

DATE: April 20, 2009

TO: Oregon Transportation Commission

FROM: Matthew L. Garrett
Director

SUBJECT: Adoption of Interstate 5 Exits 119 and 120 Interchange Area Management Plan

Requested Action

Adopt the Interstate 5 Exits 119 and 120 Interchange Area Management Plan (IAMP). Adoption of this IAMP implements Policy 3C of the Oregon Highway Plan and is consistent with the IAMP requirements of the Department's Access Management Rule (OAR 731-051-0155). Findings of compliance in support of this action are found in Exhibit B. Adoption of the IAMP will constitute an amendment to the 1999 Oregon Highway Plan.

Background

The IAMP was prepared in coordination with Douglas County. ODOT worked with the County to develop the IAMP to protect the function of the interchange and identify needed improvements. The county has provided a letter stating that the IAMP is consistent with their Comprehensive Plan, but will adopt it as part of their regular end of the year comprehensive legislative update. Staff believes it is important to adopt the IAMP now before additional development occurs along old OR-99.

Attachments:

- Project Vicinity Map
- Project Location Map
- Exhibit A – Staff Report
- Exhibit B – Finding of Compliance with OAR 731-015-0065
- Exhibit C – Interstate 5 Exits 119 and 120 IAMP
(ftp://ftp.odot.state.or.us/outgoing/OTC_May09)
- Exhibit D – Contact Information

**Exhibit A
Staff Report**

**OTC Briefing
I-5 Exits 119 and 120 Interchange Area Management Plan (IAMP)
May 2009**

Requested Action

Region 3 requests that the OTC adopt the I-5 Exits 119 and 120 Interchange Area Management Plan (IAMP) to implement Policy 3C of the Oregon Highway Plan and ODOT's Access Management Rule (OAR 731-051-0155). The I-5 Exits 119 and 120 Interchange Area Management Plan will be formally adopted as a part of the Douglas County Transportation System Plan in December 2009 as part of their annual update. With local concurrence, ODOT staff has developed findings documenting the IAMP's consistency with the local plans.

Background

The Coos Bay-Roseburg interchange (exit 119) serves as a "system" interchange and provides access to OR-42, as statewide freight expressway. OR-42 provides access to the Port of Coos Bay and coastal communities. Exit 119 also provides access to surrounding limited industrial and low-density residential development west of the interchange in the Green Urban Unincorporated Area (UUA), and a mostly undeveloped industrial area east of the interchange. The surrounding terrain is relatively rolling. The Coos Bay-Roseburg interchange provides access to I-5 from the rural community of Green located at the southern outskirts of the City of Roseburg. Built in the mid 1950s, the interchange has a configuration of a trumpet. The crossroad (OR-42) is a five-lane state facility with a center left-turn lane.

The Oakland-Shady interchange (exit 120) serves as a "local" interchange providing access to surrounding limited industrial and low-density residential development west of the interchange, and a mostly undeveloped industrial area east of the interchange. The surrounding terrain is relatively rolling. The Oakland-Shady interchange provides access to I-5 from the rural community of Green. Built in the mid 1950s, the interchange has a configuration of a half-folded diamond on the west and a directional northbound leg on the east. The crossroad, Old OR-99 is a two-lane county facility with no center left-turn lane.

Problem Statement

The Green Unincorporated Urban Area (UUA), an unincorporated urban area under the jurisdiction of Douglas County has a population of nearly 7,000. It is underserved by the existing interchanges and roadway system. The interchanges and roadways in the immediate area have significant operational, geometric, access, and structural deficiencies. The existing deficiencies will be exacerbated by development in the area and could hinder the implementation of the adopted land use and transportation plans for the Green Area.

Goals

The goals of this IAMP are to develop a plan for improvements that can be implemented over time to: Improve safety and operations of Interchanges 119 and 120 and the I-5 mainline in the vicinity of these two intersections; Protect the investment in I-5 and its interchanges and maintain the function of the interchanges; Provide better accessibility to Roseburg, Winston, and the Green Area consistent with the adopted local comprehensive land use and transportation plans; and Maintain a system interchange between OR 42 and I-5 that allows free movements for all directions of travel.

Objectives

During development of the IAMP three objectives were established. This IAMP has accomplished the objectives as follows:

Developed concepts to improve safety and increase capacity of the interchanges and roadways to address existing and future needs, and recognizing the importance of maintaining a system interchange between OR 42 and I-5. Evaluated the need for capacity improvements based on the adopted, comprehensive land use plans of Roseburg, Winston and the Green Area and the mobility standards prescribed in the Oregon Highway Plan (OHP) and the level-of-service standards in the Douglas County Transportation System Plan (TSP). Developed an access management plan that provides for safe and acceptable operations on the transportation network and that meet the access spacing standards prescribed in the OHP.

Preferred Alternative

A Preferred Alternative was developed that consists of targeted improvements to improve capacity, balance lane use, improve geometry and maximize the use of the local street network without significant roadway or interchange realignments. The individual projects could be implemented concurrently or in phases. The improvements are described in Table ES-1 below.

The preferred alternative also amends the Investment Policies Scenarios section of the OHP to direct priority for exit 120 toward critical safety improvements and maintaining existing infrastructure, until Douglas County develops additional policies to protect the function of the interchange. As a “system” interchange, exit 119 was excluded from this policy due to its importance to the state for the movement of freight.

Table ES-1. Preferred Alternative Projects

	Project	New Project	Estimated Cost (1000 Dollars)	Roadway Jurisdiction	Funding Partners³
1	Interchange 120: Signalize ramp terminal intersection; widen ramp to accommodate a two-lane approach consisting of one left-turn lane and one shared left/right-turn lane from the exit ramp.	1	\$445	ODOT	ODOT, Developers
2	Old Highway 99: Widen from the Interchange 120 ramp terminal to Happy Valley Road to two southbound lanes to accommodate the dual left-turn lanes from the ramp terminal.	1	\$2,165	County	ODOT, County, Developers
3	OR 42 at Interchange 119: Provide two eastbound lanes on the new OR 42 bridge over I-5.	2	\$1,345	ODOT	ODOT
4	I-5 Mainline: When warranted by traffic volumes, provide an additional northbound through lane on I-5 beginning at Interchange 119.	2	Varies	ODOT	ODOT
5	Kelly's Corner (OR 42 at Carnes Road): Construct dual left-turn lanes on the southbound, eastbound and westbound approaches.	2	\$2,900	ODOT, County	ODOT, County, Developers
6	OR 42 Expressway Upgrade (2008-2011 STIP, KN 15006): Construct a signal on OR 42 at Rolling Hills Road; Construct a Necessary Local street; Close two street connections and eliminate private access.	2	\$1,200	ODOT, County	County, ODOT
7	Complete collector/arterial street network as specified in the Green TSP.	2	Varies	County	County, Developers
8	Speedway Road: Widen to accommodate a three-lane section between Old Highway 99 and Ingram Road; construct southbound left-turn lane on Old Highway 99	2	\$900	County	County, Developers
9	Speedway Road at Old Highway 99: Install traffic signal as warranted by future traffic volumes	2	\$445	County	County, Developers

Notes:

1. Project not currently referenced in Douglas County TSP.
2. Project currently referenced in Douglas County TSP. The Preferred Alternative project descriptions contained in the IAMP provide updated cost estimates or more detailed description compared to TSP projects.
3. Potential funding partners lists possible participants and does not represent a commitment to participate. Funding arrangements will need to be negotiated when more is known about project costs and benefits and the sources of funds that may become available.

Management Measures

Management actions, as applied to Interchange Area Management Plans (IAMPs) are intended to preserve the capacity of an interchange for as long as possible. The primary management measures for the Interchanges 119 and 120 management area are an access management plan, local street network enhancements, transportation system management strategies and transportation demand management strategies.

Access Management Plan

The access management plan addresses the segment of Old Highway 99 in the vicinity of the Interchange 120 ramp terminals. General actions throughout the planning area include: Development of frontage roads to remove access to Old Highway 99 in the vicinity of interchange 120; Encourage redevelopment opportunities that consolidate access points; Encourage sharing of access points between adjacent properties; Offset driveways at proper distances to minimize the number of conflict points between traffic using the driveways and through-traffic; Provide driveway access via local roads where possible; Enforce access management spacing standards to the extent possible. Minimize driveway widths; When traffic signals are installed, interconnect them with adjacent signals to create a coordinated timing system.

The specific actions for the access management plan largely consist of consolidating existing approaches in connection with future redevelopment. A long-term objective consists of the development of a frontage road system to provide alternate access to parcels that currently obtain direct access to Old Highway 99.

Implementation

The final section of this IAMP describes the responsibilities of Douglas County and ODOT and modifications to state and local plans and policies that are required for implementation of the IAMP. Implementation requirements include adoption of the IAMP as a facility plan in the Oregon Highway Plan; adoption of the Access Management Plan by Douglas County; and amendments to the Douglas County TSP project list and Goals and Objectives.

The interchanges are located approximately 3 mile south of Roseburg in Douglas County. The project was coordinated with Roseburg (City) and Douglas County to improve the existing interchange and surroundings.

The Interchange Area Management Plan (IAMP) was developed in order to plan for and manage the investments put into the interchange. The IAMP was originally intended to support a bridge replacement project with corresponding improvements to the local system. Since development of the plan, the bridge replacement project has been changed to repair only.

ODOT Actions

- Develop the 119 and 120 IAMP for OTC adoption
- Identify improvements to the interchange to allow it to operate within Oregon Highway Plan (OHP) standards within the planning horizon (2025).

- Adopt and implement access management actions
- Continue to coordinate with Douglas County
- Amend the Investment Policies Scenarios section of the OHP to direct priority for 120 toward critical safety improvements and maintaining existing infrastructure.

County Actions

- Adopt project list including local street network projects.
- Adopt the access management plan
- Amend Capital Improvement List and Funding Partners
- Amend the Douglas County TSP Goals and Objectives to support access management

Public Involvement

Public meetings were held at Roseburg City Hall, Green Elementary, the Douglas County Courthouse, and ODOT region headquarters. The open houses included graphic presentations and discussion to solicit public input. The public meetings were advertised in the Roseburg News-Review and news releases were sent to the local media.

Summary of Draft Findings

ODOT's State Agency Coordination Agreement requires that the OTC adopt findings of fact when adopting facility plans (OAR 731-015-0065). Pursuant to these requirements, ODOT has developed findings to support the OTC adoption of the I-5 exits 119 and 120 IAMP. For all applicable policies, the IAMP has been found to be compatible with adopted state and local policies.

- Exhibit B Findings of Compliance for the IAMP is attached and address compliance with state and local plans, policies, and ordinances/statutes/rules.

Suggested Motion Language

I move to adopt the I-5 Exits 119 and 120 Interchange Area Management Plan as an element of the Oregon Highway Plan and adopt the findings in support of this action.

Interchange Area Management Plan



Interchanges 119 and 120

Douglas County



Oregon Department of Transportation

**I-5 Interchanges 119 and 120
Douglas County Oregon**

Interchange Area Management Plan

Prepared for

**Oregon Department of Transportation, Region 3
3500 NW Stewart Parkway
Roseburg, Oregon 97470**

Prepared by

**David Evans and Associates, Inc.
2100 SW River Parkway
Portland, Oregon**

February 2009

TABLE OF CONTENTS

EXECUTIVE SUMMARY	V
1 IAMP GOALS AND OBJECTIVES	1
1.1 PROBLEM STATEMENT	1
1.2 OPERATIONAL AND SAFETY DEFICIENCIES	1
1.3 STRUCTURAL AND GEOMETRIC DEFICIENCIES	2
1.4 IAMP GOALS AND OBJECTIVES	3
1.5 PLANNING AND MANAGEMENT AREA	3
1.6 INTERCHANGE FUNCTION.....	5
1.7 IAMP DEVELOPMENT PROCESS	5
2 DEVELOPMENT AND ANALYSIS OF INTERCHANGE AREA CONCEPTS	7
2.1 PRELIMINARY EVALUATION CRITERIA.....	7
2.2 INTERCHANGE AREA CONCEPT ALTERNATIVES	8
2.3 ANALYSIS OF CONCEPTS	12
2.4 CONCEPT COST ESTIMATES	14
2.5 ENVIRONMENTAL CONSTRAINTS “RED-FLAG” ANALYSIS	14
2.6 CONCLUSION/SUMMARY OF ANALYSIS.....	16
3 PREFERRED ALTERNATIVE	17
3.1 CONSISTENCY WITH EVALUATION CRITERIA	24
3.2 CONSISTENCY WITH 1999 OREGON HIGHWAY PLAN	26
4 MANAGEMENT ACTIONS	27
4.1 BENEFITS OF MANAGEMENT ACTIONS AT INTERCHANGES 119 AND 120	27
4.2 LOCAL SYSTEM IMPROVEMENTS.....	27
4.3 TRANSPORTATION DEMAND MANAGEMENT STRATEGIES.....	28
4.4 TRANSPORTATION SYSTEM MANAGEMENT STRATEGIES	31
4.5 LAND USE AND DEVELOPMENT ACTIONS	33
4.6 RECOMMENDED MANAGEMENT MEASURES	34
4.7 CANDIDATE MEASURE FOR POSSIBLE FUTURE IMPLEMENTATION	34
5 ACCESS MANAGEMENT PLAN	35
6 PRIORITIES AND TIMING OF IMPROVEMENT NEEDS	43
6.1 STATE PRIORITIES	43
6.2 TIMING OF NEED FOR IMPROVEMENTS	43
7 IMPLEMENTATION	45
7.1 OHP POLICY STATEMENT	45
7.2 ACCESS MANAGEMENT.....	45
7.3 AMEND DOUGLAS COUNTY TSP.....	46

FIGURES

Figure 1-1. IAMP Planning and Management Area.....	4
Figure 2-2. Overview of Modified Concept 11	9
Figure 2-1. Modified Concept 10	10
Figure 2-2. Modified Concept 11	11
Figure 3-1. Preferred Alternative Improvements	22
Figure 3-2. Interchange Lane Configuration Options	23
Figure 5-1. Access Inventory and Recommended Access Management Actions	40
Figure 5-2. Frontage and Service Road Alternatives.....	41

TABLES

Table ES-1. Preferred Alternative Projects	iv
Table 2-1. Cost Estimate Summary	14
Table 5-1: Recommended Access Actions.....	39
Table 8-1. Preferred Alternative Projects	48

APPENDICES

- A. Interchange Area Concepts Considered
- B. Concept Cost Estimates
- C. OR 42 Expressway Upgrade Project Summary Report
- D. Green Area Trip Budget Overlay District
- E. Green UUA Land Use
- F. Interchange 119/120 Conditions Report

LIST OF ACRONYMS

AMP	Access management plan
ATMS	Active Traffic Management System
CORP	Central Oregon & Pacific Railroad
I-5	Interstate 5
IAMP	Interchange Area Management Plan
IGA	Inter-Governmental Agreement
ITS	Intelligent Transportation Systems
HCM	Highway Capacity Manual (Transportation Research Board)
HDM	Highway Design Manual (ODOT)
OAR	Oregon Administrative Rule
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
OR	Oregon Route
OTC	Oregon Transportation Commission
SFR	Single-family residential
STIP	State Transportation Improvement Program (ODOT)
TAC	Transportation Advisory Committee (Sutherlin)
TDM	Transportation Demand Management
TMA	Transportation Management Association
TPAU	Transportation Planning and Analysis Unit (ODOT)
TSM	Transportation System Management
TSP	Transportation System Plan
UGB	Urban growth boundary

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Executive Summary

As outlined in Oregon Administrative Rule (OAR) 734-051, an Interchange Area Management Plan (IAMP) is required for new or substantially modified interchanges. New interchanges are very costly and it is in the interest of the State, local governments and the citizens to ensure that the interchange functions as it was designed for as long a time period as possible.

Problem Statement

The Green Unincorporated Urban Area (UUA), an unincorporated urban area south of Roseburg and under the jurisdiction of Douglas County, is underserved by the existing interchanges and roadway system. The interchanges and roadways in the immediate area have significant operational, geometric, access, and structural deficiencies. The existing deficiencies will be exacerbated by development in the area and could hinder the implementation of the adopted land use and transportation plans for the Green Area.

Goals

The goals of this IAMP are to develop a plan for improvements that can be implemented over time to:

- Improve safety and operations of Interchanges 119 and 120 and the I-5 mainline in the vicinity of these two intersections;
- Protect the investment in I-5 and its interchanges and maintain the function of the interchanges;
- Provide better accessibility to Roseburg, Winston, and the Green Area consistent with the adopted local comprehensive land use and transportation plans; and
- Maintain a system interchange between OR 42 and I-5 that allows free movements for all directions of travel.

Objectives

During development of the IAMP three objectives were established. This IAMP has accomplished the objectives as follows:

- Developed concepts to improve safety and increase capacity of the interchanges and roadways to address existing and future needs, and recognizing the importance of maintaining a system interchange between OR 42 and I-5.
- Evaluated the need for capacity improvements based on the adopted, comprehensive land use plans of Roseburg, Winston and the Green Area and the mobility standards prescribed in the Oregon Highway Plan (OHP) and the level-of-service standards in the Douglas County Transportation System Plan (TSP).
- Developed an access management plan that provides for safe and acceptable operations on the transportation network and that meet the access spacing standards prescribed in the OHP.

Preferred Alternative

A Preferred Alternative was developed that consists of targeted improvements to improve capacity, balance lane use, improve geometry and maximize the use of the local street network without significant roadway or interchange realignments. The individual projects could be implemented concurrently or in phases. The improvements are described in Table ES-1 below.

