challenges and opportunities facing Oregon. The Plan provides the framework for prioritizing transportation improvements based on varied future revenue conditions, but it does not identify specific projects for development.

The new OTP, adopted September 20, 2006, supersedes the 1992 Plan. The 1992 OTP established a vision of a balanced, multimodal transportation system and called for an expansion of ODOT's role in funding non-highway investments. The 1992 OTP did not specifically address improvements to OR 22, but did show commuter transit service between Salem and Dallas as part of the preferred transportation system for the year 2012. With 14 years of additional experience and technological advances, the 2006 OTP provides a framework to further these policy objectives with emphasis on maintaining the assets in place, optimizing the existing system performance through technology and better system integration, creating sustainable funding and investing in strategic capacity enhancements.

Relevance

The OTP emphasizes the need to develop and promote service in transportation corridors by the most appropriate mode, including intercity bus, truck, rail, airplane, passenger vehicle, and bicycle. The OTP also promotes safety improvements in design, construction, and maintenance of new and existing systems and facilities for the users and benefactors.

The OTP also promotes highway safety standards for trucks and truck operators and the maintenance, preservation, and improvement of the highway system to provide for the efficient movement of goods by truck and bus.

3.3.4 Oregon Highway Plan, 1999

Summary

The Oregon Highway Plan (OHP) is a modal element of the OTP. The plan addresses efficient management of the system to increase safety, preserve the system, and extend its capacity; increased partnerships, particularly with local and regional governments; links between land use and transportation; access management; links with other transportation modes; and environmental and scenic resources. The OHP also established a variety of policies that are directly related to this Plan. The principal policies related to this Plan are the Mobility Policy, the Major Improvement Policy, and the Access Management Policy. These and the other policy elements of the OHP can be read in Appendix B.

The OHP designates OR 22 as a Statewide Highway. OR 22 has also been designated by the OTC as an Expressway and is included as part of the National Highway System (NHS). Expressways are a subset of Statewide, Regional, and District highways. The OHP designates OR 51 as a District Highway. OR 22 and OR 51 in the study area are outside the urban growth boundary of Salem.

OR 22 is also identified as a designated freight route. No segment of OR 22 nor OR 51 have been designated a Special Transportation Area (STA) or Urban Business Area (UBA).

Under OHP Policy 1A: State Highway Classification System, the category of state highways is used to guide planning, management, and investment decisions regarding state facilities as follows:

Statewide Highways typically provide inter-urban and interregional mobility and provide connections to larger urban areas, ports, and major recreation areas that are not directly served by Interstate Highways. A secondary function is to provide connections for intra-urban and intra-regional trips. The management objective is to provide safe and efficient, high-speed, continuous-flow operation. In constrained and urban areas, interruptions to flow should be minimal.

Expressways are complete routes or segments of existing two-lane and multi-lane highways and planned multi-lane highways that provide for safe and efficient high speed and high volume traffic movements. Their primary function is to provide for interurban travel and connections to ports and major recreation areas with minimal interruptions. In urban areas, speeds are moderate to high. In rural areas, speeds are high. Usually there are no pedestrian facilities, and bikeways may be separated from the roadway. Along expressways, private accesses are discouraged, public road connections are highly controlled, and signals are discouraged in rural areas.

District Highways are facilities of county-wide significance and function largely as county and city arterials or collectors. They provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic. The management objective is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas reflecting the surrounding environment.

OHP Policy 1G, Action 1G.1 directs agencies to make the fewest number of structural changes to a roadway system to address its identified needs and deficiencies through the 20-year planning horizon, and to protect the existing highway system before adding new facilities to it. The action ranks four priorities of projects, as follows:

- Preserving the functionality of the existing system
- Making minor improvements to improve the efficiency and capacity of the existing system
- Adding capacity to the existing system
- Building new transportation facilities

OHP Policy 3C, Action 3C.2 applies interchange access management spacing standards for construction of a new interchange.

Relevance

The OHP establishes the state highway classification system to guide ODOT priorities for system investment and management. In addition, the OHP provides interchange spacing requirements, investment priorities, access management policy, and mobility standards. The OHP mobility standards for different highway categories use volume-to-capacity ratios (v/c) to measure performance. For statewide freight routes, including OR 22 in the study area, the v/c ratio is 0.70 outside the SKATS boundary and 0.80 within the SKATS boundary; and for district highways, including OR 51, the v/c ratio is 0.80 through rural lands and 0.90 within the SKATS boundary. Access spacing standards for interchanges are listed in Tables 16-19 of OHP Appendix C.

3.3.5 Oregon Public Transportation Plan, 1997

Summary

The Oregon Public Transportation Plan (OPTP) is a modal element of the OTP. The OPTP (1997) states that in recent years, small community local bus passenger trips have increased 14 percent and dial-a-ride passenger trips have increased 38 percent. One major gap is the growing concern between service demand and the ability of operators to provide the requested passenger trips.

The OPTP provides for implementation in 2015 at three levels. Level 1 and Level 2 emphasize delivery of services to those most in need of public transportation. Level 3 emphasizes service to riders of choice or commuters. Level 3 offers a number of services that respond to Oregon's anticipated rapid growth during the next two decades.

Level 1 would essentially freeze ridership at current (1997) levels - 82 million trips annually.

Level 2 increases services such as senior and disabled public transportation, intercity bus service, and rideshare and Transportation Demand Management (TDM). Under this level, system ridership would increase 12 to 16 percent to about 94 million trips annually and size would grow to over 1,500 vehicles.

Level 3 would expand services to meet numerous state and federal mandates and goals. Additional services would include: providing intercity bus services through communities of 2,500 population; providing rideshare and TDM service in communities over 10,000 population; providing additional senior and disabled public transportation; providing additional service for citizens dependent on public transportation; and providing additional service for citizens using public transportation by choice.

Under Level 3, the service mix in small communities and rural areas would be significantly enhanced to ensure that mobility and intercity needs are met, and in some cases, commuter connections are available to Oregonians living in these communities.

The OPTP indicates that the intercity bus connection will be particularly important in small communities. Under Level 3, intercity service would expand, both in routes and frequencies, and would provide riders with the opportunity to access goods and services in larger communities or in major cities located within the Willamette Valley.

Under Level 3, public transportation services in communities of at least 2,500 persons, such as Monmouth, Independence, and Dallas, would:

- Provide daily peak hour commuter service to the core areas of the central city;
- Provide a guaranteed ride home program to all users of the public transportation system and publicize it well;
- Provide park & ride facilities along transit route corridors to meet reasonable peak and off-peak demand for such facilities;
- Maintain vehicles and corresponding facilities in a cost-effective manner and replace vehicles when they reach the manufacturers suggested retirement age; and
- Establish ride-matching and demand management programs in communities of 10,000.

Reducing highway demand is one of the policies of the OPTP. Strategy 1E.1 of the OPTP states that demand management and transportation system management techniques be used to reduce peak period single-occupant automobile travel and vehicle miles traveled and improve traffic flow.

Relevance

Currently, the Chemeketa Area Regional Transportation Service (CARTS) provides van service to Dallas, Monmouth, Independence, Rickreall, and Salem. Central Route #1 serves Dallas, Rickreall, and Salem via OR 22, Dallas-Rickreall Road, and Ellendale Road. CARTS currently makes six (6) trips per day along this route, using 18-person vans, between the hours of 6:00 a.m. and 8:00 p.m.

ODOT should continue to seek ways to achieve Level 3 service. However, even if this regional service were in place and very successful, achieving urban-level modal splits, its affect on vehicle volume and the need for highway improvements would be very marginal (perhaps a 2-3 percent reduction). In addition to expanding modal choice and better serving the transit-dependent population, Level 3 service would help, in a very small way, to extend the life of any highway investment made. It would not, however, eliminate the need for the highway improvements or alter the nature of the improvements needed.

Although public transit service in the area is currently limited, improvements within the study area will need to support potential increases in service in the future. Installing transit amenities, like shelters and information systems as part of any planned improvements would support implementation of Strategy 1E.1 and should be considered during the project development phase.

3.3.6 Oregon Bicycle and Pedestrian Plan, 1995

Summary

The Oregon Bicycle and Pedestrian Plan (OBPP) is a modal element of the OTP. The OBPP states that pedestrian activity in rural areas is limited because travel distances tend to be great.

The OBPP states that state highways and county roads provide good opportunities for long-distance touring and shorter recreational rides. When located closer to cities, these roads serve as commuter routes into the urban area from outlying residential areas.

The OBPP mentions that most people will feel comfortable walking and bicycling along a roadway if well-designed facilities are available. OR 22 is identified as having 4-foot wide shoulders, which the OBPP considers suitable for bicycling.

In terms of improvement priorities, the OBPP states that sections of rural highways that link schools, parks, residential areas, and other trip generators to the nearest urban area will receive high consideration. Special consideration will be given to rural highways near urban areas (where traffic volumes are relatively high) to facilitate bicycle commuting.

Strategy 1A is intended to provide bikeway and walkway systems that are integrated with other transportation systems. On rural highways, this policy requires integration of bicycle and pedestrian facility needs into all planning, design, construction, and maintenance activities of the Department of Transportation and local units of government.

Regarding financial considerations, the OBPP notes that the cost of providing paved shoulders is incorporated into the cost of a project, since shoulders are provided primarily for motor vehicle safety and to reduce long-term maintenance costs.

Relevance

The OBPP lists guidelines and standards for bikeways and walkways at freeway interchanges, including both at-grade and grade-separated crossings. These standards will be incorporated into designs during the project development phase.

3.3.7 Transportation Planning Rule

Summary

The Transportation Planning Rule (TPR) (OAR 660-12-000) implements Statewide Planning Goal 12 (Transportation) and identifies how transportation facilities and services are planned for and provided on rural and urban lands consistent with goals.

Relevance

This rule identifies transportation facilities, services, and improvements that may be permitted on rural lands consistent with Statewide Goals without a goal exception (OAR 660-12-0065). Included in the list of transportation facilities permitted on rural lands is replacement of an intersection with an interchange. The provisions of this section have been incorporated into the applicable sections of the Polk County Zoning Ordinance. A Polk County conditional use permit will be required prior to constructing an interchange.

3.3.8 Access Management Rule

Summary

The Access Management Administrative Rule (OAR 734-051) applies to the location, construction, maintenance, and use of approaches onto the state highway rights-of-way and properties under the jurisdiction of ODOT. These rules also govern closure of existing approaches, spacing standards, medians, deviations, appeal processes, grants of access, and indentures of access.

Relevance

These rules set access management spacing standards for all new construction or reconstruction projects on state highways and include provisions for closure of existing approaches. The rules also establish requirements for interchange access spacing as part of an interchange area management plan and allow for development of access management plans along state highways (Appendix C). This rule would be addressed as part of an interchange area management plan (IAMP) and the final interchange design.

3.3 Regional Plans

3.3.1 Willamina to Salem Corridor – Oregon 22 – Interim Corridor Strategy, 1996

Summary

The Interim Corridor Strategy for OR 22 (Willamina to Salem) consists of goals and objectives that serve to guide the work of ODOT, cities, counties, and the Salem-Keizer Metropolitan Planning Organization in transportation planning and development of future transportation facilities in the corridor. This document established ODOT's official recommendation to advance the work now being considered with this Expressway Management Plan. The Interim Corridor Strategy was endorsed by the OTC in June 1996.

Average annual daily traffic volumes were forecast for 2005 to be 22,400 at Greenwood Road and 31,200 at Doaks Ferry Road.

The goals of the strategy and pertinent objectives include:

- Transportation Balance Goal: Provide for a balanced mix of transportation modes within the corridor in order to provide a range of modal choice for urban and rural users of the transportation system.
  - Commuter Travel Objective A.3: Park and Pool/Park and Ride Lots. Using an approach that considers the entire corridor, establish park and pool/park and ride lots and promote car-pooling. Explore development of facilities at major intersections with Oregon 22, such as the Oregon 223 intersection.
  - Bicycle Travel Objective A.18: Continue to provide continuous bike facilities (bike lanes or highway) throughout the Oregon 22 Corridor.
  - Pedestrian Travel Objective A.22: Ensure that pedestrian facilities are replaced, added, or upgraded to desired conditions in conjunction with other highway construction.
  - Pedestrian Travel Objective A.23: Geometric improvements made to increase mobility of other transportation modes should be undertaken in a manner that minimizes the impact of those improvements on pedestrian mobility.
- Regional Connectivity Goal: 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.

- Regional Connectivity Objective B.1: Maintain existing travel times throughout the planning period.
- Regional Connectivity Objective B.6: West of the Willamette River, avoid installation of additional traffic signals.
- Regional Connectivity Objective B.7: West of the Willamette River, intersections with the highway may need to be replaced with interchanges. Where interchanges are constructed, land use controls should be implemented to protect the integrity of the interchange operations for transportation purposes.
- Operate all transportation facilities within the corridor at a level of service that is cost-effective and appropriate for the area served.
- Congestion Objective C.6: Manage highway facilities in a manner that does not result in conditions that are less than the following for highway traffic.

Location	Level of Service
West of OR 51	LOS C

- Continually improve all facets of transportation safety within the corridor.
  - Safety Objective D.1: Target safety improvement projects to sections of the corridor with the highest accident rates. Analyze the accident types at sites that fall within the top 10 percent of all accident index sites. Develop solutions that reduce accident rates, including:
    - Operational changes such as increased traffic enforcement and consideration of appropriate speed zones;
    - Minor design modifications, such as change in striping, geometric layout, or illumination; and
    - Major redesign including intersection replacement with interchanges, street alignment changes and passing lanes.
  - Safety Objective D.5: Analyze alternatives to reduce accident risk near the intersections with a high number of turning vehicles, including OR 51.
- 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.
  - Economic Impact Objective E.4: Provide opportunities for the use of alternative modes of transportation in conjunction with special events on or near the corridor.
- 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.

  - Social Impacts Objective F.2: Improve pedestrian crossing opportunities, particularly in the urban sections of OR 22, to reduce the "barrier" effect of the roadway and to foster good pedestrian connections between both sides of the road.
  - Social Impacts Objective F.4: Examine methods to reduce negative impacts and increase the positive impacts of OR 22 corridor transportation systems on neighborhoods, parks, and community facilities.
- Provide a transportation system throughout the OR 22 corridor that is environmentally responsible and encourages protection of natural resources.
  - Environmental Impacts Objective G.5: Evaluate and mitigate, as needed, the impact of Oregon 22 corridor transportation improvements on water quality for adjacent streams and rivers, such as McNary Creek, Rickreall Creek, and the Willamette River.
  - Environmental Impacts Objective G.6: Prepare an inventory of sensitive environmental and cultural resources in the corridor that identifies resources that should be avoided when transportation improvement projects are proposed. The inventory should include:
    - Rare, threatened, and endangered plants and animals or their known habitats;
    - Wetland resources;
    - Creeks, streams, and rivers;
    - Wildlife refuges or significant wildlife habitat; and
    - Archeological or cultural resources.
  - Environmental Impacts Objective G.7: Prepare an inventory of hazardous material sites on the corridor that should be avoided when transportation improvements are proposed.
- Provide a transportation system that minimizes transportation-related energy consumption by using energy-efficient and appropriate modes of transportation for the movement of people and goods.
  - Energy Impacts Objective H.1 Give priority to those projects that reduce energy consumption and vehicle miles traveled.

Relevance

Safety Objective D.5 identifies the need to identify alternatives to address safety issues at the OR 22/51 intersection. The Interim Strategy provides a number of goals and objectives relating to the transportation mix, connectivity, and social, economic, energy, and environmental impacts to be used when developing and evaluating projects. These goals and objectives are in line with the requirements of the National Environmental Policy Act (NEPA) that would need to be more formally and definitively addressed during the project development phase.

3.3.2 Willamette Valley Transportation Strategy, 1995

Summary

The Willamette Valley Policy Committee on Transportation (VPACT) developed the Willamette Valley Transportation Strategy as a coordinated transportation strategy for the Willamette Valley consistent with the OTP. VPACT identified three distinct goals for the transportation system: (1) mobility, (2) industrial growth, and (3) livability. VPACT chose to place primary emphasis on the goal of livability, but included significant commitment to the other goals as well. The strategy attempts to assess broad impacts of actions and identify the most cost-effective investments in transportation facilities for the Willamette Valley.

The strategy has two primary components: a transportation development strategy and a transportation coordination strategy. Implementation of the strategy will be achieved through a number of action steps. Action steps applicable to this project include:

- Develop methodology and decision making for selecting future highway projects that are based on consideration of full economic costs and benefits and rates of return.
- Select highway projects that maximize the net full benefits of the Valley's transportation system as a whole.
- Coordinate highway improvement projects with land use policies and other transportation improvements.
- Make strategic capacity enhancements to access-controlled highways.
- Maintain regional highway linkages upon which rural communities are dependent to build viable communities.
- Improve north-south and east-west links to the existing highway system.
- Include provisions for bicycle and pedestrian use in all new facilities and major construction.
- In consultation with local government, develop administrative rules and set standards for interchanges. Integrate land use plans with the function and capacity of interchanges, considering highway construction financial constraints.

Relevance

The WVTS provides guidance for investments priorities, interstate interchanges, access management, and mobility standards. Many of these guidelines became part of the OHP. The VPACT Strategy document was a precursor to the MWACT Strategy document. Similar to the MWACT document, the VPACT Strategy provides general guidelines for developing projects.

3.3.3 Transportation Strategy of the Mid-Willamette Valley Area Commission on Transportation (1998)

Summary

The purpose of the Mid-Willamette Valley Area Commission on Transportation (MWACT) is to apply transportation goals to the specific needs of the Mid-Willamette Valley area as identified by the local jurisdictions. The MWACT balances the needs identified by the local jurisdictions with

the desired vision of the entire valley in light of the statewide transportation policies. The MWACT also assists the Oregon Transportation Commission to provide the transportation program that best meets the needs based on the revenues available. Finally, the MWACT works with local citizens and jurisdictions to develop an understanding and support for transportation projects and services throughout the area.

The Strategy document includes eight strategies and associated action steps.

Applicable strategies include:

- Strategy 1: Highways

  Highways will continue to be the primary facilities for the movement of intercity freight and passengers by a variety of modes. Therefore, continued maintenance and improvements of the highways is necessary.

  Highway maintenance and improvement priorities:

  - Maintain existing system.
  - Manage existing system.
  - Select strategic improvements.
  - Select future highway projects considering the full economic cost and benefit to the valley's transportation system as a whole, coordinate with land use policies and make strategic capacity enhancements which preserve community linkages and improve north-south and east-west linkages.

  Action Steps:

  - Give funding priorities to solutions for regional problem areas.
  - Encourage intelligent transportation systems at the local level to increase highway capacity.
  - Facilitate a balance between the needs of the regional highway system for access and interchange management and the local access needs of the community.

- Strategy 6: Alternative Modes

  Easy access to bicycle and pedestrian networks in urban areas will encourage travel by means other than the automobile.

  - Include provisions for bicycle and pedestrian use in all new facilities and major construction.

Relevance

The Transportation Strategy does not specifically reference the OR 22/51 intersection, but provides guidance for investment priorities as well as general guidelines for developing and evaluating projects that are compatible with the work done for this Expressway Management Plan.

3.3.4 SAMTD Specialized Transportation Plan, 2007

Summary

The Salem Area Mass Transit District (SAMTD) recently adopted a Specialized Transportation Plan (STP), which largely supersedes the Regional Transportation Enhancement Plan (R-TEP) of 1998, titled "Moving Toward Action – the Marion and Polk Counties Regional Transportation Enhancement Plan – A Strategy for Improving Special Needs Mobility and Beyond." The STP and R-TEP were developed to set goals, quantify needs and estimate demand for services, improve mobility choices for the area's senior and disabled populations, and better utilize Special Transportation Fund (STF) revenues. The STP evaluates current operations of the Chemeketa Area Regional Transportation Service (CARTS), and presents recommendations for service and coordination strategies.

Relevance

Two transit routes have been developed that currently serve Polk County. CARTS provides van service to Dallas, Rickreall, and Salem via OR 22, OR 223, and Ellendale Road. CARTS currently makes six (6) trips per day along this route, using 18-person vans, between 6:00 a.m. and 8:00 p.m.

Although public transit service in the area is currently limited, improvements to the OR 22/51 intersection would support potential increases in service in the future.

3.3.5 SKATS 2031 Transportation Regional Transportation Systems Plan, 2007

Summary

The Salem-Keizer Area Transportation Study (SKATS) 2031 Regional Transportation Systems Plan (RTSP), adopted on May 22, 2007, is based on 24-year projections of population, employment, and land use in the Salem-Keizer area. It provides a comprehensive, long-range plan for meeting our transportation needs over the next 24 years. The current plan reflects new federal regulations that became law in late 2005. Two new chapters were added to the plan: one to address the safety and security of the regional transportation system, and one to examine how and where potential projects might impact environmental, cultural, or historical resources.

Relevance

The main portion of the plan identifies projects that have a reasonable certainty of being funded and result in an improvement in the air quality of the area. Another portion of the plan describes those transportation projects that the area would like to implement if additional funding was secured. The OR 22/51 interchange is identified as a project for future study. An existing multi-use path is identified parallel to OR 22 in the study area.

3.4 Local Plans

3.4.1 Polk County Transportation System Plan, 1997

Summary

The Polk County Transportation System Plan (TSP) identifies OR 22 and OR 51 as principal arterials in the County road system. The TSP (see Table 20) identifies a number of conceptual road construction projects, including the construction of an interchange at the OR 22/51 intersection, associated frontage roads on both side of the highway between 52nd Ave. and Oak Grove Road, and a grade separation of OR 22 and Greenwood Road with no highway access. The TSP states that the County will work with ODOT on any necessary studies related to these projects.

The TSP also includes coordinated population projections for all cities in the County through 2020 as required by Oregon Revised Statutes (ORS) 195.036.

Relevance

In the TSP, Polk County supports an interchange alternative at the OR 22/51 intersection and a grade separation of OR 22 and Greenwood Road. Adopted population projections should be used to develop future traffic projections.

