

# Rickreall Junction Transportation Facility Plan

February 2005



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# Background

## 1.1 Transportation Facility Plan Purpose

This report documents the results of the transportation facility planning process conducted by the [Oregon Department of Transportation \(ODOT\)](#) for the intersection of Oregon Route 22 and Oregon Route 99W at Rickreall. The Oregon 22/Dallas-Rickreall Highway intersection was also included in the facility planning process. As the facility process progressed and various alternatives were reviewed, potential impacts to the unincorporated community of Rickreall and the Oregon 99W/Rickreall Road intersection were also assessed. The Oregon 22 and Oregon 99W corridors and the project study area are shown in Figure 1.1.1

Facility plans 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 also constitute the first phase of the formal NEPA or non-NEPA project development process.

The purpose of the Rickreall Junction Facility Plan 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 2025 was the original focus of this effort. However, with the approval of construction funding for this project through the Oregon Transportation Investment Act (OTIA) in late 2001, this facility plan was expanded to include an Interchange Area Management Plan (IAMP) as required by Oregon Administrative Rule (OAR) 734-0051-0200.

The conclusions in this document have provided direction to the project development process by defining the key features of the alternative that has been chosen for construction. This report also provides a basis for the ODOT to work with Polk County to amend its Comprehensive Plan, Transportation Systems Plan (TSP) and Zoning Ordinance. These amendments will acknowledge the project development decisions that have been made and the short- 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.

This project recommendation made by this facility plan defines the alternative that is now included in the State Transportation Improvement Program (STIP) as a result of the OTIA process. However, the Oregon Transportation Commission (OTC) made the OTIA approval with several conditions prior to granting construction approval. These conditions are addressed by this facility plan.

## 1.2 Facility Plan Context

The Oregon Transportation Plan (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.

The Oregon Highway Plan (OHP) designates Oregon 22 as having a Statewide Level of Importance (LOI). Oregon 22 has also been designated by the OTC as an expressway and is included as part of the National Highway System. 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 Oregon 99W as having a Regional LOI.

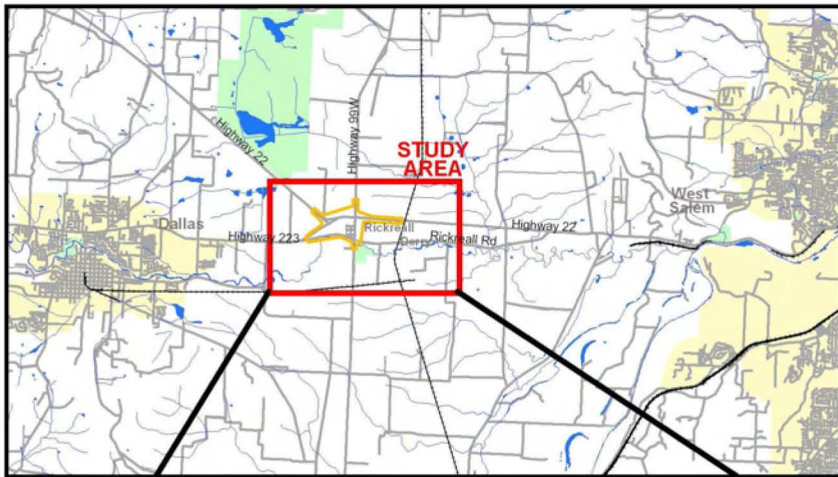
Based on LOI designations, the OHP defines specific standards for state highways, including mobility standards, interchange spacing requirements, investment priorities, and access control standards. The operational performance and mobility standards in the OHP can vary by location and adjacent land use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

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 Oregon 22 Corridor Strategy (West) identified the Oregon 22 and Oregon 99W and Oregon 22 and Dallas-Rickreall Highway intersections as areas that needed further solution development work. This corridor strategy covered the portion of Oregon 22 from its intersection with Oregon 18 at Willamina to the Deer Park/Gaffen Road Interchange approximately four miles east of Interstate 5. These recommendations were further supported by a corridor safety analysis performed in 1999.

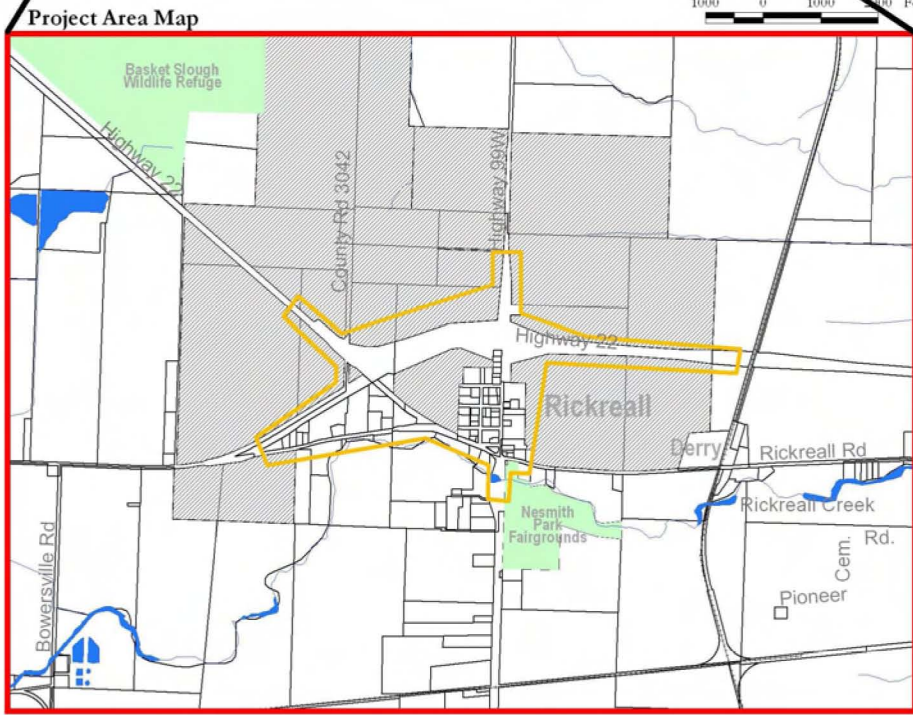
The Polk County TSP identifies both Oregon 22 and Oregon 99W as principal arterials in the County road system. It identifies a number of possible road construction projects including the construction of an interchange at the Oregon 22/Oregon 99W intersection. The TSP states that the county will work with ODOT on any necessary studies related to these projects.

This facility plan is ODOT's first step in the project development process needed to meet the OTIA objectives. Where this facility plan fits within the ODOT's hierarchy of planning, programming, and project development processes is shown in Figure 1.2.1.

INSERT FIGURE 1.1.1—Map in a map showing project study area and corridors



Project Overview Map



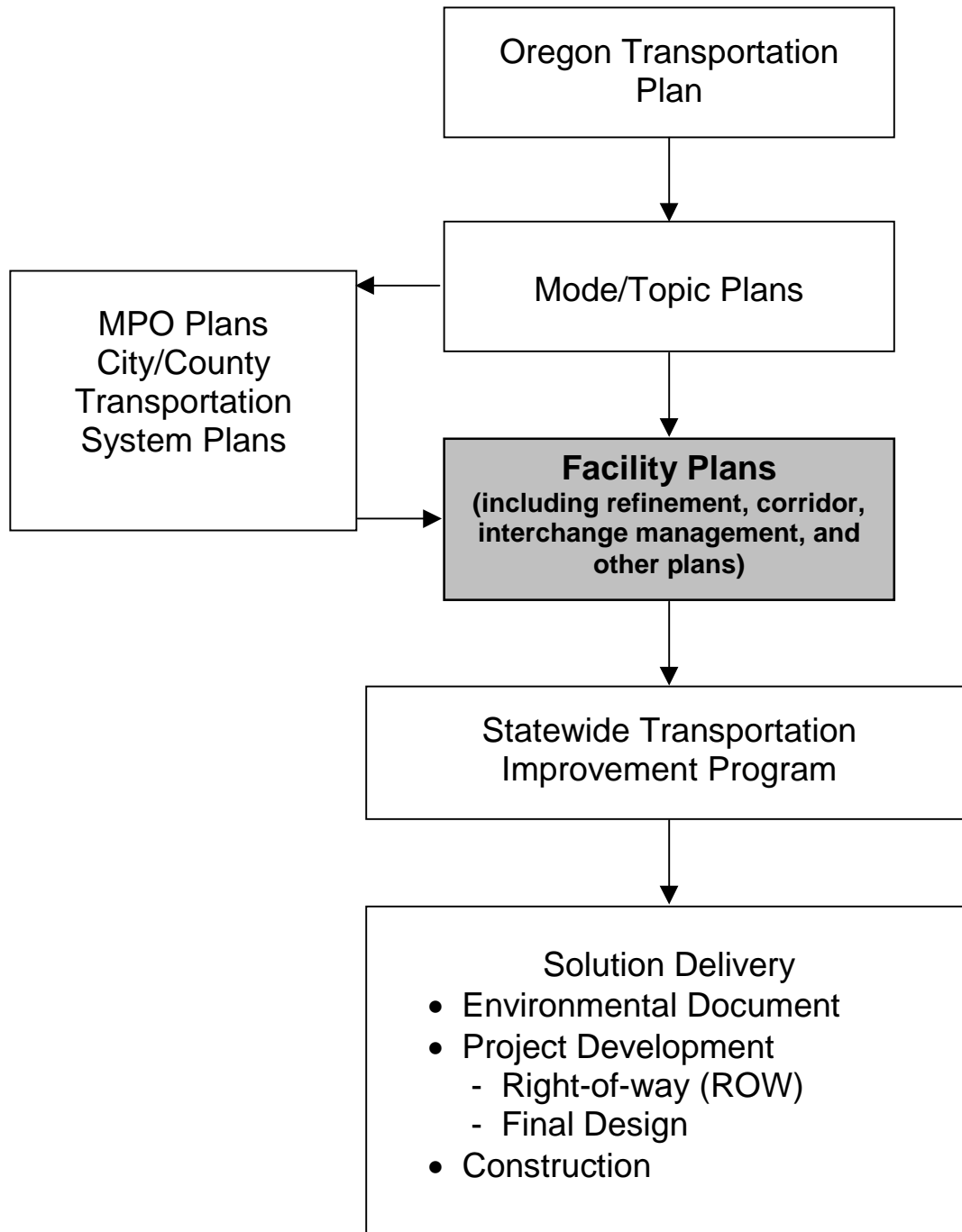
Project Area Map

- Legend:
- Water Features
  - Railroads
  - Parks
  - Polk County Tractlots
  - Study Area Boundary

### Study Area Map

This map is illustrative and is only to be used for planning purposes.





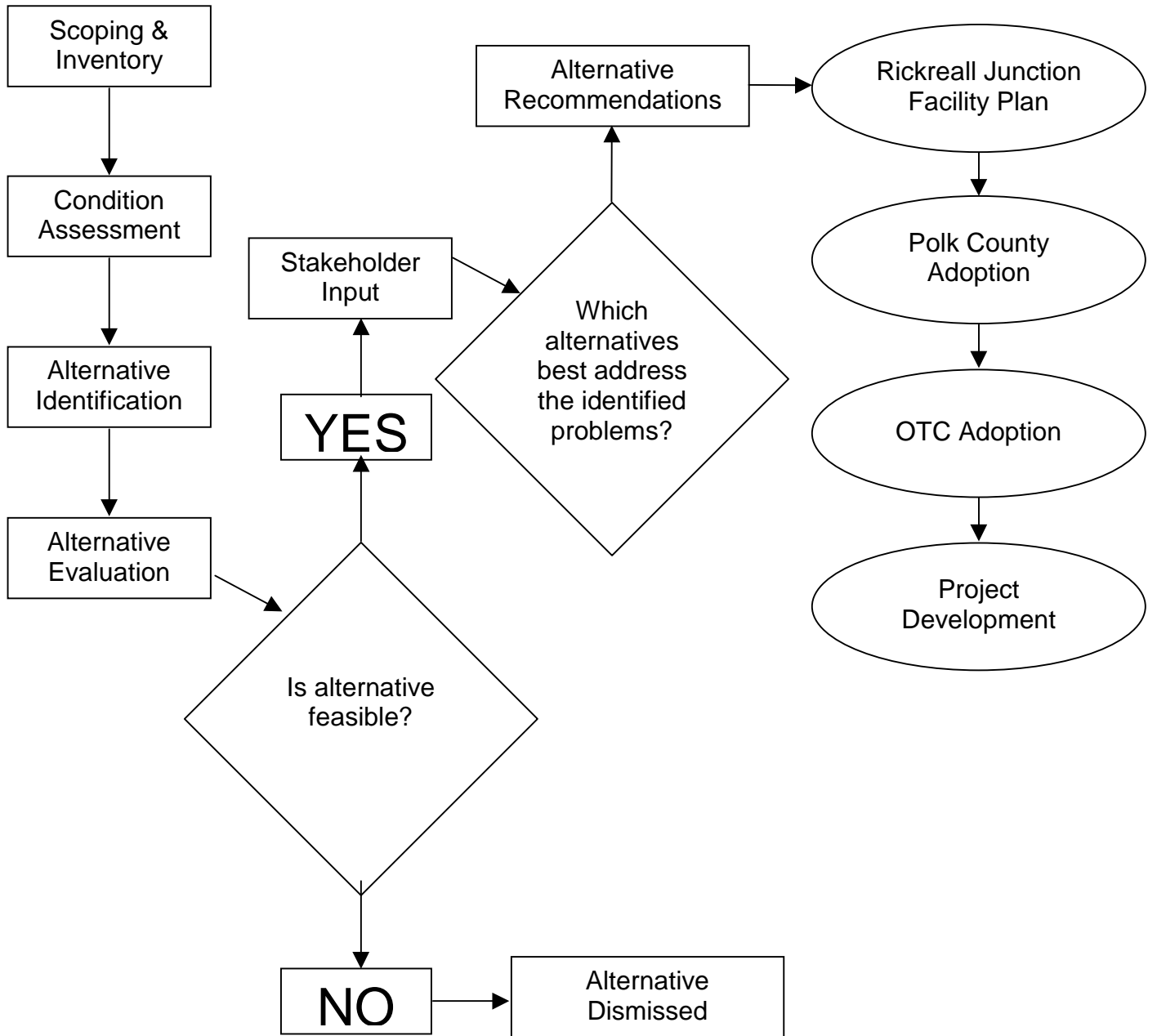
**FIGURE 1.2.1 - ODOT Planning, Programming, and Project Development Context**

## 1.3 Facility Plan Process

This facility plan process consisted of the following phases:

- **Technical Advisory Committee Formation** - A Technical Advisory Committee (TAC) was formed to develop the facility plan. The TAC consisted of federal, state, and local representatives including Federal Highway Administration (FHWA) staff, ODOT staff, Department of Land Conservation and Development (DLCD) staff, MWVCOG staff, and representatives from Polk County and the City of Dallas. The TAC was responsible for developing project goals and problem statement, data collection and analysis, alternative identification and evaluation, and recommendations. The TAC meeting summaries are included as Appendix A.
- **Scoping and Inventory** - The TAC conducted a review of all existing plans, policies, and study documentation related to the existing intersection to identify pertinent policies and determine data collection needs.
- **Conditions Assessment** - The TAC conducted 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 are identified.
- **Alternative Identification** - The TAC identified a range of improvement alternatives and conducted screening to select the most feasible alternatives for evaluation.
- **Alternative Evaluation** - The TAC evaluated the operational performance and geometric feasibility of the selected alternatives using the traffic volumes for the years 2015 and 2025.
- **Stakeholder Input** - The project team conducted a series of meetings with key stakeholders. These included Rickreall community residents and local business owners, officials from Dallas, Monmouth, and Independence, local legislators, Dallas School District personnel, and emergency response personnel. The purpose of the meetings was to review preliminary evaluation results and improvement concepts and receive stakeholder feedback. The stakeholder outreach process culminated with an open house at the Polk County Fairgrounds in June 2002. The acceptability of the project concept recommended by this facility plan was affirmed at this open house. Additional public input can also be provided through the Polk County and OTC adoption processes.
- **Facility Plan Preparation** - The project team prepared the facility plan including documenting the previous steps, investment requirements, and recommendations for adoption.

Figure 1.3.1 illustrates the facility plan process.



**Figure 1.3.1 - Facility Plan Process Flowchart**

## **1.4 Transportation Context**

### **1.4.1 Oregon 22 Characteristics and History**

The Oregon 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 Oregon 20. Between Salem and Willamina, the corridor primarily runs through farmland with little development occurring outside of Salem. Oregon 22 is of critical importance to a wide range of statewide, regional, and local users and is 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.

Oregon 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 Oregon 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.

Originally, Oregon 22 intersected Oregon 99W at the south end of the Rickreall community. The highway alignment was shifted to its current location, north of Rickreall, in 1972. The original highway through Rickreall is now called Rickreall Road and is part of the Polk County road system.

### **1.4.2 Oregon 99W Characteristics and History**

Originally built as US Highway 99, Oregon 99W originated as one of the major north-south highways in the US highway system. It went from the Canadian Border at Blaine, Washington to Mexico at Calexico, California, in the Imperial Valley. When US 99 was the main Pacific Coast route between Canada and Mexico, it split in two for most of the length of the Willamette Valley - between Portland and Junction City. Oregon 99E now exists only in pieces, having been covered over in places by Interstate 5.

Oregon 99W was constructed through the community of Rickreall in the early 1920s following an existing road. A covered bridge was originally constructed over Rickreall Creek in the 1910s, but was replaced by a concrete slab bridge in 1923. That bridge was replaced in 1960.

Unlike Oregon 99E, Oregon 99W, is still a major route on the west side of the Willamette Valley. Going southwest from Portland, it passes through Tigard and Newberg before turning south close to McMinnville. Passing some 20 miles west of Salem, it goes through Monmouth and Corvallis before turning southeast at Monroe and converging with Oregon 99E at Junction City.

While Interstate 5 now serves as the primary north-south corridor in the Willamette Valley, Oregon 99W functions as an important regional highway. Similar to Oregon 22, Oregon 99W also 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 McMinnville and Salem and from Salem, Monmouth, and Independence to Corvallis (or vice-versa).

### **1.4.3 Study Area**

The purpose of identifying the study area is to define the transportation analysis area. While the improvements identified in this document will affect other areas on Oregon 22 and Oregon 99W, the project study area begins at milepost 15.0 on Oregon 22 and extends past the Oregon 22/Dallas-Rickreall Highway intersection to milepost 16.5. The Oregon 22/99W intersection is located at milepost 16.2. The study area extends north of the Oregon 22/99W intersection approximately 0.2 miles. To the south, the study area includes the southernmost boundary of the community of Rickreall, located south of the Polk County Fairgrounds. The study area also includes the Dallas-Rickreall Highway west of Oregon 22. The project study area is shown in detail in Figure 1.1.1.

## **1.5 Document Structure**

This first chapter, Background, describes the content and purpose of the *Rickreall Junction Facility Plan*. The chapter also describes how the document is organized and how the project was staffed.

Chapter 2 defines the problems this facility plan is intended to address and outlines project goals.

Chapter 3 provides an overview of the plans, policies, and studies related to the Rickreall Junction intersection. This chapter is organized into sections that address federal, state, and local (county) information. Hyperlinks embedded in the chapter go to related federal and state web sites.

Chapter 4 provides an assessment of year 2000 conditions and deficiencies within the study area. These include geometric, operations, and safety deficiencies for the Oregon 22/Oregon 99W intersection, the Oregon 22/Dallas-Rickreall Highway intersection, and within the Rickreall community. This chapter also includes an assessment of future conditions (year 2025) for each of these areas. Based on the assessment of deficiencies, the chapter concludes with a validated transportation problem statement.

Chapter 5 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 TAC after preliminary evaluation.

Chapter 6 describes the range of alternatives evaluated by the TAC. Seven levels of alternatives were considered by the TAC - from lower cost “soft” engineering techniques such as improved signage and use of Intelligent Transportation Systems (ITS activities) through a range of at-grade and grade-separated interchange alternatives. This chapter also includes a summary of key findings from the stakeholder meeting process.

As project team analyzed the range of possible alternatives for the Oregon 22/Oregon 99W intersection, it became apparent that projected traffic increases as well as some design options for the intersection would have impacts to the Rickreall community. Chapter 6 also describes the range of alternatives developed by the TAC to address the long-range deficiencies, safety problems, and operational needs of the section of Oregon 99W through the Rickreall community. Alternatives for access management, local street network improvements, and Polk County land use actions in and around Rickreall are also presented in the context of the Interchange Area Management Plan.