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3	OR 42 at Interchange 119: Provide two eastbound lanes on the new OR 42 bridge over I-5.	2	\$1,345	ODOT	ODOT
4	I-5 Mainline: When warranted by traffic volumes, provide an additional northbound through lane on I-5 beginning at Interchange 119.	2	Varies	ODOT	ODOT
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Notes:

1. Project not currently referenced in Douglas County TSP.
2. Project currently referenced in Douglas County TSP. The Preferred Alternative project descriptions contained in the IAMP provide updated cost estimates or more detailed description compared to TSP projects.
3. Potential funding partners lists possible participants and does not represent a commitment to participate. Funding arrangements will need to be negotiated when more is known about project costs and benefits and the sources of funds that may become available.

Management Measures

Management actions, as applied to Interchange Area Management Plans (IAMPs) are intended to preserve the capacity of an interchange for as long as possible. The primary management measures for the Interchanges 119 and 120 management area are an access management plan, local street network enhancements, transportation system management strategies and transportation demand management strategies.

Access Management Plan

The access management plan addresses the segment of Old Highway 99 in the vicinity of the Interchange 120 ramp terminals.

General actions throughout the planning area include:

- Encourage redevelopment opportunities that consolidate access points.
- Encourage sharing of access points between adjacent properties.
- Offset driveways at proper distances to minimize the number of conflict points between traffic using the driveways and through-traffic.
- Provide driveway access via local roads where possible.
- Enforce access management spacing standards to the extent possible.
- Minimize driveway widths.
- When traffic signals are installed, interconnect them with adjacent signals to create a coordinated timing system.

The specific actions for the access management plan largely consist of consolidating existing approaches in connection with future redevelopment. A long-term objective consists of the development of a local street network to provide alternate access to parcels that currently obtain direct access to Old Highway 99.

Because Old Highway 99, the Interchange 120 crossroad, is owned by Douglas County, adoption and implementation of the Access Management Plan is a County responsibility, although ODOT retains access permitting authority for the segment of Old Highway 99 within 900-feet of the Interchange 120 ramp terminals.

Implementation

The final section of this IAMP describes the responsibilities of Douglas County and ODOT and modifications to state and local plans and policies that are required for implementation of the IAMP. Implementation requirements include adoption of the IAMP as a facility plan in the Oregon Highway Plan; adoption of the Access Management Plan by Douglas County; and amendments to the Douglas County TSP project list and Goals and Objectives.

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1 IAMP Goals and Objectives

As outlined in Oregon Administrative Rule (OAR) 734-051, an Interchange Area Management Plan (IAMP) is required for new or substantially modified interchanges. New interchanges are very costly and it is in the interest of the State, local governments and the citizens to ensure that the interchange functions as it was designed for as long a time period as possible.

Development of this IAMP began with a detailed analysis of existing conditions and identification of long-range transportation needs associated with planned development in the vicinity of I-5 Interchanges 119 and 120. These analyses were documented in the Interchanges 119 and 120 Transportation Conditions Report, dated October 2005, prepared by David Evans and Associates, Inc. The analyses summarized in the Conditions Report were used to gain a better understanding of both the current and the future deficiencies of the two interchanges. The Conditions Report summarized traffic, land use, and environmental information from a variety of sources and provides the basis for the IAMP.

Building upon the information contained in the Conditions Report, this IAMP provides information on the analysis of alternatives to address predicted long-range needs, the selection of a preferred alternative, and the identification of management actions needed to preserve and maintain the function of Interchanges 119 and 120.

1.1 Problem Statement

The Green Area, an unincorporated part of the Roseburg urban area under the jurisdiction of Douglas County, is underserved by the existing interchanges and roadway system. The interchanges and roadways in the immediate area have significant operational, geometric, access, and structural deficiencies. The existing deficiencies will be exacerbated by development in the area and could hinder the implementation of the adopted land use and transportation plans for the Green Area.

The following section provides a review of the specific deficiencies, as identified and documented in the Conditions Report.

1.2 Operational and Safety Deficiencies

The Conditions Report provided traffic operations analyses at key intersections and freeway facilities in the planning area. The traffic analyses address both existing (2005) and future (2025) no-build conditions. The analyses showed that several intersections are approaching or exceeding ODOT mobility standards:

- Traffic demand at the intersection of the I-5 southbound ramps at Old Highway 99 South currently exceeds capacity and future conditions are expected to worsen by year 2025. The ramp does not have adequate storage length to accommodate vehicular queues, which often back up onto the freeway.
- The intersection of OR 42 with Old Highway 99 South / Grant Smith Road has operational problems and excessive vehicular queuing resulting from high peak hour traffic volumes and lane imbalance on the eastbound approach. The lane imbalance is caused by the intersection's close proximity to the Interchange 119 ramp split, which is located less than 1,000 feet downstream from the intersection. With 85 percent of vehicles subsequently heading to the northbound I-5 ramps from the left lane, most vehicles queue in the left approach lane at the intersection.
- Traffic operations at the intersection of OR 42 at Carnes Road / Roberts Creek Road currently exceed the ODOT mobility standards. Conditions are expected to worsen, with the intersection approaching capacity under year 2025 traffic volume conditions.

- Stakeholders identified the merge/diverge condition created by the close proximity of the northbound Interchange 119 entrance ramp to the Interchange 120 exit ramp as problematic. A significant amount of northbound ramp-to-ramp traffic exists between these two ramps, which creates turbulence in the mainline traffic flow. The Conditions Report provided an analysis of the existing freeway ramps and tested the benefits of adding a northbound auxiliary lane between the two interchanges. Results of this analysis showed that an auxiliary lane could improve operations over existing conditions. Additional analysis performed as part of the IAMP project indicated that an auxiliary lane should extend beyond Interchange 120.
- Some stakeholders identified the lack of northbound freeway access at Interchange 120 as a deficiency at the interchange. This places limitations on access to Roseburg and points north from the Green Area. It also places additional demands on the intersection of OR 42 with Old Highway 99 / Grant Smith Road and Interchange 119, facilities that are already experiencing operational problems.
- A safety analysis indicated few existing safety problems within the planning and management area other than those already noted. The intersection of OR 42 at Carnes Road does have a somewhat elevated crash rate when compared to the surrounding area.

1.3 Structural and Geometric Deficiencies

The Conditions Report noted that the overcrossing that carries OR 42 over I-5 at Interchange 119 (Bridge No. 07806) was structurally deficient. However, the bridge has since been replaced with a new structure that is able to accommodate widening of both I-5 and OR 42.

The Conditions Report notes the following geometric deficiencies:

- Interchange spacing between Interchanges 119 and 120 does not meet spacing standards specified in OAR 734-051.
- Inadequate acceleration and deceleration lengths at entrance and exit ramps, including a tight 15 mph curve on the southbound exit ramp at Interchange 120, which does not meet the standard of 25 mph minimum.
- Several private access points to Old Highway 99 South within 1,320 feet of the Interchange 120 ramp terminals, which does not meet Oregon Highway Plan access spacing requirements.
- Sub-standard mainline shoulder widths on I-5.

1.4 IAMP Goals and Objectives

Goals

The goals of this IAMP are to develop a plan for improvements that can be implemented over time to:

- Improve safety and operations of Interchanges 119 and 120 and the I-5 mainline in the vicinity of these two intersections;
- Protect the investment in I-5 and its interchanges and maintain the function of the interchanges;
- Provide better accessibility to Roseburg, Winston, and the Green Area consistent with the adopted local comprehensive land use and transportation plans; and
- Maintain a system interchange between OR 42 and I-5 that allows free movements for all directions of travel.

Objectives

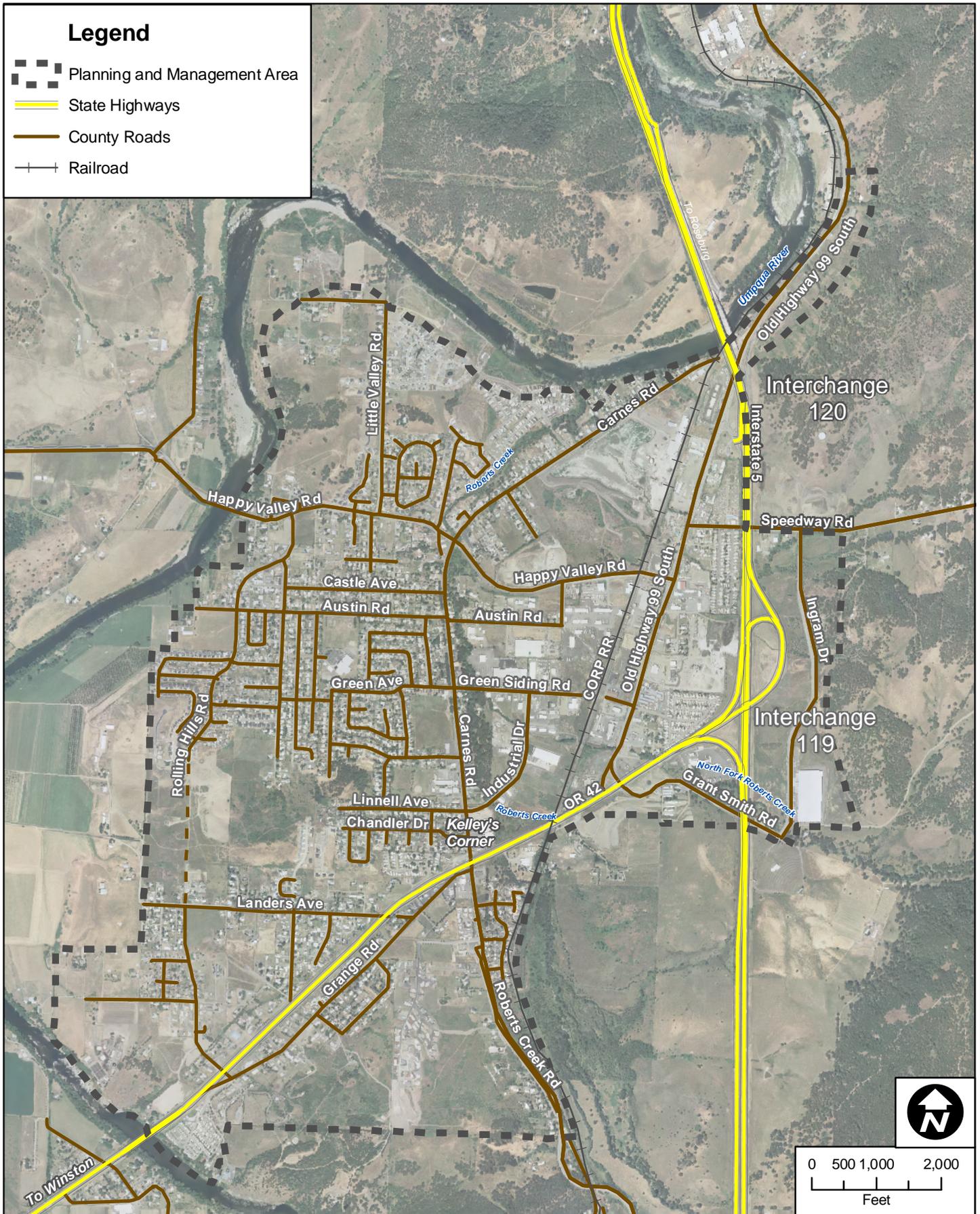
The objectives of the IAMP are to:

- Develop concepts to improve safety and increase capacity of the interchanges and roadways to address existing and future needs. The concepts should be developed recognizing the importance of maintaining a system interchange between OR 42 and I-5.
- Evaluate the need for capacity improvements based on the adopted, comprehensive land use plans of Roseburg, Winston and the Green Area and the mobility standards prescribed in the Oregon Highway Plan (OHP) and the level-of-service standards in the Douglas County Transportation System Plan (TSP).
- Develop an access management plan that provides for safe and acceptable operations on the transportation network and that meet the access spacing standards prescribed in the OHP.

1.5 Planning and Management Area

The boundaries of the Interchange Area Planning and Management Area (planning area) largely coincide with the boundaries of the Green Urban Unincorporated Area (UUA), which is under the planning jurisdiction of Douglas County. A small portion of the planning area, consisting of a narrow section of land along Old Highway 99 north of Interchange 120 that is zoned for commercial and residential uses, lies outside of the Green UUA

The planning area is shown in Figure 1-1. The planning area includes land where existing and future development has the potential to significantly affect the interchange function. It also encompasses key roadways in the vicinity that relate to traffic operations at the interchanges.



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Figure 1-1
I-5 Interchanges 119 and 120
IAMP Planning and Management Area

1.6 Interchange Function

Interchanges 119 and 120 serve multiple users. They provide access to and from the Green area, serving local trips by residential and commercial/industrial users. They also serve non-local traffic, such as traffic connecting from distant locations along OR 42 with I-5 and commuter traffic between Winston, Roseburg, and the Green area.

Interchange 119 connects I-5 with OR 42, which is classified by ODOT as a Statewide Highway and Expressway. Interchange 120 provides a partial connection with Old Highway 99 South, a Douglas County arterial. The primary function of interstate freeways is to serve inter-regional and interstate passenger and freight traffic. The function of Statewide-level highways is to provide inter-regional and inter-urban mobility (connecting larger urban areas, ports, and other locations that are not served by the Interstate system). The function of Douglas County arterials is to provide through traffic movement between major communities in Douglas County, and distribute traffic between the State Highway system and the local streets network.

The intended function of Interchanges 119 and 120 is to safely and efficiently accommodate future traffic demands generated by inter-regional passenger and freight traffic as well as population and employment growth in the region.

1.7 IAMP Development Process

Technical Advisory Committee

A Technical Advisory Committee (TAC) was formed to guide the development of the IAMP. The TAC was comprised of technical staff from ODOT, Douglas County, the cities of Roseburg and Winston. The TAC provided review and oversight of the development of eight technical memoranda from which this IAMP document is largely comprised.

Public Involvement

During the development of the 2005 Conditions Report, interviews were conducted with key project stakeholders. The stakeholders included business property owners, homeowners, representatives of distribution and manufacturing interests, visitor or traveler service providers, and economic development representatives. These individuals were then interviewed via telephone during the last two weeks of June 2004 to identify issues associated with the 119/120 Interchange area.

Staff from ODOT and David Evans and Associates attended two public open houses in which members of the community were provided opportunities to view and comment on the status and findings of the IAMP. The first public meeting was held near the beginning of the process in August of 2006. Project staff presented the preliminary concepts and solicited citizen comments. The second public meeting is expected to take place summer of 2008, during which project staff will present the preferred alternative, access management plan and other management measures as recommended in Section 4 of the IAMP document.

Project staff also briefed Douglas County Commissioners on the status and findings of the IAMP in June 2006. A second meeting with the County Commissioners is expected to occur in summer of 2008.

Technical Memoranda

This IAMP document is based on eight technical memoranda that were prepared by David Evans and Associates. Each technical memorandum was presented to the members of the TAC for review and comments, and they are listed below.

1. IAMP Definition and Background, May 2006
2. Preliminary Interchange and Local Circulation Concept Development and Preliminary Evaluation Criteria Development, August 2006
3. Preliminary Evaluation Matrix and Selection of Intermediate Interchange and Local Circulation Concepts, September 2006
4. Analysis of Conceptual Alignments, March 2007
5. Preferred Alternative, August 2007
6. Access Management Plan, August 2007
7. Potential Management Actions, October 2007
8. Proposed IMA Overlay District and Code Amendments, November 2007

2 Development and Analysis of Interchange Area Concepts

2.1 Preliminary Evaluation Criteria

The IAMP process involved the development of twelve interchange area concepts as well as preliminary evaluation criteria that were used to assess and screen the concepts. This section documents the evaluation criteria and provides detailed descriptions of the two concepts that remained after preliminary screening.

The criteria were designed to provide a qualitative filter for the interchange area concepts, as it was not practicable to do a detailed analysis on all twelve concepts. The criteria were meant to address specific transportation problems or deficiencies, and they helped filter the alternatives down to those that best met the project goals and objectives. This process created a more manageable list of concepts to develop more fully for analysis.

The preliminary list of criteria was developed from stakeholder interviews and the Phase I Conditions Report and are divided into seven main criteria headings: Transportation Operations, Geometry, Accessibility: Green Area East/West of I-5, Accessibility: Retention of I-5/OR 42 System Interchange, Cost, Land Use Impacts, Environmental Impacts, and Social Impacts.

Transportation Operations

- Solves the queuing problem on the I-5 southbound exit ramp at Interchange 120
- Eliminates the need to merge/diverge on northbound I-5 between the interchanges
- Reduces the lane imbalance caused by the close proximity of Interchange 119 to OR 42/Old Highway 99 South/Grant Smith Rd intersection
- Improves operations of the intersection of OR 42 and Carnes Rd/Roberts Creek Rd
- Improves operations of the intersection of OR 42 and Old Highway 99/Grant Smith Road

Geometry

- Addresses all geometric deficiencies identified in the Interchanges 119/120 Transportation Conditions Report
- Brings interchange spacing up to standard between Interchanges 119 and 120

Accessibility

- Maintains or improves access to the Green area west of I-5
- Maintains or improves access to the industrial area east of I-5 along Ingram Drive
- Retains system interchange
- Maintains or improves access to Winston via OR 42

Cost

- Provides appropriate cost and implementation strategies

Land Use

- Minimizes right-of-way impacts
- Supports the adopted land use plans of Roseburg, Winston and the Green Area

Environmental/Social Impacts

- Minimizes environmental impacts

Social Impacts

- Minimizes significant social impacts (displacements of residences or businesses)

2.2 Interchange Area Concept Alternatives

Twelve interchange area concepts were developed with input from the TAC. After preliminary screening, two modified concepts remained and are described below. These concepts were subjected to detailed analysis that is described below. Concepts that were considered but dismissed are provided in the Appendix A.

Modified Concept 10

Modified Concept 10, shown in Figure 2-1, consists of a modified composite of two previous concepts. This concept lends itself to a phased implementation, as many elements could be stand-alone projects. Taken together, the various features satisfy many of the evaluation criteria. A disadvantage of the concept is that it does not directly improve access between I-5 and the Green area; it simply improves traffic operations on the existing roadways. The concept also does not modify the interchange access points, and therefore does not address the sub-standard interchange spacing. The individual elements of this concept are described below.