3.4.2 Highways 18 and 22 Safety Report, 1999

Summary

The Highway 18 and 22 Safety Report was initiated by the Mid-Willamette Valley Area Commission on Transportation to address the increasing concerns over the safety problems on OR 18 and OR 22. Recommendations in the report were based on a crash analysis report completed on May 6, 1999. The report proposes three types of alternatives to address identified safety problems: engineering options, enforcement options, and education options.

The study examined 12 specific locations along OR 18 and OR 22 including the OR 22/51 intersection (Site 12 – Greenwood Road to Rosewood Drive). During a 5-year study period from January 1, 1994 to December 31, 1998, there were 45 potentially preventable crashes with injuries or fatalities between Greenwood Road and Doaks Ferry Road. There were 14 crashes involving left turns out of driveways, 2 U-turn crashes, and 9 head-on and side-swipe crashes.

The study discussed several possible improvement alternatives and opportunities: local street system improvements, frontage roads, access management, raised center median barrier, and jug-handle turnarounds. To resolve the safety issues, the study recommended that ODOT consider initiating a Refinement Study for this section, to further explore alternatives and engage local stakeholders.

Relevance

This study is a precursor to the expressway management plan process described in this report.

3.5 Conclusions

Existing plans and policies provide the basis to evaluate proposed improvement alternatives for OR 22 (W) from the Derry Overcrossing to Doaks Ferry Road. Safety and operational conditions have been diminished at intersections along this segment, particularly with OR 51, due to increased traffic that has largely resulted from regional growth and commuting between Salem, Corvallis, Monmouth, Independence, Dallas, and destinations on OR 18 and the Oregon Coast. Forecasted growth trends indicate traffic will continue to grow into the future and cause additional safety and operational problems. Recommended alternatives should meet standards for mobility and spacing (Appendix C) and be consistent with the relevant federal, state, and local plans and policies.

CHAPTER 4

Condition and Deficiency Assessment

4.1 Conditions Evaluation Approach

The purpose of this analysis phase is to determine the location and magnitude of existing and future conditions and identify transportation deficiencies. The assessment approach to facility refinement planning is intended to evaluate the interrelationship of existing facility conditions, user behavior, and future demands in order to identify deficiencies. From a listing of identified deficiencies, it is possible to further evaluate symptoms, causes, and ultimately the problem to be solved. The following categories were used to assess conditions and identify deficiencies:

- Safety: For this assessment, ODOT crash data along the OR 22 study corridor was used to determine deficiencies.
- Transportation Operations: For this assessment, existing traffic counts were used, in combination with local land use plans, and future travel demand characteristics, to determine deficiencies.
- Geometric Design: For this assessment, “As constructed” information of existing roadway elements was compared with current design standards to determine deficiencies.

Below is a brief overview of the evaluation process for each category.

4.1.1 Safety Conditions

ODOT uses a variety of database systems that rely on crash history to identify and monitor the safety of roadway facilities throughout the state. The two databases administered by the state are the SPIS (Safety Priority Index System) and the statewide CDS (Crash Data System) database of all crashes on state facilities.

The SPIS is a ranking system that considers a composite factor of crash frequency, severity, and rate per million miles traveled. This system monitors crashes over 0.01-mile segments during a three-year period (the most recent SPIS report covers the years 2004 through 2006). A specific location along a state facility is identified as a “SPIS site” if, during the past three years, it has experienced one or more fatal crashes and/or three or more crashes of any type. SPIS sites are ranked and the top 10 percent are used by ODOT Region Offices to identify potential safety improvement projects.

The CDS database includes information about the crash type and severity, location, time of crash, and potential cause or error. This information is available for intersections and highway segments using a beginning and ending milepost query.

The safety assessment includes identifying high crash locations and determining crash causes at that location. The full set of crash data assembled for this report is included in Attachment C of Appendix D.

4.1.2 Transportation Operations

ODOT uses the ratio of traffic volume to facility capacity (v/c ratio) as a standard to measure performance of transportation facilities. The measure can apply to highway segments, intersections, and/or a series of intersections. Facility capacity takes into account a number of adjustment factors, such as number of lanes, grades, traffic control, parking, growth rates, percent truck traffic, access spacing, etc.

Base and future year traffic data used for the transportation analysis was developed from the following:

- Manual Counts at key intersections located along the study corridor,
- ODOT's permanent recorder stations,
- ODOT's Future Traffic Volume Tables,
- Maps depicting land use and development potential in the study area,
- Anticipated major traffic generators within the region, and
- Traffic model runs from the Salem Keizer Area Transportation Study (SKATS) travel demand model.

Future year traffic projections are typically developed using cumulative analysis, historic growth trends, or transportation models. A combination of historic growth trends and SKATS traffic model runs were determined to be the most accurate method to use for this project.

The Oregon Highway Plan (1999 as amended) (OHP) outlines specific performance measures to be maintained along ODOT facilities as part of their Highway Mobility Standards. These standards are aimed at maintaining mobility along important road corridors and vary according to functional classification, location, and role within the National Highway System (NHS).

The following intersection performance measures are applicable for facilities within this study:

- Volume-to-capacity ratio of 0.70 for movements along OR 22 outside the SKATS boundary and 0.80 within the SKATS boundary, given its classification as a Statewide, NHS Expressway.
- Volume-to-capacity ratio of 0.80 for all movements along OR 22 that must stop or yield the right-of-way.

4.1.3 Geometric Design

The project team used an observational approach to identify geometric conditions. If safety and operational deficiencies were identified in particular areas of the expressway, ODOT's Highway Design Manual provides geometric design standards to determine possibly related geometric deficiencies that could be corrected as part of an improvement project design. It is ODOT policy to remain within the American Association of State Highway and Traffic Officials (AASHTO) standards for acceptable designs.

The geometric evaluation included: (1) a comparison to existing standards, (2) a correlation to existing operations, and (3) an evaluation of the effects for future demand. Where a geometric

deficiency could be correlated to a safety or operational deficiency, those elements were documented as a significant existing deficiency.

4.2 Existing Conditions Summary

4.2.1 Safety

This safety analysis provides an assessment of vehicular crash history for OR 22 and key intersections along the study area. The study area was divided into three segments to facilitate the crash analysis:

1. OR 22 from Derry Overcrossing (MP 16.94) to State Farm Road (MP 21.19)
2. OR 22 from State Farm Road (MP 21.19) to Doaks Ferry Road (MP 22.04)
3. OR 51 from OR 22 (MP 0.00) to South Oak Grove Road (MP 0.25)

Crashes were summarized from ODOT's CDS database from January 1, 2002 through December 31, 2006. This crash data and an analysis of the Safety Priority Index System (SPIS) records revealed the following:

OR 22 from Derry Overcrossing to State Farm Road

- There were a total of 80 reported crashes on this segment.
- Crash Severity: There was 1 fatal crash (1 percent), 46 injury crashes (58 percent), and 33 property damage only crashes (41 percent).
- Crash Type: The most common types of crashes were rear-end crashes (30 percent) and angle/turning crashes (34 percent). The highest concentration of angle/turning and rear-end crashes occurred within the general vicinity of the OR 22/OR 51 intersection.

OR 22 from State Farm Road to Doaks Ferry Road

- There were a total of 35 reported crashes on this segment.
- Crash Severity: There were no fatal crashes, 19 injury crashes (54 percent), and 16 property damage only crashes (46 percent).
- Crash Type: The most common types of crashes were angle/turning crashes (57 percent) and rear-end crashes (23 percent). The highest concentration of angle/turning and rear-end crashes occurred within the general vicinity of the OR 22/Doaks Ferry Road intersection.

OR 51 from OR 22 to South Oak Grove Road

- There were a total of 3 reported crashes on this ¼ mile segment of highway.
- Crash Type: There was 1 injury crash (33 percent) and 2 property damage only crashes (67 percent).
- The most common types of crashes were fixed object crashes (67 percent).

Safety Priority Index System (SPIS)

A roadway segment becomes a SPIS site if a location has three or more crashes; or one or more fatal crashes over a 3-year period. Based on crash data for the years 2004 through 2006, there is one top 10 percent Region 2 SPIS location along OR 22. This location is a 650 foot stretch of OR 22 that includes the OR 51 intersection. (For the years 2003-2005, the Doaks Ferry Road intersection along with the OR 51 intersection were top 5 percent SPIS locations.)

4.2.2 Existing Operations

Existing Intersection Operations

All of the intersections along the OR 22 study corridor are currently unsignalized. For unsignalized intersections, the operations assessment is typically based on the intersection's ability to accommodate the worst or critical movement during the study time period. For the operations assessment, the study time period is based on the weekday p.m. peak hour adjusted to represent the 30th highest hour volume.

From a traffic operations perspective, all of the critical movements at the study intersections along the OR 22 corridor are operating within acceptable volume-to-capacity ratios with the exception of the following intersections:

- OR 22/OR 51 – (WB left-turn, NB through/left-turn, and shared SB approach all operate above capacity)
- OR 22/50th Avenue – (SB approach operates above capacity)
- OR 22/Doaks Ferry Road – (SB approach operates above capacity)

The operations that do not meet performance standards at the intersection critical movements can be attributed in part to the heavy traffic demand along OR 22.

Existing Mainline Capacity Analysis

Analyses of the mainline volume-to-capacity ratio along three critical segments of OR 22 are provided in Table 4-1. These ratios were calculated using the HCM (Highway Capacity Manual) 2000 Multilane Highways Methodology.

Table 4-1. OR 22 Mainline Existing Volume to Capacity Ratio

Segment	Direction	V/C*	Adequate?
Greenwood Road to OR 51	Eastbound	0.32	Yes
	Westbound	0.43	Yes
OR 51 to 50th Avenue	Eastbound	0.38	Yes
	Westbound	0.56	Yes
50th Avenue to Doaks Ferry Road	Eastbound	0.40	Yes
	Westbound	0.57	Yes

* Assumes a free flow speed of 55 mph and a maximum service flow rate of 2,100 pc/h/ln.
0.70 is the adopted performance standard

As shown in Table 4-1, the calculated volume-to-capacity ratios for the three critical segments of OR 22 meet the applicable performance standard. It should be noted that the segment of OR 22 east of OR 51 experiences higher traffic volumes in the westbound direction resulting in a volume-to-capacity ratio that is proportionally higher than the remainder of the study corridor. This can be attributed to the influence of OR 51. West of OR 51, traffic volumes drop to a level that results in a significantly lower mainline volume-to-capacity ratio.

4.2.3 Geometry

OR 22 in the study area is a five-lane facility with four travel lanes (two in each direction) and a continuous 16-foot two way left turn lane between OR 51 and Doaks Ferry Road. Lane widths are 12 feet. Horizontal curves are consistent with the design speed of 55 mph. OR 22 in the study area is a designated safety corridor with a posted speed limit of 55 mph. Toward the eastern end of study area (from Eola east), the highway generally follows the meandering course of the Willamette River. The highway has a pair of broad reversing curves over mildly rolling terrain that limit sight distance for traffic entering the highway from Doaks Ferry Road and numerous other public roads and private drives. West of Eola, the highway is generally straight and level except for a curve west of the OR 51 intersection. The intersection with OR 51 has a SB left-turn lane without raised median channelization, and an EB on-ramp acceleration lane. There are no deceleration lanes, although the paved shoulder is broad at some intersections. There are no existing access controls through the study area. Entering from the east and continuing as far as Rickreall Road, a multi-use path approximately 3-4 feet wide with a raised curb runs on the northside of the highway, either adjacent to the outside shoulder of the WB lanes or a few feet away. The path includes a structure that crosses OR 22 to connect with Rickreall Road and the golf course.

Safety data for the vicinity of Doaks Ferry Road indicate left turns onto OR 22 are a problem; left turns are complicated by westbound traffic approaching on the curve. The 10-foot shoulders of the highway should provide sufficient stopping sight distance when curves turn to the right. The required clearing beyond the edge of shoulder (for worst case scenarios) to provide the adequate stopping distance (495 feet for level terrain) ranged from 6 to 11 feet. Left turns from OR 22 to OR 51 face eastbound traffic on a right curve.

4.3 Future Conditions Summary

4.3.1 Safety

Local and regional traffic growth is likely to have an impact on the safety of the OR 22 study corridor. An existing prevalence of angle/turning and rear-end collisions can be expected to increase at major regional intersections such as OR 51 and Doaks Ferry Road as gaps in the oncoming traffic stream become less frequent. In addition, turning movements to/from other minor street intersections are likely to become more difficult during peak traffic periods, which can lead to a higher propensity for collisions.

4.3.2 Year 2030 Operations

Future transportation demand estimates for the study area were based on a combination of forecasts from the Salem Keizer Area Transportation Study (SKATS) travel demand model,

ODOT's Future Volume Tables, and a review of growth rates used in previous planning studies along the OR 22 corridor. From these sources, annual growth rates along the OR 22 study corridor are projected to range from approximately 3.2 percent at the east end of the study corridor to 3.6 percent at the west end of the study corridor.

2030 Intersection Operations

Based on the projected increase in traffic volumes along the OR 22 study corridor, the critical movements at the following intersections will operate above capacity:

- OR 22/Greenwood Road – NB and SB approaches
- OR 22/Oak Grove Road – SB approach
- OR 22/S. Oak Grove Road – NB approach
- OR 22/OR 51 – WB left-turn, NB right-turn, NB through/left-turn, and SB (55th Ave.) approaches
- OR 22/52nd Avenue – SB approach
- OR 22/50th Avenue – SB approach
- OR 22/Eola Bend RV Park – NB approach
- OR 22/Mill Street – SB approach
- OR 22/Shaw Street – SB approach
- OR 22/Doaks Ferry Road –(EB left-turn and SB approaches

The operations that do not meet performance standards at these intersections can be attributed to the heavy traffic demand along OR 22 and suggest that intersection improvement and access management techniques will need to be addressed.

2030 Mainline Capacity Analysis

Year 2030 analyses of the mainline volume-to-capacity ratio along three critical segments of OR 22 are provided in Table 4-2. These ratios were calculated using the HCM (Highway Capacity Manual) 2000 Multilane Highways Methodology.

Table 4-2. OR 22 Mainline 2030 Volume to Capacity Ratio

Segment	Direction	V/C*	Adequate?
Greenwood Road to OR 51	Eastbound	0.64	Yes
	Westbound	0.78	No
OR 51 to 50th Avenue	Eastbound	0.74	No
	Westbound	0.99	No
50th Avenue to Doaks Ferry Road	Eastbound	0.76	No
	Westbound	1.00	No

* Assumes a free flow speed of 55 mph and a maximum service flow rate of 2,100 pc/h/ln.
0.70 is the adopted performance standard.

As shown in Table 4-2, the calculated volume-to-capacity ratios for the three critical segments of OR 22 are projected to operate slightly above the applicable performance standard in the eastbound direction. In the westbound direction, the segments located east of OR 51 are forecast to operate at or near the effective capacity of the highway. West of OR 51, traffic volumes drop to a level that results in a significantly lower volume-to-capacity ratio. However, the westbound direction is still forecast to operate just above the performance standard. These results indicate that mainline capacity improvements will need to be addressed for particular segments of the study corridor.

4.3.3 Geometry

Based upon safety and operational data, the following future geometric deficiencies were identified in the study area.

Unless conditions change to reduce traffic demand in the OR 22 corridor, the existing two lanes for westbound traffic through the entire study area will not provide enough capacity to meet future demand nor the existing two lanes for eastbound traffic after OR 51.

The critical movements at the following intersections with OR 22 will operate above capacity without additional lanes, intersection reconfigurations, or access management:

- Greenwood Road – NB and SB approaches.
- OR 51 – WB left-turn, NB right-turn, NB through/left-turn, and SB (55th Ave.) approaches.
- Doaks Ferry Road – EB left-turn and SB approaches.
- Other minor streets: Oak Grove Road – SB approach, S. Oak Grove Road – NB approach, 52nd Avenue – SB approach, 50th Avenue – SB approach, Eola Bend RV Park – NB approach, Mill Street – SB approach, Shaw Street – SB approach.

4.4 Deficiency Assessment Summary

Safety and operational conditions have been diminished at the OR 22/OR 51 and OR 22/Doaks Ferry Road intersections by increased local and regional traffic growth. Both of these intersections have experienced a significant number of angle/turning and rear-end collisions, resulting in those segments of OR 22 to be ranked in the top 10 percent of the Safety Priority Index System listing in recent years. From a traffic operations perspective, high traffic flows along OR 22 result in critical left-turn and side-street approaches operating above capacity during peak traffic conditions.

With the projected increase in local and regional traffic growth through the year 2030, all local and regionally significant intersections along the OR 22 study corridor will experience critical left-turn and minor street approaches that operate above capacity. These existing and forecast deficiencies suggest that intersection improvements and access management techniques will need to be addressed as part of the plan.

4.5 Validated Transportation Problem Statement

Based on data and observations, the PMT developed the initial problem statement presented previously in Chapter 2. The PMT agreed that this initial problem statement would be validated through subsequent analysis and public input and modified, if subsequent information warranted changes. No changes to the problem statement are warranted by the safety and operational analysis.

CHAPTER 5

Alternatives Identified

5.1 Alternatives Identification Approach

The approach for identifying alternatives consisted of three basic steps: pre-screening, concept development and design, and preliminary assessment and evaluation.

The pre-screening process included:

- Identifying physical, natural, and social environmental constraints, and
- Identifying appropriate design concepts based on facility function and their ability to address the transportation problem.

During concept development, a range of transportation issues were considered:

- The highway network
- Alternative transportation modes, including existing and projected transit service
- Freight mobility
- Land use and environment
- Anticipated new major traffic generators within the region
- Proposed expansion of major traffic generators within the region

These factors were considered to determine their current and future effects on the operation of OR 22 between the Derry Overcrossing and Doaks Ferry Road, including the key intersections with Greenwood Road, Independence Highway, and Doaks Ferry Road.

The final alternative identification step was to preliminarily assess how well the conceptual improvements for the three key intersections address the transportation problem, and identify those alternatives warranting further, more detailed evaluation. The preliminary assessment consisted of an evaluation using three transportation objective categories:

- Transportation operations (addressing mobility, access, function, and safety)
- Project impacts (addressing natural and built environment)
- Implementation (addressing plan consistency, cost, maintenance issues, phasing, and constructability)

These same categories, their specific evaluation criteria, and performance measures were also used in the detailed alternative evaluations described in Chapter 6. The categories, criteria, and measures are shown in Appendix F. Several conceptual intersection improvement designs were dismissed after this preliminary assessment; these are described in Section 5.3. Three or four alternatives for each intersection were identified for further evaluation and are described in Section 5.4.

5.2 Pre-Screening Study Area Constraints

Pre-screening is intended to identify significant constraints that could become fatal flaws. This assessment is conducted early in the analysis process so that it can be factored into alternative development efforts.

This section identifies environmental constraints that pose challenges or barriers to transportation improvements and also evaluates constraints based on existing zoning and land use, and future land use and development potential. These conditions and constraints were identified by reviewing documents and maps from previous planning efforts, including:

- Polk County Comprehensive Plan (2004) and Zoning Map
- National Wetlands Inventory (NWI) Maps
- Federal Emergency Management Agency (FEMA) 100-year Floodplain Maps
- Rickreall Junction Transportation Facility Plan, ODOT, February 2005 (the OR 22/99W/Rickreall Interchange Area Management Plan).
- Willamina to Salem Corridor Oregon Highway Route 22 (Highway 18 Interchange to the Salem Eastern Urban Growth Boundary, Deer Park [Gaffin Road] Interchange) Interim Corridor Strategy, ODOT, January 1996, OTC Endorsement June 1996
- Cultural Resources Survey OR 22 (Hwy 30) Willamina-Salem Highway between MP 16.94 to MP 28.90 (March 2001)
- Hazardous Materials Report Limited Phase One Study Refinement Plan for a Portion of OR 22 (Hwy 30-Willamina-Salem Hwy.) Vicinity of Rickreall to Salem Bridges, Polk County, Oregon, ODOT Geo/Hydro Section, (January, 2001)

The document review yielded information on existing land uses and zoning, environmental resources including fish and wildlife, wetlands and floodplains, and potential hazmat concerns in the study area.

5.2.1 Land Use and Zoning

The entire study area for the EMP is outside of an urban growth boundary (UGB) in primarily rural lands. As such, adding turn lanes or replacing an at-grade intersection with a grade-separated interchange is an allowed activity under the Transportation Planning Rule (OAR 660-012-0065). The provisions of OAR 660-012-0065 have been incorporated into applicable sections of the Polk County Zoning Code. Such an action would, therefore, not require an exception to any of Oregon's statewide planning goals to advance an intersection improvement or interchange alternative within the study area. The study area for the OR 22W EMP is depicted in Figure 5-1.

OR 22 between Greenwood Road and Derry Overcrossing

The land directly abutting OR 22 between Greenwood Road and Derry Overcrossing is zoned Exclusive Farm Use (EFU), as illustrated in Figure 5-1. Exclusive Farm Use zones limit the number and intensity of land uses, therefore, it is reasonable to assume that no significant source of traffic generation will be developed in these areas. The development potential is limited by the EFU designation, which does not allow the development of churches, schools, kennels, golf courses, composting operations, and solid waste processing facilities, effectively limiting the already low traffic generation potential of these land parcels.

INSERT FIGURE 5-1 ZONING 11x17

Backside of Figure 5-1

INSERT FIGURE 5-2 LAND USE 11x17

Backside of Figure 5-2

OR 22 between Rickreall and OR 51

The land south and adjacent to OR 22 generally between Rickreall and OR 51 is designated Farm/ Forest Zone and Acreage Residential 5 Acre minimum (AR-5). Existing uses in these areas, illustrated in Figure 5-2, are primarily farm uses, again generating a relatively low number of trips. Although agricultural lands generate a few trips, farm owners/operators often use large equipment or haul oversized loads on OR 22. These farms also have several paved field access points along OR 22. Some farms span across OR 22, and farmers have the need to transport equipment and supplies across OR 22.

Adjacent lands north of OR 22 between North Greenwood Road and North Oak Grove Road are primarily vineyards or agricultural uses. A few single family homes are also in this area with right in/right out only access drives to OR 22. Oak Knoll Golf Course is on the northside of OR 22, and has an access point on OR 22, which is shared by a single family home. On the northwest corner of the intersection of OR 22 and North Oak Grove Road is a cemetery, which generates a low level of traffic. On the northeast corner of this intersection is the historic Harrison Brunk House.