Chapter 6 concludes with the recommendation for improving the subject intersections and protecting the transportation facility function throughout the 20-year planning horizon.

Chapter 7 provides a summary of actions and responsibilities that will be taken by ODOT and Polk County prior to project construction.

The appendices include relevant plans and reports, references, technical information, including diagrams and analysis, and TAC and stakeholder meeting summaries.

# Transportation Problem Statement and Facility Plan Goals

## 2.1 Initial Transportation Problem Statement

Extensive discussion took place at the initial Technical Advisory Committee meetings about what problems this project is intended to address. The state and local participants offered a variety of problem statements based on previous work and their own observations.

- The Oregon 22/Oregon 99W intersection is too closely spaced to the Oregon 22/Dallas-Rickreall Highway intersection
- Numerous left-turn and rear-end accidents occur at Oregon 99W and Oregon 22 intersection
- Severe head-on accident potential is high at Oregon 22 and Dallas-Rickreall Highway intersection
- Speeds of oncoming vehicles are hard to judge for eastbound through and westbound turning vehicles at the Oregon 22 and Dallas-Rickreall Highway intersection
- Entire Oregon 22 corridor from Salem to Dallas is dangerous
- Cannot afford to upgrade entire corridor at one time—issues must be addressed incrementally
- These intersections are the most immediate problems on the corridor
- Traffic volumes currently near OHP mobility standards and are expected to exceed them over the planning horizon
- Truck traffic associated with aggregate operation is expected to increase
- A number of top ten percent SPIS sites are located in this area
- Signal phasing from Oregon 99W to Oregon 22 is not a separate phase
- Orientation of Oregon 22 creates AM and PM visibility problem on sunny days
- Lack of “roadside culture” provides no visual signal for drivers to anticipate the change in traffic conditions at both subject intersections
- Confusing environment for driver expectations

Based on these data and observations the following problem statement was developed:

*The intersections of Oregon 22 with Oregon 99W and the Dallas-Rickreall Highway are experiencing a high number of accidents typically associated with traffic signals and high-speed turning movements on rural highways. Left as is, this problem is expected to worsen as traffic volumes increase. Current traffic volumes exceed OHP mobility standards. It is expected that traffic volume growth will further reduce operational performance below OHP standards during the 20-year planning horizon. The entire Oregon 22 corridor from Salem to Dallas suffers from current safety problems and will suffer from future safety and mobility problems. The problem is*

*too big to be addressed all at once and must be solved incrementally. The problems at Oregon 22 and Oregon 99W, by state and local consensus, are the most immediate of these incremental challenges.*

The TAC agreed that this initial problem statement would be validated through subsequent analysis and public input and modified, if necessary, if subsequent information warranted changes - see Chapter 4.

## **2.2 Facility Plan Goals**

The goals for the Rickreall Junction Facility Plan were directly derived from the Oregon Transportation Plan (OTP) and the Oregon Highway Plan (OHP). Additional project-specific goals to minimize impacts and costs were also developed. The goals have been presented to the Technical Advisory Committee, stakeholders, and the Polk County Board of Commissioners.

The Facility Plan Goals are as follows:

- Use local Comprehensive Plans and background traffic growth rates on Oregon 22/Oregon 99W intersection as the basis for travel demand forecasting for 2015 and 2025.
- Conduct credible analysis of problems at the Oregon 22/99W intersection and the Oregon 22/Dallas-Rickreall Highway intersection.
- Conduct sufficient environmental analysis to identify potential “red-flag” constraints and validate alternative feasibility.
- Identify, analyze, and narrow the number of operationally feasible alternatives for addressing the geometric, safety, and operational problems that can then be forwarded into an environmental documentation process, if necessary.
- Meet OHP Mobility Policy
- Meet OHP Major Improvement Policy
- Meet OHP Access Management Policy to the maximum extent possible, including access control and use of medians.
- Meet OHP Safety Policy
- Meet geometric standards as per ODOT Highway Design Manual or receive concurrence on design exceptions.
- Minimize impacts on the Rickreall community and adjacent farm and sensitive lands and provide for off-highway traffic circulation in accordance with OHP policy.



- Minimize overall costs including: engineering, right-of-way acquisition, and construction.

# Existing Policy, Plans, and Standards

## 3.1 Purpose and Organization

The purpose of this chapter is to document the previous work that provides the planning and policy background for this Facility Plan. 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 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. It also requires federal agencies to use an interdisciplinary approach in planning and decision-making for actions that impact the environment. Finally, NEPA requires the preparation of an EIS on all major federal actions significantly affecting the human environment.

NEPA has influenced all federal agencies, including the Federal Highway Administration (FHWA). 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 Rickreall Junction Facility Plan 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 for OTIA funding it was determined by the ODOT Environmental Section that a NEPA environmental document would

not be needed to advance this project. This categorical exclusion does not exempt this project from obtaining any necessary permits or approvals (as determined during project development) prior to construction.

### **3.2.2 TEA-21**

#### *Summary*

On June 9, 1998, the Transportation Equity Act for the 21st Century (TEA-21) was signed into law. This act authorizes highway, highway safety, transit, and other surface transportation programs for the next six (6) years. TEA-21 builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which was the last major authorizing legislation for surface transportation. 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.

TEA-21 assures a guaranteed level of federal funds for surface transportation through FY 2003. The core metropolitan and statewide transportation planning requirements remain intact under TEA-21, 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 2004.

#### *Relevance*

TEA-21 provides a significant funding source for transportation improvements on the National Highway System, of which Oregon 22 is a part. The Act establishes requirements for the planning process used to identify needed improvements.

### **3.2.3 Oregon Transportation Plan, 1992**

#### *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 OTP does not specifically address improvements to Oregon 22 or Oregon 99W, but does show commuter transit service between Salem and Dallas as part of the preferred transportation system for the year 2012.

## ***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.

### **3.2.4 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 Oregon 22 as a Statewide Highway. Oregon 22 has also been designated by the OTC as an Expressway and is included as part of the National Highway System. Expressways are a subset of Statewide, Regional, and District highways.

The OHP designates Oregon 99W as a Regional Highway. Neither highway is identified as a designated freight route.

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. Inside Special Transportation Areas (STAs), local access may be a priority.

Regional Highways typically provide connections and links to regional centers, Statewide and Interstate Highways, or economic or activity centers of regional significance. The management objective is to provide safe and efficient, high-speed, continuous-flow operation in rural areas

and moderate to high-speed operations in urban and urbanizing areas. A secondary function is to serve land uses in the vicinity of these highways. Inside STAs, local access is also a priority.

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.

### ***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 non-freight routes, including Oregon 22, and regional highways, including Oregon 99W the v/c ratio is 0.75 in unincorporated communities, such as Rickreall. In rural areas, the v/c ratio is 0.70.

## **3.2.5 Oregon Public Transportation Plan, 1997**

### ***Summary***

The Oregon Public Transportation Plan (OPTP) is a modal element of the OTP. The OPTP 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 Oregon 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.

### **3.2.6 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. Both Oregon 22 and Oregon 99W are 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.

### **3.2.7 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. Included in the list of transportation facilities permitted on rural lands is replacement of an intersection with an interchange. A Polk County conditional use permit will be required prior to constructing an interchange.

### **3.2.8 Access Management Rule**

#### *Summary*

The Access Management Rule (OAR 734-051-000) 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. This rule will be addressed as part of this plan 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 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 completed with this Facility Plan. The Interim Corridor Strategy is included as Appendix C.



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 Highway 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.3: Evaluate solutions to the safety concerns at the intersections of Oregon 22 and Oregon 99W and Oregon 22 and Oregon 223 near Rickreall.
  - Safety Objective D.5: Analyze alternatives to reduce accident risk near the intersections with a high number of turning vehicles, including Oregon 223, Oregon 99W, and Oregon 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 Oregon 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 Oregon 22 corridor transportation systems on neighborhoods, parks, and community facilities.
- Provide a transportation system throughout the Oregon 22 corridor that is environmentally responsible and encourages protection of natural resources.

- Environmental Impacts Objective G.1: Avoid highway improvements near Baskett Slough National Wildlife Refuge that have significant adverse impacts to the Refuge. If impacts are unavoidable, strive to minimize those impacts.
- Environmental Impacts Objective G.2: Consider enhancements or management techniques that maintain or enhance the visual quality of the corridor, particularly in the scenic rural sections west of Dallas.
- 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 Mill Creek, Salt 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 Objectives D.3 and D.5 identify the need to identify alternatives to address safety issues at the Oregon 22/Oregon 99W 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 will 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 Area Commission on Transportation (1998)**

#### *Summary*

The purpose of the Mid-Willamette 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 Oregon 22/Oregon 99W 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 Facility Plan.

### **3.3.4 Moving Toward Action - The Marion and Polk Counties Regional Transportation Enhancement Plan - A Strategy for Improving Special Needs Mobility and Beyond, 1998**

#### ***Summary***

The Regional Transportation Enhancement Plan (R-TEP) was developed by the Salem Area Mass Transit District's Special Transportation Advisory Committee as a way of improving mobility choices for the area's senior and disabled populations. This plan is intended to restructure the area's services to these populations as a means of better utilizing Special Transportation Fund (STF) revenues. The goals of the R-TEP are to increase transportation choices; enhance local community autonomy; create a customer-oriented focus for planning and development; enhance community sustainability, and use, where possible, technology to maximize efficiency of operations, planning, and administrative functions.

The R-TEP work program includes:

- Creating two transit routes serving north Marion County and central Polk County;
- Creating preliminary design and cost allocation for a regionally coordinated transportation system for inclusion in the 2000-2005 Statewide Transportation Improvement Program (STIP);
- Developing a regional "brokerage" to coordinate non-emergency medical trips; and
- Completing a needs assessment to quantify needs and estimate demand for services within the region.

#### ***Relevance***

Two transit routes have been developed that currently serve Polk County. Chemeketa Area Regional Transportation Service (CARTS) provides van service to Dallas, Rickreall, and Salem via Oregon 22, Oregon 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. Route schedules and maps for the CARTS van service to Dallas, Monmouth, Independence, Rickreall, and Salem are in Appendix D.

Although public transit service in the area is currently limited, improvements to the intersection will support potential increases in service in the future.

## **3.4 Local Plans**

### **3.4.1 Polk County Transportation Systems Plan, 1997**

#### *Summary*

The Polk County Transportation Plan (TSP) identifies both Oregon 22 and Oregon 99W as principal arterials in the County road system. The TSP identifies a number of conceptual road construction projects including the construction of an interchange at the Oregon 22/Oregon 99W intersection. The TSP states that the County will work with ODOT on any necessary studies related to these projects.

The TSP also states that the County will work with the city of Dallas to identify the location of a limited-access collector located north of Dallas. This road would link Ellendale Road with Oregon 223 north of the city and would be intended to alleviate some traffic congestion at the Ellendale Road/Oregon 223 intersection. Construction of this road would shift some Salem-bound traffic from Dallas and outlying rural areas from Ellendale Road onto Oregon 223 and ultimately the Oregon 22/Oregon 223 intersection. The TSP states that the County will begin work with the City in 2000 on the approximate location of the road, but does not provide any timetable for construction of the road, projects costs, or funding sources.

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 Oregon 22/Oregon 99W intersection. The possible construction of the limited-access collector road north of Dallas should be factored into future traffic projections and analysis. 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 to address the increasing concerns over the safety problems on Oregon 18 and Oregon 22. Recommendations in the report were based on an accident 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 Oregon 18 and Oregon 22 including the Oregon 22/Oregon 99W intersection (Site 11). During a five-year study period from January 1, 1994 to December 31, 1998, approximately 55 potentially preventable accidents occurred at or near the intersection. Nearly half were rear-end accidents between two vehicles and about half involved

vehicles making turning movements. Of these collisions, 25 accidents resulted in injuries, 29 were property-damage-only accidents, and one accident involved a fatality.

The study concludes by observing that the accident data suggests that a fully directional, grade-separated interchange is the only alternative that is likely to significantly decrease accidents at this location. A partial at-grade jug-handle intersection is unlikely to reduce the risk of collisions, but could be included as one phase of a full grade-separated intersection. The study includes a grade-separated jug-handle design with the off-ramps in the northwest and southeast quadrants as a possible alternative, but notes that additional study would be needed to select a preferred alternative. The Safety Report is included as Appendix E.

### ***Relevance***

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

## **3.5 Conclusions**

Existing plans and policies provide the basis to evaluate proposed alternatives for the Oregon 22/99W and the Oregon 22/Dallas-Rickreall Highway (Oregon 223) intersections. Safety and operational conditions have been diminished at both intersections due to increased traffic that has largely resulted from regional growth and commuting between Salem, Corvallis, Monmouth, Independence, Dallas, and destinations on Ore 18 and the Oregon Coast. Forecasted growth trends indicate traffic will continue to grow into the future and cause additional safety and operational problems. Currently, both intersections fail to meet Oregon Highway Plan standards for mobility and spacing. Recommended alternatives should meet these standards and be consistent with the other relevant plans and policies as identified in this Chapter.



# 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:

- **Geometric Design:** For this assessment, “As constructed” information of existing roadway elements was compared with current design standards to determine deficiencies. Design standards are based on physical characteristics of vehicles, research of crash data, and user behavior.
- **Safety:** For this assessment, ODOT crash data for the Rickreall study area was used to determine deficiencies.
- **Transportation Operations:** For this assessment, existing traffic counts were used, in combination with local land use plans, and travel demand characteristics, 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 and in the Rickreall Junction Facility Plan are The Safety Priority Index System (SPIS) and the PRC database of all crashes on state facilities (PRC refers to the initials of the individual who created the report form).

The Safety Priority Index System (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 0.1-mile segments during a three-year period. 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 PRC 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 Appendix F.

#### **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 operations. 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 locations,
- ODOT's permanent recorder stations,
- ODOT's Traffic Volume Tables,
- Maps depicting land use and development potential in the study area,
- Anticipated major traffic generators within the region,
- Proposed expansion of major traffic generators within the region,
- Polk County Fairgrounds traffic information,
- Alternative mode current operations levels and projected service levels,
- Bridgehead Engineering Study, and
- Population projections.

Future year traffic projections are typically developed using cumulative analysis, historic growth trends, or transportation models. Historic growth trends were determined to be the most accurate method to use for this project.

The v/c ratios for the signalized Oregon 22/Oregon 99W intersection were developed using ODOT's computer program SIGCAP2. The v/c ratios for both the unsignalized intersections and multilane highways were analyzed using McTrans HCS Version 3.2 software. The v/c ratios for the rural two-lane highways calculated using HCS Release 1.5. These v/c ratios are compared with the v/c mobility standards listed in the 1999 Oregon Highway Plan (OHP) based on highway classification and surrounding land use.

ODOT's transportation Volume Tables contain the tabulation listing of ADT values for state highways. Information from these tables provides a basis for the current ADT values and historical growth trends.

Within the operations category, consideration is given to automobile oriented and non-auto modes of transportation.

The operational analysis process consisted of the following basic steps:

Highway Facilities –

1. Determine possible operational deficiency locations using ADT and hourly traffic counts.
2. Conduct more accurate determination of operational deficiency locations using analysis of specific movements.

Alternative (non-auto) Modes & Freight –

1. From modal plans, identify desired levels of service.
2. Establish inventory of current coverage and service levels.
3. Determine gap between desired and existing service.

The full highway operational analysis is presented in Appendix G. The modal considerations made for this report are described in Appendix H.

### **4.1.3 Facility Geometrics**

The project team used a standards-based approach to identify geometric deficiencies. ODOT's Highway Design Manual provides geometric design standards used to determine geometric deficiencies. 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.

Geometric Assessment Process:

1. Determine if geometric standards are met for:
  - Cross section
  - Design speed
  - Horizontal alignment and super elevation
  - Vertical alignment
  - Stopping sight distance
  - Length and weaving section
  - Tapers and turning radii
  - Road cross section
  - Bike/pedestrian crossing
  - Access control/management

2. Determine if there is a geometric correlation with safety deficiencies.
3. Determine if there is a potential conflict with future traffic volumes and areas of potential growth.

The full geometric assessment conducted for this report is presented in Appendix I.

## **4.2 Existing Condition Summary**

### **4.2.1 Oregon 22/Oregon 99W Intersection**

#### *Safety Conditions*

Crashes were summarized from ODOT's PRC crash database from January 1, 1995 through December 31, 2000. This crash data and an analysis of the Safety Priority Index System (SPIS) records revealed the following:

- The Oregon 22/Oregon 99W intersection (Oregon 22 MP 16.12 and Oregon 99W MP 57.43) is in the top 10 percent of the Safety Priority Index System (SPIS) listing. The SPIS is a composite ranking of locations that considers frequency, crash rate, and crash severity.
- Crash Severity: 58 crashes, 55 injuries
- Crash Type: 74 percent of the crashes were either rear-end (43 percent) or turning (31 percent)
- The high crash figures are typically associated with the combination of a traffic signal and a high-speed facility.

#### *Operational Conditions*

Using the methods described, the 2000 traffic volumes and v/c ratio results are shown in Appendix G. The following deficiencies were noted:

- The Oregon 22/Oregon 99W intersection does not meet OHP mobility standards based on 1999 traffic counts. The existing signalized Oregon 22/Oregon 99W intersection operates at a v/c ratio of 0.84.

#### *Geometric Conditions*

The following geometric deficiencies were identified:

- On Oregon 22, the distance between the Dallas-Rickreall Highway and Oregon 99W intersections is only 400 meters (0.25 miles) where 800 feet is the desired standard. The intersections are too closely spaced and, at times, traffic backs up from the westbound

Oregon 22/Dallas-Rickreall Highway intersection left-turn storage approximately 75 percent of the way back toward the Oregon 22/Oregon 99W intersection creating both speed differential and safety concerns.

- The high westbound to southbound traffic volume at the Oregon 22/Oregon 99W intersection cannot be accommodated by a single left-turn lane.
- The turning radius at the southwest and southeast corners of the Oregon 22/Oregon 99W intersection is 16 meters which does not accommodate trucks well. The desired radius standard is 20 meters.
- The width of the paved shoulder on Oregon 22 is 1.8 meters where 2.4 meters is the desired standard.
- The vertical alignment on Oregon 22 over the railroad structure has a crest of 463 meters where 600 meters is the desired standard.

#### **4.2.2 Oregon 22/Dallas-Rickreall Highway**

##### ***Safety Conditions***

Crashes were summarized from ODOT's PRC crash database from January 1, 1995 through December 31, 2000. This crash data reveals the following:

- The Oregon 22/Dallas-Rickreall Highway intersection (westbound Salem to Dallas at Oregon 22 MP 15.83) had four crashes with seven injuries. Crashes were split equally between rear-end and turning movements.
- The Oregon 22/Dallas-Rickreall Highway intersection (eastbound Dallas to Salem at Oregon 22 MP 15.87) had nine crashes with 13 injuries. Five of the crashes were turning movements.
- Speeds of oncoming vehicles are hard to judge for eastbound through and westbound turning vehicles at this intersection.
- Severe head-on crash potential is high at this intersection.

##### ***Operational Conditions***

The following operational deficiency was identified:

- The westbound Oregon 22 to Dallas-Rickreall Highway traffic movement at the existing unsignalized intersection does not currently meet OHP mobility standards. This movement operates at a v/c ratio of 0.92 based on 2000 traffic counts. A v/c ratio of 0.80 is the desired OHP performance level.

### ***Geometric Conditions***

The following geometric deficiencies were identified:

- The existing length of the left-turn storage at this intersection, 45 meters, should be lengthened or a double left-turn constructed. The recommended standard for left-turn storage is 300 meters.
- At times, traffic backs up from the westbound Oregon 22/Dallas-Rickreall Highway intersection left-turn storage approximately 75 percent of the way back toward the Oregon 22/Oregon 99W intersection creating both speed differential and safety concerns.

### **4.2.3 Rickreall Community**

#### ***Safety Conditions***

Crashes were summarized from ODOT's PRC crash database from January 1, 1995 through December 31, 2000. This crash data reveals the following:

- The free-flow section of Oregon 99W through Rickreall (MP 57.42 to MP 59.0) had 53 crashes with 42 injuries.
- Crash Type: 74 percent of the crashes were either rear-end (53 percent) or angle (21 percent)
- Crash Location: 49 percent of the crashes occurred at intersections.