Interchange 120 Improvements

Modified Concept 10 retains the existing exit and entrance ramp at Interchange 120, but improves the ramp geometry, realigns Old Highway 99 to provide additional deceleration and vehicle storage lengths, and adds a traffic signal at the ramp terminal intersection. The northbound I-5 exit to Old Highway 99 is retained with no modifications.

OR 42 Jug-Handle Interchanges

This concept replaces the existing traffic signals with jug-handle interchanges at two intersections: Kelly's Corner (OR 42 at Carnes Road/Roberts Creek Road); and OR 42 with Old Highway 99/Grant Smith Road. The jug-handle interchanges would prohibit left-turning and crossing movements, thereby eliminating conflicts that result from these traffic movements. Full access between OR 42 and the intersecting roadways are retained, but all turns to and from OR 42 consist of right turns. Through traffic on OR 42 is provided with a free movement.

Northbound I-5 Auxiliary Lane

Modified Concept 10 also could include a northbound auxiliary lane between Interchange 119 and Interchange 120. The existing pavement section has adequate width to accommodate an auxiliary lane. Restriping the existing pavement section would be the only necessary modification to implement this improvement.

Figure 2-1 shows an overview of Modified Concept 10. The roadway alignments shown in the figure account for roadway design standards and are drawn roughly to scale.

Modified Concept 11

Modified Concept 11, shown in Figure 2-2, contains a complete relocation of the system interchange between the OR 42 expressway and I-5 to a new location more than one mile to the south. This

relocation provides improved spacing to allow for a new full-access interchange at Speedway Road. This concept also includes a grade-separated interchange at Kelly's Corner. The former OR 42 alignment is extended to meet Ingram Road at a "T" intersection. The extension of Old Highway 42 combined with the interchange at Speedway Road represents a significant improvement of access to the industrial land located along Ingram Road east of I-5.

This concept addresses four key criteria: (1) maintaining the system interchange between I-5 and OR 42, (2) improving freeway interchange access to industrial lands east of I-5, (3) improving multi-directional freeway access to and from the Green Area, and (4) eliminating or reducing the geometric deficiencies related to interchange and ramp spacing.

The individual elements of Modified Concept 11 are discussed below.

New Full Interchange at Speedway Road

Modified Concept 11 replaces the partial Interchange at milepost 120 with a full-access diamond interchange at Speedway Road. Speedway Road crosses under I-5 with a three-lane cross-section that accommodates back-to-back left turn lanes. The ramp terminals are stop controlled on the ramp approaches.

Shift Interchange 119 to the South

This concept abandons the existing Interchange 119. The new alignment of OR 42 takes it further south, meeting I-5 more than one mile south of its existing location. The new interchange will retain its system interchange status, providing free-flowing, full connectivity between the OR 42 expressway and I-5. The new interchange is a trumpet type that mirrors the existing Interchange 119. Each entrance and exit ramp is a single-lane roadway.

New OR 42 Alignment

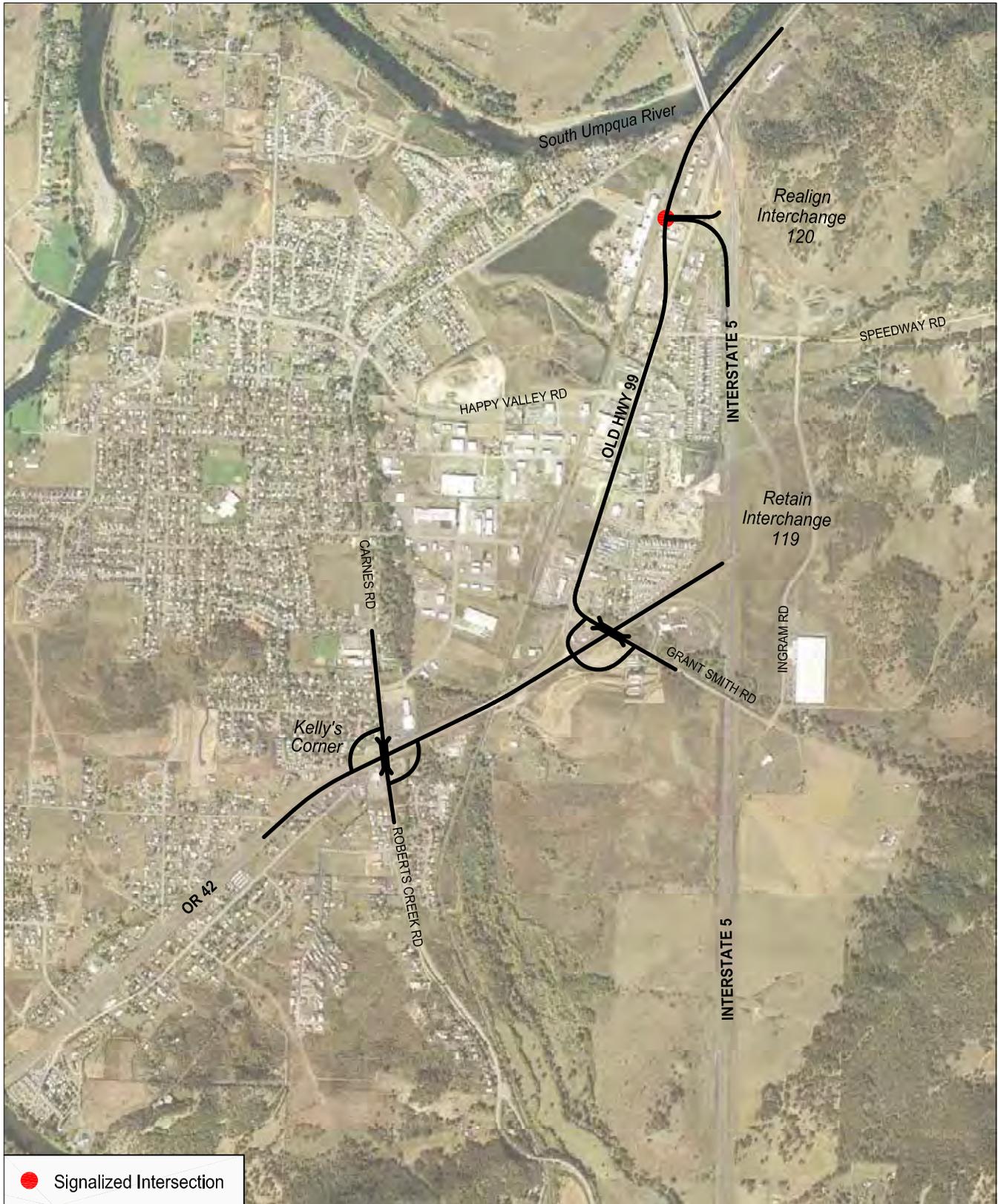
The new alignment of OR 42 removes the signalized intersections at Kelly's Corner and Old Highway 99/Grant Smith Road. These are currently the only signalized intersections between Winston and I-5. South of the intersection of OR 42 with Old Highway 99, a knoll rises approximately 100 feet above the surrounding land. The alignment of OR 42 curves southward, skirting the southern edge of the knoll while maintaining a 65 mph design speed.

Kelly's Corner Interchange (OR 42 at Carnes Road/Roberts Creek Road)

A new grade-separated interchange replaces the signalized intersection. Carnes Road/Roberts Creek Road cross over OR 42 on a three-lane structure to accommodate back-to-back left-turn lanes at the ramp terminal intersections, which are both signalized. The interchange itself is a partial cloverleaf, with a single loop ramp in the northwest quadrant. The loop ramp is necessary because of the realigned Old Highway 99, which brings it to the west where it intersects Carnes Road directly opposite the ramp terminals. This configuration would require a design exception because it does not conform to the Division 51 prohibition of approaches aligned opposite a freeway or expressway ramp terminal.

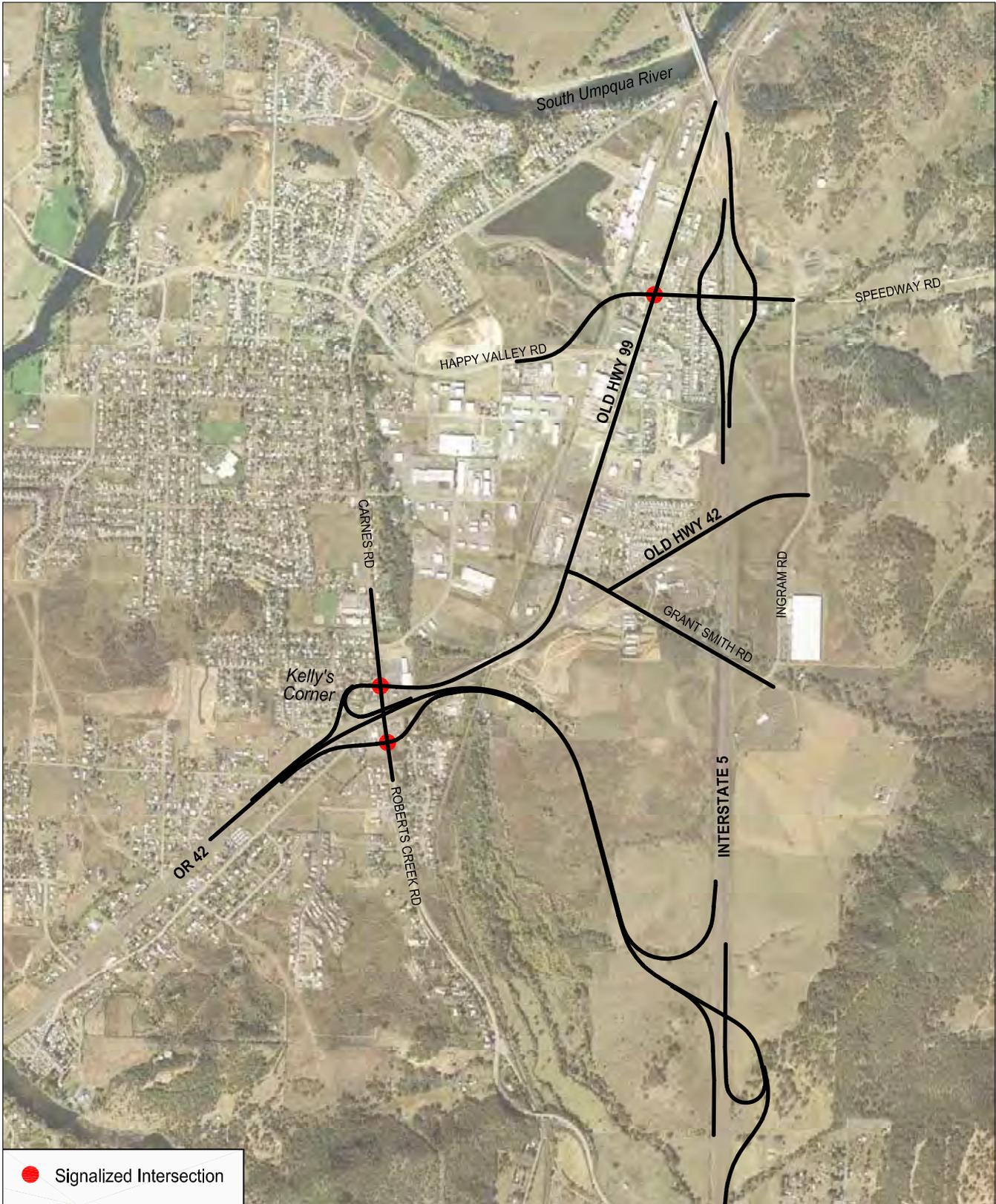
Traffic on Old Highway 99 and Grant Smith Road is diverted to the Carnes Road/Roberts Creek Road interchange. Grant Smith Road intersects Old Highway 99 at a 'T' intersection. Old Highway 42 intersects Grant Smith Road at a 'T' intersection and extends connects with Ingram Road.

Figure 2-2. Overview of Modified Concept 11. The roadway alignments shown in the figure account for roadway design standards and are drawn roughly to scale.



Douglas County Aerial, 2004

Figure 2-1
I-5 Interchanges 119 and 120 IAMP
Modified Conceptual Alignment 10a



Douglas County Aerial, 2004

Figure 2-2
I-5 Interchanges 119 and 120 IAMP
Modified Conceptual Alignment 11

2.3 Analysis of Concepts

This section summarizes the evaluation of Modified Concept 10 and Modified Concept 11, including year 2025 traffic operations analysis, planning-level cost estimates and assessments of potential geometric, constructability and environmental considerations.

Future year traffic volumes for both concepts were derived from the application of a post processing methodology of data from the Roseburg Travel Demand Model, which was prepared by ODOT Transportation Planning Analysis Unit (TPAU). The future traffic volumes were then input into traffic analysis software and year 2025 traffic analysis was performed on each of the concepts. The purpose of the analysis was to provide a general overview of traffic operations and needs related to each concept.

Scaled conceptual layouts that took into account roadway geometric standards were prepared using CAD software to illustrate the approximate footprint of each of the concepts (see Figures 2-1 and 2-2). These layouts enabled a relatively accurate assessment of the potential impacts to the surrounding landscape.

A detailed discussion of the analysis of each concept follows.

Analysis of Modified Concept 10

Interchange 120

Interchange improvements that are currently planned as a part of the Shady Bridge project will increase the exit ramp radius to carry traffic at a 25 mph design speed. Modified Concept 10 shifts the alignment of Old Highway 99 to the west by approximately 360 feet and adds a signal at the ramp terminal intersection. The extended ramp length accommodates approximately 300 feet of vehicle storage. The realigned Old Highway 99 takes it under the Shady Bridge next to the CORP railroad tracks.

The proposed geometry provides 740 feet of deceleration length for southbound exiting vehicles, which meets ODOT standards. Three hundred feet of queue storage is provided at the southbound exit ramp terminal. Simulation modeling of projected queues indicated that the queue storage provided by the realignment of Old Highway 99 would be adequate to accommodate anticipated queues.

Provision of dual left-turn lanes on the southbound exit-ramp approach to Old Highway 99 would improve the intersection efficiency and significantly reduce the queuing on the approach. The reduced queue may also reduce the extent of realignment required on Old Highway 99.

An additional southbound lane on Old Highway 99 between Interchange 120 and Happy Valley Road would be required to accommodate the dual left-turn lanes. An additional southbound lane would also handle the higher relative traffic volumes between the interchange and Happy Valley Road and would provide sufficient vehicle storage for the southbound right turn at Happy Valley Road.

Old Highway 99 at Happy Valley Road

Modified Concept 10 does not include extensive modifications to this intersection. Operations analysis of future conditions indicates that the present configuration can adequately accommodate the projected future year traffic. Vehicle queuing is expected to exceed the available queue storage length for the existing southbound right turn lane. However, an additional southbound lane on Old Highway 99, as recommended above, would address this deficiency.

Jug-Handle Interchanges

While jug-handle interchanges would provide improved mobility on OR 42, analysis of operational and geometric issues revealed a potential fatal flaw. Initially it was assumed that the right-out ramp junctions

with OR 42 would operate as yield-controlled approaches, with motorists required to yield to traffic on OR 42. The results of this analysis showed this configuration would result in unacceptable operations. To operate adequately, these junctions would need to operate freely, with acceleration lanes provided on OR 42. However, there are significant geometric problems associated with acceleration lanes on OR 42 at the jug-handles.

According to ODOT highway design standards, the length required for acceleration lanes (assuming a turning speed of 25 mph and a highway design speed of 65 mph) is over 1200 feet. An additional 300 feet would be required for taper distance. Due to the close spacing between the two intersections and Interchange 119, provision of adequate acceleration lanes would effectively require an additional lane in both directions for the entire highway segment between Interchange 119 and Kelly's Corner. This would create weaving sections between the two intersections and the interchange and would not meet expressway interchange spacing requirements. Furthermore, the distance between Old Highway 99/Grant Smith Road and the eastbound Interchange 119 split is about 1000 feet, which is not sufficient to provide an eastbound acceleration lane.

Northbound I-5 Auxiliary Lane

A northbound auxiliary lane on I-5 could be accommodated between Interchange 119 and Interchange 120 by restriping the existing pavement section. The analysis results showed moderately improved overall performance with an auxiliary lane than with the current merge/diverge configuration. A detailed discussion on auxiliary lane options is provided in Section 3 of this report.

In the southbound direction, there is a relatively small volume of ramp-to-ramp traffic. A southbound auxiliary lane is not recommended.

Analysis of Modified Concept 11

New Speedway Road Interchange

It was assumed that this interchange would be designed to accommodate projected future volumes. Build assumptions for analysis consisted of single-lane entrance ramps and exit ramp approaches. Operations analysis indicated that the ramp terminal intersections would operate adequately under stop control. The intersection of Old Highway 99 at Speedway Road would likely require signal control if a new interchange was constructed at Speedway Road.

New OR 42 Alignment

Traffic operations on the realigned expressway and the new interchange are expected to be adequate and signal delays will be eliminated. However, there will be a significant increase in travel time over what currently exists. The realignment of OR 42 under Modified Concept 11 will add nearly two miles, or about two minutes of travel time, to a trip between Roseburg and Winston. Assuming that this additional travel time is equivalent to vehicle delay, the average motorist will experience more delay on the realigned OR 42 than on the existing alignment through the two existing signalized intersections. Traffic operations analysis has shown that the year 2025 peak hour average control delay at Kelly's Corner and Old Highway 99 are 70 seconds and 31 seconds respectively, or about 101 seconds total. The additional travel time resulting from a realignment of OR 42 is approximately two minutes, or 20 seconds longer.

Kelly's Corner Interchange

Year 2025 operational analysis indicates that the interchange westbound and eastbound ramp terminals would require signalization to meet mobility standards.

