

# **Final Interchange Area Management Plan**

**Interstate 5 Interchanges 103 (Riddle),  
106 (Weaver Road), and 108 (Myrtle Creek)**

**Douglas County, Oregon**

*Prepared for*

Oregon Department of Transportation, Region 3

*Prepared by*

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

*In association with*

Angelo Eaton & Associates  
620 SW Main Street, Suite 200  
Portland, Oregon

**June 2006**

## List of Acronyms

ADT	average daily traffic
CORP	Central Oregon Pacific Railroad
EB	east bound
HDM	Highway Design Manual
I-5	Interstate 5
IAMP	Interchange Area Management Plan
LCDC	Land Conservation and Development Commission
LUDO	Land Use and Development Ordinance
MP	mile post
NB	north bound
NRHP	National Register of Historic Places
OAR	Oregon Administrative Rule
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
OTC	Oregon Transportation Commission
OTIA	Oregon Transportation Investment Act
PRC	Planning Research Corporation
SB	south bound
SHPO	State Historic Preservation Office
SPIS	Safety Priority Index System
TPAU	Transportation Planning Analysis Unit
TSP	Transportation System Plan
UGB	Urban Growth Boundary
V/C	volume to capacity ratio
VMS	variable message sign
WB	west bound

# Table of Contents

	Page
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 IAMP PLANNING AREA .....	5
1.2 PUBLIC AND AGENCY PARTICIPATION.....	5
<b>2.0 PROJECT DESCRIPTION, PURPOSE, AND GOALS AND OBJECTIVES .....</b>	<b>13</b>
2.1 PROJECT DESCRIPTION .....	13
2.2 PURPOSE OF IAMP .....	14
2.3 IAMP GOALS AND OBJECTIVES .....	15
2.4 INTERCHANGE FUNCTION.....	16
<b>3.0 REGULATORY FRAMEWORK.....</b>	<b>17</b>
3.1 INTERCHANGE STUDY AREA DESCRIPTIONS .....	17
3.2 STATE REGULATORY CONTEXT FOR INTERCHANGE AREA MANAGEMENT PLANNING .....	18
3.3 LOCAL REGULATORY CONTEXT FOR INTERCHANGE AREA MANAGEMENT PLANNING .....	20
<b>4.0 ALTERNATIVES CONSIDERED .....</b>	<b>20</b>
4.1 EXISTING CONFIGURATION .....	22
4.2 EXISTING CONFIGURATION WITH MODIFIED RAMP .....	25
4.3 STANDARD AND TIGHT DIAMOND INTERCHANGE .....	25
4.4 DIAMOND CONFIGURATION WITH TWO NORTHBOUND ON-RAMPS.....	31
4.5 INTERCHANGE 103 ALTERNATIVES SUMMARY .....	32
<b>5.0 EXISTING CONDITIONS INVENTORY AND DATA ANALYSIS.....</b>	<b>37</b>
5.1 TRANSPORTATION FACILITIES.....	37
5.1.1 Geometric Conditions and Deficiencies .....	37
5.1.2 Existing Traffic Operations in the Planning Area .....	40
5.1.3 Operational Criteria.....	40
5.1.4 Safety and Crash Analysis .....	41
5.2 LAND USE .....	44
5.2.1 Interchange 108 Land use Designations, Zoning, and Existing and Future Land Use .....	44
5.2.2 Interchange 106 Land Use Designations, Zoning, and Existing and Future Land Use.....	47
5.2.2 Interchange 103 Land Use Designations, Zoning, and Existing and Future Land Use.....	52
5.4 NATURAL AND HISTORIC RESOURCES.....	56
5.4.1 Goal 5 Resources.....	56
5.4.2 Floodplain.....	57
5.4.3 Endangered Species.....	57
5.4.4 Wetlands .....	57
5.4.5 Hazardous Materials .....	58
5.4.6 Cultural and Historic Resources .....	58
<b>6.0 FUTURE TRANSPORTATION CONDITIONS AND PLANNING AREA IMPROVEMENTS .....</b>	<b>59</b>
6.1 PLANNING AREA IMPROVEMENTS .....	60
6.1.1 103 Improvements.....	60
6.1.2 Weaver Road Bridge.....	60
6.1.3 South Umpqua Bridge Rehabilitation.....	60
6.1.4 Myrtle Creek Curves.....	61
6.2 2025 FUTURE OPERATIONS ANALYSIS .....	62
6.2.1 Build Options.....	62
6.2.2 Traffic Forecasts.....	62
6.2.3 Traffic Operations Analysis .....	62

<b>7.0</b>	<b>ACCESS MANAGEMENT .....</b>	<b>63</b>
7.1	ACCESS STANDARDS.....	64
7.2	EXISTING ACCESS AND PERMITS.....	64
7.3	ACCESS MANAGEMENT STRATEGY AND ACCESS MANAGEMENT PLAN.....	65
7.3.1	Access Management Strategy (Short-Term Actions).....	66
7.3.2	Access Management Plan.....	69
<b>8.0</b>	<b>IMPLEMENTATION OF THE IAMP .....</b>	<b>77</b>
8.1	PROPOSED AMENDMENTS .....	79
8.1.1	Douglas County.....	79
8.1.2	City of Myrtle Creek.....	80
8.2	OTHER RELATED ACTIONS.....	81
8.2.1	Protection of Farmland.....	81
8.2.2	Potential Future Urbanization.....	82
8.3	ADDITIONAL PROPOSED AMENDMENTS.....	82
8.3.1	Douglas County.....	82
8.3.2	City of Myrtle Creek.....	83