#### ***Operational Conditions***

The following deficiencies were identified:

- Oregon 99W through Rickreall currently operates at an acceptable v/c ratio, based on OHP mobility standards.

#### ***Geometric Conditions***

The following geometric deficiencies were identified:

- A left-turn refuge is warranted at the Oregon 99W and Rickreall Road intersection (from Oregon 99W to Rickreall Road) due to the relatively high Oregon 99W traffic volume through the community.

## 4.3 Future Condition Summary

### 4.3.1 Oregon 22/Oregon 99W Intersection

#### *Safety Conditions*

Projected traffic volumes show that, by 2025, traffic will back up from the westbound Oregon 22/Dallas-Rickreall Highway intersection into the Oregon 22/Oregon 99W intersection on a regular basis. In this situation, it is reasonable to expect that rear-end collisions associated with heavy congestion will increase. Deteriorated operating conditions will also likely lead to more frustration and result in more turning vehicles violating the traffic signal control. It is logical to assume that this will, in turn, result in greater numbers of turning crashes.

#### *Operational Conditions*

The 2025 base case v/c ratios, with no intersection improvements are shown in Appendix G. Traffic volumes on Oregon 22 (within the study area) are projected to increase between 60 and 72 percent during the PM peak hour between the years 2000 and 2025. During this period, projected traffic volumes on Oregon 99W will increase between 64 and 95 percent.

Future operational deficiencies include the following:

- The Oregon 22/Oregon 99W and Oregon 22/Dallas-Rickreall Highway intersections will not meet mobility standards. Demand for traffic movement will greatly exceed available capacity. The projected v/c ratio for both intersections will exceed 1.0 (1.36 and 1.92, respectively).

*It should be noted that an intersection or road segment couldn't actually operate much beyond a v/c ratio of 1.0. A v/c ratio of 1.0 means that 100 percent of the assumed capacity available is being used during the analysis period, in this case, the PM peak hour of operation. It is possible for actual capacity to slightly exceed assumed capacity, depending on conditions and driver behavior. However, when actual demand exceeds actual available capacity in a peak hour, the resulting congestion will be constant through the peak hour and will spread beyond the peak hour. This condition will potentially result in congestion that exceeds OHP mobility standards and/or use most or all of the available capacity for more than one hour or for multiple hours. Consequently, v/c ratios reported as greater than 1.0 simply indicate that the congested condition being analyzed is severe and will last for more than the peak hour being analyzed.*

- The free flow section of Oregon 22 will operate at a v/c ratio of 0.79 in the westbound direction east of the Oregon 22/Oregon 99W intersection. This slightly exceeds OHP mobility standards.

#### *Geometric Conditions*

The following future geometric deficiencies were identified:

- On Oregon 22, the distance between the Dallas-Rickreall Highway and Oregon 99W intersections is only 400 meters (0.25 miles) where 800 feet is the desired standard. By the year 2025, traffic will back up from the westbound Oregon 22/Dallas-Rickreall Highway intersection into the Oregon 22/Oregon 99W intersection on a regular basis.
- The high westbound to southbound traffic volume at the Oregon 22/Oregon 99W intersection cannot be accommodated by a single left-turn lane.
- The turning radius at the southwest and southeast corners of the Oregon 22/Oregon 99W intersection is 16 meters which does not accommodate trucks well. The desired radius standard is 20 meters.
- The width of the paved shoulder on Oregon 22 is 1.8 meters where 2.4 meters is the desired standard.
- The vertical alignment on Oregon 22 railroad bridge east of Ore 99W has a crest of 463 meters. 600 meters is the desired standard. This issue does not impact this project.

### **4.3.2 Oregon 22/Dallas-Rickreall Highway**

#### ***Safety Conditions***

With the projected increase in traffic volumes, left-turn queues at the westbound Oregon 22/Dallas-Rickreall Highway intersection will lengthen. As this occurs, drivers will become impatient and may begin to make left-turns without sufficient gaps in the oncoming eastbound traffic on Oregon 22. This will significantly increase the chances for serious head-on collisions at this location. People can currently be observed taking gap opportunities that are smaller than advisable on a regular basis.

#### ***Operational Conditions***

Projected traffic volumes on Dallas-Rickreall Highway (within the study area) show an increase of 38 percent for eastbound traffic and 63 percent for westbound traffic in the PM peak hour between the years 2000 and 2025.

The following deficiencies were identified:

- The Oregon 22/Dallas-Rickreall Highway intersection will not meet mobility standards. The v/c ratio for the intersection will exceed 1.0.
- Within 15 to 20 years, the two-lane free-flow section of Dallas-Rickreall Highway will not meet mobility standards. The v/c ratio for this section will exceed 1.0.



### ***Geometric Conditions***

The following future geometric deficiencies were identified:

- By 2025, traffic will back up from the westbound Oregon 22/Dallas-Rickreall Highway intersection into the Oregon 22/Oregon 99W intersection on a regular basis.
- The spiral length on Oregon 22 (the curve) west of this intersection is 91.4 meters where 150 meters is the desired standard.

### **4.3.3 Rickreall Community**

#### ***Safety Conditions***

Without expansion of Oregon 99W through Rickreall to a four-lane section, congestion will increase. Gaps in the traffic on Oregon 99W will decrease. Drivers will become impatient and angle collisions may increase as drivers making left turns from the access points in the community between Oregon 22 and Rickreall Road attempt to force their way into Oregon 99W traffic.

Rear-end collisions can also be expected to increase as drivers on Oregon 99W attempt to make left-turns from the through travel lane. As gaps in the oncoming traffic become less frequent, these left-turn movements will become more difficult and result in increased angle collisions.

Similarly, without signalization at the Oregon 99W/Rickreall Road intersection, drivers will become frustrated while waiting to make left-turns. They may take chances while forcing their vehicles into traffic and increase the risk of angle collisions.

Traffic on local streets and secondary roads may also increase as drivers look for alternate routes during peak hour traffic periods, although the lack of direct alternatives provided by the simple local road system will limit the attractiveness of these kinds of maneuvers.

#### ***Operational Conditions***

Projected traffic volumes on Oregon 99W through Rickreall will increase between 64 and 95 percent during the PM peak hour between the years 2000 and 2025. The greatest increase during the PM peak hour will occur in southbound traffic.

The following future deficiencies were identified:

- Within 15 to 20 years, the free-flow section of Oregon 99W between the Oregon 22/Oregon 99W intersection and the Oregon 99W/Rickreall Road intersection will not meet mobility standards. The v/c ratio will exceed a v/c ratio of 1.0.

- Due to heavy through volumes on Oregon 99W, the unsignalized Oregon 99W/Rickreall Road intersection will not meet mobility standards. The v/c ratio for all left-turn movements at this intersection will exceed 1.0.

### ***Geometric Conditions***

The following future geometric deficiencies were identified:

- The one-lane approaches at the Oregon 99W/Rickreall Road intersection will not provide enough capacity to meet future demand. Left turn lanes will be needed on all approaches.
- Unless some alternative is developed to reduce demand in the Ore 99W corridor, the two-lane section in Rickreall will not provide enough capacity to meet future demand.

## **4.4 Deficiency Assessment Summary**

Safety and operational conditions have been diminished at both the Oregon 22/Oregon 99W and Oregon 22/Dallas-Rickreall Highway intersections by increased traffic flows associated with local and regional growth.

The Oregon 22/Oregon 99W intersection is in the top 10 percent of the Safety Priority Index System listing. The high crash figures at this intersection are commonly associated with the combination of a traffic signal and a high-speed facility.

Currently, both intersections fail to meet Oregon Highway Plan standards for mobility and spacing. In addition, left-turn storage for westbound traffic at the Oregon 22/Dallas-Rickreall Highway intersection is insufficient. By 2025, traffic volumes at both intersections will greatly exceed available capacity with traffic from the westbound Oregon 22/Dallas-Rickreall Highway intersection backing into the Oregon 22/Oregon 99W intersection on a regular basis. AM and PM peak hour congestion will exceed OHP mobility standards, occur for more than a single peak hour, and may last for multiple hours.

The projected increase in traffic volume in this area will also impact Oregon 99W in Rickreall. The existing two-lane section of Oregon 99W currently operates without serious problems. However, as regional traffic volumes increase, congestion will adversely impact local traffic circulation, particularly the left-turn movements from Rickreall Road to Oregon 99W.

## **4.5 Validated Transportation Problem Statement**

Based on data and observations, the TAC developed the initial problem statement presented previously in Chapter 2. The TAC agreed that this initial problem statement would be validated through subsequent analysis and public input and modified, if subsequent information warranted changes.

Based on the subsequent analysis and information gathered from public outreach, additional problems were revealed within the community of Rickreall and at Greenwood Road, which intersects with Oregon 22 east of the study area.

Within Rickreall, the analysis revealed that traffic growth on Oregon 99W through 2025 would result in operational problems at the Oregon 99W/Rickreall Road intersection. It also showed that traffic volumes on Oregon 99W would increase to levels that could not be served by the current two-lane cross section. This congestion due to the growth forecasted in the region and along Oregon 99W, mostly outside Rickreall, became part of the problem statement.

Discussions with the public, and subsequently within ODOT and on the TAC, revealed a concern that improvements to the Oregon 22/Oregon 99W intersection would impact Greenwood Road. Specifically, concerns were raised that, an interchange at Oregon 22 and Oregon 99W would create a free-flow condition on Oregon 22 that would effectively eliminate gaps currently provided in the eastbound Oregon 22 traffic. This would, make it much more difficult for farm vehicles and school buses on Greenwood Road to cross Oregon 22.

The data and analysis have validated the original problem statement regarding conditions at the intersections of Oregon 22 with Oregon 99W and the Dallas Rickreall Highway. However, with the subsequent data and observations regarding impacts to the community of Rickreall and the Oregon 22/Greenwood Road intersection, the problem statement is modified to read as follows:

*The intersections of Oregon 22 with Oregon 99W and the Dallas Rickreall Highway are experiencing a high number of crashes typically associated with traffic signals and high-speed turning movements on rural highways. Left as is, this problem is expected to worsen as traffic volumes increase. Current traffic volumes exceed OHP mobility standards. It is expected that traffic volume growth will further reduce operational performance below OHP standards during the 20-year planning horizon. The entire Oregon 22 corridor from Salem to Dallas suffers from current safety problems and will suffer from future safety and mobility problems. The problem is too big to be addressed all at once and must be solved incrementally. The problems at Oregon 22 and Oregon 99W, by state and local consensus, are the most immediate of these incremental challenges.*

*As traffic volumes increase along the Oregon 22 and Oregon 99W corridors, the community of Rickreall will experience impacts associated with this increase in traffic. Peak hour congestion on Oregon 99W through the community will lead to increased operational and safety problems. In particular, traffic volumes along Oregon 99W and at the Oregon 99W/Rickreall Road intersection will exceed available capacity.*

*Construction of an interchange that results in a free-flow condition on Oregon 22 may reduce gaps currently provided in the eastbound Oregon 22 traffic. This could, in turn, make it more difficult for farm vehicles and school buses on Greenwood Road to move across Oregon 22. While the situation at Greenwood Road is being addressed through another facility planning process being conducted by ODOT, it is an issue that may best, if possible, be resolved in conjunction with implementing a solution at Oregon 22 and Oregon 99W.*

# 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
- Anticipated new major traffic generators within the region
- Proposed expansion of major traffic generators within the region

All of these factors were evaluated to determine their current and future effects on the operation of the Oregon 22/99W and Oregon 22/Dallas-Rickreall Highway intersections and the section of Oregon 99W within the Rickreall community.

The final alternative identification step was to preliminarily assess how well the concepts address the transportation problem and identify those concepts 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 J. Several designs, including a roundabout and a single-point urban diamond interchange, were dismissed after this preliminary assessment. These are described in Section 5.4. Seven levels of alternatives were identified for further evaluation and are described in Section 5.5

## **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 describes existing conditions and constraints that were identified for the Rickreall Junction Study Area. These conditions and constraints were identified by reviewing the following documents and maps.

- Polk County Comprehensive Plan and Zoning Map
- National Wetlands Inventory (NWI) maps
- FEMA maps
- Soil Survey of Polk County, Oregon
- State Historic Preservation Office (SHPO) records
- ODOT Environmental Section records and reports
- ODOT Region 2 Geology/Hazmat Section report

Study area constraints maps are found in Appendix K.

### **5.2.1 Land Use**

The entire study area for this project is outside an urban growth boundary in what are considered rural lands. As such, adding turn lanes or replacing an at-grade intersection with a grade-separated intersection are allowed activities under the Transportation Planning Rule (OAR 660-12-065). It would not be necessary to take an exception to any of Oregon's planning goals to advance an intersection improvement or interchange alternative within the study area.

The land directly abutting the Highway 22/99W intersection is zoned Exclusive Farm Use (EFU). The areas zoned EFU include all portions of the study area located north and east of the intersection. Because of the limited number and intensity of land uses allowed in EFU zones, it is reasonable to assume that no significant source of traffic generation will be developed in these areas. Several homesites that access Oregon 99W are located in these portions of the study area.

The zoning map for the study area is found in Appendix K.

South of the Oregon 22/99W intersection is the unincorporated community of Rickreall. Polk County adopted a comprehensive plan for this unincorporated area in June 2001. This plan affirms and continues the land use designations that have been in place for this community for many years. The community includes a mixture of residential commercial, industrial, and public uses. The portion of Rickreall nearest the intersection includes a residential area west of Oregon 99W and the Rickreall Elementary School to the east. Commercial development in the community is focused just north of the Oregon 99W/Rickreall Road intersection. South of this intersection, on the eastside of Oregon 99W is the Polk County Fairgrounds and Polk County Museum. A second commercial area is located south of this area along Oregon 99W.

The primary industrial areas in the study area are located in the western portion of Rickreall along Rickreall Road. Oregon 223 (the Dallas-Rickreall Highway) abuts the rear of these properties. None of these properties have direct access to the Dallas-Rickreall Highway. Approximately 6.5 vacant acres of industrial land is available for development in this area. Another developed industrial area is located along Rickreall Road approximately 0.5 mile east of Rickreall in the unincorporated community of Derry.

The overall development potential in this area is limited by a number of factors. First among these factors is the absence of a sewer system and the lack of any plan or intention by the county to construct such a system. This limits new development in Rickreall to that which can be accommodated by septic systems. This effectively limits the trip generation potential of the few undeveloped industrial and large lot (one-acre +) properties remaining in Rickreall.

Second, many of the Exclusive Farm Use land use and zoning designations that surround the interchange are actually applied to what are termed “high value” agricultural lands. The net effect of the high value designation is that the kinds of activities that are allowable in these zones are even more restricted than in EFU zones without the designation. Specifically, churches, schools, kennels, golf courses, composting operations, and solid waste processing facilities are not allowed in the “high value” farmland EFU zones. The EFU zoned property that is not on the “high value” agricultural land is on land that is largely within the 100-year flood plain. This also effectively limits the already extremely low trip generation potential of these properties.

In a resolution (#01-31) passed in November 2001, the Polk County Board of Commissioners expressed their intention to maintain the EFU zoning adjacent to the Oregon 22/Oregon 99W intersection/interchange and the Oregon 22/Oregon 223 intersection/interchange. The properties affected by this resolution will be recognized in the Polk County Comprehensive Plan through text amendments that will be initiated when Polk County adopts this document as an ODOT/Polk County Interchange Management Plan.

In addition, ODOT will also request that Polk County adopt a provision in their implementing ordinances to provide ODOT with special notice of any development proposal in the Rickreall area that may have the potential to adversely affect interchange operations. This will enable ODOT to participate in the County’s proposal review and approval process and request mitigation, if advisable and appropriate. The “trigger” for this special notice will be whether a development proposal has trip generation potential that can be expected to significantly exceed

the expected trip generation for the community based on existing zoning. A special trip generation analysis was conducted in the fall of 2002 to estimate the full development and redevelopment potential of every parcel in Rickreall, based on existing zoning. This analysis will be used as the baseline for determining whether a proposal significantly may significantly exceed the expected trip generation potential. This enhanced notification procedure will be adopted into the Polk County Comprehensive Plan and implementing ordinance.

Polk County Resolution 01-31, a list of the existing policies in the Polk County Comprehensive Plan and Transportation System Plan, and the zoning-based trip generation analysis are provided in Appendix L.

## **5.2.2 Environmental and Cultural Resources**

### ***Natural Environment***

The study area is characterized by flat agricultural land, much of it farmed wetland, including a creek to the south. Rare plants, fish and wildlife, wetlands, soils, and floodplain information sources were reviewed and are discussed in the following paragraphs. Environmental constraints within the study area are shown in Appendix K.

#### **FISH AND WILDLIFE**

The project area has been surveyed for fish. Rickreall Creek has had Coho, cutthroat, steelhead, and possibly Chinook. The Coho and cutthroat Evolutionarily Significant Units (ESUs) are not listed or proposed for listing, but the steelhead and Chinook are part of the Upper Willamette River ESUs, which are on the federal threatened list. The current presence of the fish is unknown. The project reach of Rickreall Creek is in poor condition with high temperatures, poor 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.

#### **PLANTS**

The study area includes an ODOT Special Management Area (SMA) for Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*) and an ODOT SMA for meadow sidalcea (*Sidalcea campestris*). A botanical clearance survey, completed by ODOT on May 5, 2000, found meadow sidalcea, but no Kincaid's lupine in the area. This was reaffirmed in the summer of 2002. Meadow sidalcea is relatively common in the Willamette Valley, but is also State listed Critical, and on the Oregon Natural Heritage Program (ONHP) List 4 (Species of concern which need to be watched). No other rare plants were found in this area

The ODOT botanical clearance report for the study area recommended avoidance of the meadow sidalcea sites located on Oregon 22, milepost 15.4 (existing SMA), and Rickreall Road, 100 feet southeast of Oregon 223 (new record).

## **WETLANDS**

A wetland biologist from ODOT surveyed the subject area in March 2000. The current alignment of Oregon 22 was found to mostly pass through cultivated grass seed fields with Cove silty clay loam soils, a Natural Resource Conservation Service (NRCS) identified hydric soil. No wetland hydrology was found within the project area, probably due to tiling of the fields to manage drainage. Wetland vegetation was also absent in the area. The biologist recommended that a formal wetland delineation of the project area be conducted.

Another significant feature in the project area is Rickreall Creek. The ODOT wetlands biologist described the stream as having a “well-defined wooded riparian corridor” with “excellent hydrology and riverine morphology conducive to use by game fish.” However, it was also noted that the stream has significant water quality problems indicated 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 the likely cause of the stream’s current water quality problems.

Old bridge piers remain from the old alignment of Oregon 99W, just west of the present bridge. The ODOT biologist recommends that, if needed, a temporary detour structure be built on the old bridge alignment of Oregon 99W because it would minimize riparian impacts and avoid impacting wetlands. After the detour is removed, it is recommended that the riparian area be restored.

If the project impact to wetlands or the stream is significant, several permits may be required. Through an administrative agreement, permits for removal and filling are obtained jointly through the U.S. Army Corps of Engineers (USACE) and the Oregon Division 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 U.S. Environmental Protection Agency (EPA). A Section 404 permit issued by the USACE is necessary, according to the federal Clean Water Act, if jurisdictional wetlands and water will be affected by any proposed project.

## **SOILS**

Most of the study area consists of three soil types: Cove, Coburg, and Malabon silt clay loam. Cove silty clay loam is on the NRCS list of hydric soils. Coburg and Malabon are moderately to well drained and are not hydric. These soil types offer some obstacles to development. Cove silty clay loam has a high shrink-swell potential, seasonally high water table, and is susceptible to flooding. Malabon and Cove silty clay loam are low in strength.

South of the study area, along Rickreall Creek, is a small section of loamy Xerofluent soils. This soil type is excessively to well-drained and found along active flood plains. Development is limited on these soils due to slow runoff rates, high erosion, and the risk of frequent overflows.



## **FLOODPLAINS**

FEMA maps indicate a 100-year floodplain along Rickreall Creek that encompasses most of the northern and eastern portions of the study area.

The Rickreall Creek 100-year floodplain also includes areas south of Rickreall Road. Development in these floodplains is regulated by the Polk County Floodplain Overlay Zone.

## ***Cultural Resources***

The project area has not been formally surveyed for archeological resources, but the ODOT archeologist identified the area as high probability for having archeologically significant sites. It was recommended that enough time and money be allocated during the planning process to test for and avoid archeological sites. The archeologist advised that if it is impossible to avoid archaeological resources, recovery costs could reach several hundred thousand dollars.