OR 22 East of Junction with OR 51

East of the junction with OR 51, along OR 22 is the unincorporated community of Eola. The Polk County Comprehensive Plan (2001) recognizes the community of Eola with Eola Unincorporated Community zoning (Figure 5-1), affirming existing land uses. Land use zoning includes commercial, industrial, and industrial/commercial. Uses in the unincorporated community of Eola include single family residences, industrial, a Chevron gas station, an RV trailer park, Eola Florist Shop, Knorr Plant, Eola Inn, and a fruit stand. The Knorr Plant generates a moderate level of truck traffic. East of the intersection of OR 22 and 51, between the Chevron gas station and the fruit stand, a car lot is proposed, the owner of which is working with ODOT to obtain an approach road permit. Access points are frequent in this area (mile point [MP] 22.04 to MP 20.84) serving the adjacent land uses. South of OR 22 and east of State Farm Road is a weigh station and RV park, with access on OR 22. Topography in this area is steep, so that while the RV Park is adjacent to OR 22, it is down a hill. Areas highlighted as unbuildable lands on Figure 5-2 delineate a steep decline in topography within the study area.

On 52nd Street, north of OR 22 is the Pentacle Theater. In speaking with board member, Dave Davis (April, 2007), the Pentacle Theater has recently renovated their building, which now has capacity for 199 seats, and a parking lot for 100 cars. The theater has shows all year round, and approximately eight shows per year, with shows running for four consecutive weekends, and one weekend off. The theater has approximately 10 acres abutting OR 22, and has realigned their property line to place a large billboard type sign on OR 22, which is expected to attract more patrons and traffic. In the year 2020, the theater plans to build a new building with a 400 seat theater, and a parking lot for 300 cars.

The former Hansen concrete pipe factory site is west of 50th Street on OR 22. The area is zoned industrial. The County has received inquiries from a log home manufacturer who is interested in zoning the parcel for commercial use. If the County zones the parcel for commercial use, and the site is converted, more trips can be expected than the current use. Some of the property formally used as part of the manufacturing operation has been sold to the Eola Bend RV Park.

West of Doaks Ferry Road is the Northwest Viticulture Center, which is owned by Chemeketa Community College and has a Vineyard Management/Winemaking program. Access to the

Viticulture Center is off of Doaks Ferry Road. Director Craig Anderson said that the building is not being fully utilized yet. The student population has been growing and is expected to continue to grow. At any given time, approximately 60 to 65 students attend courses at the Viticulture Center. The school recommends that visitors traveling towards Salem (east) do not use OR 22, as it is difficult and dangerous to make a left turn at the intersection of OR 22 and Doaks Ferry Road. The school recommends visitors go north on Doaks Ferry Road and use either Eola Drive or Glen Creek Road to travel east.

The area east of Doaks Ferry Road is considered the West Salem Neighborhood, which is zoned for public park use and acreage residential (5 acre minimum). The area has a public park (Holman Wayside State Park and rest stop), forest land, and housing as existing uses. Holman State Wayside is a small day-use park of 10 acres that contains a 30-35 car parking lot, restroom, and wooded area. A bicycle path from West Salem (maintained by the Oregon Department of Transportation) passes through the park, heading west to the golf course, then crossing OR 22 on a bridge to connect with Rickreall Road. In Fall 2007 the Oregon Parks and Recreation Commission voted to close the park permanently but will retain a restroom and drinking water on the site to serve bicyclists and pedestrians using the multi-use path that traverses the property. The Commission also left open the option to provide limited vehicle parking in the future, if determined necessary.

In 2001, a development application was submitted for a residential subdivision to develop vacant lands in the area east of Doaks Ferry Road. The application was later withdrawn, but provides good information on the type of development that could occur in the area. The vacant land has potential for residential development and a connection to OR 22 via College Drive or a new road as an alternative connection to Doaks Ferry Road. Another development application is anticipated soon.

5.2.2 Environmental Resources

The west side of the study area, towards Greenwood Road, is characterized by flat agricultural land, some of which is farmed wetland, especially along Rickreall Creek. Fish and wildlife, wetlands, and floodplain information sources were reviewed, the findings from which are discussed below.

Fish and Wildlife

Rickreall Creek, surveyed during the development of the Rickreall IAMP, contains the following: cutthroat trout, steelhead, coho salmon, and possibly Chinook salmon which are anadromous fish species. The coho salmon and cutthroat Evolutionarily Significant Units (ESUs) are not listed or proposed for listing. However, winter steelhead and spring Chinook salmon are part of the Upper Willamette River ESUs, which are on the federal Endangered Species Act (ESA) threatened list. The current presence of these fish is known, however their numbers and distribution in Rickreall Creek is unknown.

Most of the study area is designated by Polk County as significant fish habitat/riparian areas. Remnants of the Willamette Valley prairie grasslands exist in the corridor, including highway right-of-way. These areas are habitat for a number of rare native plant and invertebrate species. Baskett Slough National Wildlife Refuge, a major wildlife refuge developed for migratory waterfowl, particularly for a subspecies of Canada Goose, is outside of the study area bordering

OR 22, northwest of Rickreall. These areas of environmental sensitivity must be considered when decisions about roadway improvements are made.

Wetlands

Rickreall Creek is a significant water feature in the project vicinity and study area, which the ODOT wetlands specialist described as having a "well-defined wooded riparian corridor" with "excellent hydrology and riverine morphology conducive to use by game fish." However, the stream also has significant water quality problems evidenced by moribund emergent vegetation on side channels and heavy layers of brown algae in the main channels. Non-point agricultural runoff of herbicides and fertilizers along with several toxic spills in the past are likely the cause of the stream's current water quality problems. Currently, Rickreall Creek is in poor condition with high water temperatures, poor continuous riparian cover, and non-point source pollution. Rickreall Creek is included on the Oregon Department of Environmental Quality (DEQ) 303 (d) list of waterways needing flow modification and temperature improvements.

If highway improvements were to significantly impact the wetlands or streams, several permits would be required. Through an administrative agreement, permits for removal and filling are obtained jointly through the US Army Corps of Engineers (USACE) and the Oregon Department of State Lands (DSL). The state removal and fill law requires a permit for any removal or fill activities of 50 cubic yards or more in a waterway of the state. In addition, the Oregon DEQ administers Section 401 Certification as part of the Clean Water Act for the US Environmental Protection Agency (EPA). If jurisdictional wetlands and water were to be affected by a proposed project, a Section 404 permit issued by the USACE would be necessary, according to the federal Clean Water Act.

National Wetlands Inventory (NWI) data were reviewed to determine the location of wetlands, illustrated in Figure 5-2. Few wetland areas exist within the project study area. The largest wetland area within the project study area is along the western terminus of the study corridor. The wetland area is approximately a quarter-mile west of North Greenwood Road, south and adjacent to OR 22. Another wetland area is east of North Greenwood Road, north of OR 22. Both of these wetlands are in EFU areas within an existing farm.

Floodplains

FEMA 100-year floodplains, delineated in Figure 5-2, encompass much of the farm land to the west of North Greenwood Road, and to the south of OR 22. East of OR 51, 100-year floodplains encompass the majority of farmed land in the one-mile buffer area surrounding the study area. No 100-year floodplain areas are to the north of OR 22 east of North Greenwood Road. Development in these floodplains is regulated by Polk County Floodplain Overlay Zone.

Historic/Cultural

On January 17, 2001, ODOT Cultural Resource Specialists conducted a windshield survey of historic resources adjacent to the highway. Prior to the windshield survey, the Cultural Resource Specialists reviewed the State Historic Preservation Office (SHPO) database for Polk County. The only property adjacent to OR 22 within the study area and listed on the National Register of Historic Places is the Harrison Brunk house.

The historic Harrison Brunk House at MP 20.15, which is listed on the National Register of Historic Places, is north and adjacent to OR 22, and has access off of Oak Grove Road. The Brunk

house was built in 1861 and is representative of farm houses of that era. The restored farm house contains common items of such homes before 1900. The Brunk House holds tours by appointment, and generates a low level of traffic.

The cultural resources survey identified several historic resources as well. Historic resources are properties that have not been formally designated as historically significant at this time, but may be eligible for the National Register with further research. If any highway projects are proposed that would affect any of the identified historic resources, further cultural work would need to be done and determinations of eligibility (DOE) prepared and concurrence would need to be obtained from SHPO. The 11 historic resource sites identified during the cultural resources survey are listed below.

Site 1: 6900 Rickreall Road (MP 18.75[1])

Property Description: 1936 house and 1909 barn.

Site 2: 6780 Rickreall Road (MP 18.80)

Property Description: a circa 1920 house.

Site 3: 6670 Rickreall Road (MP 18.80)

Property Description: a circa 1939 house and barn.

Site 4: Oak Knoll Golf Course (MP 19.45)

Property Description: may be eligible as a Designed Historic Landscape, and any vegetation removal would trigger a DOE that would include several acres of land.

Site 5: 6330 OR 22 (MP 19.45)

Property Description: a circa 1900 farmhouse.

Site 6: Across from ODOT weigh station (MP 21.50)

Property Description: store and house

Site 7: MP 21.77

Property Description: circa 1920 Eola School 13-K

Site 8: 3545 OR 22 (MP 22.71)

Property Description: a circa 1920 house.

Site 9: MP 22.8

Property Description: a circa 1900 house.

Site 10: MP 22.9

Property Description: a circa 1935 house located just south of the Bonneville Power Administration buildings.

[1] Mile points referenced on Rickreall Road are the closest associated mile point on OR 22.

Site 11: MP 23.00

Property Description: circa 1936 Bonneville Power Administration buildings and transformers.

Park resources are subject to provisions of Section 4(f) of USDOT Act of 1966. Holman Wayside, a recently closed State park and rest stop, is located just east of Doaks Ferry Road on the northside of OR 22. Recreational sites are also subject to provisions under Section 4(f). Oak Knoll Golf Course (MP 19.45) is considered a recreational site.

No archaeological sites have been inventoried in the study area.

Use of lands for highway improvements associated with either of these facilities would be subject to provisions of Section 4(f) of USDOT Act of 1966 and Section 106 of the National Historic Preservation Act, and as specified in SAFETEA-LU environmental provisions.

No specific legislation protects non-historic cemeteries; however, public interest and sensitivity dictate avoidance of non-historic cemeteries. A cemetery is adjacent to OR 22, at MP 20.00 near Brunk Corner.

Hazardous Materials

In January 2001, ODOT Region 2 Hazmat prepared a Hazardous Materials Report from a Limited Phase One Study Refinement Plan for a portion of OR 22 (Vicinity of Rickreall to Salem Bridges). The purpose of the study was to determine the potential for hazardous waste contamination due to past or present activities in properties located in the project area that might be impacted. The study identified 14 potentially contaminated sites, using historical aerial photographs (1936-94) and Polk County Clerk and Recorder's office records, as well as hazardous material inventories maintained by the Environmental Protection Agency, the Oregon Department of Environmental Quality, the Oregon Public Utilities Commission, and the State Fire Marshall.

Many of the properties identified by the study were contaminated from leaking underground storage tanks (USTs), mostly by gas stations. Other sources of potential contamination include industrial facilities with hazardous solvents, chemicals, and petroleum products. Twelve of the 14 sites listed below are adjacent to OR 22:

Site 1: AG West Supply Plant, 8870/9055 Rickreall Rd.

Property Description: Industrial facility.

Hazmat Concern: Potential soil and/or groundwater contamination from former USTs and the use and storage of various chemicals in this property.

Site 2: Rickreall Dairy, 8845 Rickreall Rd.

Property Description: Dairy facility with manure pond.

Hazmat Concern: Improper use and /or disposal of hazardous materials on this property.

Site 3: Chevron Station, 5322 OR 22 (Willamina-Salem Highway).

Property Description: Food mart and gas station.

Hazmat Concern: Soil and groundwater contamination detected beneath property.

Site 4: Former Old Traux Station, 5272 OR 22 (Willamina-Salem Highway).

Property Description: Abandoned structure, former gas station

Hazmat Concern: Potential soil and groundwater contamination from the former USTs.

Site 5: McCoullough Roofing, 5153 OR 22 (Willamina-Salem Highway)

Property Description: Industrial site

Hazmat Concern: This facility reported to the Fire Marshal's Office the presence of mastic in their premises. No hazmat concern is associated with this property.

Site 6: Bobcat Service Center, 5135 OR 22 (Willamina-Salem Highway)

Property Description: Loaders and Excavators—rental and service.

Hazmat Concern: Improper use and/or disposal of hazardous material on this property.

Site 7: CENEX/AG West Eola Station, 5082 OR 22 (Willamina-Salem Highway).

Property Description: Gas Station.

Hazmat Concern: Soil and groundwater contamination remaining beneath this property.

Site 8: Knorr Steel System International, 5073 OR 22 (Willamina-Salem Highway).

Property Description: Industrial facility.

Hazmat Concern: Contamination was discovered during the decommissioning of three 1,000-gallon USTs in December of 1989. Approximately 60 cubic yards of contaminated soil was removed from the excavation, treated on-site, and disposed of under the parking lot built on site. No hazmat concerns are associated with this property.

Site 9: Pipe Inc., 5032 OR 22 (Willamina-Salem Highway)

Property Description: Industrial facility. Concrete products (wholesale).

Hazmat Concern: Improper use and/or disposal of hazardous materials on this property.

Site 10: Tel Com Construction Company, 4800 OR 22 (Willamina-Salem Highway).

Property Description: Industrial site. Prior ownership by Tel-Com construction, the property was operated as the Shipler Logging Company.

Hazmat Concern: Residual soil contamination beneath this property.

Site 11: Northwest Spas, Inc., 4582 OR 22 (Willamina-Salem Highway).

Property Description: Industrial facility.

Hazmat Concern: Improper use and/or disposal of hazardous materials on this property.

Site 12: Robinson Well Drilling & Pumps, 4520 OR 22 (Willamina-Salem Highway).

Property Description: Well drilling company.

Hazmat Concern: Improper use and/or disposal of hazardous materials on this property.

Site 13: Mealue Excavating, Inc., 4490 OR 22 (Willamina-Salem Highway).

Property Description: Industrial facility.

Hazmat Concern: Improper use and/or disposal of hazardous materials on this property.

Site 14: BPA Electric Substation, 3105 OR 22 (Willamina-Salem Highway).

Property Description: Electric substation.

Hazmat Concern: Potential polychlorinated biphenyl (PCB) contamination.

5.2.3 Constraints Conclusions

Federal, state, and local regulations would apply regarding land use, hazardous materials, historic properties, public parks, water quality, and wetlands; permits would need to be obtained before the construction of particular highway improvements. Potential impacts would need to be avoided or mitigated, which appears feasible within the OR 22 corridor. Properties with hazardous materials would complicate right-of-way acquisition, if needed. Flood plain and wetland mitigation opportunities are available in the project area.

SAFETEA-LU Section 6009 (a) addresses findings of *de minimis* impacts to Section 4(f) properties under programmatic evaluations. Agencies with jurisdiction must concur in writing with the determination. Another potential programmatic 4(f) finding would be that the project provides a net benefit to an already impaired resource that would not accrue if the resource were avoided.

For historic properties, findings of “no adverse effect” or “no historic properties affected” are relevant for projects under Section 106 and Section 4 (f) where projects improve highways and use minor amounts of land (including non-historic improvements thereon) from historic sites that are adjacent to existing highways where the effect is determined not to be adverse. The same is true for parks, recreation areas, or wildlife and waterfowl refuges, where highways would be improved and only minor amounts of public lands would be used. Nevertheless, the programmatic Section 4(f) does not relax the Section 4(f) standards of feasible and prudent and minimization of harm.

In summary, environmental and land use constraints were found to be related to potential right-of-way acquisitions or roadway widening:

- Holman State Wayside – potential taking of public park land for right of way (Section 4(f)); in 2007 this facility was closed and property transfer for other uses is under consideration
- Harrison Brunk House – historic listed property (Section 4(f) and Section 106)
- Petroleum contamination of soil at three fueling station sites adjacent to OR 22; improper use and/or disposal of hazardous materials on six properties; potential PCB contamination at one electric substation (OAR 340-122)
- Wetlands in the vicinity of North Greenwood Road (Section 404)
- EFU zoned land along Greenwood Road and the northwest quadrant of OR 22/51; farm/forest zoned land in the southeast quadrant of OR 22/51.

5.3 Alternatives Identified and Dismissed After Preliminary Evaluation

Establishing an evaluation framework provides a tool to assist in assessing the relative desirability of the project alternatives. The framework, which is based upon one set of evaluation criteria, is a process consisting of two consecutive steps:

Screening: During screening, the criteria serve as "pass/fail" thresholds to eliminate from further consideration non-feasible alternatives. The thresholds represent minimum conditions of acceptance encompassing federal, state, and local parameters. Alternatives that do not meet the threshold criteria are dismissed from further consideration. Prior to the next step, these feasible solutions are refined further to account for local site conditions as well as to minimize adverse impacts. These thresholds will remain as considerations throughout the project; if data analysis completed in a later, more detailed alternative evaluation, indicates that an alternative does not meet a threshold criterion, it can be eliminated from further consideration at that point. These threshold criteria also would apply to alternative options created in later steps of evaluation.

Evaluation: During detailed evaluation, the criteria are used to evaluate the performance of feasible alternatives against a broad range of desired project characteristics. These characteristics represent the full range of stakeholder values and can be weighted accordingly. Evaluation criteria within each of the broad categories are selected to most effectively differentiate among potential alternative solutions for the highway. (The evaluation criteria do not include the full universe of potential criteria.)

5.3.1 Identified Alternatives

In 2001-2003, ODOT identified several improvement alternatives for the study area as part of efforts to develop a draft OR 22 Expressway Refinement Plan. These alternatives are listed below for the three principal study area locations.

OR 22 at Greenwoood Road (GWR) Alternatives

Possible solutions identified for Greenwood Road in 2001-2003 were:

- GWR-1: No build - Maintain access to ORE 22 – full access.
- GWR-2: Remove access completely to OR 22 – close road.
- GWR-3: Install raised median and make road right-in/out only.
- GWR-4a: Grade separate with westbound right-in/out access frontage road to OR 22 – overpass
- GWR-4b: Grade separate to allow north to south access without any OR 22 access – overpass.
- GWR-5: Grade separation and ramps all directions – full interchange.

OR 22 at OR 51 (Independence Highway) (INH) Alternatives

Possible solutions identified for Independence Highway in 2001-2003 were:

- INH-1: No-build, which would leave the at-grade intersection as is.

- INH-2: Eliminate the northbound to eastbound at-grade "on-ramp" from OR 51 to OR 22 and make the intersection stop-controlled.
- INH-3a: Eliminate all direct accesses to OR 22, build frontage roads on the north and south sides of OR 22 and an interchange at OR 22/51 without overpass at Doaks Ferry Road. The north frontage road would be connected to Doaks Ferry Road.
- INH-3b: Eliminate all direct accesses to OR 22, build frontage roads on the north and south sides of OR 22 and an interchange at OR 22/51 with an overpass at Doaks Ferry Road. The north frontage road would not be connected to Doaks Ferry Road.
- INH-3c: Eliminate all direct accesses to OR 22, build frontage roads on the north and south sides of OR 22 for traffic access to OR 22, interchange at OR 22/51 and overpass to connect Doaks Ferry Road to southside frontage road.

Frontage/Backage Roads

Various frontage and backage road options originally defined by the PMT in 2003-4 were refined at a later date by W&H Pacific for the County and reported in "Project 22: Hwy 22/51 Interchange Implementation Strategy" (June 2005). These frontage and backage roads are necessary to provide access to properties that would lose their existing access with construction of the OR 22/51 interchange and enhancements to improve the mobility and safety of the expressway mainline, such as installation of continuous median barrier and closing various public and private accesses.

The W&H Pacific report (Appendix G) included various frontage and backage road options/suboptions on the north and south sides of OR 22: five options in the northeast (NE) quadrant, five options in the southeast (SE) quadrant, two options in the southwest (SW) quadrant, and seven options in the northwest (NW) quadrant. Each of these 19 options were discussed and evaluated in Appendix A – Options & Estimates of the report in terms of advantages and disadvantages. Factors considered were existing roadway, right-of-way purchases, accesses, connectivity, circulation, residential and business displacements, environmental conditions, and needs for environmental assessment.

OR 22 at Doaks Ferry Road (DFR) Alternatives

During the earlier efforts (2001) at developing the OR 22 Refinement Plan, the PMT considered the following solutions for the Doaks Ferry Road intersection:

- DFR-1: No-build – no restrictions to access.
- DFR-2: Connection to a north frontage road and closure of access to OR 22 (as part INH-3a).
- DFR-3: An overpass "flyover" connecting OR 22 and Doaks Ferry Road but without connection to a north frontage road (as part of INH-3b).
- DFR-4: An overpass "flyover" connecting OR 22 and Doaks Ferry Road and a connection to a south frontage road (as part of INH-3c). .
- DFR-5: Raised median that would restrict Doaks Ferry Road to right-in/out only, as a short-term alternative until DFR-3 or -4 were built.
- DFR-6: Full interchange with ramps serving all directions.

5.3.2 Screening Process

During earlier efforts to develop a draft OR 22 Expressway Refinement Plan, the PMT used three principal criteria to narrow the list of potential improvements to OR 22. These screening criteria were used to identify alternatives that were infeasible or inappropriate on the basis of:

- Transportation Operations – Facility form and function ability to address the transportation problems of mobility, access, connectivity, safety, and standards
- Project Impacts – Natural environment, built environment (land use and social), and business (economic development/displacement) constraints
- Implementation – Federal, state, county, and city plans and policies consistency, flexibility (phasing, separability), and cost (competitiveness/affordability/benefit-cost)

These screening criteria were retained for the subsequent restarted effort in 2007.

5.3.3 Alternatives Dismissed by Screening

The 15 "build" alternatives and 3 no-build alternatives for the study area were considered during the screening process. Of these, the PMT dismissed seven build alternatives for the locations discussed below. Retained alternatives are depicted in diagrams included in Appendix H.