### List of Tables

Table 1. Interchange Configuration Advantages And Disadvantages .....	35
---	----

### List of Figures

Figure 1. 103, 106, and 108 Interchange Area Management Plan Vicinity Map.....	3
Figure 2. I-5 Interchange 108 IAMP Study Area Boundary.....	7
Figure 3. I-5 Interchange 106 IAMP Study Area Boundary.....	9
Figure 4. I-5 Interchange 103 IAMP Study Area Boundary.....	11
Figure 5. I-5 Interchange 103 Existing Configuration with Bridge Improvements .....	23
Figure 6. I-5 Interchange 103 Existing Configuration with Modified Ramp.....	27
Figure 7. I-5 Interchange 103 Standard Diamond Configuration .....	29
Figure 8. I-5 Interchange 103 Diamond Configuration with Two Northbound Ramps.....	33
Figure 9. I-5 Interchange 108 Zoning and Existing Land Use.....	45
Figure 10. I-5 Interchange 106 Zoning and Existing Land Use.....	49
Figure 11. I-5 Interchange 103 Zoning and Existing Land Use.....	53
Figure 12. Access Recommendations for 103 .....	67
Figure 13. Access Recommendations for 106 .....	73
Figure 14. Access Recommendations for 108 .....	75

### List of Appendices

Appendix A. Review of Transportation and Land Use Plans and Policies
Appendix B. Interchange 103 Concepts Memorandum
Appendix C. Existing Geometric Conditions of Interchanges 103, 106, & 108
Appendix D. Existing Transportation Analysis
Appendix E. Safety Analysis Memorandum
Appendix F. Existing Land Use Analysis
Appendix G. Existing Soils, Agriculture, and Natural Resources Narrative
Appendix H. Future Transportation Conditions Report
Appendix I. Forecasting Methodologies for Intersection and Roadway Segment Analysis
Appendix J. Access Management Plan

## 1.0 INTRODUCTION

The Southern Douglas County area has been promoted and targeted for new industrial growth by Douglas County and the State of Oregon. Interchanges 103, 106, and 108 are located along I-5 in Southern Douglas County. They provide important access between I-5 and the communities of Myrtle Creek, Tri City, and Riddle; the Myrtle Creek Airport; and the South Umpqua Industrial Park at Interchange 103. Because these interchanges are in close proximity and have inter-related operational issues, they are addressed together in this Interchange Area Management Plan (IAMP). (See Figure 1: Vicinity Map.) The IAMP includes an evaluation of existing and future conditions and the identification of future improvements and modifications to these I-5 Interchanges.

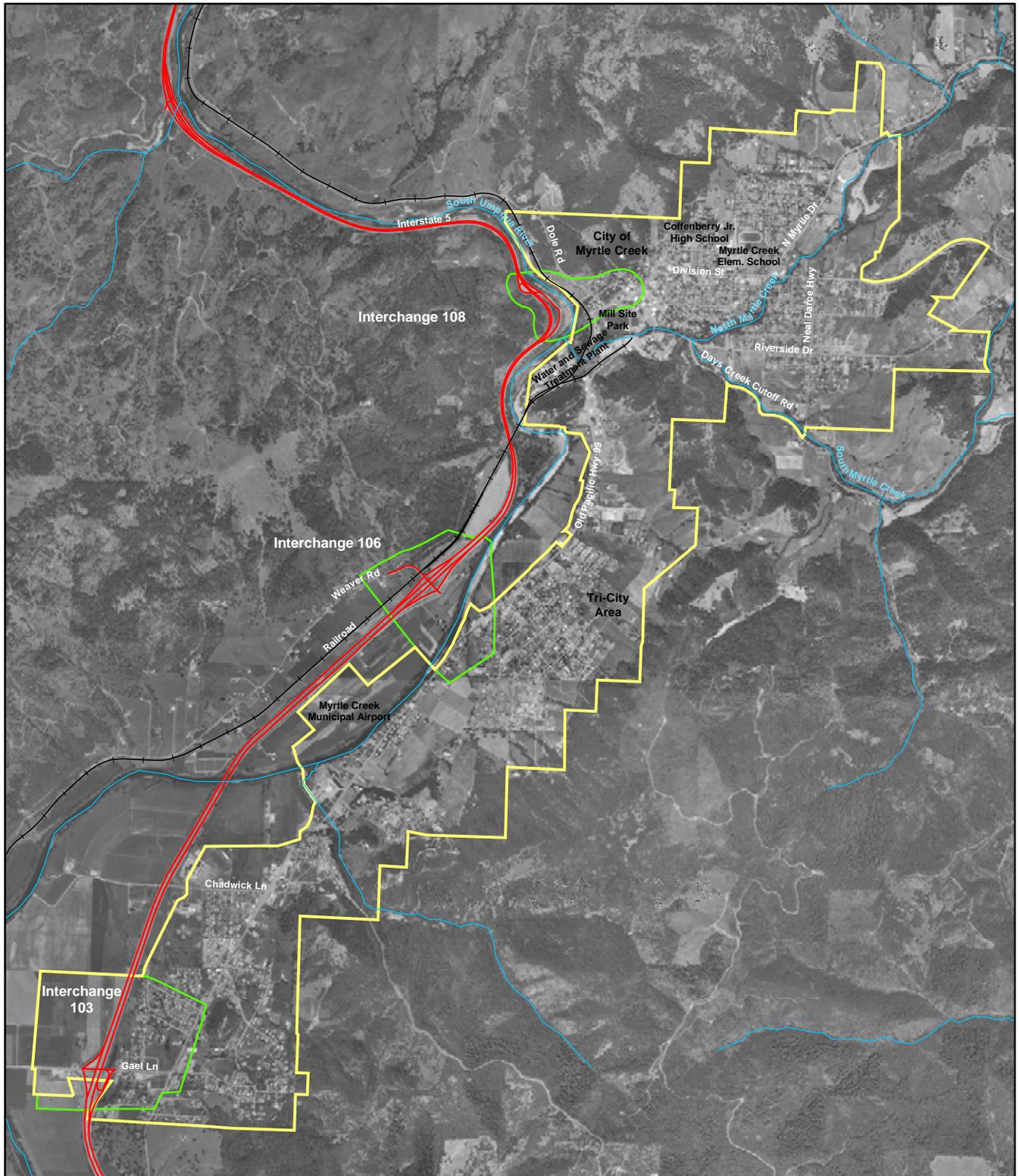
The three interchanges are deficient from a design and operational perspective. At Interchange 103, Pruner Road, the overpass bridge is functionally obsolete and driveways and access points are located closer to the ramp terminals than allowed by current standards. Interchange 106, Weaver Road, also has access points too close to the ramp terminals, and the bridge is both functionally obsolete and does not meet vertical clearance standards. In addition, the frontage road at Interchange 106 serving the Myrtle Creek Municipal Airport between I-5 and the South Umpqua River may need to be relocated, and is constrained by proximity to the river's floodway and floodplain. Interchange 108, Myrtle Creek, has tight curves at the entrance ramps and deficient acceleration lengths. Its overpass bridge is also functionally obsolete.