While archeological resources were not surveyed, ODOT did conduct an historic resource inventory. In April 2000, an ODOT cultural resources specialist completed the inventory. The Area of Potential Effect (APE) included the unincorporated community of Rickreall, the Oregon 22/99W intersection, the Oregon 99W/Rickreall Road intersection, and all the area between the railroad tracks at Derry to the east, a farm complex to the north at mile post 57, to Rickreall Creek to the south and the intersection of Oregon 22 to the west.

After conducting a field reconnaissance, a historical records search, and interviewing local historians, the cultural resources specialist identified 16 sites within the APE that could be eligible for the National Register of Historic Places. A number of the sites identified are included in the State Historic Preservation Office (SHPO) list of significant resources. The potential National Register sites include:

Seven (7) properties on Main St. in Rickreall are potentially eligible for the National Register of Historic Places:

- 115 Main St. – Mini Mart-circa 1941/47 grocery store
- 1140 Main St. – 1947 gas station
- 205 Main St. – Dallas-Rickreall Highway - Italianate Style house, known as the A.L. Foreman House (SHPO #380)
- 200 Main St. – 1928 Bungalow Style house, known as the Dempsey House (SHPO #377)
- 280 Main St. – circa 1916 Grange #671 (SHPO #378)
- 300 Main St. – 1928 Grade School (SHPO # 379)
- 301 Main St. – circa 1872 Vernacular Style house, known as the S.T. Burch House (SHPO #37).

One property on Ford Street that is potentially eligible for the National Register:

- 305 Ford St. – circa 1870 Vernacular Style house, known as the Ford House (SHPO #381)

Eight properties located on Rickreall Road are potentially eligible for the National Register:

- 9300 Rickreall Rd. (old Highway 22) – circa 1865 Colonial Style house, known as the James Nesmith House (SHPO #360). Nesmith was a very significant early pioneer in the area.
- 9300 Rickreall Rd. – circa 1900 barn (SHPO #373)
- 9300 Rickreall Rd. – circa Dallas-Rickreall Highway - barn (SHPO #373)
- 9525 Rickreall Rd. – circa 1880 Vernacular Style house, known as the Richard Nesmith House (SHPO # 261)
- 9810 Rickreall Rd. – circa 1880 Italianate Style house, known as the Samuel T. Burch House (SHPO # 260)
- 10045 Rickreall Rd. – circa 1881 Italianate Style house, known as the Joshua McDaniel House (SHPO #387)

### ***Hazardous Materials***

In April 2000, ODOT Region 2 Hazmat prepared a Hazardous Materials Report from a Limited Phase One Study of the Rickreall Refinement Plan. 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 10 potentially contaminated sites, using historical aerial photographs (1936-94) and Polk County Assessor’s 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. The ten sites are listed below:

**Site 1:** Burelbach Industries Inc., 10135 Rickreall Rd.

**Property Description:** Industrial facility.

**Hazmat Concern:** Potential spills and improper use and/or disposal of hazardous materials.

**Site 2:** Western Interlock Inc., 10095 Rickreall Rd.

**Property Description:** Industrial facility.

**Hazmat Concern:** Potential spills and improper use and/or disposal of hazardous materials.

**Site 3:** OK’s Imported Car Service, 9855 Rickreall Rd.

**Property Description:** Auto repair shop, former gas station.

**Hazmat Concern:** Potential soil and/or groundwater contamination from former gas station.

**Site 4:** Roger Potter Construction, 9805 Rickreall Rd.

**Property Description:** Single residential house.  
**Hazmat Concern:** Potential spills and improper use and/or disposal of hazardous materials.

**Site 5:** Meier Plumbing Inc./The Hudson Property, 1 Main St./9750 Rickreall Rd.  
**Property Description:** Warehouse, former gas station.  
**Hazmat Concern:** Potential soil and/or groundwater contamination from former gas station.

**Site 6:** The Henry Delores Property, 120 Main St.  
**Property Description:** Single residential house.  
**Hazmat Concern:** Potential soil and/or groundwater contamination from former gasoline UST.

**Site 7:** Rickreall Farm Supply, Inc., 130 Main St.  
**Property Description:** Gas station and bulk fuel facility.  
**Hazmat Concern:** Potential soil and/or groundwater contamination beneath this property from former or active fuel tanks.

**Site 8:** Dallas School District/Rickreall Grade School, 300 Main St.  
**Property Description:** School facility.  
**Hazmat Concern:** Potential spills and improper use and/or disposal of hazardous materials.

**Site 9:** Killen Construction/Rickreall Farms, 9525 Rickreall Rd.  
**Property Description:** Single family house.  
**Hazmat Concern:** Diesel contamination caused by UST remaining in the property.

**Site 10:** Polk County Farmer's Co-op/Ag West Supply Plant, 8870 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 the property.

### **5.3 Constraint Conclusions**

No fatal flaws were identified in the analysis of land use and environmental constraints within the study area. Based on these assessments, this project was afforded categorical exclusion status and will not be required to produce an Environmental Assessment or Environmental Impact Statement. Appropriate regulations will still apply and all necessary permits must be obtained before construction. All necessary approvals will be identified during project development.

### **5.4 Alternatives Identified and Dismissed After Preliminary Evaluation**

Over twenty "build" alternatives were considered during the course of this analysis. Of these, the TAC dismissed 12 alternatives after preliminary evaluation. Information about all of these dismissed alternatives can be found in Appendix G. The alternative identification process began by reviewing all of the possible intersection and interchange forms that might work in these

areas. Beyond simple turn lane additions, the interchange forms deemed most appropriate for these locations were a simple fly-over structure at Oregon 22 and Oregon 223, and folded quadrant diamond (or jug-handle forms) and/or conventional diamond alternatives at the intersection of Oregon 22 and Oregon 99W. These alternatives are listed in Section 5.6 and described in further detail in Chapter 6.

Two alternatives that were considered in some additional detail, but not advanced, were a roundabout intersection and a single-point urban diamond interchange. These alternatives did not provide significant safety and/or additional capacity advantages at the Oregon 22/Oregon 99W intersection as compared to the other alternatives that were advanced for further consideration. The options had several other safety or operational implications that were also felt to be less desirable than the other alternatives that were advanced. These dismissed alternatives are discussed in greater detail below.

#### **5.4.1 Roundabout at Oregon 22/Oregon 99W intersection**

Roundabout intersection control was evaluated for both the intersections of Oregon 22/99W and Oregon 22/Dallas-Rickreall Highway. Transportation analysis provided by ODOT's Transportation Planning and Analysis Unit (TPAU) showed that the traffic volumes forecasted at each intersection would require two-lane roundabout designs. This analysis shows that OHP mobility standards would not be met at either intersection, even with the two-lane configuration. In addition to the traffic analysis there are several safety and geometric concerns that would suggest roundabout intersection control is not appropriate at either of these intersections.

ODOT recently adopted interim siting criteria for roundabouts. TPAU analysis shows that the proposed locations do not meet several of the adopted criteria. For example:

- Roundabouts are best suited to environments with a posted speed of 35 miles per hour or less. The study area intersections are located in rural high-speed environments with a posted speed of 50 miles per hour with actual speeds closer to 60 miles per hour.
- Roundabout intersections require every entering vehicle to slow and yield to traffic already within the circulatory roadway. In some cases, entering vehicles will be required to stop. Either a slow yielding entry or a stopped vehicle produces a large speed differential from the traveling speeds of the highway. A high percentage of the rear-end collisions at the Oregon 22/Oregon 99W intersection can be attributed to the high-speed differential.
- In addition, drivers in rural environments do not expect to encounter situations that provide high-speed differentials, thus exacerbating the potential for such accidents.
- Any roundabout design at these locations would need to provide mitigation measures to reduce the speed differential. This means physical adjustments to all highway segments approaching the roundabout to transition traffic speeds from high speed to low speed.

- However, these types of physical modifications can also lead to an increase in some types of accidents, particularly rear-end collisions. Therefore, the area where such accidents are prone to occur would be extended to include the highway speed transition segments approaching the roundabout.
- Roundabouts also do not function well at intersections with high truck traffic volumes. Truck volumes at the Oregon 22/Oregon 99W intersection are high with an average volume of approximately 2,000 vehicles per day.
- Further, the size of the turning radii in roundabouts necessitates that moderate to large trucks must travel at slower speeds than auto traffic to safely maneuver. Two-lane roundabouts have larger turning radii, but may result in large trucks using both circulatory lanes due to the trailer off tracking. This can create safety as well as operational efficiency problems.

The ODOT interim siting criteria recommend that only single-lane roundabouts be considered at this time. As roundabouts are a relatively new form of intersection control in the USA and particularly in Oregon, drivers need to understand the basic operating principles of single lane roundabouts before they can be expected to use a multi-lane roundabout efficiently and safely. The complexity of multi-lane roundabouts increases with the number of entering legs.

As stated previously, the TPAU analysis shows that current traffic volumes would necessitate multi-lane roundabouts at both intersections. A multi-lane roundabout at either of these locations can create several internal conflicts, including:

- Truck traffic will use most, if not all, of the circulatory roadway. Vehicles on the inside may be sideswiped by the trailer off-tracking.
- Additionally, there are high volumes of left-turning traffic at these intersections. Proper use of the roundabout requires left-turning traffic to use the inside portion of the roundabout and leave from the inside as well. This will be difficult for many drivers to comprehend.
- As a result, some drivers may attempt a left turn from the outside lane resulting in safety problems and reduced operational efficiency.
- Roundabouts do not operate effectively where traffic volumes at one or two entry points are significantly higher than volumes at other. Traffic volumes on Oregon 22 are significantly higher than on Oregon 99W.
- Additionally, roundabouts are less effective with high left turn volumes. Both the Oregon 22/Oregon 99W and Oregon 22/Dallas-Rickreall Highway intersections accommodate heavy left-turn traffic from westbound to southbound. The large volumes would reduce the effectiveness and safety of a roundabout intersection.

Roundabout intersection control was also considered in conjunction with one of the intersections being signalized. Additionally, a roundabout was proposed at Oregon 22/Dallas-Rickreall Highway intersection in conjunction with development of an interchange at the Oregon 22/Oregon 99W intersection. Both of these proposals create significant operational issues, including:

- Queuing, or storage problems at either the roundabout or signalized intersection could affect the operations at one or both intersections.
- Additionally, there would be operational problems for westbound traffic traveling to Dallas from an interchange at Oregon 22/Oregon 99W to a roundabout intersection at the Oregon 22/Dallas-Rickreall Highway.
- Traffic will be accelerating to highway speeds and merging, drivers will not expect an intersection control closely spaced that requires them to slow to 20 mph or even stop. Therefore, roundabout intersection control at both intersections would be necessary to ensure proper vehicle interaction between the two intersections.

Roundabout intersection control is not recommended at either intersection due to the numerous safety and operational problems. These problems include large speed differentials, truck volume, truck-vehicular conflicts, unequal traffic volumes, complexity of multi-lane operation, lack of compatibility with other design options, and the inability to meet highway mobility standards in the design year.

For these reasons, the TAC dismissed this alternative from further consideration.

#### **5.4.2 Single-point urban diamond at Oregon 22/Oregon 99W intersection**

A single-point interchange alternative was evaluated for the Oregon 22/Oregon 99W intersection. Because this style of interchange has a smaller “footprint” than many other interchange forms, this alternative was discussed as a design technique that could reduce the impacts of an interchange to the Rickreall community.

The alternative analyzed in this case included building a single-point diamond interchange at the Oregon 22/Oregon 99W intersection as well as grade separating the Oregon 22/Dallas-Rickreall Highway intersection. The single-point diamond design is a tight or compressed design where the ramps are closely spaced to the highway and curve inward towards each other to form one single intersection underneath the overcrossing structure.

Due to the close proximity of the two intersections, the ramps to the Dallas-Rickreall Highway need to be separated from the interchange ramps at the Oregon 22/99W intersection. This would require the exit ramps for westbound traffic bound for Dallas to be located east of the Oregon 22/99W intersection. The ramp roadway would then cross over both Oregon 99W and Oregon 22 before connecting with Dallas-Rickreall Highway.

For eastbound traffic entering Oregon 22 from Dallas-Rickreall Highway, two options were considered. The first option is to realign the eastbound portion of Dallas-Rickreall Highway to run parallel to and south of Oregon 22. Eastbound traffic would then cross over Oregon 99W before merging onto Oregon 22 just west of the railroad structure. The second option is to braid the eastbound portion of Dallas-Rickreall Highway with the eastbound exit ramp to Oregon 99W. This option may result in smaller overall footprint than the first option.

The TAC found that this alternative has higher overall construction costs, right-of-way impacts, lack of compatibility of phasing, and the no distinct advantages over any of the other long-term design alternatives.

For these reasons, the TAC dismissed this alternative from further consideration.

## **5.5 Intersection Alternatives Identified for Additional Evaluation**

The TAC developed seven levels of potential improvement alternatives at the Oregon 22/99W and Oregon 22/Dallas-Rickreall Highway intersections for more detailed evaluation. The more detailed evaluation included both preliminary design concepts and traffic analysis. In general, as the level of design alternatives increase so does the cost and impacts of implementing. The alternatives evaluated include:

- Level 1**      Immediate improvements such as striping, signing, visibility enhancements, Intelligent Transportation Systems (ITS), etc.
- Level 2**      Channelization improvements to the existing Oregon 22/99W intersection and potential signalization of Oregon 22/Dallas-Rickreall Highway intersection.
- Level 3**      At-grade jug-handle designs for indirect left turns through a traffic signal at the existing Oregon 22/99W intersection.
- Level 4**      Build a grade separation for westbound traffic to Dallas at the Oregon 22/Dallas-Rickreall Highway intersection.
- Level 5**      Jug-handle style interchange options at the Oregon 22/99W intersection.
- Level 6**      Jug-handle style interchange at the Oregon 22/99W intersection with grade separation to westbound traffic at Oregon 22/Dallas-Rickreall Highway intersection (Level 4 plus Level 5).
- Level 7**      Full interchange concepts at the Oregon 22/99W intersection with freeway style ramps including connections to Dallas-Rickreall Highway.

## 5.6 Rickreall Community Alternatives Identified for Additional Evaluation

As the project team analyzed the range of possible alternatives for the Oregon 22/99W intersection, it became apparent that projected traffic increases over the 20-year planning horizon, as well as the design options for the intersection/interchange, would result in significant impacts to Oregon 99W and the Rickreall community. Subsequently, the project team developed and evaluated a range of alternatives to address the long-range deficiencies, safety problems, and operational needs of the section of Oregon 99W through the Rickreall community. These alternatives include:

- |                      |   |
|----------------------|---|
| <b>Alternative A</b> | No build (this is addressed in Chapter 4)   |
| <b>Alternative B</b> | Construct a 3-Lane Section on Oregon 99W  |
| <b>Alternative C</b> | Construct a 4-Lane Section on Oregon 99W  |
| <b>Alternative D</b> | Construct 4-Lanes Plus Median on Oregon 99W   |
| <b>Alternative E</b> | Construct an off-set 'T' at the Oregon 99W/ Rickreall Road intersection                       |
| <b>Alternative F</b> | Construct a jug-handle connection to eliminate left turns from Rickreall Road onto Oregon 99W |
| <b>Alternative G</b> | Construct a roundabout at the Oregon 99W/ Rickreall Road Intersection                         |



# Alternatives Evaluation and Interchange Area Management Plan

## 6.1 Evaluation Approach

The evaluation approach has three steps: alternative development, detailed evaluation, and stakeholder validation. As mentioned previously, of the alternatives identified, the project Technical Advisory Committee (TAC) advanced seven (7) levels of potential improvement alternatives at the Oregon 22/Oregon 99W and Oregon 22/Oregon 223 (Dallas-Rickreall Highway) intersections for more detailed evaluation.

Assumptions used to develop and evaluate alternatives were based on local, state, and federal policy applications and information gathered during the conditions assessment phase of the process.

Several standard assumptions were used to evaluate alternatives. These assumptions include:

- Future travel demand is based on traffic projections derived from historic travel growth rates. An assessment of the potential of area land uses to generate traffic growth that could exceed the historical averages was also conducted. No outstanding growth potential was discovered.
- Access control either exists or will be purchased with new right-of-way within the operating area of each alternative. No new accesses are assumed within these areas. With the grade-separated alternatives, some compromise of the interchange spacing standard within Rickreall may be needed to serve pre-existing uses and facilitate future project development on Oregon 99W.
- The Rickreall School (currently closed—may reopen in future) will remain in its current location, although student drop-off and pick-up will be moved off Oregon 99W. A new connector road between Rickreall Road and the school will be developed by the county to provide off-highway access to the school. This roadway may also provide alternative future access to properties abutting Oregon 99W. An improved pedestrian crossing from the west side of Oregon 99W to the school will also be developed during the design phase of which ever alternative is advanced for construction.
- Oregon 22 will remain as a 55-mph facility.
- The grade-separated alternatives with Oregon 22 crossing over Oregon 99W all assume that Oregon 22 will be shifted slightly to the north on its approaches to Oregon 99W in order to increase spacing between the interchange and the Rickreall community and to improve its horizontal alignment to the west of the interchange.

- The OHP Major Improvement Policy establishes priorities for infrastructure investment. The highest priority is to preserve the functionality of the existing highway system. The second priority is to make minor improvements to existing highway facilities. The third priority is to make major roadway improvements to existing highway facilities. The final priority is to add new transportation facilities such as a new highway or bypass when other alternatives fail to address the identified problem. The evaluation process addresses this policy. The need to address the OHP Access Management Policy and Mobility Policy is also factored into the assessment of each alternative's performance. The text of these OHP policies is included in Appendix B.
- When improved (either with this project, or with future projects), Oregon 99W in Rickreall will be reconstructed with sidewalks, improved pedestrian crossings and, where necessary and appropriate, medians.

The detailed alternative evaluation results were quantified, where practical, based on the level of data available. Where quantifiable data were not available, qualitative data has been provided to address the transportation objective categories, evaluation criteria, and performance measures detailed in Appendix J. A tabular summary of how the alternatives recommended for possible consideration meet the various evaluation criteria used in this analysis is provided in Appendix M. The results of the detailed alternative transportation operations evaluation are summarized in Appendix G.

## **6.2 Oregon 22, Oregon 99W, and Dallas/Rickreall Highway Intersection Alternatives Evaluated**

The seven levels of intersection alternatives for the Oregon 22 intersections with Oregon 99W and the Dallas/Rickreall Highway that were advanced from the alternative identification phase for further analysis and subsequently recommended for possible consideration are described in this section. In this section, these alternatives are referred to by the alpha-numeric identifiers developed during the identification phase. The full operational analysis for these alternatives and those that were not recommended for possible consideration is included in Appendix G. Summary tables showing how the alternatives recommended for possible consideration meet the evaluation criteria used in this analysis is provided in Appendix M. Illustrations of these alternatives are provided in Appendix N. The recommended design configuration is provided in Appendix N. The levels and their location in this chapter are referenced below.

- 6.2.1 Level 1 - Immediate improvements such as striping, signing, visibility enhancements, Intelligent Transportation Systems (ITS), etc.**
- 6.2.2 Level 2 - Channelization improvements to the existing Oregon 22/Oregon 99W intersection and potential signalization of Oregon 22/Dallas-Rickreall Highway intersection.**
- 6.2.3 Level 3 - At-grade jug-handle designs for indirect left turns through a traffic signal at the existing Oregon 22/Oregon 99W intersection.**
- 6.2.4 Level 4 - Provide grade separation for the westbound traffic at the Oregon 22/Dallas-Rickreall Highway intersection.**

- 6.2.5 Level 5 - Jug-handle style interchange options at the Oregon 22/Oregon 99W intersection.**
  - 6.2.6 Level 6 - Jug-handle style interchange at the Oregon 22/Oregon 99W intersection with grade separation for westbound traffic at Oregon 22/Dallas-Rickreall Highway intersection.**
  - 6.2.7 Level 7 - Full interchange concepts at the Oregon 22/Oregon 99W intersection with freeway style ramps including connections to Dallas-Rickreall Highway.**
  - 6.2.8 Alternative 7 Refinements after Oregon Transportation Investment Act (OTIA) Funding was Allocated for Construction**
- 6.2.1 Level 1 - Immediate improvements such as striping, signing, visibility enhancements, Intelligent Transportation Systems (ITS), etc.**

This alternative is composed of low cost, easy to implement features meant to improve safety in the area. While no specific features were identified as part of this planning activity, concepts discussed included rumble strips for shoulders and median areas, glare shield on signals to reduce impacts from the sun, ITS reader boards for traffic conditions and accidents, possible signing or striping modifications.