OR 22 at Greenwood Road

Closing access (GWR-2) was dismissed because it would add more traffic and increase farm vehicle conflicts at Oak Grove Road/OR 22 and 99W and be a significant detour for farm equipment.

Construction of an interchange (GWR-5) was dismissed because of the high cost to serve the low the amount of traffic that would use it and inadequate spacing between the recently constructed OR 22/OR 99W (Rickreall) interchange and a potential interchange at OR 22/51. The amount of money needed for right of way and construction of the structure and ramps yield a low benefit/cost ratio. OHP spacing standards between the start and end of tapers of adjacent interchanges cannot be met if an interchange is built at the OR 22/51 intersection, which is at a higher level for consideration, nor with the existing proximity of the OR 22/99W interchange.

- Maintaining full access to OR 22 (GWR-1) was retained as a short-term "no build" alternative. With future traffic growth, many of the gaps will be eliminated for traffic and slow moving vehicles (farm equipment) crossing OR 22, so drivers will increasingly take more unsafe gaps. Installing a median barrier and allowing right in/out traffic (GRW-3) was retained, even though it has many of the same connectivity problems of GWR-2. Retained was GWR-4a, the overpass with an OR 22 westbound right-in/out access frontage road that connects to Greenwood Road, as shown in Appendix H. Another alternative retained was the overpass only with no OR 22 access alternative (GWR-4b).

OR 22 at OR 51 (Independence Highway)

Two at-grade alternatives were considered for this intersection. One was the No-build which would leave it as is. The second would eliminate the northbound to eastbound "on-ramp" from OR 51 to OR 22. It would be replaced by directing all OR 51 traffic to a stop-controlled intersection. Both at-grade alternatives were rejected because they did not meet the OHP mobility policy.

The four grade-separated alternatives, variations of diamond and Parclo B types, were the remaining alternatives carried forward (Alternatives INH-3, -4, -5 and -6), as shown in Appendix H. These alternatives were later linked to alternative combinations of frontage/backage road legs on the north and south sides of OR 22 to provide properties with connectivity to the local system instead of direct access to OR 22. The plan concludes that an interchange is necessary to address congestion and safety issues at this intersection. The plan recommends no particular form for this interchange. Decisions on interchange form will be made through the preparation of an interchange area management plan (IAMP) which will be completed in a separate process.

Frontage/Backage Roads

The W&H Pacific report ("Hwy 22/51 Interchange Implementation Strategy," June 2005) recommended reducing the number of frontage/backage road options/suboptions to a four-phased implementation strategy involving 10 of the 19 initially identified: two options in the NE quadrant, two options in the SE quadrant, two options in the SW quadrant, and four options in the NW quadrant. The first three phases involve environmental analysis, engineering, right-of-way, and construction of the frontage and backage roads. The third phase also involves environmental analysis, engineering, and right-of-way for the interchange, while the fourth phase involves construction of the interchange. This phasing strategy was considered by the PMT to become part of the Preferred Alternative.

For the most recent effort developing the EMP, the PMT took the W&H Pacific report recommendations for frontage/backage roads and modified them slightly, all of which assume a barrier median on OR 22 and extensive closed accesses. The options based on the W&H Pacific report that were advanced by the PMT include six options in the NE quadrant, three options in the SE quadrant, one option in the SW quadrant, and three options in the NW quadrant. Appendix G (from W&H Pacific's Project 22 Report) includes figures depicting the location of these options:

NE Quadrant

- NE-1: new frontage road parallel and directly adjacent to OR 22 between 50th Avenue and Doaks Ferry Road with possible right-in/out connection to OR 22 at 50th Avenue (possible connections to Doaks Ferry Road are described in Doaks Ferry Road alternatives). This alternative follows NE-2 between 52nd Avenue and 50th Avenue.
- NE-2: new frontage road parallel to OR 22 between 52nd Avenue and Doaks Ferry Road with possible right-in/out connection to OR 22 at 50th Avenue (possible connections to Doaks Ferry Road are described in Doaks Ferry Road alternatives).
- NE-1a/NE-2a: extension from NE-1 or NE-2 on existing 52nd Avenue, Aspen Street, 53rd Avenue, and Aster Street to 55th Avenue.
- NE-1b/NE-2b: extension from NE-1 or NE-2 of a new road west then north to connect with existing 53rd Avenue and Aster Street to 55th Avenue.
- NE-1c/NE-2c: as described for Alternatives NE-1a/NE-2a with a new road connecting 53rd Avenue to 55th Avenue at Alternative NW-2 (does not extend north to Aster Street).
- NE-1d/NE-2d: as described for Alternatives NE-1b/NE-2b with a new road connecting 53rd Avenue to 55th Avenue at Alternative NW-2 (does not extend north to Aster Street).

SE Quadrant

- SE-1: new road extending east from OR 51 at least 1,320 feet from a new interchange ramp terminal, crossing McNary Creek, and extending to the existing access road to the RV Park. This alternative may include a right-in/out connection to OR 22 at the RV Park access road. North-south access road to private property will be located in consultation with property owners.
- SE-2: new road extending east from the OR 51/Oak Grove Road intersection to SE-1 then as described for SE-1.
- SE-3: Extension of SE-1 or SE-2 east along platted alignment of Main Street to vicinity of existing Eola Inn building with no connection to OR 22.

SW Quadrant

- SW-1: Existing Oak Grove Road north to OR 22, where it would disconnect.
- SW-2: A new frontage road adjacent to OR 22 extending west from the end of Oak Grove Road to the residence near the bike/pedestrian overcrossing. .

NW Quadrant

- NW-1: New road extending west from Aster Street/55th Avenue intersection to Oak Grove Road, south on Oak Grove Road to a new frontage road adjacent to OR 22 west to the golf course and adjacent residence (Oak Grove Road would be disconnected from OR 22).
- NW-2: New road extending west from 55th Avenue along the boundary between existing hazelnut orchard and vineyard to Oak Grove Road, then as described in NW-1.
- NW-3: New road extending from Oak Grove Road west along the northern boundary of the existing cemetery to an appropriate point where it would turn south and west to provide access to the golf course and adjacent residence.

NW-3 was dismissed by the PMT as an optional leg off of NW-1 and NW-2 for providing access to the cemetery, golf course, and residence. The option would require relocation of the golf course entrance and significant right-of-way purchase. Its location away from the highway and future ramp alignment was determined to be unnecessary.

During detailed evaluation, the PMT endeavored to combine the options to create at least two frontage/backage road build alternatives that would provide a complete route and connection between the proposed OR 22/51 interchange and properties losing direct access to OR 22.

OR 22 at Doaks Ferry Road

Connection to a north frontage road and closure of access to OR 22 (DFR-2) was modified to provide a relocated eastbound OR 22 access to Doaks Ferry Road via addition of a new left-in turn lane at Riggs Street (or vicinity west of Mill Street). Riggs Street would connect to a new backage road (NE-2) that would connect to Doaks Ferry Road. The existing westbound OR 22 right-in to Doaks Ferry Road would be improved with a deceleration lane and connection to the realigned Doaks Ferry Road/backage road. The direct access to OR 22 from Doaks Ferry Road would be closed. To provide an eastbound movement for traffic headed west from Riggs Street on OR 22, a U-turn lane could be provided in the vicinity of 50th Avenue/State Farm Road.

An overpass at OR 22/Doaks Ferry Road (DFR-3 and -4) was dismissed due to the additional cost of a topographically constrained structure and without significant improvement in traffic flows. Right-of-way impacts to Holman State Wayside were another consideration for dismissal of overpass alternatives; however, this issue diminished when Holman State Wayside was later permanently closed with property transfer under consideration.

DFR-4 was also rejected because of the grade necessary to connect to a frontage road on the southside of the highway (12-14%). However, the PMT realized the benefits of connectivity for local traffic between the north and south sides of the highway, and modified DFR-4 to provide an undercrossing farther west in the vicinity of Spring Street that would connect with backage roads NE-2 and SE-1. DFR-4 would keep the right-in only deceleration lane connection to Doaks Ferry Road but eliminate the northside Riggs Street intersection and replace it with a Southside intersection opposite Shaw Street. The south Shaw Street access would include deceleration and acceleration lanes for exiting and entering OR 22. South Shaw Street would connect with backage road SE-1, which would connect with the Spring Street undercrossing. Thus, the eastbound left-turn and westbound U-turn lanes near Riggs Street as proposed with DFR-2 would not be necessary. DFR-4 would require an exception to access management spacing standards if it were to be implemented without designation of this segment of the expressway as being in an urban area.

Construction of a full interchange at OR 22/Doaks Ferry Road (DFR-6) was dismissed because the topography would make it very costly if not impractical to construct. Also, OHP spacing standards of 2 miles between the start and end of tapers of adjacent interchanges could not be met (approximately a half-mile short) if an interchange were built at the OR 22/51 intersection, which is at a higher level for consideration. However, a full interchange farther east on OR 22 in the vicinity of College Drive, with a new connection to Doaks Ferry Road, was accepted by the PMT as a modified alternative for future study.

DFR-5, with installation of a continuous raised median barrier at the intersection, was dismissed because it would eliminate the well-used left-in movement onto Doaks Ferry Road from the eastbound left-turn lane on OR 22. The PMT recognized that Doaks Ferry Road serves as a major arterial providing access to OR 22 for nearby residents and as a short-cut for OR-22 travelers to Wallace Road (and OR 221) in West Salem. During the subsequent effort, the PMT considered other options. To preserve this connectivity, alternative DFR-7 was created to allow all movements at grade, except for the hazardous left-out from Doaks Ferry Road, which would be disallowed and discouraged by signage, some realignment of the intersection, and painted islands at the intersection as a short-term solution. The long-term solution is the restriction of this intersection to a westbound right-in only in conjunction with the relocation of the intersection described in DFR-4. A median barrier and concrete islands were considered as variants for preventing a left-out movement but were dismissed as potentially decreasing safety (problems from sight impairment and maneuvering around the barrier). Appendix H includes diagrams of the alternatives.

Improvements in the area of Doaks Ferry Road and farther east will ultimately be influenced by progress on three other improvement projects: the OR 22/51 interchange, the Salem River Crossing project, and Polk County’s response to potential development proposals west of College Drive. The latter two projects could address the possibility of a new alternative Doaks Ferry Road connection with OR 22 between the BPA substation and College Drive. This new connection to Doaks Ferry Road also might have better topography for a flyover structure, as proposed in

DFR-3 and -4, or the full interchange (DFR-6), which would address the future lack of capacity for eastbound left-in movements under DFR-2 and DFR-7.

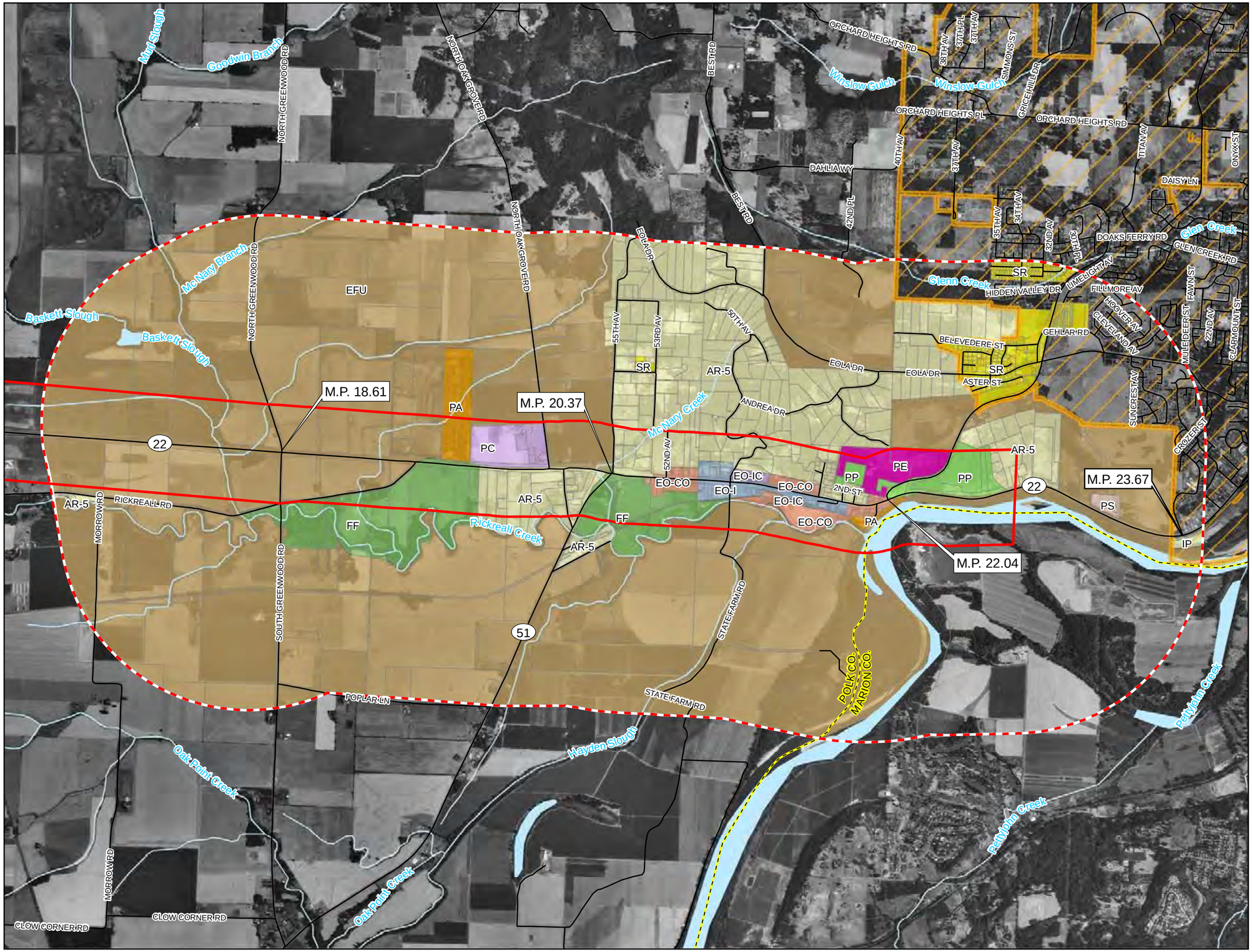

Figure 5-1
Zoning Map
OR 22 West EMP

LEGEND

- Study Area
- 1-Mile Buffer Around Study Area
- Highways and Roads
- Creeks and Streams
- Willamette River
- Urban Growth Boundary
- Counties
- Tax Lots

Zoning

- AR-5 - Acreage Residential 5 Acre Minimum
- EFU - Exclusive Farm Use Zone
- EO-CO - Eola Unincorporated Community Commercial
- EO-I - Eola Unincorporated Community Industrial
- EO-IC - Eola Unincorporated Community Industrial Commercial
- FF - Farm/Forest Zone
- IP - Industrial Park Zone
- PA - Public Amusement and Recreation Zone
- PC - Public and Private Cemeteries Zone
- PE - Public and Private Education Facilities Zone
- PP - Public Park Zone
- PS - Public Service Zone
- SR - Suburban Residential Zone

SOURCE: POLK COUNTY GIS (2006)

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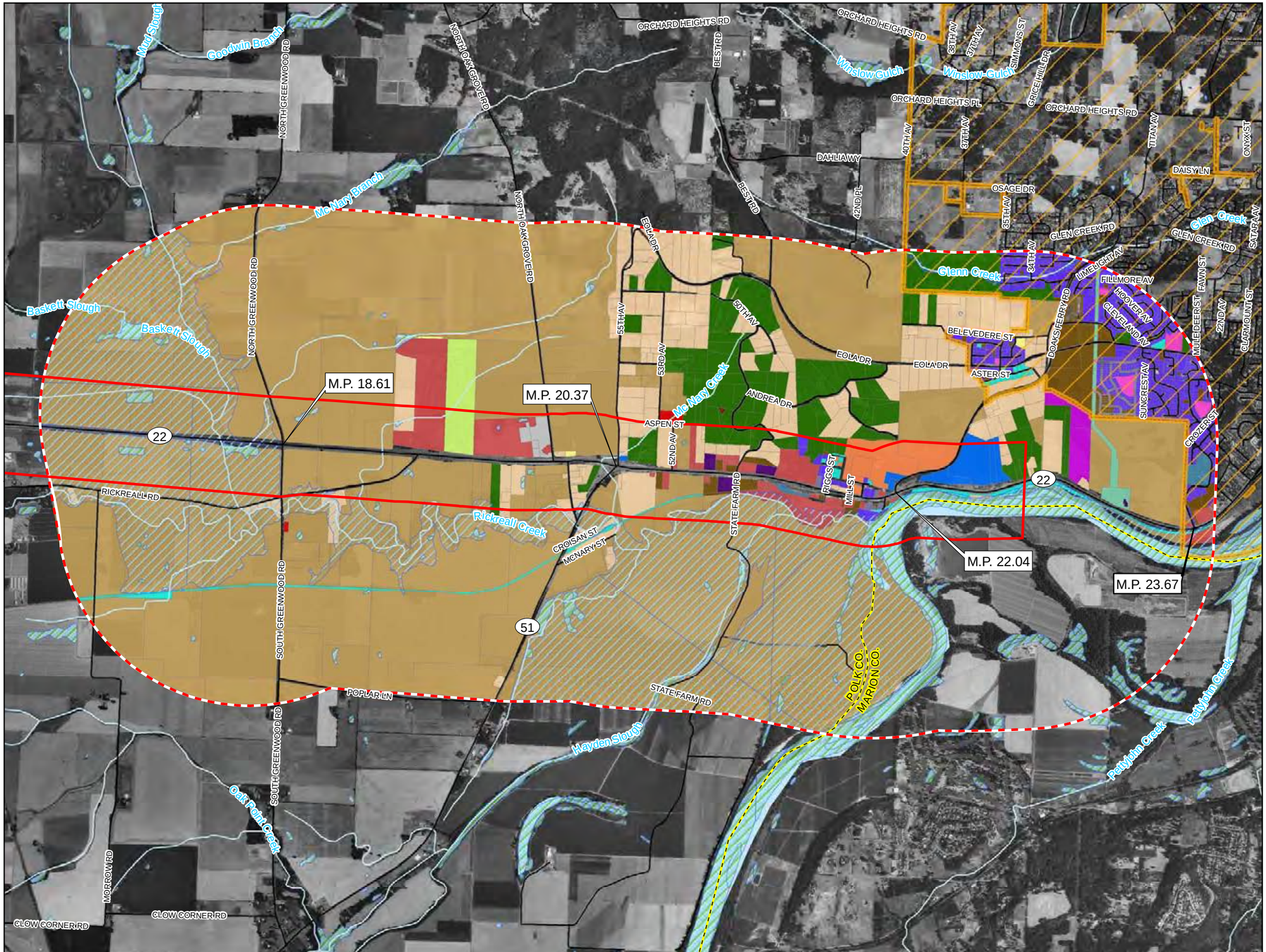

Figure 5-2

Land Uses and Environmental Constraints OR 22 West EMP

LEGEND

- Study Area
- 1-Mile Buffer Around Study Area
- Highways and Roads
- Creeks and Streams
- Willamette River
- Urban Growth Boundary
- Counties
- Wetlands
- 100-year FEMA Floodplains

Property Classes

- Cemetery
- Church
- City Owned
- Commercial
- County Owned
- Farm
- Federally Owned
- Forest
- Fraternal Ownership
- Golf Course
- Housing & Business
- Industrial
- Open Space
- Port Properties or other Municipal Properties
- Residential
- School
- Single Family Residence
- State Owned
- Unbuildable
- Unknown / No Data
- Vacant

SOURCE: POLK COUNTY GIS

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CHAPTER 6

Alternatives Evaluation

This chapter describes the evaluation criteria and range of alternatives evaluated by the PMT. This chapter also includes a summary of comments and key findings from the stakeholder meeting process.

6.1 Evaluation Criteria

The evaluation criteria used for screening alternatives also was used by the PMT for detailed evaluation of remaining OR 22(W) EMP alternatives. The PMT used the criteria to evaluate the performance of each alternative against a broad range of important project characteristics, representing a full range of stakeholder values. The evaluation criteria tie back to the project's problem statement and highlight differences among alternatives.

The evaluation criteria fall under three broad categories:

- Transportation Operations
  - Mobility
  - Access Management
  - Connectivity
  - Safety
- Project Impacts
  - Natural Environment
  - Built Environment (Land Use and Social)
  - Business (Economic Development/Displacement)
- Implementation
  - Plan Consistency
  - Phasing Flexibility
  - Cost

The evaluation process was based on a comparison of quantitative data, such as mobility, land use, economic data, and costs; and qualitative data with supporting facts, such as operations, environmental impacts, and construction phasing. Alternatives were ranked according to a "consumer reports" type of scale made up of the following four options:

●	Alternative directly and positively addresses the intent of the criterion.
◖	Alternative partially meets the intent of the criterion, addressing some but not all of the objectives.
○	Alternative does not support the intent of, or negatively impacts, the criterion.
N/A	Alternative neither meets nor does not meet the intent of the criterion. Criterion does not apply.

Guidelines for scoring alternatives with the evaluation criteria are described in further detail in Appendix F.

6.2 Evaluation Results

The remaining Build Alternatives are intended to provide access to developed land while ensuring adherence to expressway spacing standards of OAR 734-051, minimal environmental impacts, consistency with plans, and safe and efficient movement of traffic. The No Build Alternatives were not considered further except as necessary in the short-term in some cases. However, the No Build Alternatives would be revisited as necessary for an environmental permitting process.

The alternative evaluation process included a review of possible intersection and interchange forms and access control measures that might be applicable in the study area. In addition, alternatives for frontage/backage roads were evaluated relative to the evaluation criteria, access controls, and a four-phase construction plan (as proposed by W&H Pacific, 2005) with cost estimates. The PMT during the screening process had decided to incorporate and modify that study's alternatives for frontage/backage roads and link them to the alternatives for the OR 22/51 intersection.