Multiple projects have been identified to address these deficiencies. The 2003 OTIA III legislation includes sufficient funding to pay for bridge replacement and perhaps limited modernization for the Interchange 103 Bridge. In addition, Douglas County has secured funding for the construction of the Weaver Road Bridge at Interchange 106, crossing the South Umpqua River and connecting Tri City to I-5. Funding for the Weaver Road Bridge was earmarked in the federal transportation bill passed by the U.S. Congress in August 2005. OTIA III funds had also been provided for two Interchange 108 projects, the Myrtle Creek Arch Bridge and the Myrtle Creek Curves project. Douglas County has created preliminary concepts for the arch bridge under a separate process from the IAMP study. At the same time, ODOT has recently decided not to move forward with the Myrtle Creek Curves project. This project was intended to straighten the Myrtle Creek curves on the I-5 mainline to improve safety. However, analysis of the geotechnical issues involved showed that the rock substrates would not have held up if cut to straighten the highway. This could lead to catastrophic failure of the cut slopes. The only other option would be an extremely expensive tunnel. Consequently, the project has been shelved.

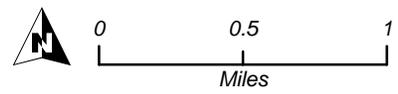
This IAMP includes conceptual designs for Interchange 103, but not for Interchanges 106 or 108, because designs for these two interchanges will be developed to work with future planning efforts for the Weaver Road Bridge and any future improvements to I-5 near Interchange 108. The Interchange 108 concepts will integrate the planning for the Myrtle Creek Arch Bridge that Douglas County is working on.

The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek)  
Interchange Area Management Plan**



- Legend**
- Highways
  - Streams
  - Railroads
  - Myrtle Creek Urban Growth Boundary



**Figure 1**  
I-5 Interchanges 103, 106, and 108  
Interchange Area Management Plan  
Vicinity Map  
February 2006

The page intentionally left blank

The Myrtle Creek Transportation System Plan (TSP) was developed concurrently with the Interchange Area Management Plan. The findings and recommendations of the IAMP process are integrated into the Myrtle Creek TSP. Because these planning efforts were concurrent, close coordination was employed to create cost efficiencies such as shared and parallel meetings, shared Technical Advisory Committee, and shared and coordinated traffic counts and inventory work.

## 1.1 IAMP Planning Area

The land use planning boundary for the IAMP includes three separate areas surrounding each interchange (see Figures 2, 3, and 4). The planning areas include the general area where the interchange improvements could potentially influence land use patterns or have land use impacts. At a minimum, the IAMP land use planning area includes all land uses and roadways located within approximately 1,320 feet of the existing interchange ramps. This distance corresponds to the spacing standard outlined in the OAR 734-051 Division 51 rules for interchange ramps.

The three interchanges serve the Myrtle Creek and Tri City Unincorporated Urban Area in Douglas County, as shown in Figures 1, 2, 3, and 4. The Interchange 108 study area encompasses urban and rural areas, with the eastern half within the Myrtle Creek city limits, and the western half outside the city limits and the Urban Growth Boundary (UGB). Interchange 106 is wholly outside of the UGB, with access from Weaver Road to the north and a frontage road, Aviation Drive, to the south. Interchange 103 primarily serves the Tri City area and is within the UGB. Old Pacific Highway (“Highway 99”) crosses over I-5 at this interchange, providing access to urban areas to the east, and agricultural area to the west.