No operational analysis was performed for this alternative, as none of these measures would significantly affect capacity or roadway geometrics. This alternative will not adequately address the defined transportation problem.

However, the TAC acknowledged the potential for more immediate safety benefits from this alternative and recommends that ODOT consider implementation of some of all of these measures to provide interim safety benefits if funding to advance a longer-term solution to the broader operational and geometric transportation problem was not forthcoming.

**6.2.2 Level 2 - Channelization improvements to the existing Oregon 22/Oregon 99W intersection and potential signalization of Oregon 22/Dallas-Rickreall Highway intersection.**

**Alternative 2C: Channelization improvements to the existing Oregon 22/Oregon 99W intersection constructing dual westbound to southbound left turn lanes, a right turn lane for eastbound to southbound traffic, and adding separate left turn lanes for northbound to westbound traffic and southbound to eastbound traffic.**

This alternative channelizes all four approaches at this intersection. The construction of dual left turn lanes reduces the length of storage for westbound to southbound traffic on Oregon 22. This shortens the area of speed reduction conflicts and slightly improves the intersection's operational efficiency. Alternative 2C is illustrated in Appendix N – Figure 1.

This alternative also provides an eastbound to southbound traffic deceleration lane from Oregon 22 to Oregon 99W. This feature would lower the potential for crashes resulting from conflicts between vehicles slowing to turn and those continuing through the intersection.

As with the modifications to Oregon 22, the separate left turn lanes on both Oregon 99W approaches serve two purposes. They will slightly improve intersection operations by removing the through traffic conflict currently created when vehicles stop in the single lane to wait for a gap to turn left. The reduction in conflicts between through traffic and left-turn movements should also improve safety.

Even though this alternative provides a short-term improvement in intersection v/c ratio, from 0.89 to 0.84, the improvements will not provide for long-term operations. The intersection will exceed capacity around 2012. The OHP Mobility Policy standard is not met now and would not be met under this alternative at any time. Assuming that it could be built in 2004 or 2005, the net result of this alternative would be to forestall complete peak hour intersection failure for approximately 5 years (from approximately 2007 to approximately 2012).

However, due to the high traffic demand for vehicles using the Oregon 22/Dallas-Rickreall Highway (westbound) intersection to travel to Dallas, this alternative will not address the lane imbalance problem that results from the close proximity of the Oregon 22/Oregon 99W intersection with the Oregon 22 and Dallas/Rickreall Highway intersection. As traffic grows and trips between Salem and Dallas become an even greater proportion of the total trips on Oregon 22, the lane balance in the Oregon 22 westbound through lanes at the Oregon 22/Oregon 99W intersection will become more uneven. This will likely make the intersection operate even worse than projected by the analysis, which does not totally account for this lane balance factor.

With higher traffic volumes in the future, the number of angle and rear-end accidents at this location, the predominant types currently experienced, will likely increase disproportionate to traffic growth, although their potential severity may be diminished through the addition of the turn lanes. However, even with channelization, a traffic signal in rural areas will always pose potential safety problems due to higher speed differentials between stopped vehicles and those approaching the signal from the rear of traffic queues.

In summary, while this alternative could provide some short-term relief at the Oregon 22/Oregon 99W intersection, it does not adequately address the fundamental transportation problems at these locations over the 20-year planning horizon.

### **6.2.3 Level 3 - At-grade jug-handle designs for indirect left turns through a traffic signal at the existing Oregon 22/Oregon 99W intersection.**

While the Level 3 alternatives were evaluated in greater detail, none were advanced for further consideration. As with all dismissed alternatives, these alternatives are shown and described in Appendix G.

### **6.2.4 Level 4 - Provide a grade separation for westbound traffic at the Oregon 22/Dallas-Rickreall Highway intersection.**

**Alternative 4B - Provide grade-separation at the Oregon 22/Dallas-Rickreall Highway intersection through construction of a flyover (overpass structure) on the eastbound leg of Oregon 22.**

This alternative physically separates the Salem to Dallas traffic from eastbound Oregon 22 traffic by elevating Oregon 22 eastbound over the Dallas-Rickreall Highway. Oregon 22 westbound would split with two lanes becoming the Dallas-Rickreall Highway (and passing under the Oregon 22 eastbound flyover) and two lanes continuing westbound towards the coast (merging back to one lane west of the split). Alternative 4B is illustrated in Appendix N – Figure 2.

In its current configuration, this critical left turn movement at this intersection is near capacity and well beyond OHP Mobility Standards. Because all movements would become free-flow, this alternative will provide very good service through 2025. Separating the Dallas-Rickreall Highway turning movements from the Oregon 22 traffic will improve safety of the section. The design is compatible with several other short and mid-range alternatives and one long-range alternative for the Oregon 22/99W intersection.

It should be noted that as a stand-alone alternative, this alternative also includes the channelization improvements at the Oregon 22/Oregon 99W intersection described in Alternative 2C. However, in this alternative (as opposed to the lane configuration in 2C), an additional through lane would be added in the eastbound and westbound directions on Oregon 22 east of the Oregon 22/Oregon 99W intersection to carry through traffic flows through the signalized Oregon 22/Oregon 99W intersection. The third westbound Oregon 22 through lane would distribute vehicles traveling from Salem to Dallas into two (2) lanes instead of one lane at the Oregon 22/Oregon 99W intersection. These lane additions result in significant operational improvements at the Oregon 22/Oregon 99W intersection, extending its ability to meet OHP mobility standards to approximately 2013 and forestalling complete failure until approximately 2020. However, this modification would do very little to improve the inherent safety problems associated with the placement of a traffic signal on a high-speed rural facility.

This design would also eliminate two low-volume movements from the existing intersection. The moves eliminated would be the left and right turns onto Oregon 22 from the stop sign at the short road section that connects to both Oregon 22 and Dallas-Rickreall Highway. This would result in some minor out-of-direction travel, but would also increase safety and simplify construction.

### **6.2.5 Level 5 - Jug-handle style interchange options at the Oregon 22/Oregon 99W intersection.**

#### **Alternative 5C - Grade-separated jug-handle style intersection at the Oregon 22/Oregon 99W intersection with jug-handles in the northwest and southeast quadrants.**

Alternative 5C is the least expensive type of grade-separated interchange design analyzed and could be phased with improvements at the Oregon 22/Dallas-Rickreall Highway intersection (Alternative 4B) and with full interchange options (Level 7). This alternative consists of building a grade-separated jug-handle style interchange at the Oregon 22/Oregon 99W intersection with Oregon 22 passing over Oregon 99W. Jug-handles would be located in the northwest and southeast quadrants. The heavy westbound to southbound traffic movements can be accommodated without installing a traffic signal at the westbound ramp terminals (north of Oregon 22) through the 20-year planning horizon. Alternative 5C is illustrated in Appendix N – Figure 3.

While it is not projected to meet technical traffic signal warrants until 2015-2020, a traffic signal was analyzed at the eastbound ramp terminal (south of Oregon 22) as part of the initial construction of this alternative. This signal was examined as a way to create gaps in traffic flow that could improve intersection operations and safety at the Oregon 99W/Rickreall intersection and at the Oregon 99W intersection with the interchange ramp terminal north of Oregon 22. This signal would enable the southern ramp terminal to function within OHP mobility standards through 2025.

This alternative could be built as a stand-alone project and later combined with Alternative 4B or modified to become Alternative 7A. However, without construction of improvements to the Oregon 22/Dallas-Rickreall Highway described in the discussion Alternative 4B, the existing westbound to southbound traffic movement at that intersection will continue to worsen and exceed OHP mobility standards. This will result in significant queuing of vehicles waiting to turn left from Oregon 22 westbound onto the Dallas-Rickreall Highway.

To reduce potential conflicts that could occur between this queue and the interchange, it will be necessary to locate the entrance of the ramp that connects southbound Oregon 99W to westbound Oregon 22 west of the Oregon 22/Dallas-Rickreall Highway intersection. This will eliminate the potential for unsafe westbound weave maneuvers between the interchange and the Dallas-Rickreall Highway. This will also eliminate the ability for drivers to travel from Oregon 99W southbound to the Dallas-Rickreall Highway via Oregon 22. As a result, drivers traveling from McMinnville to Dallas can either continue southbound on Oregon 99W to the Oregon 99W/Rickreall Road intersection and then turn west to the Dallas/Rickreall Highway or travel westbound on Oregon 22 to the Oregon 22/Kings Valley Highway intersection and then turn south.

With this alternative, the spacing between the southern ramp terminal and Rickreall Road is approximately 450 meters (~1500 feet) which does meet the OHP ramp to local street spacing standard of 400 meters (1320 feet). Rickreall Road is the closest major street to the ramp terminal. However, the closest local roadway to this ramp terminal is Pageant Street. Pageant Street is approximately 120 meters (~400 feet) away from the southern ramp terminal. Direct Pageant Street access to Oregon 99W will need to be closed in order for the interchange to function safely.

Currently opposite Pageant Street, on the east side of Oregon 99W between Church Street and the southern ramp terminal, are the Rickreall Elementary School, the local Grange Hall, and the Rickreall Mason's Lodge. The school has a school bus drop off area adjacent and parallel to Oregon 99W. The Grange and Mason's Lodge have several graded, unpaved, and undefined parking spaces that are directly adjacent to Oregon 99W. These accesses will also need to be closed in order to protect the interchange area function. To provide alternative access to these facilities, Polk County will fund construction of a new access road from Rickreall Road north to the school property, roughly along the community boundary with the EFU property to the east of Rickreall. This road will provide alternative access that will improve safety in the interchange area. It will also be a key facility to improve local circulation if and when local properties fronting the east side of Oregon 99W in Rickreall develop or redevelop.

The next local street between the proposed southern ramp terminal and Rickreall Road is Church Street. Church Street is approximately 230 meters (~750 feet) from the southern ramp terminal.

Even with the closure of Pageant Street, this is a very low volume local road serving approximately 13 residential properties. The local fire station also has access to Oregon 99W at this point.

It is the position of ODOT Region 2 that Church Street can safely remain open as a full movement access at this time. However, when turn lanes or travel lanes are added to Oregon 99W as traffic volumes grow, consideration should be made to limiting the Church Street access to right-in, right-out movements through use of a median. Any median provided in this vicinity would need to be “mountable” (i.e., designed to allow Fire and Emergency vehicles to cross over).

It is anticipated that the need to add lanes to and/or implement more stringent access management on Oregon 99W will occur within an approximately 15-20-year horizon. It is also anticipated that warrants for a traffic signal at Rickreall Road will also be met in approximately this same time period if not sooner. When signalized, Rickreall Road will be better able to handle additional traffic diverted from residences and businesses whose access may be affected by installation of a median.

Detailed planning for what to do about forecast capacity problems Oregon 99W south of Oregon 22 will begin in 2004. This process will produce preliminary recommendations about future access within this part of the Oregon 99W corridor. Specific decisions about the disposition of the accesses to the three businesses and the two residential accesses between Church Street and Rickreall Road should be determined by the Project Development Team (Access Management Sub-Team) during the project development process when Oregon 99W is improved south of Church Street. This determination should include considering the installation of a median between Church Street and Rickreall Road. It may be appropriate to limit these accesses to right-in, right-out movements through use of a median or to close them completely and provide alternative access.

Dealing with this area will ultimately depend on whether or not alternatives to widening Oregon 99W can be developed, shared access negotiations with abutting property owners, and the design of the county frontage road needed to provide access from Rickreall Road to the Rickreall Elementary School (as described in Section 6.3.4).

#### **6.2.6 Level 6 - Jug-handle style interchange at the Oregon 22/Oregon 99W intersection with grade separation to westbound traffic at Oregon 22/Dallas-Rickreall Highway intersection.**

##### **Alternative 6C - Grade-separated jug-handle style intersection at the Oregon 22/Oregon 99W intersection with grade-separation at the Oregon 22/Dallas-Rickreall Highway intersection.**

Alternative 6C combines the Alternative 5C interchange configuration at the Oregon 22/Oregon 99W intersection with the Alternative 4B grade separation at the Oregon 22 and Dallas-Rickreall Highway intersection. By combining 4B and 5C, all of the problems that were identified in the project problem statement can be adequately addressed through the 20-year planning horizon. Furthermore, the problems that would remain or be created by constructing either alternative independently would also be largely eliminated. Access management on Oregon 99W within Rickreall on the approach to the eastbound ramps at the interchange with Oregon 22 would be the

same as described in Alternative 5C. Alternative 6C alternative can also be modified in the future in to the Alternative 7A design with a minimal loss of the initial investment. Alternative 6C is illustrated in Appendix N – Figure 4.

With this combination of Alternatives 4B and 5C, the distance between the exit ramp from Oregon 22 eastbound to Oregon 99W and the proposed merge of Oregon 22 eastbound and the Dallas-Rickreall Highway eastbound is shorter than called for by the OHP interchange ramp spacing standards. The distance between these two points is approximately 300 meters (~990 feet) as opposed to the OHP spacing standard of 1.6 km (5280 feet) between interchange ramps. However, this configuration is not a conventional ramp spacing situation.

In this alternative, the intersection at Oregon 22 and the Dallas-Rickreall Highway would become a directional interchange where the eastbound lanes of two highways merge into one single highway (the Dallas-Rickreall Highway eastbound merges with Oregon 22 eastbound, becoming just Oregon 22 eastbound). In this case, the heavier merged movement would be from the Dallas-Rickreall Highway. The principal concern with this configuration would be for vehicles merging with Oregon 22 eastbound from the Dallas-Rickreall Highway eastbound weaving across the Oregon 22 eastbound traffic to reach the ramp in the southeast quadrant of the interchange that serves the eastbound to northbound traffic flow. However, this is a very low volume movement (less than 10% of eastbound vehicles in a typical peak hour in 2025 even if all eastbound to northbound movements came from Dallas-Rickreall Highway and none came from Oregon 22—it is likely that most will come from Oregon 22). This factor is not considered to be a fatal flaw by ODOT Preliminary Design.

### **6.2.7 Level 7 - Full interchange concepts at the Oregon 22/Oregon 99W intersection with freeway style ramps including connections to Dallas-Rickreall Highway.**

#### **Alternative 7A - Full interchange concepts at the Oregon 22/Oregon 99W intersection with freeway style ramps including connections to the Dallas-Rickreall Highway**

Alternative 7A combines both the Oregon 22/Oregon 99W and Oregon 22/Dallas-Rickreall Highway intersections into a single interchange with more conventional diamond-style freeway-ramps south of Oregon 22. Like Alternative 6C, this alternative incorporates the grade-separation that elevates Oregon 22 over Oregon 99W and a loop ramp in the northwest quadrant and a long diamond westbound entrance ramp that does not allow connection to Dallas-Rickreall Highway. Alternative 7A is illustrated in Appendix N – Figure 5.

For eastbound traffic, the exit to Oregon 99W north or southbound splits from Oregon 22 at the structure that would flyover the Dallas-Rickreall Highway and connects directly to Oregon 99W. The eastbound entrance to Oregon 22 from Oregon 99W northbound is a normal diamond style ramp.

Alternative 7A has a one-lane structure over Dallas-Rickreall Highway for eastbound Oregon 22 vehicles traveling from the coast to Salem. Traffic signals would not be needed through and the 20-year planning horizon at either eastbound or westbound ramp terminals if an add-lane is constructed at the westbound ramp terminals for the westbound to southbound right turning traffic.



This interchange configuration will not provide a direct route for McMinnville to Dallas or Dallas to McMinnville traffic flows via the Dallas-Rickreall Highway. These drivers will have to reroute to the Oregon 99W/Rickreall Road intersection to reach their destinations or in, the case of McMinnville to Dallas traffic travel on Oregon 22 westbound to Oregon 223 (Kings Valley Highway). In the worst case, this shift of traffic through Rickreall only amounts to about 100 vehicles in the peak hour of highway operation (in contrast to the 2600 vehicles that are otherwise forecasted to be on Oregon 99W during a typical 2025 peak hour). While only constituting an approximately 4% change in Oregon 99W traffic flow in Rickreall (worst case), this shift will help to cause the Oregon 99W/Rickreall Road intersection to meet traffic signal warrants within about 10 years. Additionally, as a measure to lower the number of vehicles that might shift through Rickreall as a result of this design, ODOT will provide signage in Dallas and north of Oregon 22 on Oregon 99W that identifies Oregon 22 and the King's Valley Highway as the best route between Dallas and McMinnville.

The interchange portion of this alternative will meet mobility standards for more through the 2025 planning horizon. This alternative also meets most spacing standards, except within the community of Rickreall. The same access and spacing situation described for Alternative 5C and 6C would exist within Rickreall with the exception that, by virtue of having the diamond-style ramps south of Oregon 22, the spacing between the southern ramp terminals and Church would lengthen to approximately 850 feet.

### **6.2.8 Alternative 7 Refinements after Oregon Transportation Investment Act (OTIA) Funding was Allocated for Construction**

In January 2002, the Oregon Transportation Commission approved \$16.1 million funding to replace the two intersections analyzed in this Facility Plan with grade-separated interchanges. Their approval was based on staff work, which, at that time, indicated that Alternative 6C was the best alternative from a cost, traffic operations, and community impact basis.

Shortly after the OTC approval was granted and a project development team was assigned move the project concept into construction; new questions were raised by ODOT staff about the sufficiency of the funding allocated to actually construct the 6C design as initially conceived. A re-examination of the cost assumptions that had been developed in 2000 revealed that the OTIA funds would not be adequate to fully fund Alternative 6C as originally conceived.

In addition, upon further discussion about early installation of a traffic signal at the southern ramp terminal as called for with Alternative 6C, the ODOT Traffic Section determined that they would not be able to allow installation of a signal so far in advance of signal warrants being met. The Traffic Section did, however, offer their support for analyzing a traffic signal at northbound ramp if a diamond-style ramp configuration requiring a double left turn lane (from WB Oregon 22 to SB Oregon 99W) were constructed on the north side of the Oregon 22 and Oregon 99W interchange.

Because of these issues, a further round of alternative analysis was initiated in the spring of 2002. As noted above, the ODOT Traffic Section had decided not to support a new traffic signal at the southern ramp. Because of this and because the new cost estimates did not reveal as great a

difference between the level 6 and level 7 alternatives as previously indicated, the new analysis focused on variations of the level 7 alternatives.

Both new alternatives featured fewer lanes on Oregon 22 on the approaches to and from the Oregon 99W interchange and kept a single lane into Dallas on the Dallas-Rickreall Highway from Oregon 22 WB. Both designs featured diamond-style ramps on the south side of the Oregon 22 and Oregon 99W interchange.

There were two issues that defined and differentiated the two basic designs assessed in this supplemental round of analysis. The first issue was whether or not the northern ramps would remain in the loop configuration in the NW quadrant of the Oregon 22 and Oregon 99W interchange shown in Alternatives 5C, 6C, and 7A or whether they would be constructed in a diamond-style configuration. With the north side diamond configuration, traffic signals would be warranted, but would provide acceptable operations throughout the planning horizon. The loop configuration also operates acceptably through the year 2025 planning horizon.

The second issue was whether or not to elevate Oregon 99W over Oregon 22. Because of the cost concerns noted above, the design team assigned after OTIA funding approval looked at ways to lower project costs and noted that elevating Oregon 22 over Oregon 99W would be about \$1 million more expensive than taking Oregon 99W over Oregon 22. The operational characteristics were essentially unchanged between regardless of whether or not Oregon 99W was elevated.

Based on earlier analysis and discussions with area residents, all options analyzed and advanced prior to the approval of OTIA funding had assumed that Oregon 99W would remain at-grade. This approach was assumed for several reasons that had, prior to approval of OTIA funding, been felt to outweigh the cost issue. These issues are summarized below:

- By keeping Oregon 99W on the ground, visual and noise intrusion into the Rickreall Community would be minimized (as opposed to having the toe of an overpass slope land at the community's northern boundary).
- It was felt that traffic would be more easily slowed as it approached Rickreall from the north because it would not be approaching on a downhill grade.
- With Oregon 99W traffic going under an Oregon 22 overpass was also felt to be a strong visual signal for motorists to slow down as they approached Rickreall.
- Both of these features were expected to reduce possible pedestrian conflicts, particularly because the Rickreall Elementary School is located at the north end of Rickreall.
- Finally, with the Oregon 22 "over" design, Oregon 22 is aligned slightly to the north in order to facilitate construction phasing and flatten its horizontal curvature to the west. This realignment would increase spacing between the southern ramp terminal and the local street network and better meet OHP spacing goals.