2.4 Concept Cost Estimates

Planning-level cost estimates were developed for each concept. The cost estimates were based on assumed unit prices and approximated quantity take-offs. The cost estimates considered mobilization and traffic control, permanent traffic control, roadwork, materials and right of way costs. The estimates make no distinction between undeveloped and developed land values, but instead assumed a flat cost of \$50 per square foot of right of way. Actual costs for right of way acquisition can be expected to vary considerably. Additionally, the estimates do not consider preliminary engineering work.

Many factors can affect the actual cost or price of labor and materials. These factors may include unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs, competitive bidding procedures or market conditions; time or quality of performance by operating personnel or third parties; and other economic and operational factors that may materially affect the ultimate project cost.

In 2007 dollars, it is estimated that Concept 10 would have a cost of about \$55.9 million, and Modified Concept 11 would have a cost of \$87.2 million. Assuming a 5% per year inflation rate, the 2017 costs of each are estimated to be approximately \$83.9 million and \$130.9 million, respectively. A summary of the estimated component costs are provided in Table 2-1. Detailed cost estimate worksheets are provided in Appendix B.

Table 2-1. Cost Estimate Summary

Interchange Area Concept	Project Component	2007 Estimated Cost (Millions)	2017 Estimated Cost (Millions)
Modified 10	Total Cost	\$55.9	\$83.9
	99E Realignment at Interchange 120	\$28.0	\$41.9
	Grant Smith Jug Handle	\$14.0	\$21.0
	Kelly's Corner Jug Handle	\$14.0	\$21.0
Modified 11	Total Cost	\$87.2	\$130.9
	North Interchange Area Standard Diamond	\$43.6	\$65.4
	Kelly's Corner Folded Diamond	\$21.8	\$32.7
	System Interchange 118	\$21.8	\$32.7

2.5 Environmental Constraints “Red-Flag” Analysis

This section identifies environmental constraints specific to each of the two interchange area concepts. The intent of this review is to identify any “red flags,” which may represent fatal flaws or the need for further analysis or significant mitigation. The constraints identified in this section are based on review of the information provided in the “Existing Soils, Agriculture, and Natural Resources Narrative” found in Phase I Conditions Report.

Goal 5 Resources

As indicated in the “Existing Soils, Agriculture, and Natural Resources Narrative” (Appendix E of the Conditions Report), there are no Goal 5 resources identified within the vicinity of the *existing* Interchanges 119/120. However, due to the substantial proposed diversion of OR 42 to the south as shown in Modified Concept 11, the new interchange and OR 42 alignment may impact Goal 5 resources in the land south of the existing interchange, which is zoned for farm/forest/grazing use.

Floodplains

The “Existing Soils, Agriculture, and Natural Resources Narrative” report identifies 100-year and 500-year flood zones near Interchanges 119 and 120. The report states that Interchange 119 appears to be

located outside of the floodplain. Neither concept is expected to require special mitigation due to floodplains.

The report identifies a stream with a floodplain constrained by terraces a quarter mile south of the existing Interchange 120. Preliminary analysis indicates that the northbound entrance ramp at the proposed Speedway Road Interchange (Modified Concept 11) may impact this floodplain.

Endangered Species

The “Existing Soils, Agriculture, and Natural Resources Narrative” report contains a list of threatened or endangered species that may occur in the planning area. Threatened species potentially located in the Interchange 119/120 area include the bald eagle, Coho salmon, and Kincaid’s lupine flower. Potential endangered species in the area include the rough popcorn flower. An analysis determining impacts to the species listed in the report will be required for whichever concept is advanced.

Wetlands

The “Existing Soils, Agriculture, and Natural Resources Narrative” report includes National Wetland Inventory (NWI) maps covering the 119 and 120 Interchange Areas. Several wetlands have been identified both east and west of I-5. Review of the maps in the report, along with preliminary analysis of the concepts shows the following potential wetland impacts:

- Modified Concept 11, south end – I-5 Southbound On/Off Ramps to OR 42
- Modified Concept 11, north end – Northbound Entrance Ramp at proposed Speedway Road Interchange

Hazardous Materials

The “Existing Soils, Agriculture, and Natural Resources Narrative” contains an evaluation of potential hazardous materials sites performed through 1) review of computer databases, historical topographical maps, historical photographs, historical Sanborn maps; and 2) a drive-by reconnaissance of the area surrounding the two interchanges. The review found four sites located near Interchange 119; three of the sites are listed on the underground storage tank (UST) and one site is listed on the leaking UST (LUST) databases. These sites are all recognized as environmental concerns.

Each concept features potential improvements to the Interchange 119 area; therefore, on-site environmental assessment work may be required where any right-of-way/easement acquisition or construction activities are anticipated at or near the three UST sites and one LUST site. The four sites of environmental concern include:

- Harrington Petroleum Inc. – 144 M Street
- Love’s Travel Shop #312 – 280 Grant Smith Road
- Texaco Gas Station – 4446 Old Highway 99
- 3 separate companies located at 186 Beaver State Road – Roseburg Paving Company, Teeco Corporation, and Beaver State Ready Mix

For the Interchange 120 area, the Narrative report recognized one facility as an environmental concern based on site reconnaissance: Roseburg Auto Parts and Recyclers located at 220 and 224 Speedway Road. Auto wrecking facilities such as this “commonly spill vehicle fluids (e.g., oil, gas, ethylene, glycol)”, but no additional information regarding this site was found during a DEQ database search (Ibid.).

Cultural and Historic Resources

For the 2005 Conditions Report, a literature review was conducted at the State Historic Preservation Office (SHPO) to identify previously documented sites located near Interchanges 119 and 120. The search found no mapped National Historic Register sites or Douglas County historical sites in the planning area. A surface examination was conducted in July 2003 of both interchange areas. No archaeological sites were identified during these examinations. The existing bridge structures at Interchange 119 (which has since been replaced) and Interchange 120 were found to be ineligible for inclusion in the National Register of Historic Places (NRHP).

Other Impacts

Preliminary analysis indicates that various features of both concepts may have impacts to the community. Potential community impacts are identified in the list that follows.

- Kelly's Corner Interchange

Both of the concepts include grade-separated interchanges at this location. All quadrants of the intersection are zoned commercial and all but the northwest quadrant are built and currently used for commercial purposes, including Green's only grocery store. Beyond the commercial development in the northwest quadrant, there is a residential subdivision and a trailer park. The interchanges of both concepts would impact some homes in this area and would require rerouting of local streets such as Chandler Drive and Rose Garden Lane.

Additionally, accesses to Carnes Road/Roberts Creek Road would be impacted because the grades would need to be raised to achieve sufficient height for the overcrossing structure.

- Modified Concept 11 Interchange 120

Under Modified Concept 11, the trailer park located on Speedway Road between Old Highway 99 and I-5 would be directly impacted by the I-5 southbound entrance and exit ramps of the proposed Speedway Road Interchange. Further investigation will be required to determine if this impact constitutes an environmental justice issue.

- Old Highway 99/Roberts Creek Jug-Handle

The jug-handle interchange proposed at this intersection under Modified Concept 10 would impact industrial and commercial-zoned land, some of which is in use by existing businesses. Additionally, accesses to Old Highway 99/Grant Smith Road would be impacted because the grades would need to be raised to achieve sufficient height for the overcrossing structure.

2.6 Conclusion/summary of analysis

Based on a detailed analysis, both concepts have significant problems. For Modified Concept 10, there is insufficient spacing on OR 42 between the two proposed jug-handle interchanges and the existing Interchange 119 to provide the acceleration lanes that are needed at each jug-handle entrance ramp. For Modified Concept 11, the additional travel time resulting from the proposed realignment of OR 42 exceeds the peak hour delay at each of the at-grade intersections that the alignment proposes to replace.

Additionally, the footprints associated with the new interchanges and roadway alignments of both concepts would have significant community impacts because many impacted areas have existing homes and businesses.

3 Preferred Alternative

As described in the previous section, an alternatives analysis was performed that included an evaluation of geometric layouts, planning-level cost estimates, an environmental “red flag” analysis, and traffic operations analysis of key existing and new intersections. Based on this analysis, both concepts were found to have significant problems and were subsequently dismissed by the TAC.

Based on previous analysis, discussions of the TAC and a review of the Green TSP, a number of recommended improvements were developed that now constitute the Preferred Alternative. The Preferred Alternative contains some components of Modified Concept 10, but the recommended improvements largely consist of targeted improvements to improve capacity, balance lane use, improve geometry and maximize use of the local street network without significant roadway or interchange realignments. The individual projects could be implemented concurrently or in phases. The Preferred Alternative addresses most of the evaluation criteria used to screen the initial alternatives and is consistent with Policy 1G, Action 1G.1 of the OHP. This policy places priority on improving efficiency and capacity of existing highway facilities over adding new facilities to the system. The improvements are described below and the locations are shown graphically on Figure 3-1. Detailed cost estimates for each project element are provided in Appendix B.

1. Interchange 120 Improvements

- Improve the exit ramp geometry. This will be completed as a part of the Shady Bridge construction project, which is currently underway.
- Signalize Interchange 120 ramp terminal intersection. Widen the ramp to accommodate a two-lane approach consisting of one left-turn lane and one shared left/right-turn lane from the exit ramp.

Estimated cost: \$445,000.

- Widen Old Highway 99 from the Interchange 120 ramp terminal to Happy Valley Road to two southbound lanes to accommodate the dual left-turn lanes from the ramp terminal.

Estimated cost: \$2.2 million.

The Transportation Conditions Report noted that ODOT Preliminary Traffic Signal Warrants are met at this location under existing traffic volume conditions. It should be noted that meeting one or more traffic signal warrants does not guarantee that a traffic signal shall be approved by the State Traffic Engineer. A comprehensive engineering investigation will need to be conducted prior to approval and installation of a traffic signal at this location.

The southbound ramp improvements that are to be constructed as part of the Shady Bridge project will increase the exit curve radius from a 15-mph design speed to a 25 mph design speed. A preliminary geometric evaluation of the ramp showed that an additional lane could be added to the ramp without compromising geometric standards. Signalization plus two lanes for left-turning traffic would substantially shorten the queue storage requirements on the exit ramp to approximately 100 feet under 2025 traffic volume conditions. If only 100 feet of queue storage were required, the exit ramp could provide sufficient deceleration distance without a realignment or extension of the ramp beyond what is currently planned. The recommended improvements would represent a substantial improvement to interchange operations and nominal safety.

Signal timing plans that give priority to the southbound exiting movement should be implemented. Additionally, signal controlling features like advanced detection should be considered. Advanced detection could provide additional green time on the ramp terminal approach if queues ever extend beyond the available storage area and into the deceleration area.

Incremental improvements to the Interchange 120 ramp terminals are possible. The first phase could consist of signal installation with little or no modifications to the ramp geometry or lane configurations. As traffic volumes increase, the second phase could consist of signal modifications and widening the ramp and Old Highway 99 to accommodate dual left-turn lanes.

Modified Concept 10, which was dismissed by the TAC, included a realignment of Old Highway 99 to the west to provide additional queue storage on the exit ramp. However, as noted above, if the recommended improvements are constructed the exit ramp could provide adequate deceleration length plus queue storage at the ramp terminal. In addition, an Old Highway 99 realignment would have a large cost due to the property takes and road construction that would be required. Therefore, a realignment of Old Highway 99 is not recommended.

2. Improved Use of New OR 42 Bridge at Interchange 119

Recommendation: Provide two eastbound lanes on the new OR 42 bridge over I-5.

Estimated cost: \$1.4 million

The new OR 42 bridge at Interchange 119 can accommodate two lanes for eastbound OR 42 to northbound I-5. To provide two continuous eastbound lanes on OR 42 between the Old Highway 99/Grant Smith intersection and I-5, restriping and widening of the ramp roadway would be required on both sides of the bridge.

This configuration could reduce or eliminate the eastbound lane imbalance currently found on OR 42 at Old Highway 99/Grant Smith Road by providing significantly more distance for motorists to sort out their preferred lanes. East of the bridge the two lanes would merge into a single lane that then would merge into the northbound I-5 lanes. This improvement could be implemented independently or in combination with the auxiliary lane described in Recommendation #3 below.

3. Northbound I-5 Auxiliary Lane

Recommendation: When warranted by traffic volumes, provide an additional northbound through lane on I-5 beginning at Interchange 119.

A northbound auxiliary lane on I-5 between Interchange 119 and Interchange 120 has been studied a number of times in recent years. Analysis prepared for the 2005 Transportation Conditions Report showed that an auxiliary lane would result in improved operations by eliminating the merge/diverge maneuver for the large number of vehicles that enter from Interchange 119 and exit I-5 at Interchange 120. However, detailed analysis performed in support of this report indicated that a northbound auxiliary lane would need to continue beyond Interchange 120 to provide adequate operations¹. Installation of an

¹ The existing northbound I-5 roadway section between Interchanges 119 and 120 is wide enough to accommodate three northbound lanes with no additional widening. In addition, the Shady Bridges, currently under construction, are located just to the north of Interchange 120 and will be wide enough to accommodate three travel lanes in each direction. Therefore, upon completion of the Shady Bridges, little or no additional road construction would be required for a three-lane northbound section that could extend from Interchange 119 to the north end of the Shady Bridge. A six-lane section may ultimately be needed for the entire segment of I-5 between Interchange 119 and Roseburg, so improvements in this section of I-5 are being planned for this ultimate configuration of I-5.

auxiliary lane that begins at Interchange 119 and ends at Interchange 120 is not recommended, as discussed under Condition B below.

Analysis was performed under year 2025 traffic volumes according to the methodology described in the ODOT TPAU Analysis Procedures Manual for four conditions. Each condition, plus the analysis results, are shown in Figure 3-2 and are described below.

- Condition A shows the existing configuration with a single northbound entrance ramp at Interchange 119 and an exit ramp at Interchange 120. Using year 2025 traffic volumes, the merge is calculated to operate at an acceptable v/c ratio of 0.68.
- Condition B shows an auxiliary lane between the two interchanges. The lane begins at Interchange 119 and ends at Interchange 120. Analysis shows that the weaving section would operate at an acceptable v/c ratio of 0.54 under 2025 traffic conditions. However, two other analysis results indicate that this configuration would not provide safe operations. First, the Highway Capacity Manual (HCM) advises against auxiliary lanes when the weave ratio, or the ratio of weaving vehicles to total vehicles, is greater than 0.45. The calculated weave ratio under condition B is 0.43, which is just below the threshold. Second, the calculated speeds for weaving and non-weaving vehicles are 40.3 mph and 61.5 mph, respectively. The large speed differential of more than 20 mph represents a potentially unsafe situation. This condition is not recommended.
- Condition C is identical to Condition B except that the northbound lane continues beyond Interchange 120. For the large volume of vehicles entering northbound I-5 at Interchange 119, no merge or lane change would be required. This configuration results in a calculated 2025 v/c ratio of 0.52, a weave ratio of 0.05, and a speed differential between weaving and non-weaving vehicles of about six miles per hour. The low weave ratio and calculated speed differential mean that Condition C could be expected to provide safe and efficient operations.
- Condition D, like Condition C, provides an additional northbound lane that continues beyond Interchange 120. However, the lane begins at a point to the south of the northbound Interchange 119 entrance ramp. This condition retains the existing merge and diverge configuration with a three-lane section, and results in an acceptable calculated merge v/c ratio of 0.53 under year 2025 traffic conditions.

As noted above, Condition A, or an I-5 no-build condition, is expected to operate adequately under year 2025 traffic conditions. Condition B, or a true auxiliary lane between the two interchanges, would not provide safe operations and is not recommended. A northbound auxiliary lane should only be constructed when a third northbound lane to the north of Interchange 120 is also provided. A cost estimate is not provided due to the undefined extent of a potential future I-5 widening project.

4. Kelly's Corner (OR 42 at Carnes Road/Roberts Creek Road)

Recommendation: Construct dual left-turn lanes on the southbound, eastbound and westbound approaches.

Estimated cost: \$2.9 million

Providing dual eastbound and westbound left-turn lanes on OR 42 in addition to dual southbound left-turn lanes on Carnes would reduce the intersection v/c to 0.87 under 2025 conditions and all movement v/c ratios will be less than 1.00. Note that dual left-turn lanes on OR 42 would require roadway widening to accommodate two receiving lanes on both Carnes Road and Roberts Creek Road. The widened sections would need to extend for at least several hundred feet beyond the intersection to decrease the likelihood of lane imbalance in the dual left-turn lanes.

This recommendation is based on the assumption that no improvements will be made to the local street network, as recommended in Item #5 below. It is likely that construction of a more robust, interconnected local street network would reduce traffic volumes at the intersection thereby increasing its lifespan and reducing the need for intersection improvements.

5. Improvements to the Local Street Network

Recommendation: Complete collector/arterial street network as specified in the Green TSP.

Because much of the anticipated residential growth in the Green area is expected to occur on the north side of OR 42 in the vicinity of Rolling Hills Road, measures to direct more trips to Rolling Hills Road may divert existing and future trips from the intersection of OR 42 with Carnes Road/Roberts Creek Road, thereby improving operations and extending its life.

The TSP identifies several east-west minor collector routes between Carnes Road and Rolling Hills Road, many of which are not yet complete. Additionally, the TSP identifies Rolling Hills Road as minor collector, for the entire section between Happy Valley Road and OR 42. The roadway is not yet complete but is anticipated to be within two to five years.

A project to install a traffic signal at the intersection of Rolling Hills Road and OR 42 is identified in the draft 2011 STIP (KN 15006). In addition to the signal, the modernization project will close the Jackie Lane/Melody Lane approach and a private church approach to OR 42. The traffic from the closed approaches will be rerouted to the signalized Rolling Hills Road intersection. The project summary report states that the project has been in plans for many years. It is included in the Green TSP, Douglas County TSP and the OR 42 Corridor Plan. The purpose for the project is to improve operations on OR 42 and improve local circulation in Green. The project prospectus is provided in Appendix C

An analysis was performed using a travel demand model run provided by TPAU to evaluate the impacts of a better-connected local street system on the intersection of OR 42 with Carnes Road/Roberts Creek Road. Model links were modified to reflect the following: 1) an unbroken roadway connection between OR 42 and Happy Valley Road (Rolling Hills Road); 2) a continuous east-west connection between Carnes Road and Rolling Hills Road (representing a composite of planned east-west minor collectors); and 3) a traffic signal at the intersection of Rolling Hills Road and OR 42. The results of the model run showed a reduction of total entering volumes at the intersection of OR 42/Carnes Road/Roberts Creek Road of about 6%. Additionally, the model showed a reduction of greater than 12% on the eastbound approach. The results suggest that improvements to the local street system consistent with those identified in the TSP would improve operations at the intersection.