The Central Oregon Pacific Railroad (CORP) runs through Myrtle Creek and crosses I-5 before Interchange 106, where it passes under Weaver Road and runs parallel to, and north of, I-5.

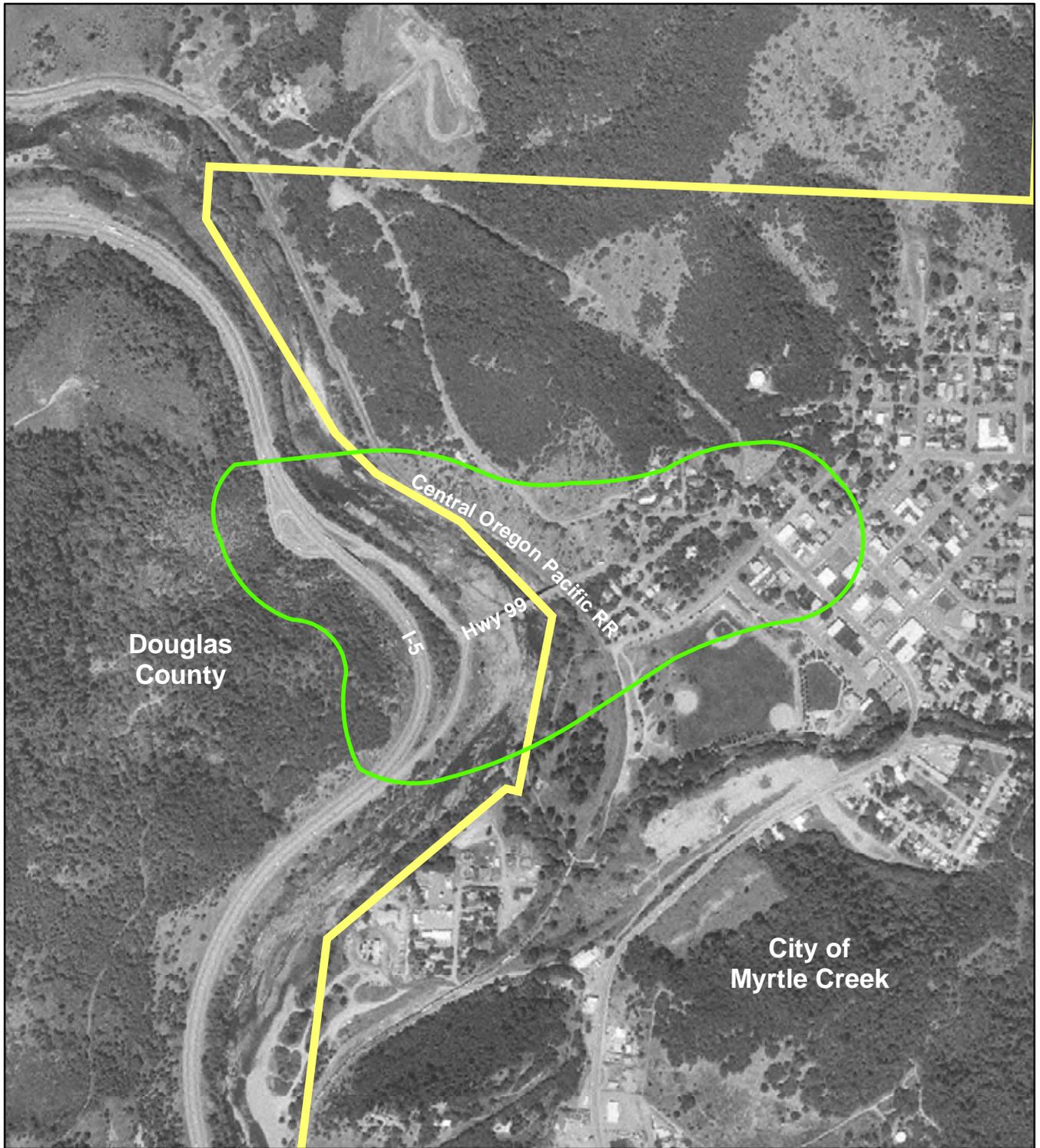
## 1.2 Public and Agency Participation

This IAMP has been prepared with the participation of Douglas County, the City of Myrtle Creek, and ODOT, and with input from a variety of stakeholders and the general public. Contacts were made with stakeholders interested in or concerned about the proposed interchange modifications and possible effects on existing land uses, access, and the local road system.

Public meetings were held jointly for this planning project and the concurrent Myrtle Creek Transportation System Plan planning process. The meetings included brief presentations and open house discussion to provide information and solicit public input. The meetings were held at Myrtle Creek City Hall on September 30, 2004, and on March 30, 2005, and in June 2006. Two newsletters were produced discussing both projects. The newsletters were distributed prior to the public meetings, posted on the City of Myrtle Creek’s website, and posted at the Myrtle Creek City Hall. The public meetings were advertised in the Roseburg News-Review and Douglas County Mail, and news releases were sent to the local radio stations.