The results of these considerations were four variations on the Level 7 Alternatives. Alternative 7A.1, with reduced lanes on Oregon 22 and a loop ramp for Oregon 22 WB to SB traffic was considered with Oregon 99W elevated over Oregon 22 and with Oregon 22 elevated over Oregon 99W. These two variations of Alternative 7A.1 are illustrated in Appendix N – Figure 6 and Figure 7.

Alternative 7C, with a diamond-style ramp (and a traffic signal) in the NE quadrant of the Oregon 22 and Oregon 99W interchange (as opposed to a loop ramp in the NW quadrant) was also considered with Oregon 99W over and under Oregon 22. These two variations of Alternative 7C are illustrated in Appendix N – Figure 8 and Figure 9.

In order to mitigate the perceived community impact associated with the Oregon 99W overcrossing coming to grade at the north end of Rickreall, additional “traffic calming” measures were considered with Alternative 7C. These measures included increased landscaping and advance signing, flashing lights, colored pavers on Oregon 99W as it enters Rickreall (as a visual clue to slow down), and striping treatments designed to further slow traffic. Taken collectively, it is believed that these or similar measures will cause drivers to slow as the approach Rickreall and create a very safe pedestrian environment.

**Alternative 7A.1 - Full interchange concepts at the Oregon 22/Oregon 99W intersection with freeway style ramps including connections to the Dallas-Rickreall Highway and auxiliary lane modifications to reduce initial construction costs**

**Alternative 7C - Full interchange concepts at the Oregon 22/Oregon 99W intersection with diamond-style freeway ramps north and south of Oregon 22 including connections to the Dallas-Rickreall Highway and auxiliary lane modifications to reduce initial construction costs**

In May 2002, ODOT staff believed that any one of these four alternatives could be constructed with the available funding. While not fully meeting OHP mobility standards for certain weave and turning movements in the year 2025 planning horizon, staff also determined that each would also provide acceptable operational performance (worst case V/C ratios of about 0.80 as opposed to the desired 0.70 or 0.75).

The design preference expressed previously by most community stakeholders had been for Oregon 99W to stay at grade. Stakeholders had also expressed a preference for keeping a traffic signal on Oregon 99W near Rickreall to create gaps in the traffic flow through the community. Both of these features (99W at-grade and a signal) were elements that had been discussed publicly for about 18 months as part of the preferred approach. Consequently, ODOT Management decided to check in with local stakeholders before making a final alternative selection decision that could do away with one or both of these preferred features.

The four Alternative 7A.1 and 7C Alternatives were shared with the Rickreall community in June 2002 at a public open house that was attended by over 100 people. Based upon a questionnaire that was filled out by many of the attendees, the previous preferences expressed by local stakeholders were both affirmed and reversed.

There was almost no support shown for either of the Alternative 7C variations, largely because of the impact that it would have on the farm property that is north and east of Oregon 22 and Oregon 99W. Rejection of this alternative meant that the traffic signal it offered was also rejected, or at least felt to be of less importance than avoiding impact to the farm property. Likely aiding this change in preference was a simulation that ODOT staff had prepared to demonstrate the likelihood of traffic gaps with and without a signal. This analysis showed that a traffic signal as shown with Alternative 7C would provide very few additional gap opportunities when compared to the Alternative 7A.1 loop ramp design without a traffic signal.

A slight majority of those responding to the questionnaire and particularly those living in Rickreall (as opposed to people identifying themselves as being from Dallas or elsewhere in Polk County) did affirm their preference for keeping Oregon 99W at-grade. The preference to keep Oregon 99W on the ground and to elevate Oregon 22 was supported by the Polk County Commission in a July 2002 letter to ODOT.

Based on this input from the community and the County, in July 2002, ODOT Management decided to move ahead with the Alternative 7A.1 variation that keeps Oregon 99W at-grade (with the NW quadrant loop ramp) as the design alternative.

In the year that followed, ODOT project development staff began refining the preferred design using a digital terrain model. This more detailed analysis led to yet another crossroads for this project. The more refined 30% design estimate showed that, for a variety of reasons, the cost of the Alternative 7A.1 with Oregon 99W at grade would be approximately \$21.3 million, as opposed to a cost of \$18.8 million for the variation that makes Oregon 99W the overcrossing. Additionally, the decision was made in early 2003 to close the Rickreall School, indefinitely, due to School District budget problems.

Because ODOT management believed that it would be difficult to find an additional \$2.7 million needed to construct the less expensive alternative and nearly impossible to find the more than \$5 million needed to construct the more expensive alternative, an additional public meeting was held on September 29, 2003. The purpose of the meeting was to inform the public that, due to budget constraints, ODOT would only be able to deliver the option with Oregon 99W as the overcrossing within the time provided to use the OTIA funding. ODOT's goal was to determine if the public could accept this change with the guarantee that full range of traffic calming measures would be employed.

The consensus of those attending the public meeting was that the change would be acceptable, particularly given that the school had closed its daily operation and in consideration of the traffic calming measures that would be included with the project. The Polk County Commissioners also attended and were in support of this budget driven change.

The subsequent discussion of interchange area management planning in Section 6.3.3 is predicated on the eventual construction of Alternative 7A.1 with Oregon 99W crossing over Oregon 22.

## **6.3 Rickreall Community Alternatives**

The Rickreall community transportation alternatives that were advanced from the alternative identification phase for further analysis and are recommended for possible consideration as part of a Oregon 99W (from Oregon 22 to Monmouth) Facility Plan are described in this section. In this section, the alphabetic identifiers developed during the identification phase are used to refer to these alternatives. The full operational traffic analysis for these alternatives and those that are not recommended for additional consideration is included in Appendix G. The Interchange Area Management Plan for the recommended improvements is also described in Section 6.3.3.

### **6.3.1 Oregon 99W Improvements**

**Alternative A - No Build (this alternative is addressed in Chapter 4, Condition and Deficiency Assessment)**

**Alternative B - Construct a 3-Lane Section on Oregon 99W**

This alternative would add either a continuous two-way left turn lane to Oregon 99W between Oregon 22 and Rickreall Road or a separate left turn lane at the Rickreall Road/Oregon 99W intersection in both the north and southbound directions. This alternative would improve traffic flow by removing left turning vehicles from the through traffic stream.

The existing right-of-way width for Oregon 99W through Rickreall is 60 feet. This would provide almost enough space to build a continuous left turn lane or a left turn lane on both Oregon 99W approaches at Rickreall Road. This may also be adequate to construct minimal bike and lanes and sidewalks. In the case of the variation that just includes the turn lane at Rickreall Road, the center turn lane could include portions of or a full raised median to facilitate pedestrian crossings, reduce potential vehicle conflicts, and, as a result, improve safety. This alternative assumes that the Rickreall Road intersection is a conventional intersection either with or without a traffic signal.

While the left turn lane at Rickreall Road could provide some short-term benefit, this alternative, overall, will not provide acceptable long-term operations on the highway through Rickreall. By approximately 2015 to 2020, through traffic volumes on the highway will exceed the 2-lane roadway through capacity, even with the turn lane. In addition, even with a traffic signal installed, this alternative would not provide for acceptable long-term operations at the Rickreall Road intersection. It should be noted that because of the increase in roadway width needed to construct this or any of the Oregon 99W alternatives that add lanes or turn lanes, the bridge over Rickreall Creek, just south of Rickreall Road, will need to be widened or replaced in order to fully meet Oregon Design Manual Standards.

### **Alternative C - Construct a 4-Lane Section on Oregon 99W**

This alternative would add one travel lane each direction on Oregon 99W from the Oregon 22/Oregon 99W intersection/ interchange south past the Rickreall Creek bridge. The additional travel lanes on Oregon 99W could almost be constructed (perhaps needing an additional 4 feet), with minimal sidewalks, within the existing right-of-way, although bike lanes could not be provided within the existing ROW. This alternative was evaluated with and without a traffic signal at the Rickreall Road intersection.

On paper, this alternative provides adequate long-term Oregon 99W through capacity through the community with lower right-of-way impact. However, traffic flow would often be interrupted by left-turning traffic at Rickreall Road (at a minimum, depending on median control) that will stop in the left-hand through travel lane waiting for a gap in opposing traffic. This would result in both operational and safety impacts. Consequently, ODOT does not recommend further consideration because, in actual practice the theoretical through movement performance is over-estimated by the analysis procedure, it will not address the projected long-term deficiencies at the Oregon 99W/Rickreall Road intersection (with or without a traffic signal).

### **Alternative D - Construct 4-Lanes Plus Median on Oregon 99W**

This alternative also includes an added travel lane in each direction like Alternative C. However, this alternative also includes a median, which would be a raised non-traversable median, with a left-turn opening at a key intersection(s). As with Alternatives B and C, this alternative was evaluated both with and without a traffic signal at Rickreall Road.

This alternative will provide acceptable long-term operations on Oregon 99W and at the Oregon 99W/Rickreall Road intersection, if a traffic signal is installed. However, even in combination with the recommended interchange at Oregon 22/Oregon 99W, the Oregon 99W/Rickreall Road intersection may not meet signal warrants until approximately 2010. Prior to signal installation, the v/c ratios for the left turns from the minor Rickreall Road approaches will be very poor, despite the relatively low turning volumes, because of the high through traffic volumes.

The raised median section would improve pedestrian crossing and safety and might improve community appearance if the median provided for trees or other low-maintenance landscaping. The alternative enables smooth traffic flow and increases safety by allowing left-turning traffic to move out of the through traffic stream. The alternative is compatible with all long-term alternatives for the Oregon 22/Oregon 99W intersection.

This alternative has the largest cross-section of any of the Rickreall community alternatives and will require significant additional right-of-way. It is also the most expensive of the Rickreall community alternatives. It will have a significant impact on existing properties and buildings in the community and will require some property takings.

Because of its ability to address the longer-term traffic demands on Oregon 99W, the Facility Plan Project Team believes that this is currently the best alternative identified to date for eventual implementation. However, the need for a four-lane section is not projected to occur until at least 2015. There is a significant potential community impact from this kind of project, but there is also a significant period of time before the need becomes critical. Therefore, the TAC recommends that, before updating local plans and advancing this alternative, ODOT and Polk County take advantage of the time available, monitor traffic growth, and work with area residents to determine how to best balance community needs with the need to meet state, regional, and local traffic demand.

To this end, ODOT Region 2 has budgeted for development of an Oregon 99W Facility Plan to assess the Oregon 99W corridor from Oregon 22 south to at least Monmouth and potentially to Corvallis. This effort will begin in 2004. Because the vast majority of travel demand in this corridor comes from those communities and Salem and not from Rickreall, ODOT believes that it is important to explore all other possible options for addressing travel demand on Oregon 99W before deciding on an approach that may greatly impact Rickreall.

### **6.3.2 Oregon 99W/Rickreall Road Intersection Improvements**

In addition to the mainline capacity improvements on Oregon 99W and conventional intersection improvements at the Oregon 99W/ Rickreall Road intersection, a number of other alternatives were further analyzed specifically for the Oregon 99W/Rickreall Road intersection. These were as follows:

- Alternative E - Construct an off-set 'T' at the Oregon 99W/Rickreall Road intersection
- Alternative F - Construct a jug-handle connection to eliminate left turns from Rickreall Road onto Oregon 99W
- Alternative G - Construct a roundabout at the Oregon 99W/Rickreall Road Intersection

The additional analysis revealed that none of these alternatives presented any operational or safety advantages over the more conventional intersection improvements (turning lanes and traffic signals) described in the previous section. In fact, because of the nature of the traffic flow and the layout of the community, many aspects of the more unconventional alternatives had significant disadvantages. Consequently, none of these alternatives is recommended for any further consideration. A more complete discussion of these alternatives is provided in Appendix G.

### **6.3.3 Interchange Area Management Plan**

As described in Sections 6.2.5, 6.2.6, 6.2.7, and 6.2.8, a variety of actions are needed to ensure acceptable operations with any of the grade-separated interchange alternatives described in this report. OHP Policy 3C requires preparation of an Interchange Area Management Plan (IAMP) that addresses land use and transportation factors when a new interchange is built. OAR 734-51-155 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. Section 5.2.1 describes the land use conditions and actions that will support management of this area when the interchange is built. This section (6.3.3) describes the short- and long-term transportation facility management strategy for this project area. All proposed management measures (transportation and land use) are also summarized in Chapter 7. Table 6.3.1 describes how this IAMP addresses OHP Policy 3C and OAR 734-51-155 and 125. A figure illustrating the various elements of the IAMP as part of Alternative 7A.1 is also included in Appendix P.

With the exception of several farm crossing accesses, full access control is already present on Oregon 22 east of Oregon 99W. One farm crossing access also exists on Oregon 22 west of the Dallas-Rickreall Highway. One full access serving two residences and several farm properties exists on the north side of the Oregon 22 west of the Dallas-Rickreall Highway. The Project Team (Access Management Sub-Team) should relocate this access further to the west or east to Oregon 99W during the project development process to avoid conflicts with the interchange ramps near the Oregon 22 and Dallas-Rickreall Highway connection. One farm access also exists on Oregon 99W within the interchange operational area north of Oregon 22. This access would be close enough to the ramp terminal north of Oregon 22 (about 200 feet or 60 meters) to make relocation of this access further to the north absolutely necessary. The Access Management Sub-Team will determine the specific point of relocation. When relocated and re-permitted, the access permits should limit the use of the access to farming purposes only (including trips associated with the farm homes currently served by the existing accesses).

The majority of access issues associated with this project are south of the interchange on Oregon 99W within Rickreall. In Rickreall, there is a very simple grid street network west of Oregon 99W and north of Rickreall Road. Only private driveways currently exist east of Oregon 99W and north of Rickreall Road.

The spacing between the southern ramp terminal of Alternative 7A.1 and Rickreall Road is approximately 420 meters (~1400 feet). Rickreall Road is the closest major street to the ramp terminal. The closest public street to this ramp terminal is Pageant Street. Pageant Street is about 100 meters (~330 feet) away from the southern ramp terminal. Direct Pageant Street access to Oregon 99W will need to be closed in order for the interchange to function safely.

The next street between the proposed southern ramp terminal and Rickreall Road is Church Street. Church Street is approximately 230 meters (~750 feet) from the southern ramp terminal and connects Oregon 99W with Ford Street. Even with the closure of Pageant Street, Church Street will remain a very low volume local road serving approximately 13 residential properties. The local fire station also has access to Oregon 99W at this point. Two other public street accesses exist between Church Street and Rickreall Road, Beck and Burch Street.

It is the position of ODOT that the local roads (Church, Beck, and Burch Street) and the five private accesses between Church Street and Rickreall Road can safely remain open with full movement upon initial construction of the interchange.

Also needed in conjunction with the initial construction of an interchange is the County access road east of Oregon 99W between Rickreall Road and the Rickreall School. Development of this street



will enable the existing direct accesses to the Rickreall School (including the bus drop site on Oregon 99W) and the Grange Hall and Mason's Lodge to be removed from Oregon 99W. This will improve the safety of access to the school and the interchange operational area.

When completed, Polk County should limit any access requests into the adjacent EFU property to farm use only. ODOT and Polk County will also need to take whatever policy or ordinance measures are needed to ensure that any future accesses to the EFU property northwest of Rickreall, east of the Dallas Rickreall Highway, and north of Rickreall Road are limited to farm use only.

In the longer-term, several other measures should be implemented on Oregon 99W between Oregon 22 and Rickreall Road. It is anticipated that the need to add lanes to and implement more stringent access management on Oregon 99W south of Church Street may occur within the 15-20-year horizon as traffic volumes grow. Turn lanes and/or travel lanes will likely need to be added to Oregon 99W within this time frame unless some alternative means of meeting this demand can be found. Traffic signal warrants at Oregon 99W and Rickreall Road may also be met within a 10 year time frame. When or if new lanes are added to Oregon 99W north of Rickreall Road and when a traffic signal is installed at Oregon 99W and Rickreall Road, direct accesses to Oregon 99W between Church Street and Rickreall Road may be limited to right-in, right-out movements through use of a raised median. Any median provided in the vicinity of Church Street would need to be "mountable" (i.e., designed to allow Fire and Emergency vehicles to cross over).

When signalized, Rickreall Road will be better able to handle traffic diverted from residences and businesses whose access may be affected by installation of a median. The access road from Rickreall Road to the Elementary School will also be key in facilitating circulation to and from the east side of Oregon 99W, as will improvements to Ford, Church, Beck, and Burch Streets west of Oregon 99W.

Addressing access options for the private properties in this area will ultimately depend on how, when, or if Oregon 99W is widened over time, on shared access negotiations with property owners, and on the final design of the county road needed to provide access from Rickreall Road to the Elementary School. Local road circulation improvements could also be implemented incrementally—first in conjunction with the addition of left turn lanes the Oregon 99W/Rickreall Road intersection and second in conjunction with the addition of through lanes of Oregon 99W and signalization of the Oregon 99W/Rickreall Road intersection. It should be noted that any widening to add turn lanes or general-purpose lanes on Oregon 99W at Rickreall Road will also necessitate widening/replacement of the small bridge over Rickreall Creek just south of Rickreall Road, unless exceptions to the Oregon Design Manual Standards are granted.

The long-term transportation issues that need to be addressed along Oregon 99W in addition to extending the median south of Church Street are:

- the potential for continued right-in, right-out movement from accesses currently on Oregon 99W,
- possible full or partial closure of direct accesses to Oregon 99W between Oregon 22 and Rickreall Road,

- possible reorientation of business and residential accesses to the new road connecting the school to Rickreall Road and to Ford Street (which parallels Oregon 99W west of Oregon 99W and north of Rickreall Road,
- the potential for combining and sharing accesses,
- sidewalk and pedestrian crossing locations and design,
- the appropriate cross-section for Oregon 99W north of Rickreall Road,
- the extent and nature of transportation facility, and improvements needed on Oregon 99W south of Rickreall
- the timing and phasing of recommended solutions.

The nature of the businesses operating in this area in the long-term time frame will also help guide what access management treatments are most effective and appropriate. The basic approach for addressing these issues will be resolved through development of an Oregon 99W Facility Plan that covers the corridor between Oregon 22 and, at a minimum, Monmouth. This plan will be started in 2004. Specific long-term design plans for the two public streets, three businesses and two residential accesses between Church Street and Rickreall Road will ultimately be determined by the Project Development Team (Access Management Sub-Team) when a project to address Oregon 99W south of Church Street is initiated.