6. Speedway Road Improvements

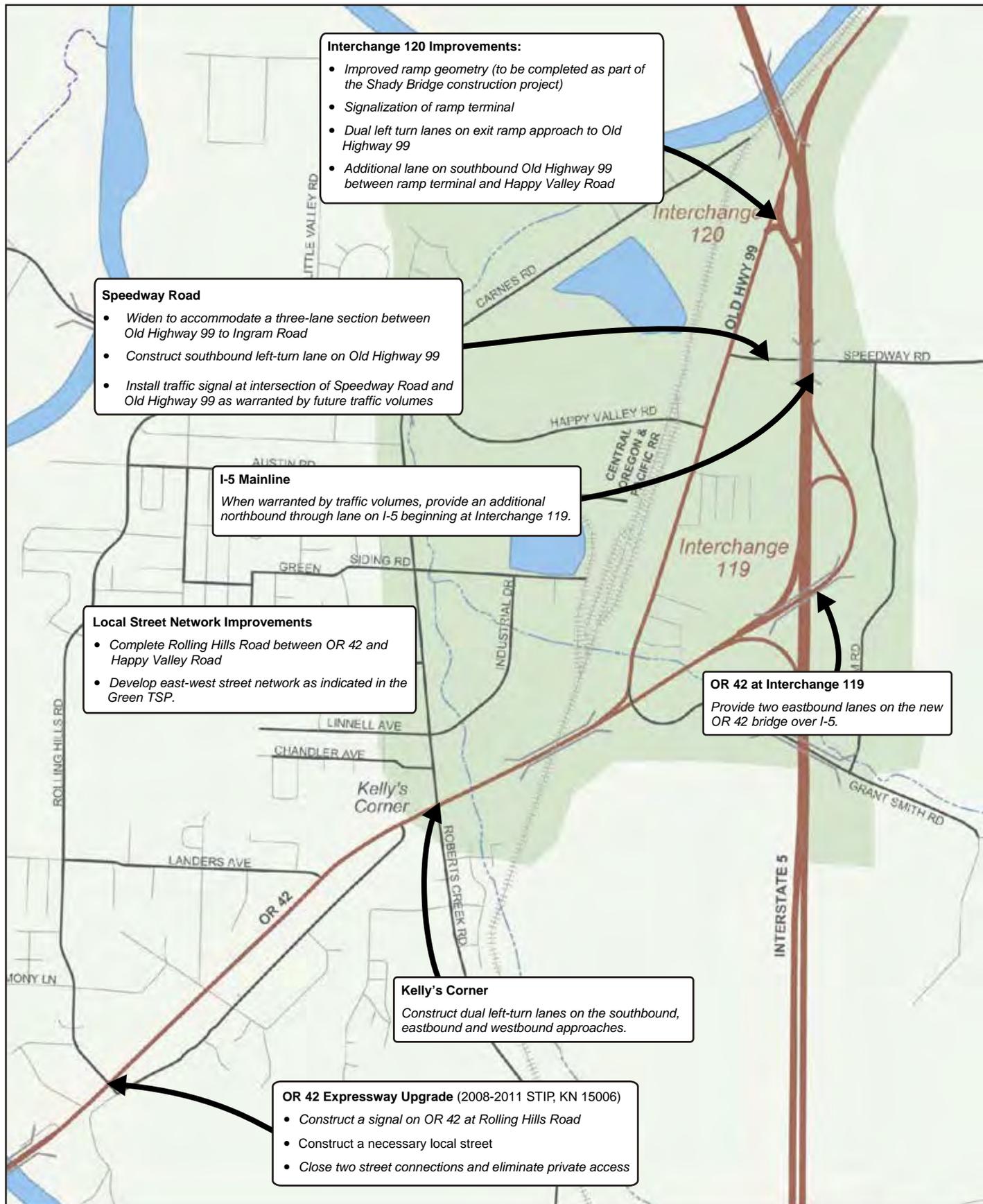
Recommendations: Widen Speedway Road to accommodate a three-lane section between Old Highway 99 and Ingram Road, construct southbound left-turn lane on Old Highway 99 and consider future signalization if traffic volumes cause signal warrants to be met.

Estimated cost: \$900,000 (does not include possible bridge modification/replacement)

A widening of Speedway Road between Happy Valley Road and Ingram Road, combined with improved vertical clearance through the I-5 underpass would enhance freight access to industrial areas adjacent to Ingram Road. An improved Speedway Road would provide a desirable alternative to Grant Smith Road and would allow traffic to avoid the intersection of OR 42 at Old Highway 99/Grant Smith Road. Analysis based upon the original employment assumptions for the industrial areas adjacent to Ingram Road indicated that projected traffic volumes are not expected to be high enough to warrant a traffic signal at the intersection of Speedway Road and Old Highway 99. The traffic volumes on

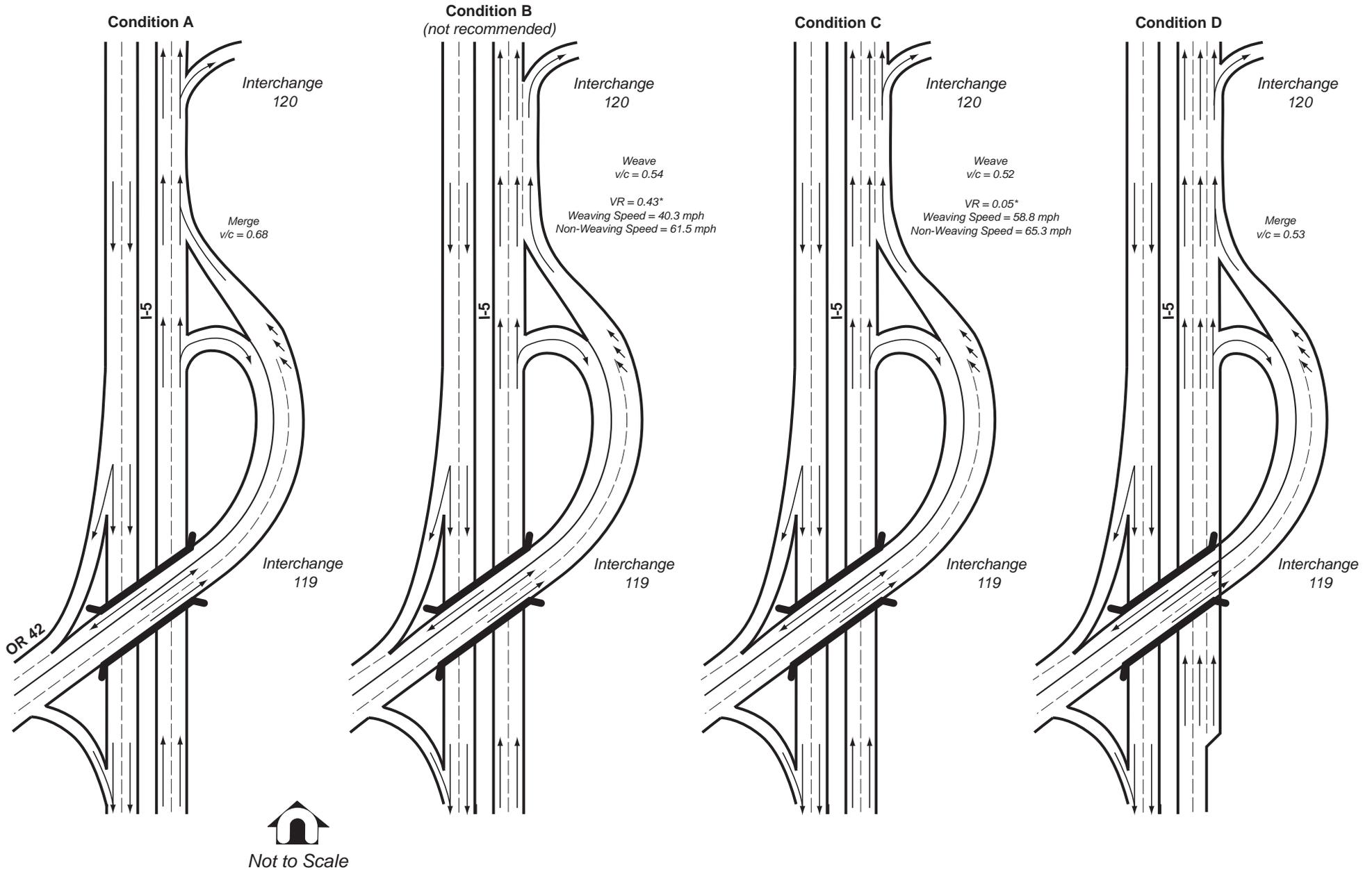
Speedway Road are highly dependent on the developments along Ingram Road. Depending on the type of development and size, one or more large employment centers along Ingram Road could cause signal warrants to be met. Thus, the potential for signalization of the intersection of Speedway Road and Old Highway 99 should be retained.

Speedway Road lies outside of the Division 51 access spacing standard (1320-foot access spacing from the Interchange 120 ramp terminals) and is not subject to Division 51. However, queues from a potential future signalized intersection may spill into the interchange influence area. A future signal at the Speedway/Old Highway 99 intersection should be coordinated with the signals at OR 42, Happy Valley Road and the Interchange 120 ramp terminals to enhance efficiency and safety along the corridor.



IAMP Management Area

Figure 3-1
I-5 Interchanges 119 and 120 IAMP
Preferred Alternative Improvements



* VR = Weave Ratio, or ratio of weaving vehicles to total vehicles

Figure 3-2
I-5 Interchanges 119 and 120 IAMP
Interchange Lane Configuration Options

3.1 Consistency with Evaluation Criteria

Section 2 of this report presented evaluation criteria that were used to screen the initial alternatives. Each criterion is listed below accompanied by a short discussion on the consistency, or lack thereof, for the Preferred Alternative.

Transportation Operations

Criterion: Solves the queuing problem on the I-5 southbound exit ramp at Interchange 120.

Signalization of the ramp terminals plus dual left turn lanes would provide a significant improvement to operations and safety at this intersection. Analysis shows a significant decrease in queuing under signalization. Realignment of the exit ramp would eliminate the tight 15 mph radius curve and replace it with a standard 25 mph curve.

Criterion: Eliminates the need to merge/diverge on northbound I-5 between the interchanges.

An auxiliary lane would eliminate the merge maneuver for the northbound movement between Interchange 119 and 120. There is currently sufficient pavement width to accommodate an auxiliary lane between Interchange 119 and Interchange 120. However, an auxiliary lane should only be provided if it extends at beyond Interchange 120. At a minimum, the auxiliary lane should continue over the new northbound Shady Bridge, which is currently under construction.

Criterion: Reduces the lane imbalance caused by the close proximity of Interchange 119 to OR 42/Old Highway 99 South/Grant Smith Rd intersection.

Providing two eastbound lanes across the OR 42 bridge over I-5, as shown in Figure 3-2, would reduce or eliminate the lane imbalance by allowing motorists more time to merge prior to entering the mainline. Some pavement widening would be necessary on either end of the bridge.

Criterion: Improves operations of the intersection of OR 42 and Carnes Rd/Roberts Creek Rd.

Provision of dual left-turn lanes for the southbound, eastbound and westbound approaches would provide sufficient capacity to accommodate projected future traffic volumes. A more robust, interconnected local street network, including completion of Rolling Hills Road and a new signalized intersection at OR 42 and Rolling Hills Road, may reduce traffic demand at the Kelly's Corner intersection.

Criterion: Improves operations of the intersection of OR 42 and Old Highway 99/Grant Smith Road.

The primary operational problem at this intersection is related to the lane imbalance on the eastbound approach, which effectively reduces capacity and results in long queuing and delays. Therefore, as noted above, providing two eastbound lanes on the OR 42 bridge over I-5 would reduce or eliminate the lane imbalance and improve operations at this intersection.

Geometry

Criterion: Addresses all geometric deficiencies identified in the Interchanges 119/120 Transportation Conditions Report.

Many of the alternatives consisted of extensive interchange modifications or realignments and would likely address most or all of the geometric deficiencies. Most of the identified deficiencies are related to substandard acceleration and deceleration lengths on entrance and exit ramps. The Preferred Alternative proposes little to no modification to the geometry of the interchanges and therefore only addresses the major geometric deficiencies that compromise nominal safety or traffic operations, such as those found

at Interchange 120. However, the improvements specified in the Preferred Alternative would not preclude future projects that to improve sub-standard features.

Criterion: Bring interchange spacing up to standard between Interchanges 119 and 120.

The Preferred Alternative does not propose any interchange relocation or closure. Therefore the existing spacing will not change and this criterion is not met.

Accessibility

Criterion: Maintains or improves access to the Green area west of I-5.

The safety and operational improvements to the Interchange 120 ramp terminal will improve access to the Green area by reducing queuing and delays for traffic exiting I-5 at the interchange.

Criterion: Maintains or improves access to the industrial area east of I-5 along Ingram Drive.

The Preferred Alternative recommends upgrades to Speedway Road, including improved vertical and horizontal clearances, which will enhance truck access to the Ingram Road industrial area.

Criterion: Retains system interchange.

The Preferred Alternative would retain the free-flow movements between OR 42 and I-5.

Criterion: Maintains or improves access to Winston via OR 42.

The Preferred Alternative includes (1) capacity improvements at the Kelly's Corner intersection, which would improve operations and efficiency on the OR 42 expressway, and (2) improvements to the local street network, which would help direct local trips onto the local street network rather than onto OR 42.

Cost

Criterion: Provides appropriate cost and implementation strategies.

The estimated cost for the Preferred Alternative is substantially lower than any of the original concepts and is more aligned with the mobility and access needs within the planning area and the region.

Land Use

Criterion: Minimizes right-of-way impacts.

Implementation of the Preferred Alternative would require much less right of way than any of the dismissed alternatives. However, some right of way acquisition would be necessary. Preferred Alternative components that may have potential right of way impacts are listed below:

- Widening of Old Highway 99 between the Interchange 120 ramp terminals and Happy Valley Road.
- Widening of Speedway Road.
- Kelly's Corner intersection improvements

Environmental/Social Impacts

Criterion: Minimizes environmental impacts

Because the Preferred Alternative roadway alignments largely lie within existing right of way, the environmental impacts will be minimal.

Social Impacts

Criterion: Minimize significant social impacts (displacements of residences or businesses)

As with the right of way impacts listed above, components of the Preferred Alternative that may impact some businesses or residences include the widening of Old Highway 99, Kelly's Corner intersection improvements and widening of Speedway Road. It should be noted that the impacts associated with the Preferred Alternative are far less than any of the dismissed alternatives.

3.2 Consistency with 1999 Oregon Highway Plan

The Preferred Alternative is consistent with Policy 1G of the 1999 Oregon Highway Plan, which states, "It is the policy of the State of Oregon to maintain highway performance and improve safety by improving system efficiency and management before adding capacity." Action 1G.1 further outlines a hierarchy of priorities for addressing highway needs:

1. Protect the existing system.
2. Improve efficiency and capacity of existing highway facilities.
3. Add capacity to the existing system.
4. Add new facilities to the system.

Action 1G.1 states:

Implement higher priority measures first unless a lower priority measure is clearly more cost-effective or unless It clearly better supports safety, growth management, or other livability and economic viability considerations. Plans must document the findings which support using lower priority measures before higher priority measures.

Statewide policy places the highest priority on protecting the existing system. Section 4 of this IAMP describes various potential management actions that could be used to protect the future function of the planning area facilities. Potential management actions include many of the operational, safety and capacity improvements recommended as part of the Preferred Alternative. Other management actions include transportation system management actions, such as traffic control, lane striping and signing; transportation demand management actions, such as transit services and multi-modal facilities; and other land use strategies such as zone changes, density controls or trip budget/allocation ordinances.

Most of the dismissed alternatives consisted of new facilities, which are the lowest priority measures under OHP policy. The Preferred Alternative addresses many of the area needs while largely retaining the existing system. The Preferred Alternative does this through targeted, cost-effective capacity and safety improvements.

4 Management Actions

Management actions, as applied to Interchange Area Management Plans (IAMPs) are intended to preserve the capacity of an interchange for as long as possible. The toolkit of potential management actions includes four overarching strategies:

- **Local System Improvements** that enhance the local street network to disperse trips and reduce congestion near an interchange;
- **Transportation Demand Management Actions** that provide travel options to reduce the number of trips or vehicles on the road;
- **Transportation System Management Actions** that improve system efficiency and reduce delays;
- **Land Use and Development Actions** that guide land use development to result in fewer trips in the interchange area.

Many management actions are most applicable in when applied throughout a region or in a large urban area. A positive impact may be produced by some even if applied only in the unincorporated area of Green. The management tools with potential to preserve capacity at Interchanges 119 and 120 are described below. The discussion includes a brief description, a qualitative assessment of applicability and potential benefits, a summary of the issues that would be required to implement them, and a qualitative assessment of potential adverse impacts.

4.1 Benefits of Management Actions at Interchanges 119 and 120

Management actions have the potential of reducing the number of trips at the interchange area and, in effect, slowing the growth of traffic. As a result, management actions can extend the life of the interchanges and provide for incremental implementation of the Preferred Alternative, allowing individual components to be funded and built when needed. Given the funding constraints and statewide demand for interchange improvements, it could take several years to develop a funding package and construct improvements that constitute the Preferred Alternative.