Appendix I includes a table that summarizes the evaluation results for each alternative at each intersection according to the "consumer reports" type of score (see Appendix F). Appendix I also includes a benefit/cost analysis of the intersection alternatives. A discussion of the evaluation of alternatives and results follows.

6.2.1 OR 22 at Greenwood Road

After screening, the three remaining build alternatives include a median barrier with a right-in/right-out connection to OR 22 (GWR-3), an overpass with right-in/right-out connection to OR 22 (GWR-4a), and an overpass with no access to OR 22 (GWR-4b). Appendix H includes diagrams of the two overpass alternatives. GWR-3 was retained because mitigation could provide better connectivity between affected farm operations to the equipment undercrossing that is located under the railroad overcrossing at Derry; GWR-3 also could provide a grade-separated farm equipment crossing of OR 22 somewhere other than at Greenwood Road. Alternative GWR-4b would eliminate access to OR 22 and best support the function of an expressway.

- A new alternative considered during the most recent effort was offset dual-T intersections at South Greenwood Road and a new North Greenwood Frontage Road (close N. Greenwood Road access). This alternative, GWR-6, would provide an extra-wide (16 feet for farm equipment), two-way center left turn lane on OR 22 with right-in/out at intersections. A variant would be separate left-turn lanes with median barrier; however, accommodation of farm equipment would require even more widening with this variant. The advantage of this alternative is that it would provide a two-stage crossing movement incorporating a turn refuge. An associated disadvantage and implausibility is that rapid acceleration would be necessary for farm vehicles and school buses to access the turn refuge under congested conditions with limited breaks in traffic. This alternative would work best for farm equipment during early morning hours and other off-peak times.

- The GWR-6 alternative was dismissed as a proposed solution but was recognized as a possible short-term improvement. GWR-6 would not require installing median barrier to prevent crossing the intersection (GWR-3). (Median barrier should worsening traffic conditions or crash history necessitate action prior to implementation of other alternatives, such as construction of an overpass.)

The 1999 Oregon Highway Plan (OHP) requires operating at a volume to capacity (v/c) ratio equal to or less than 0.60 for the mainline and 0.70 for the minor unsignalized approaches. The No-Build and Build Alternatives satisfy this standard. Compared with the existing conditions, any of the Build Alternatives would improve safety.

The overpass alternatives (GWR-4a and 4b) would have minor impacts to farm land. The frontage road component of GWR-4a (Figure 6-1) would have the most impact. The costs of median treatments as with GWR-3 and frontage road are substantially less than an overcrossing (Appendix I).

6.2.2 OR 22 at OR 51 (Independence Highway)

After screening, four grade-separated interchange alternatives were retained for further evaluation. These interchange forms included standard and tight diamond interchanges (INH-3 and -4), a dual-quadrant partial cloverleaf (PARCLO B) interchange (INH-5), and a single-quadrant PARCLO B interchange (INH-6). Appendix H includes diagrams of these interchange alternatives, while Appendix J provides detailed analysis of the future interchange traffic operations.

The detailed analysis was performed under two separate volume scenarios that looked at the possibility of eliminating the OR 22/Doaks Ferry intersection (“No Doaks Ferry Connection”) or restricting access at the OR 22/Doaks Ferry intersection (“Limited Doaks Ferry Connection”).

Under the diamond interchange alternative, the eastbound and westbound ramp terminals (as unsignalized intersections) do not have sufficient capacity to systematically accommodate future 2030 demand under the “No Doaks Ferry Connection”. Assuming the “Limited Doaks Ferry Connection” and the associated reduction in interchange demand, the eastbound ramp terminal would operate at sufficient levels, however the westbound ramp terminal would exceed the 0.60 mobility standard. Given that the ramp terminals are not forecast to meet ODOT’s planning level signal warrants, roundabout ramp terminal treatments were investigated. While the roundabout operations are sufficient for the eastbound ramp terminal, the westbound ramp terminal is still forecast to operate over capacity under the “No Doaks Ferry Connection” scenario. In general, the diamond interchange configuration is unable to efficiently accommodate the heavy westbound to southbound and eastbound to northbound demand under the “No Doaks Ferry Connection” scenario. Accordingly, other interchange forms were subsequently investigated including single quadrant and dual quadrant PARCLO B interchange forms.

Unlike the diamond interchange alternative, the westbound exiting loop ramp of the single quadrant PARCLO B is better able to accommodate the heavy westbound to southbound demand. However, under both of the volume scenarios, the westbound ramp terminal is still forecast to exceed the 0.60 design mobility standard under unsignalized conditions. In comparison, a roundabout intersection treatment at the westbound terminal would have sufficient capacity, but

would also not have enough built in excess capacity to serve as a long-term interchange ramp terminal treatment.

Finally, with the addition of the eastbound existing loop ramp, the dual quadrant PARCLO B alternative does the best job at systematically accommodating the predominate/critical movements of the eastbound ramp terminal. Specifically, all predominate/critical movements are forecast to meet the 0.60 mobility standard under both volume scenarios as unsignalized intersections.

In summary, the preliminary operations analysis indicates that the westbound ramp terminal is not able to systematically accommodate the projected 2030 interchange demand (both with and without an OR 22/Doaks Ferry connection) as a standard diamond interchange off-ramp. As an exiting loop ramp under the single quadrant PARCLO B alternative, the westbound ramp terminal operations would improve significantly. Although the unsignalized and roundabout intersection treatments included in this analysis are not meeting the 0.60 mobility standard outright, this planning level analysis has shown that the exiting loop ramp terminal operations offer greater long-term capacity and come relatively close to meeting the mobility standards. This plan concludes that an interchange is necessary to address safety and operational concerns at this intersection. A more refined analysis of the interchange forms will be conducted as part of the future Interchange Area Management Plan study effort.

The feasibility of continuing the multi-use path through the proposed interchange was considered by the PMT. What is known as the “Bend Parkway style” bike crossing would be one feasible alternative at ramps on the south side of the interchange. The bike lanes would have a stained treatment to contrast it from the travel lanes and cross at near 90 degrees to the ramp. (The bike lane swings out and then hooks back across the ramp.) The structure over OR 22 should have at least one sidewalk, located most appropriately on the east side, same as the residences. Other alternatives would be addressed during the preliminary design and environmental phase of project development, including possible accommodation of public transit facilities.

Regarding the other evaluation criteria, no major differences were determined. All provide adequate access management, connectivity, and safety improvements. Impacts to the natural and built environment are minimal and attributable to losses of farm and forest lands and floodplain. Historic properties would be avoided. There could be minor impacts to wetlands and streams as proposed ramps would cross some creeks. There could be some minor business impacts in the southeast quadrant and residential impacts in the northeast quadrant. All alternatives would require amendments to the County and MPO transportation plans. Interchange construction itself would not be phaseable, but it could be a phase of a larger project that first builds local access roads. Cost elements are roughly identical for all alternatives; all would have multiple funding sources and cost competitiveness.

6.2.3 Frontage/Backage Roads

The PMT evaluated each of the options in the four quadrants separately by quadrant. The options were combined, modified, and renumbered from the W&H Pacific Project 22 Report as necessary for evaluation as feasible alternatives. Figure 6-2 depicts the combined options into alternatives for each quadrant. Figure 6-3 depicts the roads farther east, where NE-1 and NE-2 would connect to Doaks Ferry Road, and where SE-1 and SE-3 would potentially connect to eastbound OR 22 near the Eola Inn.

INSERT FIGURE 6-1 GWR-4a with OR 22 Access 11x17

Backside of Figure 6-1

INSERT FIGURE 6-2 F/B ROADS ALTERNATIVES (W) 11x17

Backside of Figure 6-2

INSERT FIGURE 6-3 DFR-2 Relocated Access & F/B ROADS ALTERNATIVES (E) 11x17

Backside of Figure 6-3

NE Quadrant

Between 52nd and 55th Avenues, NE-1 would use the existing Aster Street, whereas two other alternatives would require new road and right-of-way purchase through AR-5 zoned land. Two variants of option NE-3 from the W&H Pacific report were considered. The old NE-3 became NE-2 and would connect immediately east with 53rd Ave. instead of veering south to connect with 52nd Ave. Compared to NE-1, NE-2 would provide less out of direction travel and less property impact from an improved intersection with 55th Ave.

The new NE-3 as proposed would have even less out of direction travel. NE-3 would begin approximately 1,000 feet farther south on 55th Ave. than NE-2, follow an east-west property line, and then veer south as with the old NE-3 to connect with 52nd Avenue. Topography would require extensive cuts and costs would be high to construct new roadway west of 52nd Ave. Also, this alignment would cut through recently developed residential properties, necessitating dislocations, and require the most new roadway construction. In addition, the connection to 55th Ave. would be closer than the ¼-mile spacing standard to the end ramp of a likely OR22/51 interchange. Thus, this alternative was dismissed by the PMT.

Problematic with the NE quadrant is maintaining access to private properties with frontage on the southern end of 55th Avenue, near the location of the end ramps and overpass structure of a potential OR 22/51 interchange. There, closest to OR 22, a realignment of 55th Ave. and an elevated structure would likely eliminate the existing residential access to 55th Ave. An alternative was developed by ODOT as one of the north frontage loop options in July 2004. This alternative would use the southern end of the existing NE 55th and then run adjacent to OR 22 until connecting to 52nd. The PMT deferred resolution of this issue to the access management plan that would be developed for the interchange.

East of 50th Avenue, whether a frontage road (NE-1) or a backage road (NE-2) would be better, depends on comparing the right-of-way acquisition cost and feasibility at particular locations. If frontage road NE-1 were constructed, then right-of-way for future widening of the expressway would no longer be available. The existing multi-use path would be lost with a frontage road or widening of the highway to six lanes. Incorporation of new and better multimodal facilities could be easily accommodated with a new backage road. Most likely, facilities would be provided on the residential/commercial side of the road. These factors weigh heavily in favor of alternative NE-2.

NW Quadrant

As with the NE quadrant, the main difference between the three alternatives is the location of new east-west connections, in this quadrant between Oak Grove Road and 55th Ave. The farther north the connection, the greater out of distance travel there would be to reach the interchange. All three connections would traverse through EFU zoned land. NW-1 would bisect a vineyard, drastically affecting trellis configurations.

NW-2 would mostly follow property lines and edges of farm fields. The new roadway would affect some trellises and remove some orchard trees, depending on alignment and extent of cutting farm field corners. Final design also would determine whether NW-2 would follow a property line to connect with 55th Ave. south of Aster Street or veer north across existing trellises to form a T intersection with Aster Street.

A more southerly and direct connection between Oak Grove Road and 53rd Street became a new NW-3 for evaluation. This route would begin approximately ¼ mile north of OR 22 on Oak Grove Road and follow the southern edge of the filbert orchard and field away from the house and to the existing private service road through the center of the filbert orchard to the intersection with 55th Avenue. Some orchard trees would need to be removed for widening and right-of-way. NW-3 would provide the most direct route from OR 22 to the golf course and historic Brunk House west of the proposed OR 22/51 interchange. However, its intersection with 55th Ave. is only about half the required distance from the end of the proposed interchange ramps; this would require an exception to access management standards and is a disadvantage compared to NW-1 or NW-2.

SW Quadrant

Only one alternative is needed in this quadrant, and that is to combine SW-1 and SW-2 (renumbered as SW-1). The alternative would close Oak Grove Road access to OR 22 while extending the road west and parallel to OR 22 as a frontage road, to serve residences and farms. Oak Grove Road's existing intersection with OR 51 would remain and is expected to be nearly in compliance with the quarter-mile spacing requirement to the end of the proposed interchange ramps.

SE Quadrant

The main difference between alternatives SE-1 and SE-2 is the connection point of a backage road to OR 51. SE-1 would use the existing McNary Street, but it is farthest away from the interchange, approximately ½-mile from the ramp end. SE-2 would be ¼-mile closer but would require a new road through floodplain and farmland until it (and SE-1) would connect to the old railway bed and right-of-way. Both SE-1 and SE-2 would require a bridge over McNary or Rickreall Creek. SE-2 would have more direct impacts on actively farmed land (blueberry field). Backage road SE-1 follows the railroad right-of-way and would provide branch roads running north to access business and commercial facilities adjacent to OR 22. .

SE-1 was modified and SE-3 (a frontage road) was developed under the most recent effort to address in more detail the southside access issues. Either alternative in combination with alternatives for Doaks Ferry Road (see next section) would also improve connectivity between north and south of OR 22. Both alternatives propose one or two right-in/right-out access points for eastbound OR 22 traffic. Both alternatives also could provide an optional right-out at the Eola Inn location, should that property be acquired by the County or ODOT. With a provision for eastbound access from OR 22, either connection to OR 51 south of the proposed interchange via SE-1 or SE-2 would have little advantage (except for westbound access via the interchange) that would justify the costs of new roadway and environmental impacts/mitigation. Two Doaks Ferry Road alternatives provide a potential westbound access: an interchange near College Drive farther east, and an undercrossing at Spring Street (see DFR-4 diagram in Appendix H).

SE-1 and -3 propose direct access to OR 22 at the RV Park driveway, about 1-mile distant from the current intersection with OR 51, and connect commercial/industrial properties, as well as some residences, fronting OR 22 to the west and east. Thus, with construction of the proposed OR 22/51 interchange, it is unlikely the spacing requirement of one-mile would be met (though close) and would require a spacing exception. Also considered was access at State Farm Road, an existing County road that is 0.14 miles closer to the proposed interchange. Another alternative to the RV

Park driveway would be a half-mile farther east on the southside of OR 22 opposite Shaw Street (this location was considered by ODOT in July 2004). An advantage of this OR 22 access for SE-1 is its proximity to the proposed Spring Street undercrossing and connectivity to the north side.

An advantage of SE-3 is that as a frontage road it provides the most direct and visible access to commercial and industrial zoned properties adjacent to OR 22. However, acquiring enough right-of-way for both the frontage road and potential widening of OR 22 to six lanes could be difficult in some locations. Topography especially is a constraint for SE-1 and SE-3 from the RV park area all the way to the Eola Inn. Additional detailed technical investigations and survey of the area, focusing on costs, geotechnical, and floodplain issues, would enlighten decisions regarding specific feasibilities of either alternative or more likely some combination of both.

6.2.4 OR 22 at Doaks Ferry Road

Three modified build alternatives were retained. All three would include a right-in movement to Doaks Ferry Road for westbound OR 22 traffic. Both alternatives DFR-2 and DFR-7 would maintain a connection to Doaks Ferry Road via an eastbound OR 22 left-in movement and would allow the existing right-in/right out movements. The right-in movement for DFR-2 at Doaks Ferry Road would include a new deceleration lane and provide less out of direction travel for westbound travelers. The left-out movement for DFR-2 and DFR-7 would be prohibited by signage and discouraged with a painted island and road realignment that would channel traffic more directly westbound. Trying to restrict left-out movements with a raised barrier, while still allowing left-in movements, could create additional safety problems from drivers attempting to avoid the barrier. Appendix H includes diagrams of these alternatives.

DFR-4 would provide an undercrossing farther west in the vicinity of Spring Street that would connect with backage roads NE-2 and SE-1. DFR-4 would keep the right-in only deceleration lane connecting to Doaks Ferry Road but eliminate the northside Riggs Street intersection and replace it with a southside intersection opposite Shaw Street. The south Shaw Street access would include deceleration and acceleration lanes for exiting and entering OR 22. South Shaw Street would connect with backage road SE-1, which would connect with the Spring Street undercrossing. Thus, the eastbound left-turn and westbound U-turn lanes near Riggs Street as proposed with DFR-2 would not be necessary.

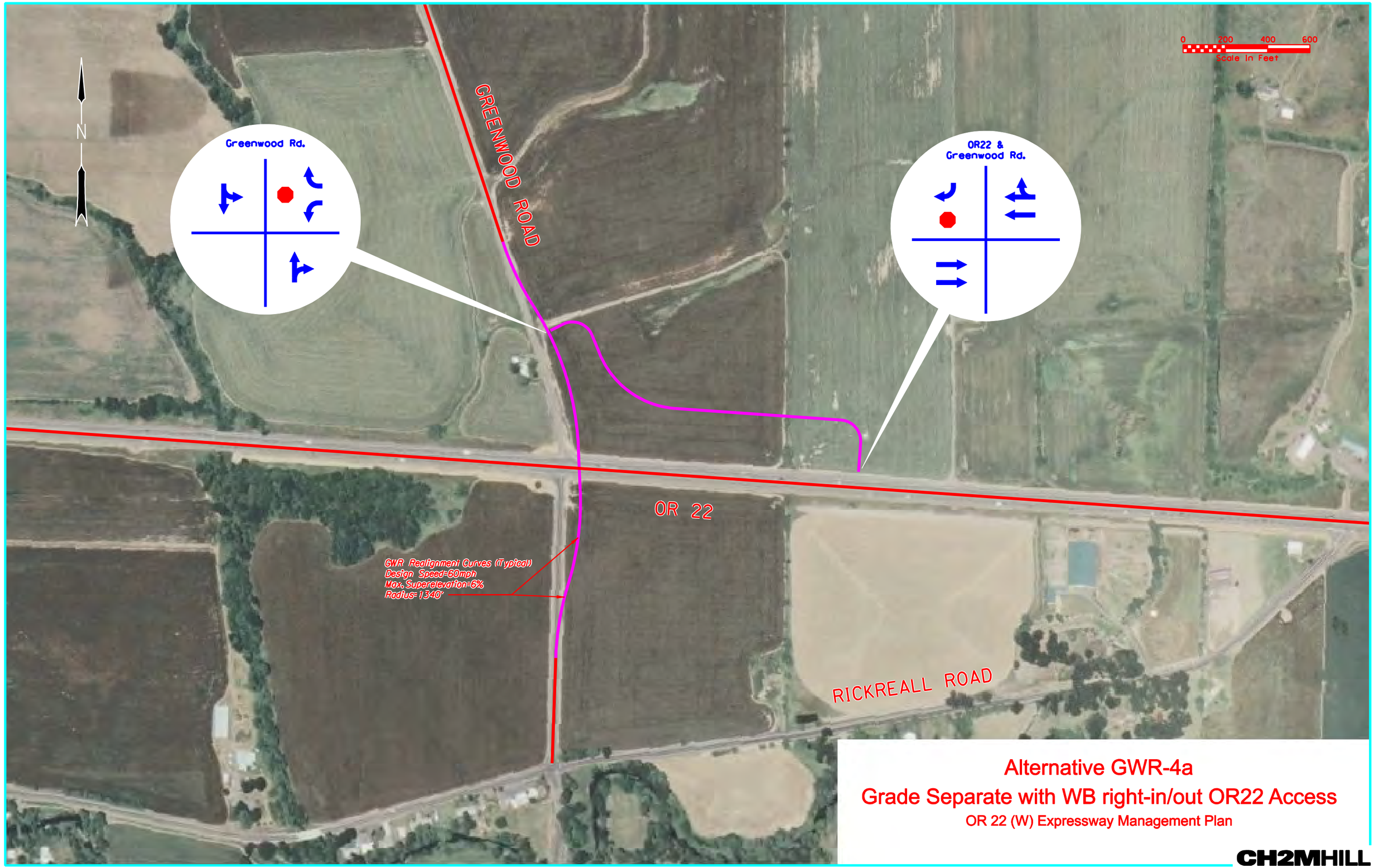
In regard to mobility, the left-in movement is forecast to operate above capacity under either alternative within the planning horizon of 2030. DFR-2 improves safety because the left-in turn movement is relocated to a straight stretch of highway with improved sight distance. Impacts to the natural and built environment and business are greater with DFR-2 because of the necessity of constructing the new north backage road, adding a deceleration lane, and improving a local street. DFR-2 and DFR-4 alternatives would require comprehensive plan amendments to the County and MPO transportation plans; both alternatives could be a phase of larger project but not phaseable by itself. Regarding cost, DFR-7 requires only minor additions of pavement, signage, and paint. DFR-7 is essentially a slightly modified no-build alternative. DFR-4 would be the most costly alternative because of the undercrossing and likely would require an exception to access management spacing standards.

6.3 Stakeholder Comments

Appendix K provides a summary of previous stakeholder meetings from earlier efforts as well as for more recent efforts: a presentation was made to Polk County Commissioners in August and an open house held in November of 2007.

The open house on November 28 was structured to encourage community members to learn more about the proposed alternatives, which was posted at several stations. Approximately 38 people attended the open house, which had been publicized through a mailing to 95 households in the project vicinity. The open house was also announced to the local media with a press release that was distributed during the second week of November. The purpose of the open house was to review the previous work that had been completed on the project two years ago and the proposed alternatives for the key intersections along OR 22. The project team also encouraged the public to complete a comment form or write down their thoughts on flip charts which were around the room. Comments by attendees and responses by ODOT are included in Appendix K.

In summary, attendees of the open house were eager to see an overpass constructed at Greenwood Road to facilitate a safe crossing for farm equipment, school buses, and other vehicles. The need for an interchange at OR 22/51 to improve safety also was expressed. Support for maintaining a connection to Doaks Ferry Road and a tunnel was expressed, including phased improvements and the possibility of an interchange in the vicinity of College Drive. People commented that the system of frontage and backage roads was hard to understand what was being proposed, but not all of it was needed. Staying on the old railroad right-or-way was thought a good idea. Some people wanted additional enforcement on OR 22 to slow traffic.