**Table 6.3.1 – How the Rickreall Junction Facility Plan Meets OAR 734-051-0155 (Interchange Area Management Plan)**

<b>OAR 734-0051-0155 ISSUE</b>	<b>HOW ADDRESSED</b>	<b>WHERE</b>
Should be developed no later than the time the interchange is being developed or redeveloped -0155(6)(a)	This document was produced before and during project design. It is being adopted in advance of final plans and construction.	
Should identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt strategies and development standards to capture those opportunities -0155(6)(b)	This planning effort began prior to project development and was coordinated with project development when funding was approved in January 2002. The land use controls and access management elements identified in this plan and incorporated into the project design or identified for implementation with future property redevelopment or project development activities will constitute significant operational and safety improvements.	Chapter 4 Chapter 5 Chapter 6 Chapter 7
Should include short, medium, and long-term actions to improve operations and safety in the interchange area -0155(4)(c)	The project selected for development is the ultimate long-term action identified to improve safety and operations at the intersections of Oregon 99W and the Dallas/Rickreall Highway with Oregon 22 in Polk County. A range of other actions taken by ODOT and Polk County through the adoption of this plan to control access and regulate surrounding land uses will be implemented in the short-term, but have long-term benefits. Additionally, this plan identifies further planning steps that must be taken in and south of Rickreall along Oregon 99W outside and adjacent to the current project area to address problems identified by this project. Some potential actions to address these problems were identified by this plan, but their potential	Chapter 5 Chapter 6 Chapter 7

	consequences are so significant and the urgency of the problems is low enough (2015-2020) that this plan recommends a short and medium-term strategy to conduct a follow-on planning process to make sure all possible alternatives are identified and understood and to develop a joint state and local consensus about the best course of action to pursue to improve Oregon 99W south of this project area.	
Should consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches -0155(4)(d)	A full analysis of existing and forecast (2025) operational, geometric, and safety conditions was conducted for this planning effort. All surrounding land use was also identified, as were all affected accesses. These factors led to the plan's project improvement recommendations and to the identification and implementation of the Polk County land use measures and the ODOT access control measures.	Chapter 3 Chapter 4 Chapter 5 Chapter 6 Chapter 7
Should provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years -0155(4)(e)	The forecast analysis does show that safe operations will be achieved for the interchange projects through 2025. Capacity deficiencies on Oregon 99W south of Oregon 22 were also projected to occur between 2015 and 2020. These deficiencies will extend at least to the City of Monmouth, approximately 3 miles to the south. While this project does not solve this problem, widening Oregon 99W is identified as one possible way to address the problem. However, because the need for this improvement is not immediate, and because the impact of widening in Rickreall will be significant, ODOT Region 2 will take the time needed to further analyze the issue and determine if there is an option to widening by developing a facility plan for this highway segment. The Oregon Transportation Commission endorsed this approach at their April 2003 meeting.	Chapter 6
Should consider existing and proposed uses of all property in the interchange area consistent with its comprehensive plan designations and zoning -155(4)(f)	A thorough analysis of surrounding land uses and land use potentials was performed. This analysis resulted in recommendations for implementing access controls and Polk County policies and ordinances to ensure protection of EFU lands and implementation of the land use plan for the Rickreall community.	Chapter 5 Chapter 6 Chapter 7
Is consistent with any adopted Transportation System Plan, Corridor Plan, Local Comprehensive Plan, or Special Transportation Area or Urban Business Area designation, or amendments to the Transportation System Plan unless the jurisdiction is exempt from transportation system planning requirements under OAR 660-012-0055 -155(4)(g)	This plan and the project being implemented are consistent with the Polk County Transportation System Plan as it does call for interchanges to deal with these intersections. Further compliance will be ensured through securing a conditional use permit as is required by the Polk County Development Code and through adoption of the Rickreall Junction Facility Plan and associated Interchange Area Management Plan into the Polk County Comprehensive Plan.	NA
Is consistent with the 1999 Oregon Highway Plan	The Rickreall Junction Facility Plan and associated Interchange Area Management Plan is consistent with the	Chapter 7

-0155(4)(h)	1999 OHP.	
Is approved by ODOT through an intergovernmental agreement and adopted by the local government, and adopted into a Transportation System Plan unless the jurisdiction is exempt from transportation system planning requirements under OAR 660-012-0055	The Rickreall Junction Facility Plan and associated Interchange Area Management Plan are being adopted into the Polk County Comprehensive Plan and Transportation System Plan.	NA
-155(4)(i)		

**THE PLAN WILL DETERMINE**

<b>OAR 734-051-0155 ISSUE</b>	<b>DETERMINATION</b>	<b>WHERE</b>
Driveway and roadway spacing and connections	<ul style="list-style-type: none"> <li>• There are no driveways or approaches on westbound ORE 22 as it approaches ORE 99W or the Dallas Rickreall Highway.</li> <li>• There are no driveways or approaches on the eastbound ORE 22 approach to ORE 99W.</li> <li>• There is one farm driveway on the southbound ORE 99W approach to ORE 22. This driveway will need to be located further north of the interchange to a safe distance as determined by the project development team during the design phase. The new access permit for this approach and deed restriction should limit future use to farm related uses with one residence.</li> <li>• There is one farm driveway on the eastbound ORE 22 approach to the Dallas Rickreall Highway. This driveway will need to be located west of its current location. A new access permit for this approach and deed restriction should limit future use to farm related uses with one residence.</li> <li>• There are no driveways or approaches to the Dallas Rickreall Highway between ORE 22 and Rickreall Road.</li> <li>• There are no driveways or approaches between the Rickreall unincorporated community's northern boundary and ORE 22.</li> <li>• Within the Rickreall unincorporated community between Church Street and the community's northern boundary, there is one public street approach, Pageant Street, and an access that is shared between the Rickreall Elementary School and the Rickreall Grange Hall. The southern ramp terminal will be approximately 850 feet from Church Street. Parking and drop-off areas exist in front the school and the Grange Hall. With initial interchange construction, Pageant Street will be closed, a median will be constructed between Church Street and the southern</li> </ul>	Chapter 6 Appendix N Appendix P

	<p>ramp terminal, and the parking/drop-off areas will be removed from ORE 99W.</p> <ul style="list-style-type: none"> <li>• The disposition of the access at Church Street and those further south will be addressed when the ORE 99W cross-section and improvements to the ORE 99W/Rickreall Road intersection are addressed (analysis beginning in 2003 as part of an Ore 99W Facility Plan with improvements needed in an approximately 15-20 year time frame).</li> </ul>	
Local street connections to ensure adequate access to properties and off-highway circulation	As part of initial interchange construction, Polk County shall fund and ODOT shall construct a public access road from Rickreall Road north to the school. This road will provide access to the school property and Grange Hall and may serve additional properties as part of a future access strategy on ORE 99W. Improvements to Ford Street west of ORE 99W may also be needed in the medium to long-term, depending on how traffic volume growth on ORE 99W and intersection operations at ORE 99W and Rickreall Road are addressed.	Chapter 6
Median treatments	Upon initial interchange construction, a full median will be installed between the southern ramp terminal at ORE 22 and ORE 99W and Church Street. The median should be extended, including potential closure of full access to Church Street (making Church Street right-in, right-out only), to the ORE 99W/Rickreall Road intersection. Median treatment between Church Street and Rickreall Road will need to be determined within the context of potential improvements to ORE 99W and its intersection with Rickreall Road as part of an Ore 99W Facility Plan.	Chapter 6
Location and type of traffic control devices needed to ensure safe and efficient operations in the operational area of the interchange	Upon initial interchange construction, the northern interchange ramp at Ore 22 and Ore 99W will be free flow and the southern ramp will be stop controlled. A separate project will signalize the Oregon 99W and Rickreall Road intersection to the south. This signal project will not provide for the full improvement that will likely be needed in the long-term. This intersection will be further analyzed as part of the Oregon 99W Facility Plan. The improvement to ORE 22 and the Dallas Rickreall Highway will not have any stop signs or signals.	Chapter 4 Chapter 6 Appendix N
Location of sidewalks and bicycle lanes	Sidewalks and bicycle lanes are called for on ORE 99W from Church Street north through the project limits. Bicycle lanes are called for on all ORE 22 and Dallas Rickreall Highway portions of the project. Sidewalks are called for on the ORE 22 and Dallas Rickreall Highway structures. Full sidewalks and bicycle lanes on ORE 99W south of Church Street should be developed in the medium to long-term, as appropriate, when determinations of cross-section and intersection improvements at ORE 99W and Rickreall Road are finalized through the Oregon 99W Facility Plan and implemented through a future project	Chapter 6

	when funding is secured.	
Sidewalk and bicycle lane crossings (highway and ramp crossings)	Sidewalk and bicycle crossings shall be designed in accordance with current ODOT standards at the northern and southern ramp terminals of the ORE 22/ORE 99W interchange. A pedestrian/school crossing, with a median pedestrian refuge, shall be developed to provide safe access from the west side of ORE 99W to the Rickreall Elementary School property in the vicinity of the closed Pageant Street.	Chapter 6
Location of potential transit facilities (turnouts, shelters, park and ride areas)	A gravel park and ride lot currently exists on Rickreall Road between ORE 99W and the Dallas Rickreall Highway. This facility should be considered for improvement when ORE 99W and Rickreall Road intersection improvements are made. Similarly, when improvements are made to ORE 99W south of Church Street and at the ORE 99W/Dallas Rickreall Highway, improvements should be designed to support transit service (turnouts, shelters, etc.).	Chapter 3 Appendix N
Is new policy language needed in the Polk County Comprehensive Plan to support adequate long-term interchange operations?	<ul style="list-style-type: none"> <li>Polk County has agreed, by resolution, to limit the use of the EFU lands in the vicinity of the proposed improvements and the land uses within the portion of the Rickreall unincorporated community to the current levels. This commitment will be adopted into the Polk County Ordinance.</li> </ul>	Chapter 5
Are any land use changes/comprehensive plan (including TSP) amendments needed to implement the Interchange Area Management Plan?	<ul style="list-style-type: none"> <li>Based on conditions specified by the Oregon Transportation Commission on January 16, 2002, only Polk County adoption of the Interchange Area Management Plan by the resolution adopting the IGA is needed to proceed with development of the interchange improvements at ORE 22/ORE 99W and ORE 22/Dallas Rickreall Highway. Polk County has chosen to adopt the Facility Plan and Interchange Area Management Plan directly into its comprehensive plan, bypassing the need for an IGA.</li> <li>Polk County will commit, through formal adoption into its comprehensive plan and ordinance, to take whatever actions are required by their ordinances and policies to authorize construction of the access road from Rickreall Road to the Rickreall Elementary School.</li> <li>Polk County will also commit, through adoption to take whatever actions are required by their ordinances and policies, to authorize ODOT in the closure of Pageant Street and removal of the turn out and parking in front of the school and the Grange Hall.</li> </ul>	Chapter 5
Are any deviations from OHP and OAR 731-051 standards and requirements needed?	A deviation to spacing standards will be needed to maintain the accesses from Church Street to Rickreall Road. Deviations are also needed for several farm approaches on ORE 99W north of ORE 22 and the farm approach on ORE 22. The concurrence of the Region 2 Access Management	Chapter 6

	Engineer and adoption of the Facility Plan and Interchange Area Management Plan by the OTC will constitute approval of these access deviations.	
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## 6.4 Improvement Phasing Compatibility

Table 6.4.1 Phasing Compatibility

	1A	2A	2B	2C	2D	3A	3B	3C	4A	4B	5A	5B	5C	6A	6B	6C	7A	7B	7C	
1A		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2A	Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2B	Y	Y			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2C	Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2D	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3A	Y	Y	Y	Y	Y		N	N	Y	Y	N	N	N	N	N	N	N	N	N	N
3B	Y	Y	Y	Y	Y	N		N	Y	Y	N	N	N	N	N	N	N	N	N	N
3C	Y	Y	Y	Y	Y	N	N		Y	Y	N	N	N	N	N	N	N	N	N	N
4A	Y	Y	Y	Y	Y	Y	Y	Y		N	N	N	Y		N	N	N	N	Y	N
4B	Y	Y	Y	Y	Y	Y	Y	Y	N		N	N	Y	N			Y	N	Y	
5A	Y	Y	Y	Y	Y	N	N	N	N	N		N	N	N	N	N	N	N	N	N
5B	Y	Y	Y	Y	Y	N	N	N	N	N	N		N	N	N	N	Y	Y	Y	
5C	Y	Y	Y	Y	Y	N	N	N	Y	Y	N	N					Y	Y	Y	
6A	Y	Y	Y	Y	Y	N	N	N		N	N	N			N	N	N	Y	N	
6B	Y	Y	Y	Y	Y	N	N	N	N		N	N		N			Y	N	Y	
6C	Y	Y	Y	Y	Y	N	N	N	N		N	N		N	N			Y		
7A	Y	Y	Y	Y	Y	N	N	N	N	Y	N	Y	Y	N	Y	N		N		
7B	Y	Y	Y	Y	Y	N	N	N	Y	N	N	Y	Y	Y	N	Y	N		N	
7C	Y	Y	Y	Y	Y	N	N	N	N	Y	N	Y	Y	N	Y	N		N		

Y–Alternatives that can be phased based on compatibility of geometry and operations.  
 N–Alternatives that cannot be phased based on incompatibility of geometry and operations.

## 6.5 Phasing Approach

With the approval of Oregon Transportation Investment Act (OTIA) funding for Alternative 7A.1 (with the Oregon 99W overcrossing), the basic interchange elements described by this plan will be constructed. This makes phasing less complicated than would have otherwise been the case all of the basic elements could not have been funded as one project. The only remaining phasing issues are associated with (1) the work potentially needed in and south of Rickreall and (2) interchange modifications to achieve the full 7A alternative concept.

With respect to the work within Rickreall, the timing for addressing all remaining issues (beyond what is achieved with the initial OTIA construction) will be addressed through the Oregon 99W

Facility Plan effort described in Section 6.3. and the success of ODOT and Polk County in securing the funds that will be needed for construction. It is estimated that the additional improvements in Rickreall and the Oregon 99W corridor will be needed within a 15-20 year timeframe.

The additional modifications needed to achieve the full 7A.1 design concept include an additional lane from Oregon 22 westbound onto the Dallas/Rickreall Highway. These modifications are needed to facilitate weaving movements that will not be able to meet OHP mobility thresholds as traffic grows. These modifications will likely be needed in approximately 20 years.

## **6.6 Stakeholder Input**

The stakeholder validation process consisted of presenting an overview of the Facility Plan process, project goals, problem statement, alternative identification process, and evaluation of recommended alternatives to a variety of interested parties in Rickreall and Polk County. Participants in the stakeholder review process included Rickreall community members, including local business and property owners along Oregon 99W, emergency service providers, local farmers, elected officials, Dallas School District staff, and staff from the cities of Monmouth, Independence, and Dallas. A summary of the key issues raised in these meetings is included in Appendix O.

The purpose of these meetings was to present the preliminary recommendations from the TAC to the participants and receive feedback about them. Staff also used these meetings as an opportunity to validate the technical findings from the detailed evaluation and to identify additional ideas and concerns that may have been overlooked during the evaluation process.

Key findings from the stakeholder meetings include the following:

- Several stakeholders, including the Polk County Farm Bureau and County Commissioners raised concerns during the stakeholder review about the possible impact that removing the traffic signal at the Oregon 22/Oregon 99W intersection would have on Oregon 22 traffic east of Rickreall. Their concern is that this will lead to an increase in free flow traffic conditions on Oregon 22. Specifically, the concern raised is that an interchange at the Oregon 22/Oregon 99W intersection will reduce gap opportunities for farm vehicles and school buses on Greenwood Road to cross Oregon 22. These stakeholders have requested that an Oregon 22 overpass on Greenwood Road be constructed prior to, or in conjunction with the Rickreall Junction Interchange Project. The Facility Plan Project Team acknowledged this concern and will raise this related issue when presenting the findings of this report to policymakers. The Greenwood Road issue is being studied as part of another ODOT Facility Plan addressing Oregon 22 from the Marion and Center Street Bridges in Salem to Greenwood Road. This issue will also be noted in that project's final report.
- Community members raised concerns regarding the eventual expansion of Oregon 99W to a five-lane facility (four through lanes plus a median) through Rickreall. With the additional of sidewalks on this section, the community would have a much more urban appearance. Several property owners along Oregon 99W expressed concern regarding impacts to their property if this expansion occurs.



- Although Alternative 7A.1 is the most viable long-term solution to traffic and safety problems at the Oregon 22/Oregon 99W and Oregon 22/Dallas-Rickreall Highway intersections, concerns were raised that the free flow right turns at both the eastbound and westbound ramp terminals would eliminate gaps in southbound traffic on Oregon 99W through Rickreall. The concern was raised that this could, in turn, make it very difficult for people to access property from Oregon 99W, even with right-in, right-out accesses and would negatively impact pedestrian safety. Community members expressed a desire that a traffic signal be maintained at the southern ramp terminal or at Rickreall Road to create gaps in traffic on Oregon 99W.
- Similarly, construction of a roundabout at the Oregon 99W/Rickreall Road intersection, rather than installation of a traffic signal, would reduce gaps in the northbound traffic on Oregon 99W through Rickreall. Community members were not in favor of the roundabout alternative at either the Oregon 22/Oregon 99W intersection or at the Oregon 99W/Rickreall intersection.

This input helped to establish the initial direction for the project that led up its selection for OTIA funding. As described in Section 6.2.8, several cost considerations were raised after OTIA funding was approved in January 2002. Consequently, because of the preferences previously expressed by the community, ODOT Management decided to check in with local stakeholders before making a final alternative selection decision that could do away with one or both of the preferred elements.

The four Alternative 7A.1 and 7C Alternatives were shared with the Rickreall community in June 2002 at a public open house that was attended by over 100 people. Based upon a questionnaire that was filled out by many of the attendees, the previous preferences expressed by local stakeholders were both affirmed and reversed. There was almost no support shown for either of the Alternative 7C variations, largely because of the impact that it would have on the farm property that is north and east of Oregon 22 and Oregon 99W. Rejection of this alternative meant that the traffic signal it offered was also rejected, or at least felt to be of less importance than avoiding impact to the farm property. Likely aiding this change in preference was a simulation that ODOT staff had prepared to demonstrate the likelihood of traffic gaps with and without a signal. This analysis showed that a traffic signal as shown with Alternative 7C would provide very few additional gap opportunities when compared to the Alternative 7A.1 loop ramp design without a traffic signal.

The majority of those responding to the questionnaire and particularly those living in Rickreall (as opposed to people identifying themselves as being from Dallas or elsewhere in Polk County) did affirm their preference for keeping Oregon 99W at-grade. The preference to keep Oregon 99W on the ground and to elevate Oregon 22 was supported by the Polk County Commission in a July 2002 letter to ODOT.

Additional funding concerns that developed in the Summer of 2003 caused ODOT to revisit the question of whether to keep Oregon 99W at-grade or make it cross over Oregon 22. It was determined that adequate funding could not be secured to continue with the Oregon 99W at-grade variation of Alternative 7A.1. Consequently, the decision was made to finish developing and construct the project with Oregon 99W crossing over Oregon 22. Plans for this approach were shared with the public at a public meeting held in Rickreall on September 29, 2003. Feedback

received at that meeting affirmed that, although many still felt the Oregon 99W at-grade option was still preferable, a majority of community members and the Polk County Commission could support ODOT constructing the project with Oregon 99W crossing over Oregon 22.

## **6.7 Recommendation Summary**

Without improvements, traffic and safety conditions at the Oregon 22 and Oregon 99W and Oregon 22 - Dallas-Rickreall Highway intersections will continue to worsen. These intersections have two primary deficiencies. They are too closely spaced and they are subject to higher traffic volumes than they were designed to handle. These deficiencies result in a variety of safety and operational problems.

These intersections are currently operating at levels that exceed Oregon Highway Plan mobility standards. By approximately 2012, peak hour traffic volumes at both of these intersections will exceed available capacity. Left-turn queues from the Oregon 22/Dallas-Rickreall Highway intersection currently back up approximately 75 percent of the way to the Oregon 22/Oregon 99W intersection during peak periods. Numerous left-turn and rear-end accidents occur at Oregon 99W and Oregon 22 intersection. At the Oregon 22 and Dallas-Rickreall Highway intersection there is a potential for severe head-on accidents, because of the vehicles speeds, traffic volumes, an acute intersection angle.

The TAC developed a range of alternatives for these intersections for review and analysis by ODOT's Transportation Planning Analysis Unit (TPAU) and Preliminary Design Unit (PDU).

Alternatives 1A and 2C were short build alternatives that did not meet either mobility or spacing standards at any time during the planning horizon. Alternative 2C would simply forestall complete intersection failure for approximately 5-7 years (from approximately 2007 to approximately 2012).

These alternatives had limited merit because they improve the safety and the operation of the transportation system in the near future at minimal cost. The kind of activities described in Alternative 1A should be implemented, as appropriate, under any implementation scenario. 2C would only have been worthwhile as a stop-gap measure, if it had been determined that there was no possibility to fund one of the mid- to long-term alternatives. It should be noted that any investment made in Alternative 2C would be completely replaced when one of the mid- to long-term alternatives is constructed.

The more expensive mid- to long-term alternatives (Alternatives 4B, 5C) were designed as separate improvements to the Oregon 22/Dallas-Rickreall Highway intersection and the Oregon 22/99W intersection respectively, in the event that improvements could only be funded incrementally. It would be technically feasible to implement either of these alternatives without the other. They are also incrementally compatible—that is, one can be built first and the other later, and without having to lose much of the investment made in the first. However, implementing either alternative individually will leave significant problems unresolved.

Alternative 6C was initially thought to be the best mid- to long-term alternative. Alternative 6C combined alternatives 4B and 5C as a single improvement project and, as a result, would address

the defined problems at these intersections through the 20-year planning horizon at what had originally been thought to be a substantially lower cost than Alternative 7A. However, in early 2002, two key factors changed this initial direction. First, it was determined that the ODOT Traffic Section would not approve a traffic signal for at least 10 years at the southern ramp terminal of Alternative 6C. Second, Alternative 7A, particularly with some strategic weaving lane reductions with the initial construction (a.k.a. 7A.1) was found to be comparable in cost to Alternative 6C.