4.2 Local System Improvements

Local system improvements relate to enhancing the effectiveness of the local street network to provide circulation and access for the community near the interchange without relying solely on the interchange or its approach roadways.

Enhancing the Local Street Network

Currently, the roadway network in Green is insufficient to support the current and future development provided for in the Comprehensive Plan. The TSP includes recommendations for the completion and development of additional east-west and north-south roadways. As development occurs, some of these roads are being completed. New roads and connections identified in the TSP are needed to accommodate future growth in Green.

Access Management

Access management is a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways. Access management strategies are designed to extend the operational life of highways and interchanges by reducing congestion, improving improve traffic flow, reducing crashes, and reducing conflicting vehicle movements. Access management techniques include:

Access Spacing

By increasing the distance between traffic signals, flow of traffic on major arterials can be improved. This also reduces congestion and improves air quality for heavily traveled corridors.

Driveway Spacing

Fewer driveways spaced further apart could allow for more orderly merging of traffic and present fewer challenges to motorists.

Turning Lanes

Dedicated left- and right-turn lanes, and indirect left-turns and U-turns could be considered to keep through-traffic flowing.

Median Treatments

Two-way left-turn lanes and non-traversable, raised medians are examples of some of the most effective means to regulate access and reduce accidents.

Applicable Strategies, Benefits, and Implementation Issues

Local system improvements are critical to providing access to property and sufficient capacity for development to occur. Currently, the local street system is disconnected and incomplete, resulting in fewer roads carrying a significant amount of the traffic. Once additional roads and connections are in place, the operations at the existing facilities will improve. As the roadway network is developed to support property development, access management measures should be considered because of their ability to reduce conflicts on roads. For example, there may be opportunities to create shared driveways and shared parking for adjacent businesses. These seemingly small measures can have a dramatic impact on congestion within a corridor.

The access management recommendations for the Interchange 120 area detailed in Section 5 of this report are expected to be sufficient, and further access management measures are not needed. The actions near the interchange consist primarily of the development of a local street network to provide alternative access to parcels that currently obtain direct access to Old Highway 99.

4.3 Transportation Demand Management Strategies

Transportation Demand Management (TDM) strategies are designed to reduce vehicle demand, especially for commute trips in the peak periods. Typically, TDM strategies include provision of services or facilities intended to shift travelers to different modes, to non-peak times, or by trip elimination choices, such as telecommuting. TDM strategies are most effective in areas with high concentrations of employment and where a robust transit system exists. Generally, the strategies are easiest to implement where there are large employers or where a transportation management association (TMA) has been established to pool the efforts of many smaller employers.

TDM Strategies that Shift Modes

The following strategies are designed to offer choices and encourage people to commute in a way other than driving alone, resulting in fewer vehicles on the road during the peak periods.

Carpool Programs

This strategy encourages and supports commuters to share the ride with other commuters who live and work in the same general area. Carpools may receive preferential parking, or incentives such as a small

stipend, reduced parking rate or coupons. Carpools enjoy the benefit of a reduced commute cost because the price of gasoline and parking is typically shared.

Vanpool Programs

This strategy involves providing vans for groups to use for commuting. These can be employer sponsored vans, private vans, or agency sponsored vans. Vanpools can be arranged for large employers, or for locations where several employers are located in close proximity.

Transit

Transit can be a cost saving and stress-reducing alternative to commuting by personal automobile. For transit to be a reliable alternative to personal automobiles, transit service should be offered approximately every 30 minutes and extend beyond the peak periods. Transit commuters need to have confidence that they will be able to get home if they need to leave work early or stay late.

Bicycling

Many people choose to commute by bicycle for health, stress-reduction, and environmental reasons. The provision of safe and convenient bicycle facilities have long been recognized as one of the key prerequisites for increased bicycling for transportation purposes. Conversely, the absence of good, safe bicycle facilities discourages all but the most dedicated cyclists from using this mode for transportation. In addition, the provision of showers, clothing storage, and safe, secure bicycle parking is important.

Walking

When people live close to work, they may have the option to walk. Some do so for health, stress reduction, and for the connection they feel with their community when they do so. Most transit riders are also walkers for some portion of their commute. Safe walking facilities such as sidewalks and separated paths are important features to incorporate in projects to encourage walking.

TDM Strategies that Shift Trips to Non-Peak Periods

Employers can have a significant impact on reducing peak hour trips by reducing the number of employees who are expected to arrive during the morning peak (approximately 7 am to 9 am) and depart during the evening peak (approximately 4 pm to 6 pm). Methods to reduce peak hour arrivals and departures include offering flexible work schedules, and shifting work schedules.

Flexible Work Schedules

An example of a flexible work schedule might require employees to be present during core hours of 9:30 to 3:30, and allowing arrivals and departures around that time while maintaining an 8 hour work day. Another example involves working fewer days per week, such as working 4-10s (four ten-hour days), with one day off.

Off-Peak Shifts

An example of an off-peak shift might be having a work day start at 6 am and end at 2 pm. Another shift might start at 2 pm and end at 10 pm. This is a common practice in industry because it allows for multiple shifts in a 24-hour period.

TDM Strategy that Eliminates Trips

Telecommuting

This strategy allows employees to work from home for some portion of or all of their work. Telecommuting is gaining popularity and acceptance and is available to more professions as a result of

improvements in technology. Various office functions including technical support, call center operations, and order processing are increasingly being conducted using telecommuting and dispersed workers. Employers who offer telecommuting are able to market it as a benefit, and telecommuting often results in cost savings to the employer because of reduced office space and equipment requirements.

Applicable Strategies, Benefits, and Implementation Issues

According to the Douglas County Comprehensive Plan, a significant portion of the undeveloped land in Green is reserved for industrial use. The availability of large parcels could make the area attractive to a few large employers or a collection of industrial employers of varying sizes. TDM strategies that have proven successful with this type of land use include carpool and vanpool, transit (if the transit frequency and routing is increased), flexible work schedules, and telecommuting. Because of the nearby residential areas, bicycle riding and walking may also be reasonable commute options.

Implementing TDM strategies is most successful when there are incentives and when making the switch to a non-personal-auto mode of travel is relatively simple. Establishment of a Transportation Management Association (TMA) for the Green industrial area may be useful because a TMA typically takes on the responsibility of promoting TDM programs, organizing carpool and vanpool programs, obtaining grants, distributing incentives, and working with transit agencies to provide additional transit service and/or reduced cost transit passes.

Green residents who work in Roseburg might benefit from TDM programs instituted in Roseburg designed to affect commute trips. This might result in a modest reduction of trips using the interchanges. Green could partner with Roseburg on TDM strategies, or participate in a TMA that seeks to reduce commute trips to and from Roseburg.

Transit service, provided by Umpqua Transit, is infrequent during the day, providing five (5) commute trips during the AM and PM peak periods, and one mid-day trip. In order for transit service to be attractive and used effectively as a TDM measure, transit service must be frequent enough during the day to provide commuters confidence that they can adjust to varying needs throughout the day, such as getting home if a bus is missed, or getting home to a sick child. As Green grows and becomes more congested, and as Umpqua Transit funding becomes more stable, an increase transit service – either in frequency or route distribution – may be justified in Green.

4.4 Transportation System Management Strategies

Transportation System Management (TSM) strategies are designed to make maximum use of existing transportation facilities, and include:

- Traffic engineering measures that improve the operations and efficiency of streets and intersections
- System monitoring and traveler information systems (e.g., ITS systems, variable message signs, etc.),
- Facility management systems (e.g., ramp meters, special use lanes, signal priority for special users such as transit), and
- Incident management systems (e.g., incident response and recovery teams).

These strategies are described below.

Traffic Engineering Measures

Traffic engineering measures such as signal timing changes, provision of turn lanes, turn restrictions, and restricting on-street parking to increase the number of travel lanes without road widening are included in this category. These traffic engineering measures are routinely included as part of the traffic analyses used in conjunction with the design process for intersection and roadway projects. Optimizing traffic signal operations, for example, is performed by the traffic engineer before specifying the number of lanes and queue storage requirements for the intersection design.

Such measures must consider all movements at an intersection, including side street traffic, main street traffic, transit, bicycles, and pedestrians. Competing priorities can arise between modes and directions of traffic and both county and state policy and objectives must be considered when setting priorities. For example, additional turn lanes may reduce delay at intersections for automobiles, but increase the crossing distance for pedestrians, making their crossing less safe. Or, turn movement restrictions may increase throughput on a roadway, but reduce access to business. Decisions regarding access restrictions especially require involvement and input from the community.

System Monitoring and Traveler Information Systems

System monitoring employs Intelligent Transportation Systems (ITS) technologies that enable jurisdictions to monitor traffic, respond to traffic crashes and vehicle breakdowns more quickly, and communicate with the motoring public in real time. System monitoring requires deployment of infrastructure like a Traffic Operations Center (TOC) with video and closed circuit TV, and surveillance cameras, detection cameras and traffic sensors on highways to improve the capability of agencies to keep track of the transportation system on a real time basis. This system monitoring capability allows the operators in a TOC to dynamically adjust signal timing, dispatch emergency vehicles, and provide information to the motorists.

The real time traffic information can be shared with travelers in a variety of ways, by variable message signs, highway advisory radio, 5-1-1 Traveler Phone Information, web sites, and specialized warning systems (such as fog warnings), to let them make their own decisions about when to drive and what route to choose.

Facility Management Systems

Various system elements can be used to improve the performance the street and highway system or provide operational advantages for specific users. Facility management systems are tied into the system

monitoring and traveler information systems discussed above and can be used to benefit users of alternative modes of transportation and TDM programs discussed in the previous section of this memorandum.

Ramp Meters

Ramp meters, which are used on the on-ramps to freeways and other limited access highways, can be used for two different purposes. First, ramp meters can discourage motorists from using freeways to bypass congestion on local roads. Second, when traffic demand is high, ramp metering can adjust the metering rate such that the density on the freeway remains below the critical value, thereby increasing flow or preventing traffic breakdown of the freeway mainline. Its benefits can be reaped when the traffic flows are neither too light (in which case metering is not needed) nor too high (in which breakdown will happen anyway). Ramp meters increase travel times and meter the rate of flow entering the highway. In its simplest application, ramp meters set minimum intervals between vehicles entering the freeway from the ramp with a fixed time signal.

Preferential lanes

This strategy involves the reservation of a travel lane for a preferred group such as high occupancy vehicles and transit. This strategy is often used at ramp meter locations, allowing transit to bypass waiting vehicles and providing travel time savings and reliability for transit.

Traffic Signal Priority

This strategy is used primarily for transit in regions that experience significant congestion and delay at intersections. In general, the strategy allows transit to receive a green light for a few seconds before other vehicles so that it can advance ahead of a queue, or it can hold a light green for a few seconds longer to allow a bus to get through a signal before it turns red.

Applicable Strategies, Benefits, and Implementation Issues

Traffic system management strategies, including optimization of traffic signal timing, are routinely practiced by ODOT for facilities under its jurisdiction. It was assumed in the analyses performed for the IAMP that the signals in the OR 42 and Old Highway 99 corridors would be interconnected and the signal timing would be coordinated to optimize traffic operations. This includes the new signals at the Interchange 120 ramp terminal with Old Highway 99, and at the intersection of OR 42 and Rolling Hills Road. These improvements are described in more detail in Section 3 of this report. In the future, as new corridor and signals are implemented, Douglas County could consider interconnecting new signals with existing signals and coordinating signal timing with the state for enhanced operations.

System monitoring and facility monitoring systems are expensive and are typically employed in large, congested metro areas where freeways and major arterial roads offer a variety of routes for motorists. When one route is congested due to an incident or event, motorists receive information and can make choices about other routes. This is not the case at Interchanges 119 and 120. Implementation of an ITS system for Green is not appropriate in isolation, but might be considered as part of a system for the greater Roseburg area.

Facility monitoring strategies, such as ramp meters, preferential lanes, and signal priority, are not likely to be needed at Interchanges 119 and 120. Freeway congestion is not expected to be a concern at these interchanges in 2025. If I-5 should become congested in the future, metering of interchange ramp terminals throughout the Roseburg area might include those in Green. Depending on transit volumes and ramp congestion resulting from metering, bypass lanes may be appropriate.

4.5 Land Use and Development Actions

Several potential land use and development actions are available with potential for directly or indirectly influencing the transportation impacts of future development. Some potential actions include:

- Using trip allocations or trip budgets (a trip budget has been considered by Douglas County but rejected at this time) to directly manage traffic impacts of developments;
- Retaining the current Comprehensive Plan designations and land use zoning
- Modifying the land use zoning to retain trips in Green

Retain Current Comprehensive Plan Designations and Land Use Zoning

This strategy would confirm that Douglas County would commit to the current Comprehensive Plan and zoning for the Green area. The Douglas County Comprehensive Plan provides for significant industrial development in Green. Currently, there is vacant and underutilized industrial land, with residential development being the most active at this time. The Comprehensive Plan also provides for freeway oriented commercial development.

Transportation modeling draws guidance from comprehensive plans, but requires making assumptions about the type, intensity and location of development that can occur within each zone. Trip generation modeling was performed by TPAU for Green assuming two different scenarios – in the first, the growth was confined to only one zone; in the second, the growth was dispersed among several zones. In reality, land use development and intensities will occur in a way that is unique from these scenarios, but the scenarios provide examples for evaluation. In both scenarios, under the Preferred Alternative, some of the intersections along Old Highway 99 and OR 42 are expected to exceed HDM mobility standards by 2025, and some will exceed capacity.

Changes to the current land use zoning could dramatically affect the number of trips generated by the land use, trip patterns, and traffic volumes at intersections and interchanges.

Modifying Land Use to Retain Trips in Green

As part of this project, modeling was performed that replaced industrial land use with commercial land use near Interchange 120. The model estimated 200 retail employees and 200 service employees, a medium size development. The objective of this effort was to evaluate whether trips originating in Green with a commercial purpose were using the interchange to go to Roseburg, and if including commercial development in Green would reduce the need for those trips to use the interchange. The analysis showed that trips were not reduced at the interchange, but trips were redistributed in Green. This suggested that a similar commercial development would not have a significant impact on reducing interchange trips.

Applicable Strategies, Benefits, and Implementation Issues

Trip Budgets

Although considered but later dropped as a management action, implementing a trip budget program for the entirety of Green could be a specific solution that would help protect the function of the interchanges and keep intersections operating at an acceptable level of service. By limiting the total traffic in Green to the quantity assumed in the TSP, the community could be reasonably assured that the improvements associated with the Preferred Alternative would operate well for a period of at least 20 years.

Implementing a trip budget program could also be tied to various intermediate phases of the interchange and other infrastructure improvements. Under this approach, transportation improvements would be tied with the development necessitating them.

Implementation of trip budgets is typically controversial and viewed as anti-development. However, as proposed here, the objective is to simply ensure that transportation infrastructure keeps pace with and supports development, which in turn supports the useful life of the interchange. A trip budget was considered but rejected by Douglas County.

Retain Current Comprehensive Plan Designations and Zoning

This management action is essentially a reaffirmation by Douglas County that the Comprehensive Plan and TSP remain valid or, if changes are needed, the Transportation Planning Rule (TPR) requirements will be met. The TPR provides specifications on what must be addressed by agencies when seeking a comprehensive plan amendment or rezoning.

4.6 Recommended Management Measures

Under the land use and trip generation associated with the TSP, several of the intersections in the Preferred Alternative for Interchanges 119 and 120 will fail to meet ODOT operational standards for the year 2025. Additionally, the intensity, timing and location of actual development may result in more congestion than is estimated by the TSP. Therefore, several measures are recommended that will bolster the surrounding transportation system and aid in supporting additional traffic and travel patterns in the area to maintain and preserve the capacity of the interchange and key area intersections.

This section presents a brief summary of the strategies that are recommended. A broader description of each strategy is provided in the previous section.

1. Implement the **Access Management Strategy for Interchanges 119 and 120**, summarized in Section 5 of this report;
2. Apply **Transportation System Management** strategies when implementing traffic signal system, including signal interconnect, coordination, and optimization.
3. Enhance the local street network as described in the TSP.
4. Implement **Transportation Demand Management** strategies in cooperation with the City of Roseburg.
5. Consider inclusion of interchanges 119 and 120 if **Roseburg ITS/ATMS or ramp metering** system is employed.

4.7 Candidate Measure for Possible Future Implementation

After careful consideration, Douglas County rejected a trip budget overlay zone. As noted in Section 7.1, future investments by the State to increase capacity or improve operations to Interchange 120 will require the County to adopt local policies and/or ordinances that limit land use consistent with the trip generation assumptions in the IAMP.

Although Douglas County is not adopting a trip budget overlay zone, the rationale and approach ODOT believes support this type of management measure are contained in Appendix E. Appendix E contains information on potential overlay district adoption and identifies possible code amendments, because implementing an overlay district would involve amending the Douglas County Code.

5 Access Management Plan

Section 3 of this IAMP presents the Preferred Alternative for Interchanges 119/120, which consists of targeted improvements to capacity, lane use, geometry and the local street network without significant roadway or interchange alignments. Currently, the Preferred Alternative is a concept, therefore design details may change. An integral part of the IAMP process is providing a strategy and plan to protect the function of the interchange and its influence area.

This access management plan (AMP) addresses only the Interchange 120 area and contains no access management recommendations for OR 42 in the vicinity of Interchange 119. The nearest approach to the Interchange 119 ramp terminals along OR 42 is the Old Highway 99/Grant Smith Road intersection. This intersection is approximately one quarter-mile from the ramp terminals, which is equivalent to the access management spacing standard. Access management along OR 42 will be addressed in future expressway planning.

One of the goals of the IAMP is to develop an access management plan that helps preserve the functionality of the interchange, protecting its ability to accommodate traffic volumes safely and efficiently into the future. Access to the roads connecting to the interstate system is vital to the adjacent property owners who need access for their businesses and residences. However, it has also been shown that a proliferation of driveways and minor street intersections near a ramp terminal can drastically increase conflicts, causing operational problems, reducing the capacity of the intersections, and generally degrading service for all system users.