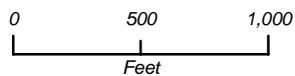
The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek)  
Interchange Area Management Plan**



**Legend**

-  IAMP Study Area Boundary
-  Myrtle Creek Urban Growth Boundary



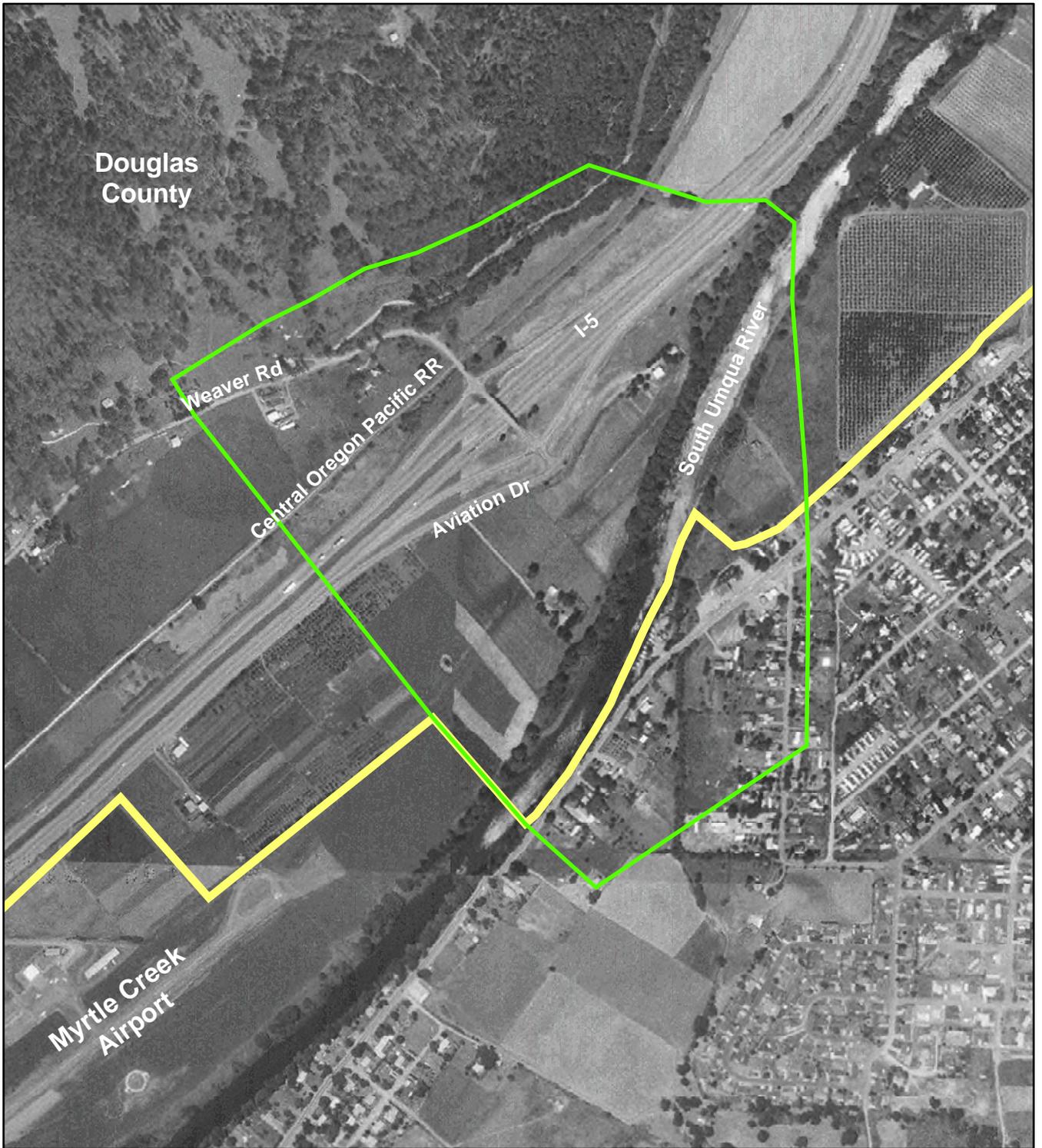
**Figure 2**

I-5 Interchange 108  
IAMP Study Area Boundary

February 2006

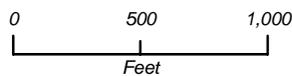
The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek)  
Interchange Area Management Plan**