Consequently, aside from the potential system management activities described in Alternative 1A, in June 2002, ODOT Management decided to advance Alternative 7A.1, with Oregon 99W at-grade, as the project that will be built with the OTIA funding approved in January 2002. Further funding complications that arose in 2003 subsequently caused a reconsideration of the Oregon 99W at-grade issue. Due to project cost increases, ODOT decided, with community support, to advance the Alternative 7A.1 variation with Oregon 99W as the overcrossing as the final preferred alternative. This variation, while still more than \$2 million more expensive than the original funding provided for this project, is still more than \$2.5 million less expensive than the variation that kept Oregon 22 at-grade. Construction is anticipated in 2005.

Alternative 7A.1 has the least impact on adjacent farmland of any of the alternatives that fully addresses the identified problems. Because of the additional separation on Oregon 99W between the southern ramp terminal and Rickreall and keeping Oregon 99W at-grade, this alternative also has the least impact on Rickreall. This alternative will require one deviation to interchange spacing standards between Oregon 99W and the Dallas-Rickreall Highway and one within Rickreall. Neither deviation is expected to create operation problems. Approving both will result in operating conditions that are an improvement over current conditions.

Within the Rickreall community, projected traffic volumes on Oregon 99W will exceed the capacity of the existing 2-lane section between 2015 and 2020. At a minimum, left turn lanes should be developed on the approaches to the Oregon 99W/Rickreall intersection within the 10-year timeframe, along with a traffic signal and increased access management. Within the 15-20 year timeframe, additional travel lanes and access management, including a median, may be needed on Oregon 99W in Rickreall to maintain OHP mobility standards. This should be decided as soon as possible through development of an Oregon 99W Facility Plan from Oregon 22 to Monmouth (and perhaps to Corvallis, depending on subsequent analysis). When improvements are made in Rickreall, transit vehicle amenities, including shelters and turnouts, should be provided on Rickreall Road, near Oregon 99W.

# Next Steps

## 7.1 Implementation Process Steps and Responsibilities

On January 16, 2002, the Oregon Transportation Commission (OTC) conditionally approved funding for constructing interchanges at the Oregon 22/Oregon 99W and Oregon 22/Dallas Rickreall Highway intersections. The OTC conditions of approval were:

1. ODOT, in concert with local government, shall develop an Interchange Area Management Plan for the project consistent with the Oregon Highway Plan and following the provisions of OAR 731-051-0125 and 0155. Polk County shall adopt the Interchange Area Management Plan as part of a legally binding, enforceable intergovernmental agreement between Polk County and ODOT as provided in Oregon Law. The intergovernmental agreement shall include the following elements:
  - a) Polk County shall adopt plan provisions that restrict development of any new land use in the Rickreall Unincorporated Community or the EFU lands adjacent to Oregon 22 north of the community so that traffic generation from the land use will not cause the interchange to exceed the OHP mobility standards.
  - b) If the agreement is to be terminated that Polk County give notice to ODOT in advance of a public hearing on the matter and that the public hearing be held prior to the expiration of the agreement.
  - c) Changes or termination of the agreement in advance of expiration shall require formal affirmative action by the Oregon Transportation Commission and Polk County.
  - d) The agreement can expire if Polk County includes the Interchange Area Management Plan in its Transportation System Plan.
  - e) The intergovernmental agreement will call for any amendments to the local plan and Oregon Highway Plan needed for this to be accomplished.
2. Protection of resource lands will be addressed in the Interchange Area Management Plan.
3. The Interchange Area Management Plan will also include measures to prevent growth-induced development on exception lands or urban growth boundary expansion in the vicinity of the interchange.

4. The Interchange Area Management Plan will provide for the protection of safe and efficient operation of the interchange between connecting roadways and will minimize the need for major improvements to existing interchanges.
5. The Interchange Area Management Plan shall be presented to the OTC for review and approval before funds for construction are released.

After discussions with Polk County and members of the OTC, ODOT Region 2 decided not to seek an intergovernmental agreement as an interim or final measure. Instead, Polk County will formally adopt this document (the Rickreall Junction Transportation Facility Plan), including the Interchange Area Management Plan component and other policy recommendations that are part of the Plan and serve to address the OTC conditions. A formal adoption is more binding and enforceable than an IGA. In addition to the OTC conditions, Polk County will formalize its commitment in its Capital Improvements Program to fund construction of the local street parallel to and east of Oregon 99W that is called for in Chapter 6.

To meet these conditions, the following actions shall be completed before the Rickreall Junction Improvements described in this Facility Plan are constructed:

1. The Rickreall Junction Facility Plan shall serve as the Interchange Area Management Plan and Access Management Plan as called for by the OTC and OAR 734-051-200. The deviations to OAR Division 51 access management standards required for initial construction of the Rickreall Interchange project will be evaluated using the provisions of OAR 734-51-0135 and approved by the Region Access Management Engineer.
2. Polk County shall adopt the Rickreall Junction Facility Plan.
3. Polk County shall adopt comprehensive plan and ordinance amendments and other actions called for by the Rickreall Junction Facility Plan.
4. ODOT shall apply for and be granted a conditional use permit by Polk County.
5. The OTC shall adopt the Rickreall Junction Facility Plan.

## **7.2 Rickreall Junction Facility Plan Adoption and Implementing Actions**

The existing Polk County Transportation System Plan (TSP) specifically identifies the need for interchanges at the existing Oregon 22/Oregon 99W and Oregon 22/Dallas Rickreall Highway intersections. A Polk County TSP amendment is not required to authorize the improvements identified in the Rickreall Junction Facility Plan. A variety of existing Polk County TSP policies and ordinance provisions will safeguard the operation of any improvements made to these intersections. These policies and provisions are shown in Appendix L.

However, a number of other actions are needed to ensure the long-term viability of this transportation investment. Once adopted/enacted, these actions will apply to subsequent planning and implementation decisions by ODOT and Polk County and those decisions must be consistent with this Facility Plan. These actions are listed below:

1. The Polk County Commission shall adopt the Rickreall Junction Facility Plan as part of the Polk County Comprehensive Plan and Transportation System Plan. This Plan shall serve as the Interchange Area Management Plan and Access Management Plan for the area and facilities that are specifically addressed in the Plan.
2. Polk County resolution (#01-31) passed in November 2001, expresses the Polk County Commission's intention to maintain the EFU zoning adjacent to the Oregon 22/Oregon 99W intersection/interchange and the Oregon 22/Oregon 223 intersection/interchange. This intent shall be expanded to include properties adjacent to the Dallas Rickreall Highway and south of Oregon 22 and shall be included as a specific policy in the Polk County Comprehensive Plan.
3. Polk County shall adopt overlay zoning for each EFU property listed in the EFU/interchange protection policy. This overlay will prohibit the following land uses that could otherwise be allowed on the portions of these properties that are not classified as high value or 100-year floodplain: kennels, golf courses, composting operations, and solid waste processing facilities. Because the area is within 3 miles of the Dallas UGB, churches and schools are already prohibited.
4. 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 the project development process. This permit must be approved prior to project construction.
5. This Plan calls for construction of a local access road parallel to and east of Oregon 99W. This road is needed to reduce local access and traffic on Oregon 99W and to minimize the impact of local vehicle traffic on interchange operations. Polk County is responsible for funding construction of this local access road and ODOT will construct it as part of the interchange improvement project. Polk County shall limit access to the adjacent EFU land from this new road to uses allowed by the current EFU zoning and associated overlay zone. The general location of this roadway is shown in the Alternative 7A.1 graphic in Appendix N.
6. Polk County will take whatever actions are needed to support closure of Pageant Street and the turn-outs and parking in front of the school and Grange Hall. These actions will be needed in conjunction with initial OTIA project construction.

7. ODOT will continue to enforce the access control that is already in place along Oregon 22 east of Oregon 99W. No additional accesses shall be allowed within the existing access controlled area (which extends beyond the ¼ mile interchange management area).
8. ODOT will continue to enforce the access control that is already in place along Oregon 22 west of Oregon 99W. No additional access will be allowed within the ¼ mile interchange management area along Oregon 99W.
9. ODOT will relocate the one farm and farm residence access road to Oregon 22 that is north of Oregon 22 and west of the Dallas/Rickreall Highway further west from the interchange area, as determined by the access management sub-committee of the project team. Using a deed restriction, ODOT will limit the farm property served by this access to uses allowed by the current EFU zoning and associated overlay zone (including activity associated with the existing residences served by the accesses).
10. ODOT will relocate the farm access on Oregon 99W north of Oregon 22 and east of Oregon 99W further away from the interchange area as determined by the access management sub-committee of the project team. Using a deed restriction, ODOT will limit the farm property served by this access to uses allowed by the current EFU zoning and associated overlay zone (including activity associated with the existing residences served by the accesses).
11. ODOT will purchase access control at a location on Rickreall Road for the purpose of limiting, through use of a deed restriction, any new access from Rickreall Road to the vacant property north of Rickreall Road and west of Oregon 99W (tax lot 7-4-30-507) to uses allowed by the current EFU zoning and associated overlay zone.
12. Polk County will draft and adopt an events management policy and ordinance that specifies a procedure for coordinating traffic management issues that may arise as a result of events at the Polk County Fairgrounds.
13. Polk County will adopt 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 assumptions in Appendix L. The assumptions in Appendix L are based on the existing zoning and land use classifications adopted in June 2001.
14. ODOT will evaluate the potential benefits of designating Oregon 99W north of Oregon 22 as an expressway and seek such a designation if the evaluation indicates the value in doing so outweighs the negative implications.
15. In order to resolve the long-term travel demand issues on Oregon 99W in Polk County (south of Oregon 22), Region 2, in cooperation with Polk County, shall complete a Facility Plan for the portion of the Oregon 99W corridor from Oregon 22 south to Monmouth, at a minimum. This work will begin in 2004 is planned for completion

before the interchange construction is finished. When completed, Polk County will adopt the Plan's conclusions into its TSP in order to guide subsequent planning and project development decisions along Oregon 99W between Oregon 22 and Monmouth. These decisions will include access and facility design issues.

## **7.3 Investment Requirements**

In January 2002, the OTC approved \$16.1 million in OTIA funding to construct improvements at the intersections of Oregon 22 with Oregon 99W and the Dallas/Rickreall Highway. Current estimates indicate that Alternative 7A.1, with Oregon 99W crossing over Oregon 22 will cost approximately \$20 million. ODOT Region 2 will supplement the original OTIA funding so that the alternative selected to be built as the result of the analysis process described by this document, can be constructed.

## **7.4 OHP and Division 51 Compliance**

### **Rickreall Junction Facility Plan**

### **Compliance with the 1999 Oregon Highway Plan**

The 1999 Oregon Highway Plan (OHP) contains policies with which local and regional transportation system plans must be consistent. Not all of these policies are relevant to the Rickreall Junction Facility 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. Oregon 22 is a statewide highway, 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. Oregon 99W is a regional highway, which under Action 1A.1 is intended to provide connections and links to regional centers, Statewide or Interstate highways, or economic or activity centers of regional significance. Oregon 223 (the Dallas/Rickreall Highway) is a district highway, which under Action 1A.1 is intended to provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic. Oregon 22 provides mobility between Salem and Interstate 5 and Oregon 18, another statewide highway that connects to the central Oregon Coast. Oregon 22 also provides a connection to Bend and Central Oregon. As a regional highway, Oregon 99W provides mobility between the McMinnville area and Corvallis and Eugene to the south. The Dallas/Rickreall Highway provides a connection between Oregon 22 and US 20 to the south and serves as the main highway through the City of Dallas. The transportation need for the interchange project described in this plan includes the need to improve safety and operations at the Oregon 22 cross roads with Oregon 99W and the Dallas/Rickreall Highway which have become hampered by the increasing traffic volumes associated the growth of tourism on the Oregon Coast and the Oregon 18 corridor and with the



continued growth of Salem, Corvallis, Dallas, Monmouth, and Independence and the traffic increases that have occurred through increased economic activity (commuting and commercial traffic). The identified interchange project will enable these highways to perform their designated functions, in compliance with operational and safety objectives through the 2025 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 historically, communities have grown up 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 primarily objective of connecting cities and moving people and goods between cities and regions.<sup>1</sup>

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."<sup>2</sup>

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.<sup>3</sup> The Rickreall Junction Facility 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." Because 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.

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<sup>1</sup> OHP at 44.

<sup>2</sup> OHP at 45.

<sup>3</sup> 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 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.

Action 1B.1 also supports establishment of parallel and interconnected local roadways to encourage local trips off the state highway. The Rickreall Junction Facility Plan and the interchange improvement project does provide for new and improved local facilities that will reduce travel on the state highway system, particularly on Oregon 99W.

**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 Rickreall Junction Facility Plan and, in particular, by its associated Interchange Area Management Plan (IAMP), which will be adopted into the Polk County TSP and development code. The IAMP calls for access management, events management at the Polk County Fairgrounds, protection of the Rickreall exception areas from land uses that are more intense than currently called for in the Polk County comprehensive plan, and protection of surrounding EFU lands through policy and an overlay zone.

**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 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 (despite the fact that adjacent development contributes less than 5% of the total traffic that uses the state highways in the plan area (an amount less than the accepted error of the mobility analysis used to quantify the state highway performance).

Action 1B.4 also seeks to avoid UGB expansions along Statewide Highways and around interchanges unless ODOT and the appropriate local governments agree to an IAMP to protect interchange operation or access management for segments along the highways. As stated above, this plan and project area are well outside any established UGB and UGB expansion into this area is not anticipated in the foreseeable future.

**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 the Rickreall Junction Facility Plan.

**Action 1B.14** directs ODOT to work with local governments to accommodate alternative modes on state highways. The Rickreall Junction Facility Plan does provide for improved bicycle and pedestrian facilities in the plan area and calls for the retention of the nearby park and ride area on Rickreall Road.

**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. Oregon 22 is classified as a statewide highway by the OHP. Oregon 99W is classified as a regional highway and parallels I-5 through the Willamette Valley. Oregon 223 is a district highway. By recommending a grade separated interchanges to replace the existing over-capacity at-grade intersection, The Rickreall Junction Facility Plan will better accommodate freight movement between Salem and the Oregon Coast and through the Wilamette Valley. The improved safety, operations, and bicycle and pedestrian facilities will alsı 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 Rickreall Junction Facility Plan 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."<sup>4</sup> 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 Oregon Transportation Commission (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.<sup>5</sup>

**Action 1F.1** provides that the highway mobility standards in Table 6 be applied to all state highway sections outside the Portland metropolitan area. The minimum transportation performance standards applied to this project incorporate the standards in Table 6, thereby satisfying Action 1F.1.<sup>6</sup>

**Action 1F.2** provides that the highway mobility standards be applied over a 20 year period. Because the planning horizon for this project is 2025, Action 1F.2 is met.

**Action 1F.3** allows local governments to consider adopting alternate highway mobility standards "where it would be infeasible to meet the standards in this policy." Because it is feasible to meet these standards, Action 1F.3 does not apply. These standards can be met through construction of the recommended interchanges that are the subject of the Rickreall Junction Facility Plan. The areas noted within Rickreall just outside the recommended project area and south to Monmouth

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<sup>4</sup> OHP at 71.

<sup>5</sup> See OAR 660-012-0030(3).

<sup>6</sup> See Section VII.F of this document.

can also meet the required mobility standards through widening Oregon 99W. As noted in the document, this is not yet recommended as the scope of the Rickreall Junction Facility Plan was not sufficient to fully deal with this issue outside of the immediate intersection/interchange areas. The need for improvements to deal with this forecasted mobility deficiency also is not expected to occur for approximately 15 or more years. Consequently, with the concurrence of the OTC in April 2003, ODOT Region 2 will conduct an additional facility plan for the area south of the project area in Rickreall south to Monmouth to determine if any feasible alternatives exist to meet mobility standards without the impact that widening Oregon 99W in Rickreall would have.

**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."<sup>7</sup>

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.

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<sup>7</sup> OHP at 82.

Here, the proposed major improvements (the interchanges of Oregon 22 with Oregon 99W and Oregon 223) are needed to alleviate traffic congestion that would significantly impede the efficient movement of people and goods on a Statewide, Region, and District Highway. Without these improvements, year 2025 traffic volumes within study area would routinely exceed ODOT performance standards for both subject intersections.

The need for the proposed improvements was first identified in a ODOT Corridor Strategy and subsequently in the Polk County TSP. The proposed project recommendations identified in the Rickreall Junction Facility 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.

The scope of the project was originally to address the problem Oregon 22 intersections with Oregon 99W and Oregon 22 identified in the Corridor Strategy and Polk County TSP. As the analysis evolved it was determined that a several mile stretch of Oregon 99W south of Rickreall would also experience problems within the latter years of the 20 year planning horizon. Rather than expand the scope of this project, a second project to address this need was scheduled. No action recommended by this plan or taken through implementation of the project recommendation will inhibit implementation of any alternative for improving Oregon 99W south of the Rickreall Junction Facility Plan project recommendation area.

Additional measures to manage and protect the highway system will be set in place through the adoption the Interchange Area Management Plan (IAMP) and the Rickreall Junction Facility Plan by ODOT and Polk County and through amendments to the Polk County comprehensive plan and zoning ordinance. These measures will help manage and protect the transportation system in terms of its function, its capacity and its ability to remain in compliance with the OHP highway performance standards. They include access control and management measures, limitations on land uses near interchanges, and other provisions as deemed necessary to protect this significant state investment and described in Chapter 7.

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.

As of January 2002, the project recommended in the Rickreall Junction Facility Plan had received OTIA construction funding from the OTC. Polk County has programmed funding for ODOT to construct the backage road east of Rickreall called for in the Plan.

**Action 1G.3** provides for ODOT to implement a cost-sharing program through intergovernmental agreement 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 this project, ODOT has entered into an IGA with Polk County to fund the backage road needed to implement the access management strategy and IAMP.

**Action 1G.4** provides for ODOT to design major improvements for limited access to protect through traffic movements. Consistent with this standard, the recommended 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. Rather than take this step, which is to precede adoption of policies and ordinances, ODOT and Polk County are proceeding directly to plan and ordinance adoption.

**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. Here, ODOT has worked closely with Polk County, the Federal Highway Administration and DLCD in determining need for this project and in determining a preferred alternative.

**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 is constructing the interchange with ODOT funds and a local road with Polk County fund.

**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 south of Oregon 22 and Rickreall on Oregon 99W.

**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 Rickreall Junction Facility Plan and will address these issues as the project moves 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 Rickreall Junction Facility Plan complies with Policy 2D and its action

items through its opportunities for citizen involvement through the stakeholder meetings and public open houses described in detail in Chapter 6.

**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 Oregon 22 including establishing it as a safety corridor with increased enforcement, headlights on signing, and oversized traffic control signs. Despite these efforts, the Oregon 22 and Oregon 99W intersection is still a top 10% SPIS site, indicating a higher than average crash history. The intersection of Oregon 22 and the Dallas Rickreall Highway, because of its high speed turning movements and acute turning angle, has a high crash potential, even though its crash history is not as great as Oregon 22 and Oregon 99W. In both of these circumstances, 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 is thoroughly addressed through the IAMP and the alternative analysis and recommendation in Chapters 6 and 7. The IAMP is also summarized in Appendix P.

**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 project recommendation provides for medians along all of Oregon 22 within the project area and from the WB ramp terminals south to the southern extent of the recommended project at Church Street.

**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. All of these actions are provided for with the Rickreall Junction Facility Plan.

**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. Because of the direction of traffic flow, the recommended interchanges will not require signalization within the planning horizon. Traffic control will consist of stop, merge, and yield signs.

**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. Deviations are needed to accommodate several farm accesses and the access at Church Street. All requested deviations are described in Appendix P and, with adoption of the Rickreall Junction Facility Plan and IAMP, are 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 Rickreall Junction Facility Plan and related project implements 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. This project is classified as a Category 2 project meaning that it has been granted a categorical exclusion from NEPA requirements. However, environmental analysis conducted will be factored into the project development process for the project recommended by the plan. Additionally, ODOT will obtain a conditional use permit for the recommended 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 project. Because the recommended project will impact a floodplain area, a floodplain permit will also be obtained from Polk County.