Alternative GWR-4a

Grade Separate with WB right-in/out OR22 Access

OR 22 (W) Expressway Management Plan

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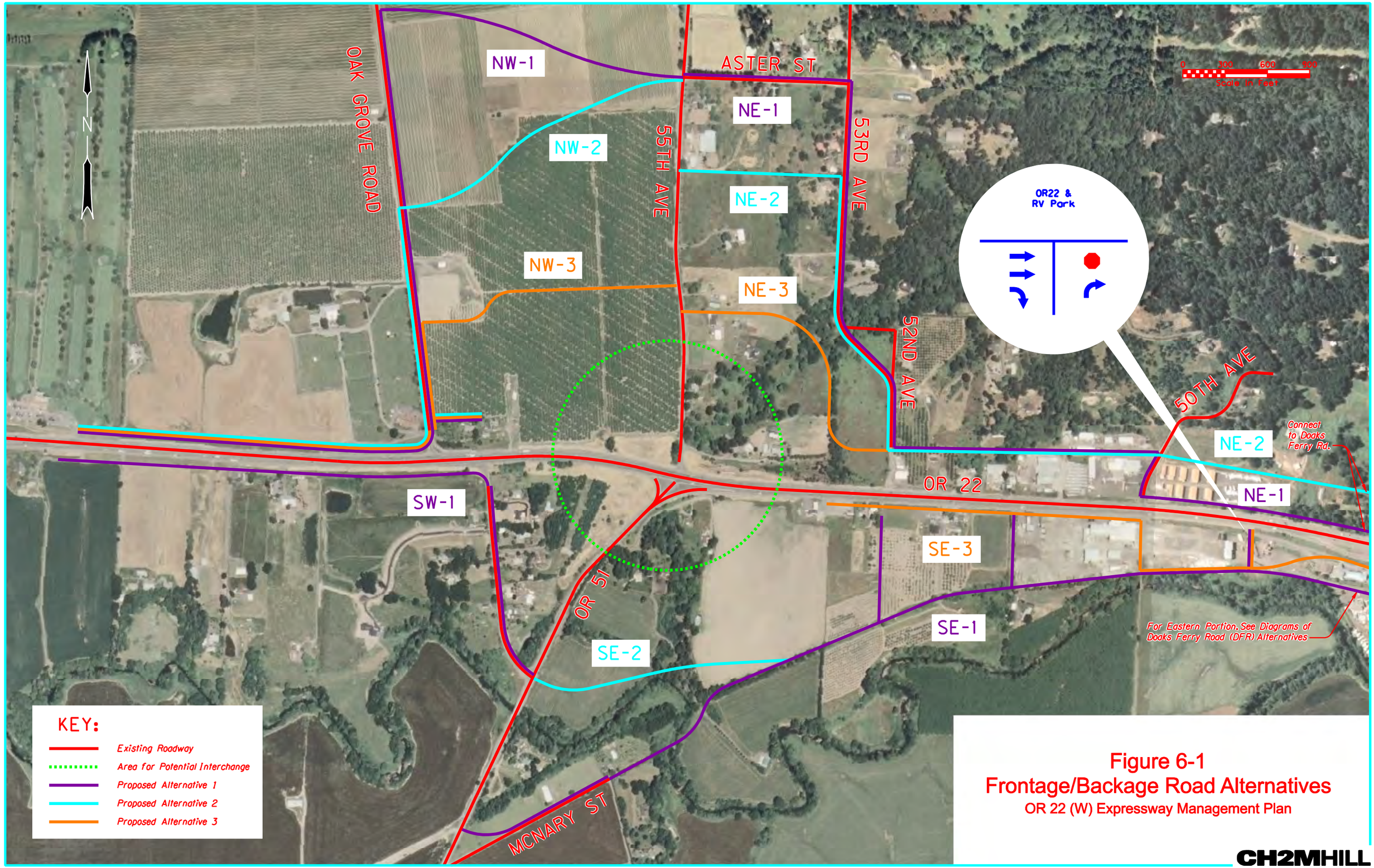

Figure 6-1
Frontage/Backage Road Alternatives
OR 22 (W) Expressway Management Plan

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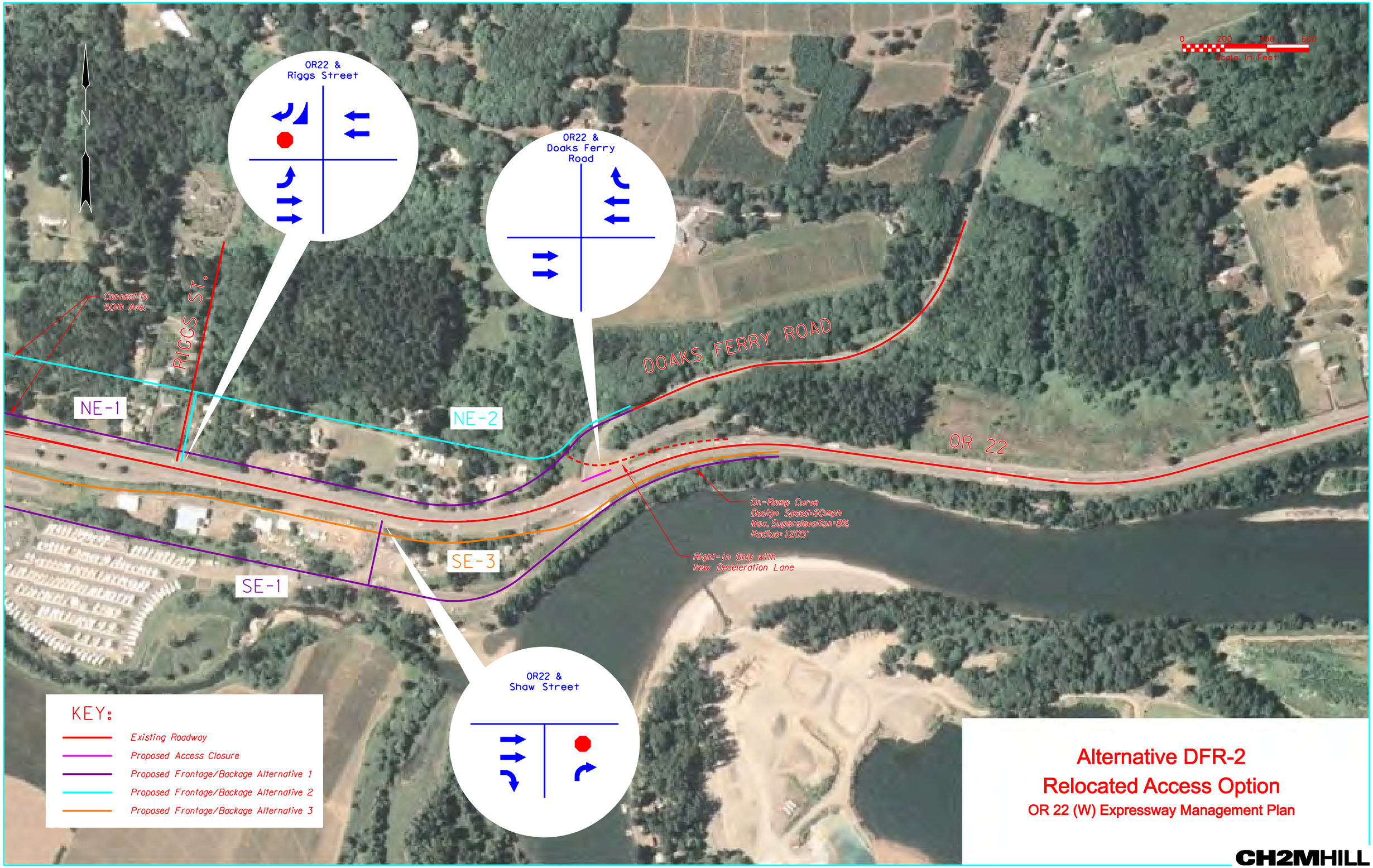
N
0 200 400 600
Scale In Feet
OR22 &
Riggs Street
OR22 &
Doaks Ferry
Road
OR22 &
Shaw Street
Connect to
50th Ave.
RIGGS ST.
DOAKS FERRY ROAD
OR 22
NE-1
NE-2
SE-1
SE-3
On-Ramp Curve
Design Speed=60mph
Max. Superelevation=8%
Radius=1205'
Right-In Only with
New Deceleration Lane
KEY:
Existing Roadway
Proposed Access Closure
Proposed Frontage/Backage Alternative 1
Proposed Frontage/Backage Alternative 2
Proposed Frontage/Backage Alternative 3
Alternative DFR-2
Relocated Access Option
OR 22 (W) Expressway Management Plan
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CHAPTER 7

Recommendations

7.1 Decision Process

The process for making decisions about recommendations involved four steps. First, the ODOT Project Coordinator presented at a Polk County Commissioners meeting the problem statement and evaluation criteria developed by the Project Management Team (PMT), the screened alternatives, and evaluation results. Stakeholders and the public, including the Polk County Citizen Involvement Committee and many individuals who had been involved in identifying and discussing alternatives during earlier OR 22 planning efforts, were invited to attend the meeting and comment. Second, the PMT considered the public and County comments, revised the alternatives as appropriate, and re-evaluated the alternatives as necessary before deciding on a preferred alternative. Third, the PMT held a public open house to help discern the public's desires regarding proposed improvements and the draft plan recommendations. Fourth, the PMT considered the public comments and developed final recommendations (below) for inclusion in this OR 22 (W) Expressway Management Plan. The Open House reaffirmed earlier evaluation results and public preferences. Additional public input opportunities are available during the Polk County and OTC adoption processes.

7.2 Recommendations

It is important to note that the recommended projects on the State of Oregon transportation system that are included in the OR 22 – Greenwood Road to Doaks Ferry Road Expressway Management Plan are not guaranteed funding and implementation through inclusion in this document. They cannot be considered to be reasonably likely to be constructed during the planning horizon. Consequently, these projects cannot be relied upon to support plan amendments or zone changes and achieve compliance with Oregon Administrative Rule 660-012-0060 unless or until they are included in the adopted Statewide Transportation Improvement Program (STIP) or a specific funding source is identified and supported by ODOT in writing or a funding plan that is supported by ODOT in writing is developed. The projects recommended in this document simply represent state and local agreement about transportation system needs in the project area that have been identified through extensive analysis. The process of funding recommended projects through the STIP is discussed in greater detail in the Funding section of this report (Section 7.2.2).

The final recommendations of the Project Management Team address the problem statement and goals (Chapter 2) of this Expressway Management Plan and constitute the Preferred Alternative. The recommendations support and enhance the function of the expressway to meet the needs of safety, mobility, capacity, and access during the next 20 years. In addition, the recommendations would mitigate impacts to the natural and built environment and fund projects under a constrained scenario of reasonably available revenues.

Implementation of the preferred alternative, consistent with the function of an expressway, would close most points of direct access to OR 22 between the Derry Overcrossing (MP 16.94) and College Drive (MP 23.67) over the next 20 years. A system of frontage/backage roads on the north and south sides of OR 22 connected to a proposed grade-separated interchange at OR 22/51 would provide new alternate accesses to properties adjacent to the expressway (see Figures 6-2 and 6-3). To address community concerns of out-of-direction travel and access to commercial properties on the north and south sides of the highway, as well north-south connectivity, one or two direct access points between intersections with OR 51 and Doaks Ferry Road are proposed to link to the frontage/backage roads. An overcrossing would be constructed at Greenwood Road (see Figure 6-1). Access to Doaks Ferry Road from OR 22 would be relocated to the west, where the highway straightens. In addition, west of the intersection with OR 51 to the Derry Overcrossing, there would remain some existing and limited points of unimproved access to agricultural properties. (Details of the Access Management Plan are addressed later in this chapter under section 7.3). New signage along OR 22 would direct travelers to commercial/industrial areas and roadside attractions (e.g., the historic Brunk House) served by the frontage/backage roads. OR 22 would be widened from the existing four lanes to six lanes (three in each direction) as necessary to meet mobility standards.

Table 7-1 provides a summary of the preferred alternative of this EMP over the short-, medium and long-term.

Conclusions of the expressway planning study and details of the recommendations forming the preferred alternative are presented below.

1. **OR 22 Mainline.** There is a need under present and future forecast traffic conditions to increase the safety and mobility of the section of OR 22 from Derry Overcrossing to Doaks Ferry Road. As a designated Statewide Expressway and Freight Route, this section functions primarily to move regional and statewide traffic, with limited local access. However, several existing local access points in this section create safety problems and mobility impediments. Consolidation and eventual **elimination of local access** points and restrictions to turning movements through the **placement of a median barrier** would improve expressway operations in this section and are proposed improvements. **Widening to a six-lane section** as needed to maintain mobility standards is also a proposed improvement during the plan period.

2. **Greenwood Road Intersection.** There is a need to preserve north-south access at Greenwood Road for school buses and movement of farm machinery essential to support existing and planned land uses in the area. However, such movements under present traffic conditions require driver caution and patience, and future traffic conditions are forecast to have reduced traffic openings and increased risk of crashes at this location. Therefore, a **grade separation** for Greenwood Road at OR 22 is a proposed improvement; the overcrossing structure would be two lanes with wide shoulders to accommodate farm machinery. In addition, a **westbound right-in right-out frontage road** connecting to Greenwood Road, with a decel/accel lane on OR 22, would be constructed with the overcrossing as needed.

Table 7-1. Summary of Preferred Alternative

Facility	Short Term (<5 yrs)	Medium Term (5-10 yrs)	Long Term (10-20 yrs)
Greenwood Road (GWR)	No change	Acquire right of way for north frontage road and overpass	Construct overpass (GWR-4b); construct decel/accel lane and north frontage road as needed (GWR-4a)
Independence Highway – OR 51 (INH)	Prepare environmental assessment and interchange area management plan	Acquire right of way for interchange; construct arterial upgrades, local connections, and highway realignments	Construct interchange ramps and structure (INH grade separation alternative to be determined through an Interchange Area Mgmt Plan)
Doaks Ferry Road (DFR)	The short-term goal is to eliminate the left-turn move from Doaks Ferry Road to EB OR 22. Initially, this may be accomplished with non-structural measures (i.e., signing and striping). Structural measures (e.g., raised median, channelization, etc.) may need to be implemented based on safety, driver performance and compliance with the non-structural measures (DFR-7)	Construct new access at Riggs Street; connect to backage road; close LI/RO at DFR, construct decel lane (DFR-2)	Realign DFR to a point west of the BPA substation and connect to OR 22 – likely with an interchange(DFR-6); construct undercrossing at Spring Street (option) (DFR-4)
NE Quadrant (first) of OR 22/51	Acquire right of way for backage roads	Construct backage road parallel to hwy (NE-2)	Upgrade as needed
NW Quadrant (third) of OR 22/51	Acquire right of way for backage roads	Construct backage road (NW-2)	Upgrade as needed
SW Quadrant (fourth) of OR 22/51	Acquire right of way for frontage road	Construct frontage road (SW-1)	Upgrade as needed
SE Quadrant (second) of OR 22/51	Determine combination and phasing of SE-1, -2, -3; acquire right of way for frontage/backage roads	Construct frontage/backage roads; improve RV park access	Upgrade as needed; construct access at south Shaw St. or vicinity (DFR-4); construct EB on-ramp at Eola Inn (option)
Mainline & Access (OR 22)	Work with landowners on access closure plans and new connections	Install continuous median barrier as feasible; close accesses; connect to frontage/backage roads	Acquire right of way for lane additions; construct additional lanes as needed; install additional barrier

Note: EB = East Bound; WB = West Bound; RI/RO = Right In/Right Out; LI/LO = Left In/Left Out

3. **OR 51 Intersection.** There is a need to improve safety at the intersection of OR 22 and OR 51 under present conditions, as well as a need to improve mobility under future no-build traffic conditions. The existing multi-use path should be retained and incorporated

into improvements, as well as possible public transit improvements. Only a grade-separated interchange, constructed consistent with the mitigations and protections of an approved environmental assessment (EA) and interchange area management plan (IAMP), would provide the standard for safety and mobility, and is a proposed improvement.

4. **Local Access.** There is a need to provide a reasonable level of traveler access to commercial/industrial properties adjacent to OR 22 and local resident access to the highway for commuting. Construction of a **system of frontage and backage roads** would create new and consolidated local access and enable closure of existing access directly from OR 22 between Rickreall Road and Doaks Ferry Road. These roads would accommodate pedestrians and bicycles as well as vehicular traffic. Such local system improvements would provide opportunities for property development as well as support the function of the expressway and proposed OR 22/51 interchange during and after construction, and are proposed improvements on both sides of OR 22. Potential access points include Doaks Ferry Road, Riggs Street, the RV park driveway, and south Shaw Street (or vicinities).

5. **Doaks Ferry Road Intersection.** There is an existing need to improve safety at the intersection of OR 22 and Doaks Ferry Road, which was a Safety Priority Index System (SPIS) site for 2004-2006. Doaks Ferry Road is in an area planned for additional residential development and provides eastbound OR 22 travelers a short-cut to the West Salem area. Doaks Ferry Road is a major arterial that provides many local area residents access to OR 22 for travel eastbound and westbound. OR 22 used to provide traveler access to Holman State Wayside until the park facility was closed permanently in November 2007. To increase safety in the short-term while maintaining the utility of Doaks Ferry Road to serve the needs of local residents until an interchange/backage road connection to Doaks Ferry Road is constructed, the existing **eastbound left-in turn refuge should be retained**. The existing westbound **right-in and right-out turning moves also would be retained until an interchange/frontage road connection is constructed.** However; **left-out turns should be prohibited** from Doaks Ferry Road onto OR 22. This could be accomplished in the short-term by placement of signage, striping, and painted channelization islands. Based on driver performance and compliance with the non-structural measures, it may be necessary in the short-term to install structural measures (e.g., raised median, channelization) to physically eliminate the left turn movement. ODOT and Polk County will review safety records two years after non-structural measures are installed to determine of they are effective. Medium- and long-term improvements involve constructing a backage road (2nd Street), **relocating OR 22 access** to Riggs Street, constructing an undercrossing in the vicinity of Spring Street, and pursuing development of an interchange just west of College Drive with a new connection to Doaks Ferry Road.

6. **Future Capacity.** There is a need under future forecast traffic volumes on OR 22 to provide additional capacity. Because the expressway in this section carries mostly regional traffic, transportation demand management strategies, such as additional transit facilities, would be ineffective and **additional lanes (one in each direction)** would be needed to meet mobility standards. Provision of a **transit park-and-ride area** in association with the OR 22/51 interchange should be considered during interchange planning. To preserve the potential and reduce the costs for constructing additional lanes in this section of OR 22, as

well as a system of frontage/backage roads, **acquisition of adequate right-of-way as soon as possible** by state and local governments is a proposed action. In addition**, no new accesses** shall be allowed unless approved by the Region Access Management Engineer.

7. **Implementation.** There is a need for state and local governments to work together to plan and implement improvements to this section of OR 22. A possible phased implementation of improvement is shown in Table 7-1. **Intergovernmental cooperation**, including agreements, land use actions, environmental analysis, traffic monitoring, access management, financing, and coordinated implementation schedules are proposed actions. Improvements over the project plan period (2007-2030) could ultimately result in a continuous median barrier from west of Greenwood Road to east of Doaks Ferry Road. an overpass for Greenwood Road, an interchange at OR 22/51, multimodal frontage and backage roads on both sides of the highway, and an undercrossing at Spring Street. Residential development in the hills east of the project area could create strong pressures for an interchange near College Drive. Construction of a system of frontage and backage roads in the project area would provide improved local circulation, a connection to OR 22 and OR 51 as well as access to local residences and businesses. Proposed actions **short-term** (<5 years) are acquisition of right-of-way, an intergovernmental agreement (IGA) and cooperation for local system improvements, environmental analysis, and land use actions (including TSP amendments and an IAMP), and development of a phased funding strategy from multiple sources (local, state, federal) so projects may appear on a constrained capital improvements list. Polk County, along with ODOT, SKATS, and the City of Salem as appropriate, would review land use development proposals to ensure that development in the area did not impinge on land needed for the planned highway facilities nor create excessive demands on the transportation system beyond those forecast.

8. **Funding.** There is a need to cost-effectively make improvements to OR 22 under a constrained-revenue forecast. A coordinated, phased implementation of improvements would provide a strategy to secure **construction funding from multiple sources** and is a proposed action.

Additional details for developing and funding the improvements and protecting the function of the expressway through access management are discussed below.

7.2.1 Phasing Strategy

Construction of the OR 22/51 interchange would severely disrupt normal traffic flow along the OR 22 mainline. Construction detours would be required. The existing local road system is not designed to handle the volume of traffic diverted from OR 22. Therefore, it makes sense to first build the local system of frontage/backage roads as detour routes that would be ultimately connected to the interchange. Acquisition of right-of-way would be an early development activity in the NE, NW, and SW quadrants. Development would proceed sequentially through four phases, the first three including environmental evaluation and permitting, engineering design, right-of-way acquisition, and construction work (as similarly proposed by W&H Pacific, Appendix G). The order of construction would be:

- Phase 1: NE Quadrant Backage Road and Doaks Ferry Road Improvements
- Phase 2: NW & SW Quadrants Backage Roads

- Phase 3: SE Quadrant Frontage/Backage Roads
- Phase 4: OR 22/51 Interchange Construction

Construction of improvements to the intersection with Greenwood Road would proceed as traffic volume increases on OR 22 and funding becomes available. Construction of a new interchange at College Drive and/or an undercrossing at Spring Street similarly would proceed as development proposals are made in the area, traffic impacts are assessed, and funding becomes available. These projects, prior to construction, would first go through phases involving environmental evaluation and permitting, engineering design, and right-of-way acquisition.

7.2.2 Funding Strategy

This EMP will be adopted as part of the SKATS Regional Transportation System Plan (RTSP). Proposed projects along OR 22 that are east of Oak Grove Road are within the MPO planning boundary (SKATS). Funding for these RTP projects must be based upon revenue levels that can reasonably be expected to be available. This is a federal requirement that also requires consideration of the need to adequately maintain and operate the transportation system with a portion of available revenues. The State of Oregon requires that the RTSP adequately serves the land use plan of the jurisdiction (Polk County) that is supported by a financing strategy that supports implementation of the plan. As projects are proposed for inclusion in the RTSP, other projects may be deleted or taken to a lower priority level if revenue expenditures are at the maximum. Otherwise, funding strategy must include actions to raise additional revenue, with reasonable expectation of availability, from federal, state, regional, and local sources. Appendix I includes a benefit/cost analysis for the intersection alternatives.

The 2031 RTSP contains a list of projects for which funding is reasonably anticipated over the 24-year life of the plan. A significant funding shortfall is anticipated. All non-transit project costs total $937 million, while only $436 million in regional revenues are reasonably anticipated, leaving a deficit of $501 million.

The SKATS Transportation Improvement Program FY 06-09 includes funding for the EA and right-of-way in 2009 in the amounts of $108,862 State Highway funds, $286,136 Polk County funds, $951.138 NHS funds, and a $2.5 million SAFETEA-LU earmark.