**Legend**

-  IAMP Study Area Boundary
-  Myrtle Creek Urban Growth Boundary



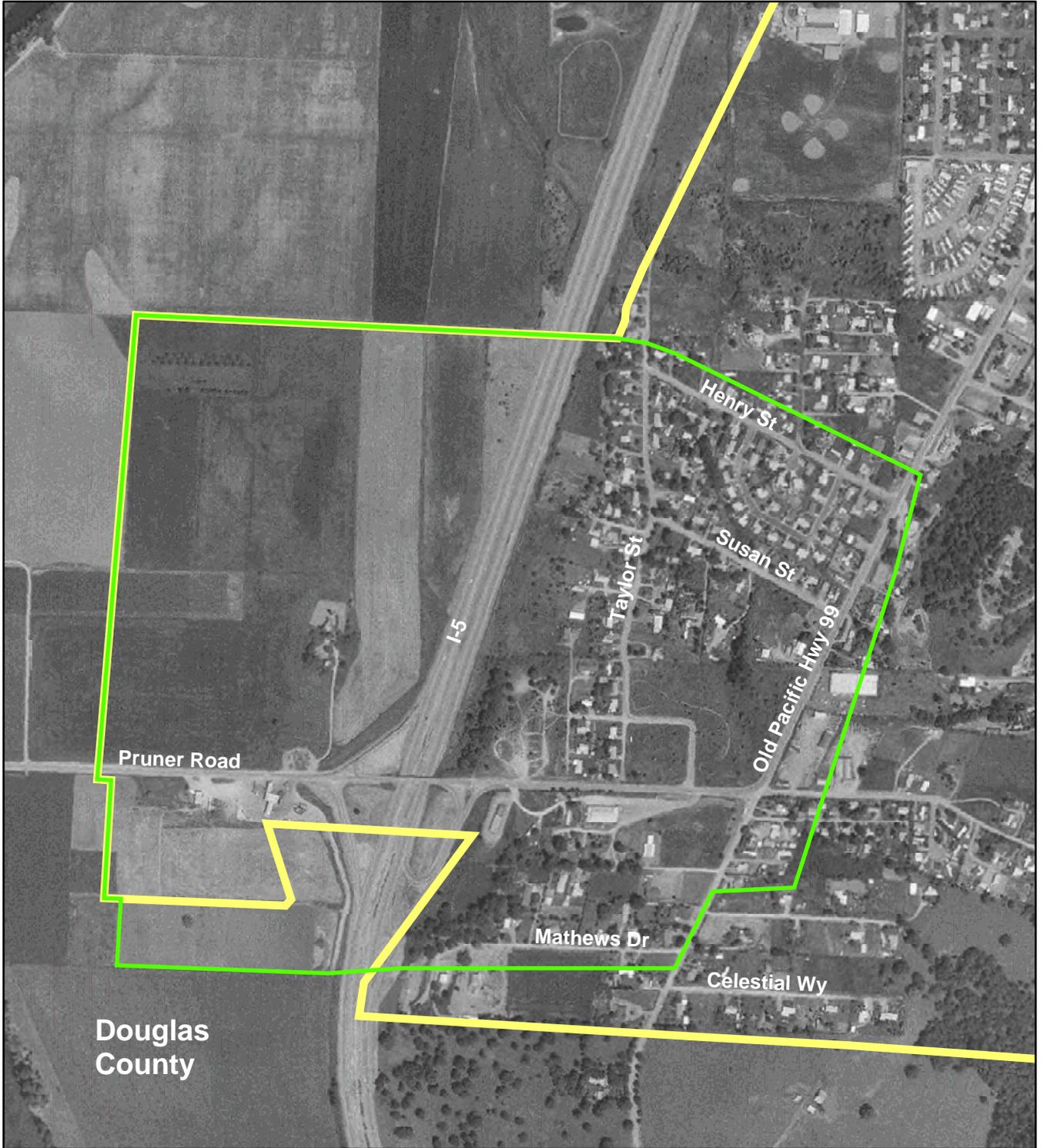
**Figure 3**

I-5 Interchange 106  
IAMP Study Area Boundary

February 2006

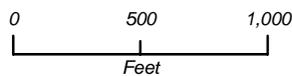
The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek)  
Interchange Area Management Plan**



**Legend**

-  IAMP Study Area Boundary
-  Myrtle Creek Urban Growth Boundary



**Figure 4**

I-5 Interchange 103  
IAMP Study Area Boundary

February 2006

The page intentionally left blank

An access management workshop was held on July 18, 2005 to discuss ODOT standards and access to individual properties. Representatives from ODOT, Douglas County, and Myrtle Creek participated. Additional meetings were held by ODOT staff to discuss access management actions with local property owners in June 2006.

## **2.0 PROJECT DESCRIPTION, PURPOSE, AND GOALS AND OBJECTIVES**

### **2.1 Project Description**

The IAMP provides documentation of current conditions at the three interchanges (traffic and travel patterns, access issues, land use, and geometric deficiencies.) As mentioned in Section 1.0, this IAMP is not proposing conceptual designs for interchanges 106 or 108 since those designs will occur as part of future planning processes. The IAMP does provide an analysis of the existing and future conditions that will provide context for future interchange designs. The plan documents current and forecast conditions, limitations, and needs for the three interchanges. It also provides access management actions to protect the future functioning of the interchanges regardless of the design implemented. In addition, the analysis considers land use and transportation implications of a new bridge connecting Interchange 106 to the Myrtle Creek and Tri City communities and proposes access management strategies for all three interchange areas.

The project calls for a redesign of the existing I-5 Interchange 103 Pruner Road/Riddle Bypass. (The crossroad at Interchange 103 is referred to as both Pruner Road and Riddle Bypass. In this document, we will refer to it as Pruner Road.) The existing interchange configuration is a standard diamond for southbound traffic and a folded diamond for northbound traffic. Replacement of the “cracked bridge” that carries the Pruner Road over I-5 is planned to alleviate the detours required now by some large trucks. Four different design options have been developed that would improve this interchange in conjunction with the replacement of the bridge. All improvement options include the following elements:

- The replacement bridge will accommodate three lanes of traffic (the current overpass accommodates only two lanes of traffic).
- The replacement bridge will be long enough that the I-5 mainline can be widened to accommodate three northbound and three southbound lanes (a future expansion of the current two lanes in each direction).
- All of the potential configurations studied could satisfy travel demands in the future.
- Traffic operations of the potential configurations are similar and will be an improvement over the current situation due to the expansion of the bridge to three lanes, allowing separation of left turns from through movements at the ramp terminals.