A comprehensive access management plan will help to maintain easy access for properties by improving traffic circulation, mobility, and freeway access, thereby protecting these properties' locational advantage. In addition, access management actions in this plan do not prevent the properties from being used or developed to be used in a manner consistent with their adopted comprehensive planning designations. Properties designated for a certain type of use will still have adequate access to be developed for that purpose.

The recommendations for access management actions in this plan are based on current property ownership and existing property boundaries and access points. Should the property boundaries change in the future due to consolidation, land use changes, redevelopment or specific design decisions related to roadway improvement projects, the access management plan may need to be modified. Where modifications are necessary, they must move in the direction of the adopted access management spacing standards in OAR 734-051 (Division 51): Highway Approaches, Access Control, Spacing Standards and Medians². A future land partition or subdivision is not sufficient justification to create an additional access point beyond what is currently allowed or is provided for in this plan.

The Division 51 access spacing standard along Old Highway 99 in the Interchange 120 area is a distance equal to one quarter mile (1320 feet) from the Interchange 120 ramp terminals measured on the crossroad away from the mainline. This region, which also includes the segment of Old Highway 99 located between the northbound and southbound ramp terminals, is referred to as the interchange influence area. Within the interchange influence area ODOT has final authority to implement an access management plan, though Douglas County may be consulted about such changes. The actions listed in

² A complete copy of Division 51 can be found online at:
http://www.oregon.gov/ODOT/HWY/ACCESSMGT/docs/DIVISION_51.pdf

this plan shall not prevent the reconstruction of approaches as necessary to meet County or ODOT standards.

The implementation of the access management plan will occur over a long period of time. To provide a timeline for the plan, actions are categorized into short-, medium-, and long-term. The timeline is not absolute or indicative of a specific sequence of the actions, but can be thought of in these terms:

Short-term actions are associated with an access management strategy. In contrast to an access management plan, a strategy is developed and implemented in association with an interchange or roadway improvement project. Because no interchange project is currently planned, this IAMP does not present short-term actions. The access management strategy shall be consistent with the findings and recommendations of the access management plan.

Medium-term actions are provided in the access management plan and are likely to occur in association with either 1) a future interchange improvement project, or 2) development or redevelopment of parcels prior to an interchange improvement project. When an improvement project is planned, medium-term actions in this access management plan shall be implemented as part of the access management strategy.

Long-term actions are principally based on the need to change access control to reduce safety problems resulting from traffic growth in the interchange area in general. The most likely reason for implementing these actions will be the development or redevelopment of the parcels. A change of use, with or without rezoning, may be sufficient to trigger a change in access. Another possible reason for undertaking the long-term actions include a roadway improvement project initiated by the County or by ODOT, including projects that have not been identified previously, such as a safety improvement.

Depending upon the rate of growth in the community and how much traffic growth occurs before a planned interchange improvement project is constructed, some or all of the projects listed in the long-term category may need to be implemented prior to or concurrently with a future interchange project.

The rate of development and redevelopment activities are subject to economic conditions and the decisions of property owners, investors and developers, making it hard to predict the timing of needed improvements.

General actions throughout the planning area include:

- Encourage redevelopment opportunities that consolidate access points.
- Encourage sharing of access points between adjacent properties.
- Offset driveways at proper distances to minimize the number of conflict points between traffic using the driveways and through-traffic.
- Provide driveway access via local roads where possible.
- Enforce access management spacing standards to the extent possible.
- Minimize driveway widths.
- When traffic signals are installed, interconnect them with adjacent signals to create a coordinated timing system.

Access Standards and Objectives

Access management must balance the competing needs of traffic capacity and safety for I-5 and local access needs. The OHP devotes an entire section to the discussion of access management. More detailed requirements, action definitions, and the access spacing standards for state highways are specified in

Division 51. Ideally, a project will include provisions by which access within the project limits can be made fully compliant with Division 51. In many instances, however, access needed for existing development will not allow these standards to be met. When the requirements and standards cannot be met, progress toward meeting the applicable standards must be demonstrated.

Division 51³ and the OHP⁴ contain standards for private driveway and public road approach spacing based on highway classifications and speeds. Access spacing standards are measured from the center of one access to the center of the next access on the same side of the road. These standards were used in the preparation of this access management plan. The standard applicable to this project and the objectives of this plan are as follows:

- The distance along a two-lane crossroad from a ramp terminal to the first right-in/right-out approach should be no closer than 750 feet for an urban interchange in a fully developed urban area.
- The distance along a two-lane crossroad from a ramp terminal to the first full intersection should be no closer than 1320 feet for an urban interchange in a fully developed urban area.
- Restrict all access from abutting properties to the interchange and interchange ramps.
- In attempting to meet access management spacing standards, exceptions may be allowed to take advantage of existing property boundaries and existing or planned public streets, and to accommodate environmental constraints.
- Replace private approaches with public streets, where feasible, to provide consolidated access to multiple properties.
- Ensure all properties impacted by the project are provided reasonable access to the transportation system.
- Align approaches on opposite sides of roadways where feasible to reduce turning conflicts.
- Requests for deviations from these standards can be made, and the process is outlined in OAR 734-051-0135.

OAR 734-51-0115 (1)(c)(C) and 734-051-0125 (1)(c)(C) require that “for a highway or interchange construction or modernization project...the project will improve spacing and safety factors by moving in the direction of the access management spacing standards, with the goal of meeting or improving compliance with the access management spacing standards.” In attempting to meet the standards or move in the direction of them, notification will be sent, when appropriate, to nearby properties as outlined in Oregon Revised Statutes (ORS) 734-312 (5): Rules regarding permits for approach roads; intergovernmental agreements.

Existing Accesses

The jurisdiction of Old Highway 99 was officially transferred from ODOT to Douglas County in 1996. However, the transfer agreement specified that ODOT shall retain permitting authority for accesses within 900 feet of interchange ramp terminals.

³ Many sections of Division 51 discuss approach spacing including, but not limited to 734-051-0115, 734-051-0125, 734-051-0135, and 734-051-0275

⁴ The applicable tables include Table 16 for a two-lane crossroad and Table 17 for a multi-lane crossroad.

An inventory was conducted of public street intersections and public/private approaches to Old Highway 99 within the Interchange 120 influence area. Numerous access points do not meet ODOT's standards for access near the interchange. Figure 5-1 lists the public and private approaches along Old Highway 99 in the vicinity of the Interchange 120 ramp terminals. Although ODOT has approach permitting authority along Old Highway 99 within 900 feet of the interchange ramp terminals, many driveways and public streets predate the permitting process or have come into existence without permits.

Future Access Management Strategy

It is anticipated that an access management strategy will be developed and implemented in connection with a future Interchange 120 improvement project such as one that signalizes the ramp terminal, provides dual left-turn lanes on the southbound exit ramp terminal and widens Old Highway 99 between Interchange 120 and Happy Valley Road. The access management strategy should be consistent with the findings and recommendations of the access management plan.

Access Management Plan

This access management plan includes medium- and long-term actions. Medium-term actions are likely to occur in association with an interchange improvement project, or as a result of development or redevelopment of parcels prior to an interchange improvement project. Implementation of long-term actions are recommended as development or redevelopment of parcels occur, or in association with future roadway improvement projects not yet identified.

Access management is intended to improve highway conditions by moving towards maintaining reasonable access to existing properties, addressing safety priorities, and meeting the appropriate ODOT access management standards. The access management strategy (to be developed with the final design of a future improvement project) will rely upon changes that will occur as part of future construction projects. When a property is developed, redeveloped or a change-of-use occurs, an application for an approach road will be required if access is proposed from the state highway system. At that time, any existing approach and any new proposed approach will be evaluated. The AMP will guide ODOT when completing a change-of-use assessment.

As discussed above, construction projects and land use changes for properties that abut Old Highway 99 within 900 feet of the Interchange 120 ramp terminals will require approach permits from ODOT. As part of the approach permit approval process, deviation findings will be prepared if necessary to explain why the approach can not meet the standards as required by OAR 734-051-0135 (Deviations from Access Management Spacing Standards). As per OAR 734-051-0135 (7), the Region Access Management Engineer may require that a plan identifies measures to reduce the number of approaches to the highway in order to approve a deviation for a public approach. This IAMP identifies measures to reduce the number of approaches near Interchange 120, and therefore fulfills this potential requirement.

The overall goal of this access management plan is to protect traffic operations and safety within the interchange influence area. This will have the effect of protecting the state's investment in the interchange facilities while ensuring circulation necessary for good access to the highway. This will be accomplished using medium-, and long-term actions in the area.

Recommended Medium- and Long-Term Actions

The recommended medium- and long-term actions, shown in Table 5-1, Development of a local street network would address sub-standard access spacing, protect the function of the interchange, enhance mobility, and provide safe and efficient access to businesses. The local street network could take a number of forms. Figure 5-2 shows several options, including a possible frontage road on the west side

of Old Highway 99. Three potential access points are shown and are designated on the figure as W1, W3 and W4. Additionally, possible service road alignments are shown on the east and west side of Old Highway 99 (E1, E2 and W2). It should be noted that Figure 5-2 is highly conceptual and only shows a few of the many possible configurations for local roads.

Recommended medium-, and long-term actions associated with individual approaches on both sides of Interchange 120 are shown in Table 1 below. For ease of understanding, numbers were assigned to all the approaches within the interchange influence area. The “access numbers” are not the same as the legal tax lot numbers. These assigned access numbers are used in the figures and within the text of this document for simplicity. The legal tax lot numbers associated with the assigned access numbers are included in the access inventory table contained in Figure 5-1.

Table 5-1: Recommended Access Actions

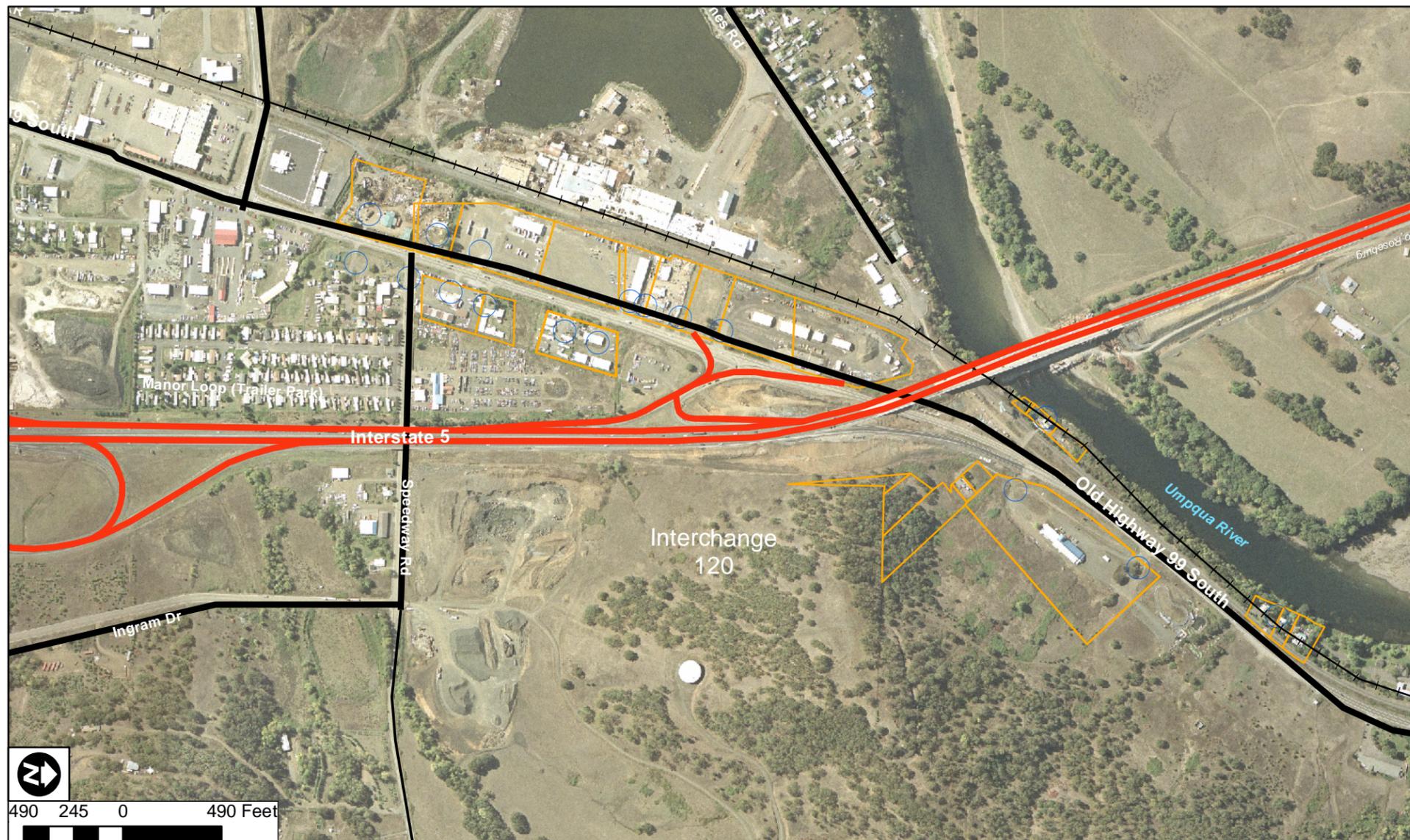
Approach #	Medium-term Action	Long-term Action
1	Consider alternate location if feasible	Same as Medium-term
2	To be closed. See note 1	No action
3	To be closed. See note 2	No action
4	No action	No action
5	Reconfigure existing approach as needed opposite Interchange 120 ramp terminal, or consider relocation to an alternate location.	Close approach, provide access via local street/service road.
6	Consolidate in connection with development/redevelopment, restrict to right-in/right-out.	Close approach, provide access via local street/service road.
7	Consolidate in connection with development/redevelopment.	Close approach, provide access via local street/service road.
8		
9		
10		
11		
12		
13		
14		
15 (Speedway Rd)	No action	No action
16 (Pippin Ave)	No action	No action
17	No action	No action

Notes:

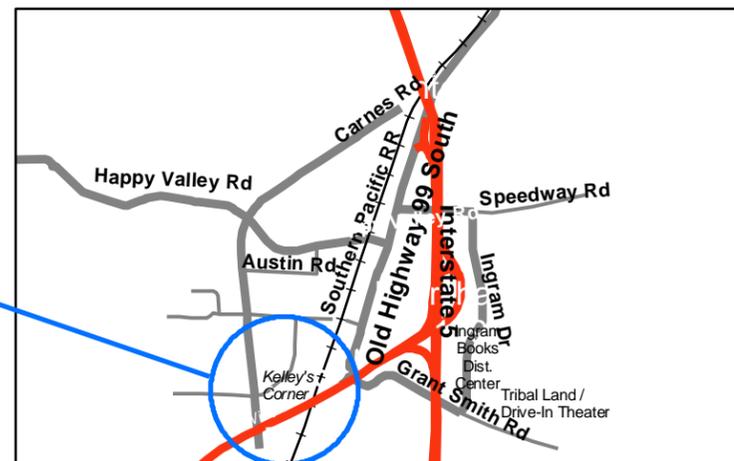
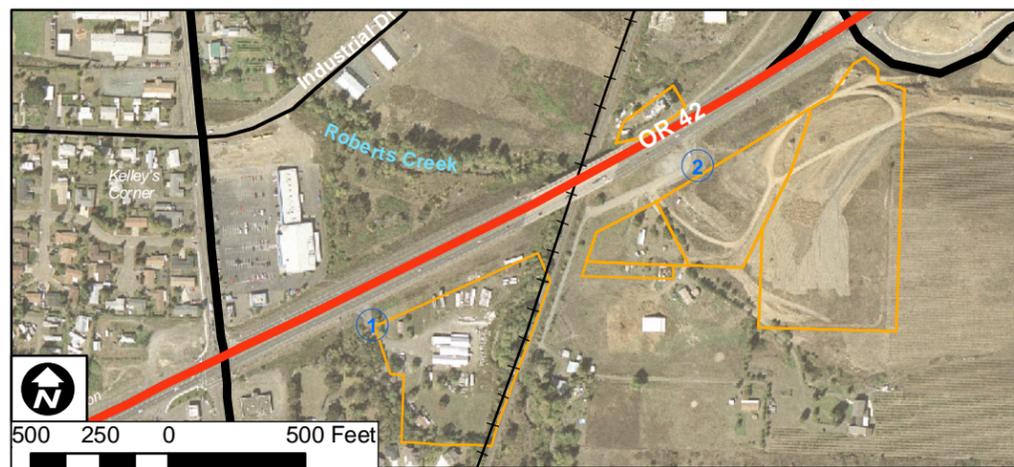
Approach is planned to be relocated to a point outside of interchange influence area, approximately 1500 feet from ramp terminal. The site may accommodate a large retail development, which would likely trigger the need for a signal at the southbound Interchange 120 ramp terminal and other improvements to Old Highway 99.

Property is currently vacant. Approach planned to be closed, and access to property will be provided via relocated Approach #2.

Actions shown in Table 5-1 are for the ideal access management plan. These actions require many changes to properties along Old Highway 99. Several factors need to be considered before an access is altered, including: access rights, safety concerns, existing and potential land use, existing site development including access use and function, parking, and circulation. Other factors that should be considered are whether or not the property has more than one approach road to the state highway and if the property had available or potential access to a local street.