The W&H Pacific report estimated total permitting, design, and construction costs (in 2005 dollars) for each of the phases of the OR 22/51 interchange. Adjusted for inflation (2007 dollars), these costs would total $34.78 million, broken down as follows:

- Phase 1: Northeast Frontage/Backage Road Improvements - $4.88 million
- Phase 2: Northwest and Southwest Frontage/Backage Road Improvements - $5.19 million
- Phase 3: Southeast Frontage/Backage Road Improvements - $6.15 million
- Phase 4: Interchange Construction - $18.56 million

In 2004, ODOT estimated the cost (adjusted for inflation in 2007 dollars) of an overcrossing at Greenwood Road to be approximately $4 million to span a future possible six lanes. Most recently for this EMP, CH2M HILL prepared a conceptual-level cost estimate (in 2007 dollars) of the refined alternatives:

DFR-2	$ 1,215,448
DFR-4	$ 5,518,000
DFR-7	$ 516,683
GWR-3	$ 65,320
GWR-4a	$ 5,879,760
GWR-4b	$ 5,855,760
GWR-6	$ 1,584,242
INH-3	$17,553,910
INH-4	$16,248,370
INH-5	$18,932,480
INH-6	$18,645,200

North Backage Roadways (NE + NW)	$ 5,361,467
South Frontage/Backage Roadways (SE + SW)	$ 5,240,825

Thus, total cost of all phases (INH-5 + quadrant frontage/backage roads) of the OR 22/51 interchange project in 2007 dollars is estimated to be $29.54 million. Appendix I includes ODOT's Benefit/Cost calculation sheets based upon the above estimates for the alternatives.

Across the state, local jurisdictions have been delaying maintenance because of funding shortfalls, creating an overwhelming need for maintenance. Thus, maintaining the existing transportation system is a priority over building new facilities. Local jurisdictions have been integrating federal funds into their local plans, leaving inadequate funding for modernization projects unless the state or local jurisdictions develop other funding sources that would release federal funds. The region has two ways to receive federal funding: programs and earmarks.

Potential locally generated revenue sources that could help fund projects proposed in this EMP include municipal bond financing, system development charges, local fuel taxes, vehicle registration fee surcharges, transportation utility fees, property tax levies, and tolls.

At the state level, ODOT conducted a transportation needs analysis in 2005 that revealed a transportation funding shortfall for all highway related programs. Current annual needs are $1.27 billion versus a current annual funding level (including federal funds) of $786.5 million, yielding an annual funding gap of $480.5 million (2004 dollars). Beyond the identified needs, ODOT also has identified other critical investments, which do not currently include the proposed improvements of this EMP.

As noted earlier in the OR 22/Greenwood Road to Doaks Ferry Road Expressway Management Plan, the improvements listed in the Recommendations Section (Section 7.2) are not guaranteed future funding and cannot be considered reasonably likely to be funded during the identified planning horizon for purposes of addressing OAR 660-012-0060. For recommended projects to be considered reasonably likely to be funded during the identified planning horizon, they must either be selected for inclusion on the STIP, associated with a specific source of funding that is supported by ODOT in writing, or identified in a funding plan that is supported by ODOT in writing. The STIP is a project scheduling and funding document.

Unlike project lists contained in the STIP and Metropolitan Transportation Improvements Program (MTIP), the Expressway Management Plan project list is not required by federal or state laws to be "fiscally constrained". Fiscal constraint is defined as a *"demonstration of sufficient funds (federal, state, local, and private) to implement proposed transportation system improvements, as well as to operate and maintain the entire system, through the comparison of revenues and costs."*[1] This means that this plan can provide a single comprehensive list of regional transportation improvement needs and associated costs without having to provide a fiscal rationale as to how the respective projects will be funded. However, with this rationale, the projects cannot be used to support local land use changes.

The OR 22/Greenwood Road to Doaks Ferry Road Expressway Management Plan recommendations, therefore, act only as a reference for regional and local officials Polk County and SKATS to consult when (1) considering projects to propose to the State for inclusion in the STIP, (2) developing priorities for local funding, (3) determining project needs associated with private development proposals, and (4) determining projects needed to support publicly initiated plan amendments and zone changes. Because the cost of needed transportation improvements across the state far exceeds available funds, state officials must decide what projects to fund on the state system, through inclusion in the STIP, based on a thorough evaluation of all projects proposed statewide. This evaluation and process is detailed in the *STIP User's Guide* (ODOT, 2003).[2]

7.3 Access Management Plan

The intent of this AMP is to balance the local land use and economic development goals with state access management requirements to ensure that planned highway improvements will serve local needs and meet state standards. The goal of this AMP is to meet access management spacing standards—and at the very least to improve current conditions by moving in the direction of the access management spacing standards (Appendix C). Some access management measures need to be implemented near-term or when an improvement is constructed; others can be added later as conditions change. Appendix L is a table describing how the Access Management Plan of this OR 22 (W) Expressway Management Plan complies with the provisions of OAR 734-051-0155.

7.3.1 Plan Implementation

Existing accesses and proposed medium- to long-term actions are listed in Table 7-2 and shown in Figures 7-1 and 7-2.

[1] Source: Federal Highway Administration web page: http://www.fhwa.dot.gov/planning/fcdef62805.htm
[2] STIP User' Guide available on-line at: http://www.oregon.gov/ODOT/TD/TP/stipGuide.shtml

Table 7-2. Medium- to Long-Term OR 22 Access Management

No.	MP	Type	Comments/Land Uses Served	Proposed Action
26	21.94 N	curb cut	Small business	Close – Provide access via new backage road.
27	21.93 N	curb cut	SF home adjacent to small business	
28	21.91 N	curb cut	Approach to back side of SF home – does not appear used	Close – Provide access via new backage road.
29	21.89 N	curb cut	Small RV (trailer) park and SF residence	Close – Provide access via new backage road.
30	21.86 N	radius	Shaw St.	Close – Provide access via new backage road.
31	21.79 N	radius	Mill St. – leads to school	Close – Provide access via new backage road.
32	21.76 N	curb cut	SF home with storage (junk) adjacent	Close – Provide access via new backage road.
33	21.73 N	curb cut	Access to adjacent (junk) storage	
34	21.66 N	radius	Riggs St. – extends well up the hill	Keep – Left In/Right In/Right Out
35	21.59 N	curb cut	Field access and adjacent SF home – uses short frontage road	Close – Provide access via new backage road.
36	21.52 N	curb cut	Eola Florist shop	Close – Provide access from new backage road.
37	21.50 N	curb cut	Florist access and SF home	
38	21.44 N	curb cut	Field access – gated	Close – Provide access from new backage rd.
39	21.29 N	curb cut	Approach to ditch, no property access	Close – Provide access via new backage road.
	21.19N		State Farm Road/50th Avenue	Close
40	21.07 N	curb cut	Knorr Plant – some truck activity	Close – Provide access via new backage road
41	21.01 N	curb cut	SF home	Close – Provide access via new backage road.
42	20.97 N	curb cut	Bob Cat sales lot and possible home up the hill	Close - Provide access via new backage road
43	20.95 N	curb cut	Roofing small business and home	Close – Provide access via new frontage road
44	20.93 N	curb cut	Field access – does not look used	Close – Provide access via new backage road
45	20.90 N	curb cut	SF home and field access	Close – Provide access via new backage road
46	20.87 N	curb cut	Field access – does not look used and adjacent to 52nd Ave.	Close – Provide access via new backage road.
	20.84N		52nd Ave. NW	Close – Provide access via new backage road.
47	20.46 N	curb cut	Field access – does not look used	Close
48	20.33 N	curb cut	Brunk House – historic property and field access	Close (Access off of Oak Grove Rd)

Table 7-2. Medium- to Long-Term OR 22 Access Management

No.	MP	Type	Comments/Land Uses Served	Proposed Action
	20.03N		Oak Grove Rd.	Close
49	19.74 N	curb cut	Oak Knoll golf course – and SF home on east property	Close (Rt. In / Rt. Out)
50	19.51 N	radius/paved apron	Gated unused back entrance to Driving range	Close (Now Rt. In / Rt. Out)
51	19.15 N	paved apron	SF home w/ gate (possibly illegal approach)	Keep – Right In/Right Out Only
	18.61N		Greenwood Rd.	Keep – Right In/Right Out Only
52	18.42 N	paved apron	Field access – far east end of string of fields	Keep – Right In/Right Out Only
53	18.06 N	paved apron	Field access	Keep – Right In/Right Out Only
54	17.87 N	gravel	Field access	Close One. (Now Rt. In / Rt. Out)
55	17.49 N	paved apron	Field access	
56	17.31 S	paved apron	Field access	Close One. (Now Rt. In / Rt. Out)
57	17.88 S	paved apron	Field access	
58	18.24 S	paved apron	Field access – just west of guardrail for overflow structure	Keep – Right In/Right Out Only
	18.61S		Greenwood Rd.	Overcrossing
59	18.98 S	paved apron	Field access – field extends south to Old Rickreall Rd.	Close – access off of Old Rickerall Rd.
	19.2 S		Old Rickreall Rd.	Keep – Right In/Right Out Only
60	19.58 S	curb cut	Field access and SF home – utilizes short frontage road	Close – access via new roadway from 19.63 drwy.
61	19.63 S	curb cut	2 SF homes – large properties	Keep – Right In/Right Out
62	19.75 S	curb cut	SF home – large property	Close – access via new roadway from 19.85 drwy.
63	19.85 S	curb cut	Driving range and 2 SF homes – utilizes short frontage road	Keep – Right In/Right Out
	20.37 S		Hwy 51 Connection	Interchange
64	20.29S	curb cut	Field access – corner lot of Independence Hwy.	Close – access from Independence Hwy.
	20.49 S		Hwy 51 (Independence Hwy.)	Interchange
65	20.55 S	curb cut	Gas station – (MP eq. 20.56 = 20.75)	Close – Provide access via a new frontage road.
66	20.77 S	curb cut	Gas station – shared with adjacent business	Close – Provide access via a new frontage road.
67	20.79 S	curb cut	Small business – shared approach with adjacent properties	Close – Provide access via a new frontage road.
68	20.81 S	curb cut	Small business – shared approach (business looks closed)	Close – Provide access via a new frontage road.
69	20.83 S	curb cut	SF home	Close – Provide access via a new frontage road.

Table 7-2. Medium- to Long-Term OR 22 Access Management

No.	MP	Type	Comments/Land Uses Served	Proposed Action
70	20.85 S	radius/ paved apron	Field access	Close – Provide access via new frontage road.
71	20.93 S	paved apron	Fruit stand, espresso stand, antique shop – large open frontage access	Close – Provide access via new frontage road.
72	21.03 S	paved apron	Field access with some buildings back part of property	Close – Provide access via new frontage road.
73	21.03 S	paved apron	Gas station – commercial filling access	Close – Provide access via new frontage road.
74	21.06 S	paved apron	Gas station	Close – Provide access via new frontage road.
75	21.06 S	paved	Begin Pipe Inc. property – open frontage extends to MP 4.05	Close – Provide access via new frontage road.
76	21.09 S	paved	Gated access for visitor, customer, and truck access – used	
77	20.11 S	paved	Gated access – closed does not look used	
78	20.13 S	paved	Building 1A and jump scales, some parking next to building	
79	20.14 S	paved	Exit from large scale	
80	21.20 S	paved apron	State Farm Road, access to Pipe Inc. storage and scales, truck access – road is public owned by county, but does not look like a road	Close? (Possible alternative to No. 81 and new backage road connection) Right In/Right Out Only.
81	21.34 S	paved apron	RV park, church, Pipe Inc. offices, and back door to Pipe Inc. storage	Keep – Right In/Right Out Only
82	21.68 S	paved apron	Several small industrial type businesses	Close? (Possible alternative to No. 83 and new frontage/backage road connection) Right In/Right Out Only
83	21.86 S	paved apron	Serves 2 properties both with gates, does not look heavily used	Keep – Right In/Right Out Only (Connection to new backage road)
84	21.93 S	paved apron	3 SF homes – served with private road	Close – Provide access via new frontage road.
85	21.99 S	paved apron	Salem Yacht club and SF home	Close – Provide access via new frontage road.
86	22.05 S	paved	First delineated approach to Eola Inn – generally open frontage with small curb island channelizing approaches	Close – Provide access via new frontage/backage road. Possible on-ramp from new frontage/backage road.
87	22.06 S	paved	2nd Eola Inn approach	

Note: For locations, see Figures 7-1 & 7-2. Numbers (No.) start at 26 as derived from a larger table.

The long-term plan is to eliminate all approaches where reasonable alternative access is or can be made available to serve the current and or planned use of the property, or through purchase of the property, if needed. These measures would correspond to construction of grade separations.

The medium-term plan is to construct a system of public frontage and backage roads that connect to OR 22 and OR 51 and Doaks Ferry Road (see Figures 6-2, 6-3), and which provide access to properties presently having approaches directly on OR 22. Median breaks would be eliminated during the medium-term, except at Greenwood Road, OR 51, and Riggs Street; in addition, there is a potential U-turn location for westbound to eastbound traffic at 50th Avenue/State Farm Road.

The short-term plan is to evaluate and install a median barrier with breaks at appropriate locations to serve traffic wishing to access properties on the opposite side of the expressway. Approaches to OR 22 that do not have reasonable alternate access to the local roadway network would be restricted to right in/right out only, where it serves the current or planned use of the property. Approaches would be planned for elimination by design of public access roads. Another short-term activity is to develop an access management plan specifically for the proposed interchange at OR 22/51.

7.3.2 Access Management Strategies

This AMP includes strategies to provide and manage access to and from properties in ways that preserve the safe and efficient flow of traffic on the state highway. AMP strategies include applying standards for spacing between intersections, driveways and ramps; consolidating or closing driveways; and restricting vehicular turning movements. Properties may be acquired when reasonable access cannot be provided. Appendix C of the Oregon Highway Plan provides access management spacing standards in tables and figures, as described below.

Interchanges on NHS expressways shall be spaced a minimum of 3 miles in rural areas and 1.9 miles in urban areas (OHP Table 12—Appendix C). The proposed interchange at OR 22/51 (MP 20.37) would be 4.25 miles from the next nearest interchange at OR 22/99W (MP 16.12). A new interchange near College Drive in the urban area would be approximately 3 miles from the OR22/51 interchange. The overcrossing project at Greenwood Road does not fit the definition of an interchange.

Access management spacing standards for statewide highways posted for 50-55+ mph is 5,280 feet for a rural expressway and 2,640 for an urban expressway with at-grade intersections (OHP Table 13—Appendix C).

An interchange at OR 22/51 would require 1,320 feet from the end of the offramp to the nearest approach road (see Table 18 and Figure 20—Appendix C). From the end of the onramp to the nearest approach road requires 5,280 feet (1 mile) in an urban area and 2 miles in a rural area. By the time of implementation of long-term improvements, it is possible the OR 22 segment between Doaks Ferry Road and OR 51 would be in an urban area. The Region Access Management Engineer can allow deviations to these standards under exceptional conditions. An Interchange Area Management Plan and Interchange Access Management Plan, including an access inventory by quadrant, will be prepared prior to approval of construction funds.

Direct access to OR 22 at the RV Park driveway (MP 21.34) is presently about 1-mile distant from the current intersection with OR 51 (MP 20.37). Thus, with construction of the proposed

INSERT FIGURE 7-1 ACCESSES WEST 11x17

Backside of Figure 7-1

FIGURE 7-2 ACCESSES EAST 11x17

Backside of Figure 7-2

OR 22/51 interchange, it is unlikely the spacing requirement of one-mile would be met (though close) and would require a spacing exception. An alternative location at State Farm Road, an existing County road, would be 0.14 miles closer to the proposed interchange. Another alternative to the RV Park driveway would be a half-mile farther east on the southside of OR 22 opposite Shaw Street (MP 21.86). On the northside of OR 22, an approach at Riggs Street (MP 21.66) would likely be close to meeting the spacing requirement.

Under these scenarios, and without an exception to standards, the approaches described in the Table 7-2 and shown in Figures 7-1 and 7-2 would be closed or restricted with implementation of the Access Management Plan and construction of an OR 22/51 interchange.

Access control either exists or will be purchased with new right-of-way within the operating area of each alternative. The Polk County zoning ordinance (112.175) establishes access spacing for arterials, specifically 1,200 feet between driveways on OR 22 and 500 feet on OR 51, and 1-3 miles for county or public use roads along OR 22 and 0.5 mile for OR 51 (Appendix C).

If any redevelopment proposals, or any proposals to change the comprehensive plan designations of residential or commercial parcels within the study area, are received, Polk County should look for opportunities to relocate approaches off of OR 22. Some existing accesses to single family homes and commercial properties may be limited to right-in/right-out movements if no reasonable alternative can be made available.

Polk County also should consider opportunities to close or relocate public or private approaches to OR 22 upon property redevelopment or road improvements, if reasonable alternate access off local streets can be made available to reasonably serve the planned use of the property.

A subsequent Interchange Area Management Plan (IAMP) and Access Management Plan must be developed and adopted by the Polk County and the Oregon Transportation Commission for the OR 22/51 interchange before completion of the Environmental Assessment.

OHP Policy 3C requires preparation of an IAMP that addresses land use and transportation factors when a new interchange is built. OAR 734-51-155 (Appendix C) also requires preparation of an IAMP and specifies what an IAMP should address. OAR 734-51-125 (1)(c)(C) requires that a new interchange project improve spacing and safety standards by moving in the direction of access management spacing standards with the goal of meeting or improving compliance with the access management spacing standards. The Region Access Management Engineer may grant deviations from these standards.

Figure 7-1

Driveway Locations West of Oak Grove Road

LEGEND

- Study Area
- Highways and Roads
- Creeks and Streams
- Willamette River
- Counties
- Open Access
- Access to be Closed

SOURCE: POLK COUNTY GIS
ODOT Right of Way Section

N

0 500 1,000
Feet

File Path: \\rosa\proj\ODOT\356019\GIS\MapDocuments\Figures_7-1_and_7-2_Driveway_Locations.mxd, Date: January 8, 2008 2:03:42 PM, User: CSTEBBIN

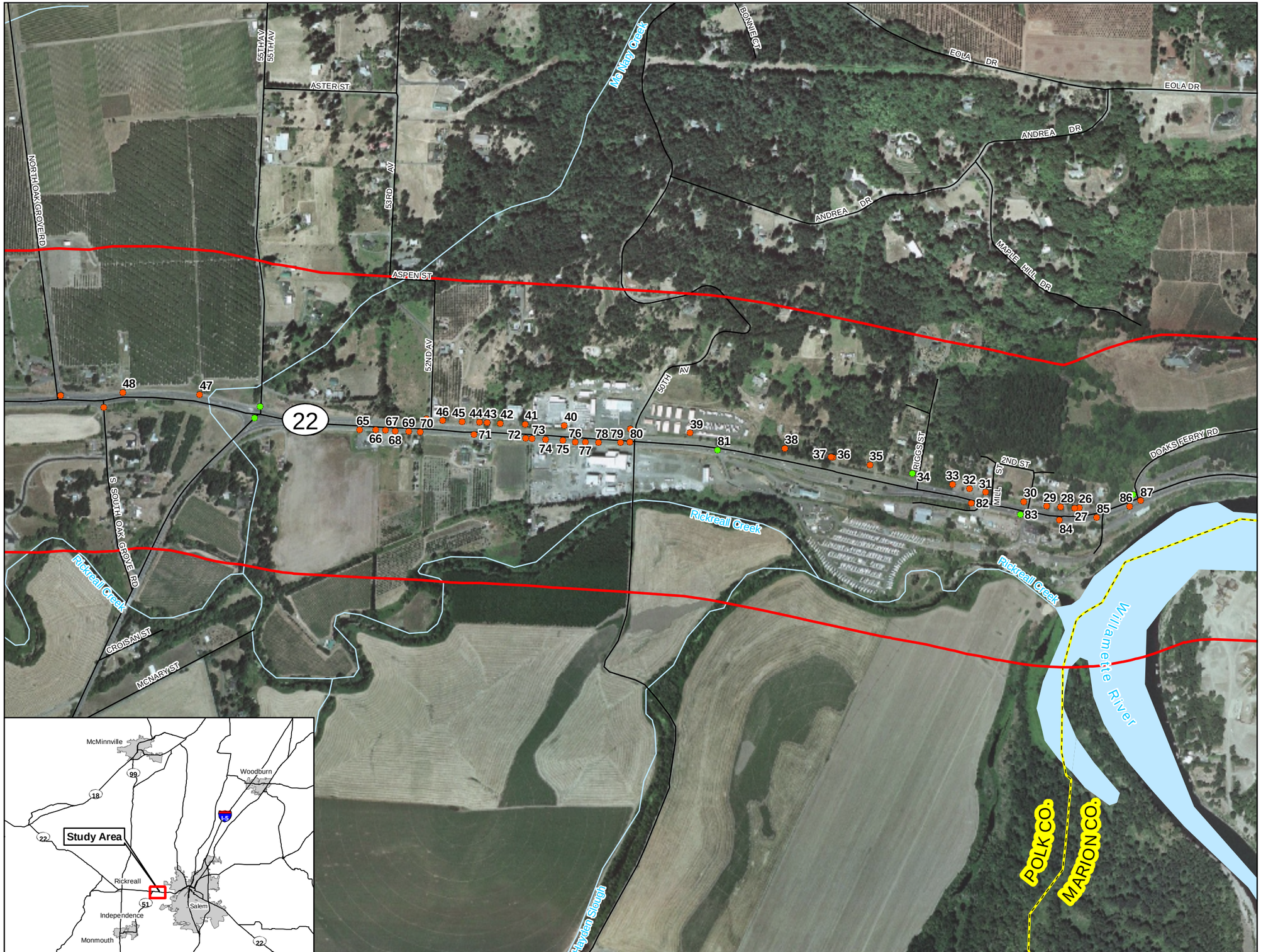

Figure 7-2

Driveway Locations East of Oak Grove Road

LEGEND

- Study Area
- Highways and Roads
- Creeks and Streams
- Willamette River
- Counties
- Open Access
- Access to be Closed

SOURCE: POLK COUNTY GIS
ODOT Right of Way Section

N

0 500 1,000
Feet

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CHAPTER 8

Next Steps

8.1 Adoption and Implementation

Adoption and implementation of the OR 22 (W) Expressway Management Plan will occur at several levels of government. After Polk County incorporates the EMP into its comprehensive plan and Transportation System Plan and SKATS adopts the EMP as a refinement element of the RTSP, the EMP will be presented to the Oregon Transportation Commission (OTC) for review and approval and adoption as an ODOT facility plan. With adoption of this OR 22 (W) Expressway Management Plan (Derry Overcrossing to Doaks Ferry Road), the Oregon Transportation Commission (OTC) is approving a facility plan that implements the Expressway designation described in the Oregon Highway Plan.