Section 4.0 discusses four proposed design configurations for Interchange 103 and the potential advantages of each. The analysis shows the traffic implications of each alternative and recommends that Interchange 103 be redesigned to contain a northbound on ramp in the northeast

quadrant. A determination to whether or not the northbound on ramp should be combined with either the existing loop ramp or a new loop ramp northbound will be decided after a separate analysis of geometric, geological, and cost implications is completed.

In addition, the project calls for the following short-term access management strategies for Interchange 103<sup>1</sup>:

- ODOT will acquire jurisdiction and may acquire access control of the interchange crossroad, Pruner Road, within the immediate interchange area.
- Reservations of access will be issued for existing approaches within the access control area on Pruner Road for properties with no alternative access.
- Some access points will be narrowed or closed, either through ODOT acquiring the parcel, consolidation of access points, or cross-access agreements between property owners.
- Two access points will be restricted to right-in, right-out traffic movements.

The Access Management Plan included in this IAMP (see Appendix J) is comprised of medium- to long-term actions that will be taken at all three interchanges as improvements are made to the transportation system and when change of use applications for parcels in the vicinity of the interchanges are reviewed and approved. Actions related to specific parcels and access points include<sup>2</sup>:

- Restricting traffic accessing sites to right-in, right-out movements.
- Realigning or relocating access points.
- ODOT acquisition of access control and jurisdiction over some roadways.
- Reducing access width.
- Consolidating access points.

## 2.2 Purpose of IAMP

The Oregon Department of Transportation (ODOT), Douglas County, and the City of Myrtle Creek have determined that the Interstate 5 (I-5) interchanges 103, 106, and 108 are in need of modifications and improvements to allow the interchanges to function more safely and efficiently.

---

<sup>1</sup> See Appendix J, Access Management Plan.

<sup>2</sup> The following list is not exhaustive, nor does it distinguish medium-term from long-term actions. For a more detailed explanation of both the Access Management Strategy and Access Management Plan for interchanges 103, 106, and 108, please refer to Section 7.0 of the IAMP and Appendix J.

Pursuant to direction of the Oregon Transportation Commission (OTC), an IAMP is required for these interchange projects. This IAMP will assist the County, City and ODOT with the long-term transportation system management in the area around the interchanges including affected segments of the state highways.

The IAMP evaluates the operation of the interchanges, assesses limitations, identifies future long-range needs, and identifies recommended improvements in order to ensure consistency with mobility standards. The IAMP assesses interchange improvements that may be needed to accommodate the replacement of the structurally deficient Interchange 103. In the case of Interchange 103, the IAMP will need to be completed before funding will be released for the interchange reconstruction project.

Specifically, the purpose of this planning effort is to evaluate the existing and future conditions of Interchange 103, 106, and 108, identify possible future long-range needs attributable to planned development in the area and a new Weaver Road bridge, and propose improvements, modifications, and strategies for meeting those needs. IAMP solutions are intended to provide safe and efficient operations and to protect the transportation function of the interchanges.

The IAMP provides transportation management planning for the interchange areas providing conceptual designs to address deficiencies at Interchange 103, and access management strategies for all three interchanges. The plan will help ODOT, Douglas County, and Myrtle Creek to maintain the integrity of interchange operations while providing appropriate access to the immediate areas and greater connections from I-5 to the nearby communities.

Preparation of the IAMP for the three interchanges occurred in conjunction with the preparation of the City of Myrtle Creek Transportation System Plan (TSP). The Myrtle Creek Planning Commission recommended approval of the TSP to the Myrtle Creek City Council on December 19, 2005. The City Council is expected to adopt the TSP by June 2006.

## **2.3 IAMP Goals and Objectives**

The goal of this IAMP is to maintain the function of the three interchanges in order to preserve the investment in the transportation facilities. The objectives of this IAMP are defined by OAR 734-051-0010 et seq. As noted in Section 3.0, Regulatory Framework and Appendix A, the review of applicable plans and policies, this IAMP addresses OAR 734-051.

The objectives of the IAMP are to:

- Protect the function of the interchanges as specified in the Oregon Highway Plan (OHP) and Douglas County TSP.
- Protect the safe and efficient operation of the interchanges between connecting roadways and minimize the need for major improvements at existing intersections (4th and Main Street/Myrtle Creek Highway/Old Pacific Highway, in particular).

- Provide safe and efficient operations on I-5 and OR 99 (Old Pacific Highway, “Highway 99”) as specified in the OHP and Douglas County TSP.
- Provide for safe and efficient connection to the surrounding urban areas and transportation routes.
- Not preclude a future bridge over the South Umpqua River connecting OR 99 to Weaver Road.
- Coordinate planning for Interchange 108 with any I-5 safety improvements.
- Develop an access management plan that provides for safe and acceptable operations on the transportation network, and meets OHP requirements, and access spacing standards in Oregon Administrative Rule (OAR) 734-051.
- Identify future land uses that would be inconsistent with the operation and safety of the interchanges and develop strategies for recommended land use controls (particularly near the South Umpqua Valley Industrial Park).
- Ensure ODOT is involved in future land use decisions that could affect the function of the interchanges.

## 2.4 Interchange Function

The three interchanges provide access to the City of Myrtle Creek, the unincorporated community of Tri City, and the City of Riddle. There is significant pressure to develop land surrounding the interchanges, and the Interchange 103 area has been targeted to attract more industrial, and possibly commercial development by Douglas County. Due to their close proximity, inter-related issues, and similar conditions, the Pruner Road/Riddle Bypass (103), Weaver Road (106), and Myrtle Creek (108) interchanges in the South Umpqua Segment of I-5 are analyzed as a unit.