Access Inventory - Interchange 120 Vicinity			
Access Number	Tax Lot Number	Property Owner	Assessor's Site Address
1	27-06W-36C-00800	FOTHERINGHAM, ALONZO WESLEY	3047 OLD HIGHWAY 99 SOUTH
2	27-06W-36C-01300	STEINBACH, PAUL B	3071 OLD HIGHWAY 99 SOUTH
3	27-06W-36C-01400	OTIS, ROBERT W & CAROLYN A	3097 OLD HIGHWAY 99 SOUTH
4	28-06W-01B-00200	MENTONE COMPANY LLC	0 OLD HIGHWAY 99 SOUTH
5	28-06W-01B-00300	PRITCHARD, DAN W	3204 OLD HIGHWAY 99 SOUTH
6	28-06W-01B-00400	PRITCHARD, DAN W	0 OLD HIGHWAY 99 SOUTH
7	28-06W-01B-00500	BROWN, DUANE H & JESSIE F TRS	0 OLD HIGHWAY 99 SOUTH
8	28-06W-01B-00600	BROWN, DUANE H & JESSIE F	0 OLD HIGHWAY 99 SOUTH
9	28-06W-01B-00700	THORNTON, CLIFF & NAOMI I	0 OLD HIGHWAY 99 SOUTH
10	28-06W-02AA-00100	JENSEN, EARL A & CLAUDIA M	0 OLD HIGHWAY 99 SOUTH
11	28-06W-02AA-00200	JENSEN, EARL A & CLAUDIA M	3217 OLD HIGHWAY 99 SOUTH
12	28-06W-02AA-00300	STATE OF OREGON	0 OLD HIGHWAY 99 SOUTH
13	28-06W-02DA-00200	JOHANSEN, STANLEY K & DORIS	3598 OLD HIGHWAY 99 SOUTH
14	28-06W-02DA-00300	VEACH, LLOYD J JR & MARY M	3644 OLD HIGHWAY 99 SOUTH
15	28-06W-02DA-00500	A-1 AUTO SALES INC	3704 OLD HIGHWAY 99 SOUTH
16	28-06W-02DA-00600	MCGOVERN, JAMES D TRS OF THE	0 OLD HIGHWAY 99 SOUTH
17	28-06W-02DA-00602	RMW MANAGEMENT COMPANY LLC	3663 OLD HIGHWAY 99 SOUTH
18	28-06W-02DA-00603	RMW MANAGEMENT COMPANY LLC	3641 OLD HIGHWAY 99 SOUTH
19	28-06W-02DA-00700	MCGOVERN, JAMES D TRS OF THE	3801 OLD HIGHWAY 99 SOUTH
20	28-06W-02DD-00100	SHERRON ESTATES LLC	1 MANOR LOOP
21	NA	NA	SE PIPPEN AVENUE (PUBLIC)
22	NA	NA	SPEEDWAY ROAD (PUBLIC)
23	28-06W-02AD-00100	ODOT	3339 OLD HIGHWAY 99 SOUTH
24	28-06W-02AD-00199	ODOT	0 OLD HIGHWAY 99 SOUTH
25	28-06W-02AD-00200	BRYDEN, CLIFFORD M	0 OLD HIGHWAY 99 SOUTH
26	28-06W-02AD-00201	LEVIN, DAVID & SUSAN	3495 OLD HIGHWAY 99 SOUTH
27	28-06W-02AD-00202	RMW MANAGEMENT COMPANY LLC	3503 OLD HIGHWAY 99 SOUTH



Access Inventory - Interchange 120 Vicinity			
Access Number	Tax Lot Number	Property Owner	Assessor's Site Address
1	28-06W-11C-300	HENSLEY, WALTER	171 ART MILL LANE
2	28-06W-11DB-700	THOMPSON, DOROTHY	140 ART MILL LANE
3	28-06W-11DB-600	THOMPSON, DOROTHY	210 WINERY LANE
4	28-06W-11DB-400	CROCKER, GEORGE	0 OLD HIGHWAY 99 SOUTH
5	28-06W-11DB-200	DILLINGHAM, J D	0 OLD HIGHWAY 99 SOUTH

Figure 5-1
I-5 Interchanges 119 and 120
Access Inventory

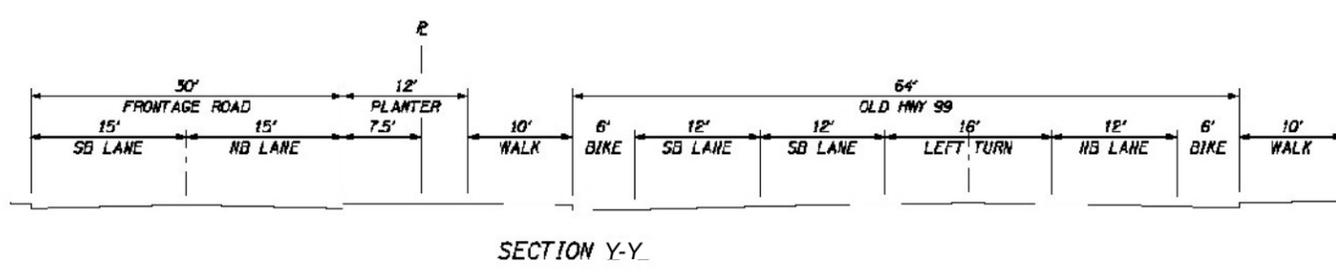
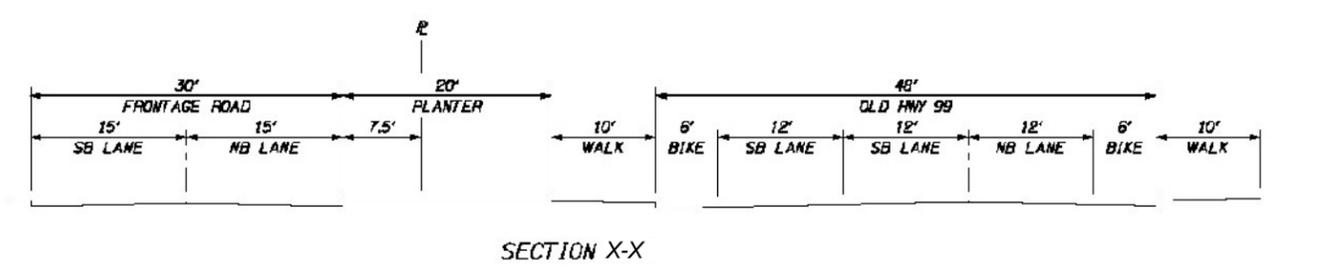
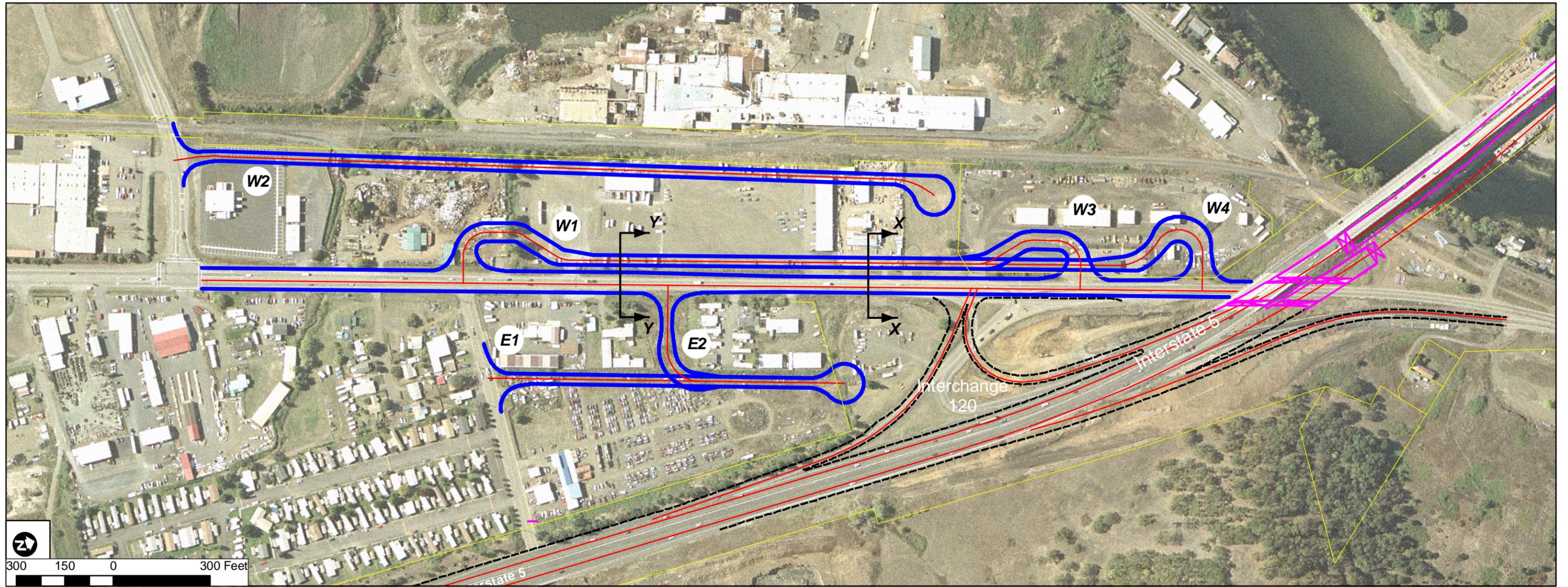


Figure 5-2
 I-5 Interchange 120
 Frontage and Service Road Alternatives

6 Priorities and Timing of Improvement Needs

6.1 State Priorities

Many of the recommended improvements to Interchange 119 and Interchange 120 are not currently listed in the STIP. Advancing the interchange improvements described in this IAMP is likely to be difficult given the funding conditions and the state's investment policy. The OHP contains the following language:

It is the policy of the State of Oregon to place the highest priority for making investments in the state highway system on safety and managing and preserving the physical infrastructure.

With regard to modernization, the OHP provides the following language:

Give priority to modernization projects that improve livability and/or address critical safety problems and high levels of congestion.

With regard to preservation, the OHP provides the following language:

Maintain Statewide Highways at a higher condition than Regional and District Highways, and invest in thicker pavement on designated freight routes.

With regard to safety, the OHP provides the following language:

Focus on expenditures where the greatest number of people are being killed or seriously injured⁵

As described in other sections of this report, there are certain elements of the existing design of the interchanges that are substandard. However, many of these have not resulted in high crash rates that could support a claim of significant safety problems. This could change with increases in traffic volumes, but the overall conclusion is that safety does not serve as a major argument for advancing interchange improvements.

Based on the analysis performed for this study, the performance of the southbound Exit 120 ramp currently does not meet mobility standards. As traffic volumes increase, it may become easier to demonstrate "high levels of congestion" needed to advance a modernization project.

Advancement of modernization projects in the IAMP management area may benefit from the classification of OR 42 as a Statewide Highway and Expressway, and therefore has the highest priority next to interstate highways.

6.2 Timing of Need for Improvements

The development potential of Green and the impact of traffic from new development is highly dependent on what land is ultimately developed and the type of development that actually occurs. The rate of development is dependent on economic and demographic factors that are determined on a scale far beyond Green's influence. The speed at which Preferred Alternative improvements are implemented is dependent on the rate of growth.

⁵ These priorities are reflected in the Safety Investment Program used to select safety projects for the Statewide Transportation Improvement Program. The Program identifies where the most people are being killed and seriously injured on the state highway system and applies the most cost-effective measures to reduce the number of crashes.

Among all the potential improvements that could be made in the Interchange Management Area, the improvement most likely to be needed first is a project to signalize the southbound Exit 120 ramp terminal intersection. Based on an evaluation of ODOT preliminary signal warrant criteria, a traffic signal is currently warranted at this intersection. For a traffic signal to be installed, Signalization must be based on meeting applicable signal warrants and approval by the State Traffic Engineer based on established criteria.

A project to add an additional eastbound lane over the new OR 42 bridge at Interchange 119 could be expected to improve traffic operations on the expressway approaches to the interchange. As discussed above, the improvement could have a useful life that extends well beyond year 2025.

Development of a well-connected local street system could result in immediate improvements to overall mobility in and around the Green area and could provide long term benefits to the community and the region. The timing of these improvements will largely be driven by development.

7 Implementation

Adoption of an IAMP is a requirement for interchanges undergoing significant modification and helps to demonstrate a commitment on behalf of both the County and ODOT to protect the long-term function of the interchanges.

Based on the work performed during this study, existing plans and policies can be strengthened, updated, and made more specific by amendments described below. The focus of these amendments is to specify the actions on the part of both the County and ODOT relative to implementation of the Preferred Alternative.

The elements recommended for formal adoption as part of this IAMP are specified below. Some actions are to be adopted by the OTC as a “facility plan” that implements the OHP. Other actions are adopted by Douglas County. Each subsection specifies which agency is responsible.

7.1 OHP Policy Statement

Adoption of the OHP is a state responsibility. Adopting a new policy statement describing the priorities associated with potential interchange improvements is a state responsibility.

The following policy statement is added to the Investment Policies and Scenarios section of the OHP:

The highest priority for investments by the State to Interchange 120 shall be directed toward critical safety problems and maintaining the physical infrastructure of the existing interchange. Critical safety and maintenance projects shall not require adoption of the IAMP or adoption of local policies and/or ordinances to limit land use consistent with trip generation assumptions in the IAMP.

Investment by the State to construct projects 1 and 2 in Table 8-1 of IAMP 119/120 shall require Douglas County to adopt the IAMP and local policies and ordinances that limit land use consistent with the trip generation assumptions in the IAMP (e.g. trip allocation, permitted land uses, etc). IAMP 119/120 adoption, policies, and ordinances must be adopted prior to projects 1 and 2 being included in the Statewide Transportation Improvement Program (STIP) with state or federal funding.

7.2 Access Management

Douglas County Responsibilities

Because Old Highway 99 is owned by Douglas County, adoption and implementation of the Access Management Plan is a County responsibility. The Access Management Plan (AMP) from Section 5 of this document is to be adopted, including Table 5-1 and Figures 5-1 and 5-2 and explanatory materials. The AMP is to be applied along Old Highway 99 within one quarter-mile of the Interchange 120 ramp terminal. Because access management along interchange crossroads is an important factor in maintaining safe and efficient interchange operations, ODOT will not seek to implement improvements specified in the Preferred Alternative, specifically the traffic signal at the Interchange 120 ramp terminal, until Douglas County adopts the Access Management Plan

ODOT Responsibilities

ODOT shall retain permitting authority for roadway approaches for the section of Old Highway 99 within 900 feet of the ramp terminals as specified in the OR 99 Jurisdictional Transfer Agreement (adopted in 1996) contained in Appendix D. The Access Management Plan applies to approaches along Old Highway 99 for a distance of 1320 feet.

7.3 Amend Douglas County TSP

Amend TSP Goals and Objectives

The TSP is a locally-adopted plan and is thus a responsibility of Douglas County. Amendment of the TSP Goals and Objectives is also a County responsibility.

Additional policy language is recommended as additional “policies” under “Objective B: To develop and utilize design standards for road construction that promote vehicular safety and economy of construction”

12. To protect the function of Interchange 120, the County shall implement an access management plan along Old Highway 99 within one quarter mile of the Interchange 120 ramp terminals. The County recognizes that ODOT retains access permitting authority along Old Highway 99 within 900-feet of the Interchange 120 ramp terminals.

Amend TSP Projects

The Green TSP is a locally-adopted plan and is thus a responsibility of Douglas County. Amendment of the Green TSP is also a county responsibility. The adopted 2001 TSP includes cost estimates for some of the projects specified in the Preferred Alternative. During the development of this IAMP, the Preferred Alternative interchange area improvements were developed to a higher level of specificity than was undertaken for the TSP. Updated cost estimates were also prepared. The TSP is to be amended to include the project descriptions and estimated costs listed in Table 8-1. In Table 8-1, a check mark in the “New Project” category indicates that this element of the Preferred Alternative is not in the 2001 TSP. The absence of a check mark indicates that the project is included, but that a more specific description and/or updated cost estimate has been prepared.

Table 8-1. Preferred Alternative Projects

	Project	Explanation	Estimated Cost (1000 Dollars)	Roadway Jurisdiction	Funding Partners³
1	Interchange 120: Signalize ramp terminal intersection; widen ramp to accommodate a two-lane approach consisting of one left-turn lane and one shared left/right-turn lane from the exit ramp.	1	\$445	ODOT	ODOT, Developers
2	Old Highway 99: Widen from the Interchange 120 ramp terminal to Happy Valley Road to two southbound lanes to accommodate the dual left-turn lanes from the ramp terminal.	1	\$2,165	County	ODOT, County, Developers
3	OR 42 at Interchange 119: Provide two eastbound lanes on the new OR 42 bridge over I-5.	2	\$1,345	ODOT	ODOT
4	I-5 Mainline: When warranted by traffic volumes, provide an additional northbound through lane on I-5 beginning at Interchange 119.	2	Varies	ODOT	ODOT
5	Kelly's Corner (OR 42 at Carnes Road): Construct dual left-turn lanes on the southbound, eastbound and westbound approaches.	2	\$2,900	ODOT, County	ODOT, County, Developers
6	OR 42 Expressway Upgrade (2008-2011 STIP, KN 15006): Construct a signal on OR 42 at Rolling Hills Road; Construct a Necessary Local street; Close two street connections and eliminate private access.	2	\$1,200	ODOT, County	County, ODOT
7	Complete collector/arterial street network as specified in the Green TSP.	2	Varies	County	County, Developers
8	Speedway Road: Widen to accommodate a three-lane section between Old Highway 99 and Ingram Road; construct southbound left-turn lane on Old Highway 99	2	\$900	County	County, Developers
9	Speedway Road at Old Highway 99: Install traffic signal as warranted by future traffic volumes	2	\$445	County	County, Developers

Notes:

1. Project not currently referenced in Douglas County TSP.
2. Project currently referenced in Douglas County TSP. The Preferred Alternative project descriptions contained in the IAMP provide updated cost estimates or more detailed description compared to TSP projects.
3. Potential funding partners lists possible participants and does not represent a commitment to participate. Funding arrangements will need to be negotiated when more is known about project costs and benefits and the sources of funds that may become available.