Regulatory authority determines implementation of this EMP. Local agency authority comes from and through state statutes, city and county comprehensive plans, and development codes. State of Oregon authority comes in the form of policy and administrative rules governing authority over federal and state systems, as granted through the following:

- *State Agency Coordination (SAC) Rule and Agreement (SAC 1990 – OAR 731-015).* The purpose of this rule is to define which ODOT actions are land use actions and how ODOT will meet its responsibilities for coordinating those activities with the statewide land use program, other state agencies, and local government.

- *Transportation Planning Rule (OAR 660-012).* The TPR is one of several statewide planning rules that protect the long-term livability if Oregon's communities for future generations. The rule requires multi-modal transportation plans to be coordinated with land use plans. In satisfying the goal, state and local governments must satisfy requirements that lead to the implementation of a transportation system that functions consistent with the planned land uses.

- *Access Management Administrative Rule (OAR 734-051).* This rule applies to the locations, construction, maintenance, and use of approaches onto the state highway rights-of-way and properties under the jurisdiction of ODOT. These rules also govern the closure of existing approaches, spacing standards, medians, deviations, the appeal process, grants of access, and indentures of access.

8.1.1 ODOT/State of Oregon Implementing Actions

ODOT/State of Oregon will perform the following actions:

1. After adoption of the EMP by Polk County, ODOT will submit the EMP to the Oregon Transportation Commission for adoption as an ODOT facility plan.

2. ODOT, in concert with local government, shall develop an Interchange Area Management Plan (IAMP) for the OR 22/OR 51 intersection prior to, or concurrent with, completion of the environmental analysis for the project, which shall be consistent with the Oregon Highway Plan and following the provisions of OAR 731-051-0125 and 0155 and OAR 734-051-200 to protect resource lands, exception lands, and the safety and efficiency of the interchange and connecting roadways.
3. ODOT, in concert with local governments and the FHWA, shall conduct an environmental assessment (EA) for the OR 22/51 interchange project following the provisions of the National Environmental Policy Act.
4. ODOT shall apply for any required conditional use permits by Polk County necessary for /implementation of the EMP.

8.1.2 Polk County Implementing Actions

Polk County already has taken the following actions that support implementation of this EMP:

1. Polk County has adopted provisions called for in ORS 215.283 (3) and OAR 660-12-065 into its zoning ordinance. These provisions require ODOT to obtain a conditional use permit to replace at-grade intersections with interchanges. ODOT shall apply for this permit from Polk County using information from this plan and others, and the project development process. This permit must be approved prior to project construction.
2. Polk County has adopted an enhanced ODOT notification process by ordinance to ensure that ODOT is involved as early as possible in the assessment of any redevelopment or new development proposal with a trip generation potential that significantly exceeds the assumed levels.
3. Polk County has adopted a zoning ordinance (112.175) regulating access distances for state highways: 1,200 feet spacing for driveways on OR 22, and 1-3 miles for county or public use roads.

Polk County will perform the following additional actions:

1. Polk County shall adopt the OR 22 (W) Expressway Management Plan.
2. Polk County shall adopt comprehensive plan and ordinance amendments and other actions called for by the OR 22 (W) Expressway Management Plan.
3. Polk County will support ODOT and OTC adoption of the EMP.
4. Polk County agrees to accept and process any conditional use permits or other land use applications necessary to implement provisions of this EMP.

8.1.3 Salem Keizer Area Transportation Study Implementing Actions

1. Include applicable EMP-identified transportation system physical improvements on regional facilities initially in the SKATS RTSP “Illustrative Project List” and then move

them to the "Financially Constrained Committed or Included Projects" lists when funding is assured.

2. Adopt the EMP as a refinement element to the SKATS RTSP.
3. Support ODOT and OTC adoption of the EMP.

8.2 OHP Compliance

The 1999 Oregon Highway Plan (OHP—with amendments 1999-2006) contains policies with which local and regional transportation system plans must be consistent. Not all of these policies are relevant to the OR 22 (W) Expressway Management Plan. This overview addresses only those policies and associated actions that are relevant to this Plan.

Policy 1A requires the State to develop and apply the state highway classification system to guide ODOT priorities for system investment and management. **Action 1A.1** directs ODOT to use the categories of state highways listed under that item to guide planning, management and investment decisions regarding state highway facilities. ODOT has done so as part of this project. OR 22 is a statewide highway, freight route, and truck route from milepoint 0.00 to 25.97 inclusive of the study area, which under Action 1A.1 is intended to provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports and major recreation areas not directly served by Interstate Highways. OR 22 also is designated an expressway from milepoint 12.72 to 26.14. Within the study area, OR 22 is the Willamina-Salem Highway (State Highway No. 030) and connects to OR 51, the Independence Highway (State Highway No. 193), which is designated by the OHP as a highway having a District level of importance. OR 51 serves as a farm-to-market route for agricultural interests and support route for rural resource industries. Commuters also use the route to travel between Monmouth, and Independence to Salem (or vice-versa). Regionally, OR 22 provides mobility between Salem and Interstate 5 and OR 18, another statewide highway that connects to the central Oregon Coast. OR 22 also connects to OR 99W, a regional highway that provides mobility between the McMinnville area and Corvallis and Eugene to the south. OR 22 also provides a connection to Bend and Central Oregon. The transportation need for the improvement projects described in this plan includes the need to improve safety and operations along the OR 22 mainline, and especially at the intersections with Greenwood Road, OR 51, and Doaks Ferry Road. While the 1999 Oregon Highway Plan (OHP) mobility standards are currently being met in most locations, it is expected that traffic volume growth will reduce operations below these standards at some intersections within the 20-year planning horizon (year 2030). It is expected that safety will become a bigger issue in the future as traffic volumes and congestion increase on this highway. The identified OR 22/51 interchange project and other improvements identified in this plan will enable these highways to perform their designated functions, in compliance with operational and safety objectives, through the 2030 planning horizon.

Policy 1B recognizes the need for the State to work together with local governments to provide safe and efficient roads for livability and economic viability for all citizens, including collaborative work in planning and decision-making relating to transportation system management. In the background discussion to this policy, ODOT recognizes that communities have grown up historically along statewide travel routes, often converting the functions of those routes from serving statewide traffic needs to serving local traffic needs in the process. ODOT further recognizes that as a result of this process, the ability of state highways to move through

traffic and provide connections between communities has been reduced and impaired; and ODOT notes the importance of maintaining the primary objective of connecting cities and moving people and goods between cities and regions.[1]

The overall goal and focus of Policy 1B is "to connect land use and transportation in a way that achieves long-term objectives for the state highway and the local community. In applying the policy, ODOT will recognize the regional and topographical differences of communities throughout Oregon."[2]

Policy 1B includes a variety of objectives, including (1) maintaining the mobility and safety of the highway system; (2) fostering compact development patterns in communities; (3) encouraging the availability of transportation alternatives; (4) enhancing livability and economic competition; and (5) supporting acknowledged transportation system plans that are consistent with the OHP.[3] The OR 22 (W) Expressway Management Plan and the related projects will help achieve all of these objectives. It will improve the mobility and safety of the region's highway system while facilitating continued compact development and preservation of farmland and create improved pedestrian and bicycle facilities in the project area. Also, the interchange improvement project is provided for in the Polk County TSP.

Action 1B.1 of Policy 1B provides for ODOT to "work with local governments to develop and implement plans that support compact development, especially within community centers and commercial centers." The focus of Action 1B.1 is lands in urban growth boundaries and unincorporated communities rather than rural unincorporated lands. This policy does not directly apply to this plan and project as they are located outside of any established Urban Growth Boundaries, although the plan area does lie within the SKATS area (MPO planning area).

Action 1B.1 also supports establishment of parallel and interconnected local roadways to encourage local trips off the state highway. The OR 22 (W) Expressway Management Plan does provide for new frontage/backage roads that will divert traffic from the state highway system.

Action 1B.2 of Policy 1B provides for ODOT to collaborate with local governments in developing land use ordinances that provide a process for coordinated review of future land use decisions affecting transportation facilities, corridors and sites, including a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities and corridors. This policy has been addressed by the OR 22 (W) Expressway Management Plan and will be key in developing the subsequent OR 22/51 Interchange Area Management Plan (IAMP).

Action 1B.4 directs ODOT to work with local governments to maintain the highway mobility standards on state highways by limiting expansion of development along those highways. This can be done by developing an adequate local network of arterials, collectors and local streets; by limiting access to the state highway; and through local adoption of comprehensive plan policies

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[1] OHP at p. 44.

[2] OHP at p. 45.

[3] The background section to Policy 1B states that while this policy applies to all state highways, it is intended to provide "guidance to ODOT regarding system management planning and implementation activities" and "It is not proposed to be an administrative rule." Rather, the policy "is designed to clarify how ODOT will work with local governments and others to link land use and transportation in transportation system plans, corridor plans, plan amendments, access permitting and project development." OHP at p. 46. The policy calls for ODOT to establish cooperative working relationships with local governments to achieve accessibility and mobility goals for a balanced transportation system.

and zoning that limits the nature and scale of development near interchanges. The actions described in Action 1B.3 will help maintain the mobility standards by ensuring that adjacent development does not intensify.

Action 1B.5 provides for ODOT to work with local governments to develop corridor and transportation system plans that protect existing limited access interchanges, emphasizing safe egress from freeways as the highest priority and regional access to freeways as the second highest priority. This policy also provides for consistency with local TSPs. ODOT already has worked cooperatively with Polk County to develop their TSP and update it to include related state facility plans.

Action 1B.14 directs ODOT to work with local governments to accommodate alternative modes on state highways. The OR 22 (W) Expressway Management Plan does provide for an improved bicycle and pedestrian facility in the plan area, which currently is an existing multiuse path on the northside of the highway. The construction of new frontage/backage roads to county standards on the north and south sides of the highway would include wide shoulders to accommodate bicycles. Pedestrian facilities would be included only on the north side, as at present.

Policy 1C seeks to balance the need for movement of goods with other uses of the highway system and to recognize the importance of maintaining efficient through movement on major truck freight routes. OR 22 in the study area is classified as a statewide highway, expressway, freight route, and truck route by the OHP. OR 51 is a district highway. By recommending a grade-separated interchange at OR 22/51 to replace the existing at-grade intersection, the OR 22 (W) Expressway Management Plan will better accommodate freight movement between Salem and the Oregon Coast and through the Willamette Valley. The improved safety, operations, and bicycle and pedestrian facilities will also better serve other transportation modes.

Policy 1E addresses lifeline routes. The policy seeks establishment of a secure lifeline of streets, highways and bridges to facilitate emergency services response and to support rapid economic recovery after a disaster. By providing for improved performance, the OR 22 (W) EMP and recommended projects supports the objectives of this policy.

Policy 1F addresses highway mobility standards. As described in the background section, this policy "establishes standards for mobility that are reasonable and consistent with the directions of other Highway Plan policies."[4] The policy carries out the directions of Policies 1A and 1C by establishing higher mobility standards for freight routes and Statewide Highways than for District or Regional Highways (where somewhat higher traffic congestion levels are tolerated).

According to the Background statement, the highway mobility standards in Policy 1F are intended to apply to transportation planning decisions. In accordance with Policy 1G, these standards can be met by actions that reduce highway volumes or increase highway capacities. The standards apply through the Transportation Planning Rule, which requires that regional and local TSPs be consistent with plans adopted by the OTC. ODOT's intention is that these standards not be exceeded over the course of a reasonable planning horizon, defined as 20 years for the development of state, regional and local TSPs.[5]

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[4] OHP at p. 71.

[5] See OAR 660-012-0030(3).

Action 1F.1 provides that the highway mobility standards in OHP Table 6 be applied to all state highway sections outside the Portland metropolitan area. The minimum transportation performance standards applied to proposed improvements of this plan incorporate the standards in OHP Table 6, thereby satisfying Action 1F.1.

Action 1F.2 provides that the highway mobility standards be applied over a 20-year period. Because the planning horizon for this project is 2030, Action 1F.2 is met.

OHP **Policy 1G**, addressing major improvements, directs the State to work with local governments to address highway performance and safety needs. Policy 1G establishes priorities for developing corridor plans and TSPs, under which protecting the existing system comes first, followed by improving efficiency and capacity of existing highway facilities; adding capacity to the system; and adding new facilities to the system. These priorities are to be followed "unless a lower priority measure is clearly more cost-effective or better supports safety, growth management, or other livability or economic viability considerations."[6]

The proposed transportation improvements fall within the second lowest priority category, which is to add capacity to existing facilities. Nonetheless, they are consistent with Policy 1G because actions to protect and improve the efficiency and capacity of the existing system without adding capacity are not adequate in themselves to meet the identified purpose and need of the project. In making this determination, ODOT did consider a number of lesser improvements from simply adding turn lanes to lower forms of grade separation and found none of them adequate to address the long-term demand.

Action 1G.2 authorizes ODOT to support major improvements to state highway facilities only where the improvements meet all of the conditions listed under this action item. Those conditions include (1) the improvement is needed to satisfy a state transportation objective; (2) the scope of the project is reasonably defined; (3) the improvement was identified through a planning process that included thorough public involvement, evaluation of reasonable transportation and land use alternatives, and sufficient environmental analysis at the fatal flaw planning stage; (4) the project includes measures to manage the transportation system which alone could not satisfy highway needs during the planning period; (5) the improvement would be a cost-effective means to achieve ODOT objectives; (6) the proposed timing of the improvement is consistent with priorities established in corridor plans and regional transportation plans, and the financing program identifies construction as being dependent on the future availability of funds; (7) funding can reasonably be expected at the time the project is ready for development and construction; (8) the local government schedules funding for local street improvements in its local transportation financing program if needed to attain the objectives of the major improvement; and (9) the plan includes policies and implementing measures that protect the corridor and its intended functions.

The proposed major improvement of this plan (the interchange at OR 22/51) is needed to improve safety and alleviate traffic congestion that would significantly impede the efficient movement of people and goods on a Statewide highway, expressway, freight route, and truck route. Without these improvements, year 2030 traffic volumes within the study area would routinely exceed ODOT performance standards for the subject intersection.

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[6] OHP at p. 82.

The proposed project recommendations identified in the OR 22 (W) Expressway Management Plan resulted from a lengthy and ongoing public process that included an agency and local government project team and citizen involvement through a series of personal stakeholder meetings and open house workshops. These processes focused on and encouraged the consideration and selection of the best alternative that solves current and future transportation needs, avoids or minimizes impacts to the natural and built environments, and enhances community livability. Additional measures to manage and protect the highway system and environment will be set in place through the adoption of the subsequent OR 22/51 Interchange Area Management Plan and Environmental Assessment. The project's cost effectiveness in achieving ODOT objectives is demonstrated by the fact that no lesser improvement to the existing transportation network will address the identified problem and the project purpose and need.

Action 1G.3 provides for ODOT to implement a cost-sharing program through intergovernmental agreement (IGA) when a project has major benefits to the local system, especially when local project sponsors envision purposes beyond those needed to meet state transportation objectives. As part of project development, ODOT will engage in discussions with Polk County about the possible mutual benefits of an IGA.

Action 1G.4 provides for ODOT to design major improvements for limited access to protect through traffic movements. Consistent with this standard, the recommended alternatives will maintain or expand existing access management on all of the impacted state facilities. Action 1G.4 also requires development and implementation of access management intergovernmental agreements. This action is addressed in the access management plan of this EMP and will be part of the subsequent IAMP.

OHP Goal 2 includes a number of policies addressing system management. **Policy 2A** provides for the State of Oregon to establish cooperative partnerships with state and federal agencies, local governments and the private sector to make more efficient and effective use of limited resources to develop, operate and maintain the highway and road system. ODOT has worked closely with Polk County, City of Salem, SKATS, and the FHWA in determining the need for recommended alternatives.

Action 2A.1 directs ODOT to support planning and development of highway projects that enhance the seamless qualities of a transportation system which balances state, regional and local needs. The recommended interchange project does improve transportation service for all modes and ensures continuance of each highway's OHP classification and function.

Policy 2B provides for the State to provide financial assistance to local jurisdictions to develop, enhance and maintain improvements on local transportation systems when they are a cost effective way to improve the operation of the state highway system if certain criteria are met. In this case, ODOT would construct the interchange with federal earmark and state funds, and local frontage/ backage roads with Polk County and federal earmark funds.

Action 2B.3 provides for ODOT to continue to participate in local transportation and land use planning to identify and mitigate potential actions that will adversely affect the state highway system. This policy is satisfied through ODOT's ongoing work to address forecasted problems at Doaks Ferry Road.

Action 2B.4 directs ODOT to work with local governments to identify and evaluate off-system improvements that would be cost effective in improvement performance of the state highway. ODOT has done that through the OR 22 (W) Expressway Management Plan and will address these issues as proposed improvement projects move through the design stage.

Policy 2D requires ODOT to ensure opportunities for citizen participation in improvement projects that affect the state highway system. These include efforts to create opportunities for citizens, businesses, local governments, state agencies and others to obtain information on and comment on proposed projects. It also includes coordination with local governments and agencies to ensure that public involvement programs target affected citizens and businesses, as well as the public. The OR 22 (W) Expressway Management Plan complies with Policy 2D and its action items through its opportunities for citizen involvement through the stakeholder meetings and public open houses, as described in Appendix K.

Policy 2E directs ODOT to consider a broad range of Intelligent Transportation Systems (ITS) services to improve system efficiency and safety in a cost-effective manner. While this policy goes more to systems operations than planning, a variety of ITS actions were considered and were not found to be able to adequately address the problem statement.

Policy 2F directs ODOT to continually improve safety for all users of the highway system. A principal objective of the NDTIP is to protect human health and safety. **Action 2F.1** directs ODOT to develop and implement cost-effective solutions to high priority safety problems. **Action 2F.2** provides for the setting of goals and a process to evaluate the project selection and solution process from a safety standpoint. **Action 2F.3** provides for ODOT to consider a range of potential solutions to safety problems, including but not limited to public education, engineering improvements, constructing bicycle and pedestrian facilities, managing access to the highway, and developing incident response and motorist assistance programs.

Over the past several decades, many improvements have been made to the Willamina-Salem Highway, including establishing it as a safety corridor with increased enforcement, headlights on signing, and oversized traffic control signs. Despite these efforts, the OR 22/51 intersection is still a top 10 percent SPIS site, indicating a higher than average crash history. Because of the traffic volumes being served, it was determined that separating the conflicting movements through development of grade-separated interchange would be the best way to reduce future crashes in this area.

Policy 3A provides for ODOT to manage the location, spacing, and type of road and street intersections and approach roads on state highways to assure the safe and efficient operation of state highways consistent with the classification of highways. This EMP includes an access management plan for the mainline. This policy also will be addressed through the subsequent IAMP for the proposed OR 22/51 interchange.

Policy 3B concerns roadway medians. It states that it is the policy of the State of Oregon to plan for and manage the placement of median openings on state highways to enhance the efficiency and safety of the highways and to influence and support land use development patterns that are consistent with approved transportation system plans. **Action 3B.1** directs ODOT to plan for a level of median control for the safe and efficient operation of state highways consistent with the classification of the highway. **Action 3B.2** requires ODOT to design and construct non-traversable

medians for all new multi-lane highways constructed on new alignments. The OR 22 (W) Expressway Management Plan provides for medians along all of OR 22 within the study area.

Policy 3C directs ODOT to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways. **Action 3C.1** directs ODOT to develop Interchange Area Management Plans to protect the function of interchanges to provide safe and efficient operations between connecting roadways and to minimize the need for major improvements of existing interchanges. As part of new interchange construction, **Action 3C.2** also requires that necessary supporting improvements such as road networks, channelization, medians and access control within the management area be identified in the local TSP and either be in place or be committed with an identified funding source. **Action 3C.6** directs ODOT to plan for and operate traffic controls within the interchange management area with a priority of moving traffic off the main highway or expressway and away from the interchange area. All of these actions will be addressed through development of the subsequent OR 22/51 IAMP.

Policy 3D allows for some flexibility in the state highway system by authorizing deviations from adopted access management standards and policies through an application process. Any requested deviations not already addressed in this EMP will be addressed through development of the subsequent OR 22/51 IAMP and will be approved by the ODOT Region 2 Access Engineer.

Policy 4A seeks to maintain and improve the efficiency of freight movement on state highways and to balance the needs of long distance and through freight movements with local transportation needs on highway facilities in both urban and rural communities. By processing passenger and truck traffic more safely and efficiently, the OR 22 (W) Expressway Management Plan and recommended improvements would implement this policy.

Policy 5A states that the design, operation and maintenance of the state highway system should maintain or improve the natural and built environment including air quality, fish passage and habitat, wildlife habitat and migration routes, sensitive habitats (i.e., wetlands, designated critical habitat, etc.), vegetation, and water resources where affected by ODOT facilities. Environmental analysis conducted will be factored into the project development process for the projects recommended by the plan. It is anticipated an environmental assessment under NEPA will be required for the OR 22/51 interchange project. Additionally, ODOT may need to obtain a conditional use permit for the OR 22/51 interchange project from Polk County by documenting that it has the least impact of any alternative that meets the project purpose and need.

Action 5A.3 directs ODOT to partner with state and federal agencies and local governments to identify sensitive habitat areas with high value that are affected by ODOT facilities and to incorporate design features that will avoid or minimize and, when this is not possible, mitigate impacts to sensitive habitats with high values. No sensitive habitats were identified with the recommended projects of this EMP.