I-5 is a principal arterial- interstate and freight route through the 103/106/108 area. The primary function of interstate freeways is to serve inter-regional and interstate passenger and freight traffic.

Interchange 103 connects I-5 with Pruner Road (Riddle Bypass) to the west and Oregon Highway 99 (OR 99), a district-level highway, to the east. District-level facilities have county-wide importance and serve trips between small urbanized areas, rural centers and urban hubs. Oregon Highway 99 serves the Tri City area to the east. Pruner Road is the crossroad and provides access to the South Umpqua Industrial Park, some commercial development (gas station and restaurants), residences in Tri City, and Cow Creek Tribal land in the direct vicinity of the interchange. Further out, it connects to the community of Riddle roughly four miles south of the interchange.

Interchange 106 is a rural interchange providing access to agricultural uses and rural residences off of Weaver Road (a minor collector). Minor collectors in rural areas provide a connection between resource areas having high economic impact on the community and the markets for

these products. This interchange also provides the primary access to the Myrtle Creek Airport via a frontage road (Aviation Drive).

Interchange 108 is the principal interchange for the City of Myrtle Creek crossing the South Umpqua River and connecting just north of the historic downtown. This interchange provides access not only to downtown, but OR 99, and residential areas to the east.

The intended function of interchanges 103, 106, and 108 is to safely and efficiently accommodate future traffic demands associated with current rural and, in the case of 103 and 108, urban land uses. The interchange improvements outlined in this IAMP are not intended to facilitate major commercial or residential development in rural areas surrounding the interchanges.

### **3.0 REGULATORY FRAMEWORK**

The Oregon Transportation Commission approved Oregon Transportation Investment Act (OTIA) funding for improvements to interchanges along I-5 at its January 16, 2002 meeting, subject to conditions. Principally, the Commission required that IAMPs be developed and submitted for their review and approval before funds for construction are released on specified projects. These conditions apply to future improvements on I-5 interchanges in the Myrtle Creek/Tri City area.

A number of different rules and regulations govern land use decision-making in the vicinity of I-5 Interchanges 103, 106 and 108. Appendix A provides a comprehensive review of the principal regulations applicable to planning for the interchanges and a working understanding of how these rules are likely to affect land use and development in the vicinity of the interchanges. Improvements to Interchanges 103, 106 and 108 are eligible for funding through the Oregon Transportation Investment Act (OTIA). Before construction funds can be released for any necessary future improvements, ODOT, Douglas County and the City of Myrtle Creek must agree on an acceptable Interchange Area Management Plan. Amendments to local plans to incorporate modifications to the function and design of the interchanges must be consistent with the regulatory requirements of the state and local governments as described in Sections 3.2, 3.3, and 3.4 and Appendix A.

### **3.1 Interchange Study Area Descriptions**

The land use study area for each interchange (see Figures 2, 3 and 4) defines the general area where the interchange improvements could potentially influence land use patterns or have land use impacts. At a minimum, the IAMP land use study area includes all land uses and roadways located within approximately 1,320 feet of the existing interchanges. This distance corresponds to the spacing standard outlined in the OAR 734-051 Division 51 rules for interchange ramps.

The three interchanges serve the Myrtle Creek and Tri City Unincorporated Urban Area in Douglas County. Half of Interchange 108, to the east of I-5, lies within the Myrtle Creek city

limits. The western half of Interchange 108 is outside the Urban Growth Boundary (UGB). Interchange 106 is wholly outside of the UGB, with access from Weaver Road to the north and a frontage road, Aviation Drive, to the south. Interchange 103 primarily serves the Tri City area and is within the Myrtle Creek UGB and the City of Riddle approximately four miles to the southwest. Old Pacific Highway (“Highway 99”) crosses over I-5 at this interchange, providing access to urban areas to the east, and agricultural areas to the west.

Douglas County has land use planning jurisdiction for most of the IAMP project, including the Tri City Unincorporated Urban Area, and the areas outside of the Myrtle Creek UGB. The Douglas County Comprehensive Plan (2003) contains land use designations in these areas, and Chapter 3 of the Douglas County Land Use and Development Ordinance contains the County’s zoning classifications. For the areas within the Myrtle Creek city limits and UGB (excluding Tri City), Myrtle Creek has planning jurisdiction. The Myrtle Creek Comprehensive Plan (1991) and the Myrtle Creek Zoning Ordinance 2004 provide land use designations and land use zoning, respectively.

### **3.2 State Regulatory Context for Interchange Area Management Planning**

Land use decision-making in the vicinity of the I-5 Interchanges 103, 106 and 108 is governed by a number of different state and local rules and regulations. Appendix A identifies the principal regulations and provides an overview of them in sufficient detail to provide a working understanding of how these rules are likely to affect land conservation and development in the vicinity of the interchange. Regulations include Statewide Planning Goals, Oregon Administrative Rules, and Oregon Revised Statutes related to land use planning, preservation of agricultural land, public facilities planning, transportation planning, access management and urbanization. Also governing the development of IAMPs are the State’s Highway Design Manual and the adopted transportation plans of Douglas County and Myrtle Creek.

Amendments to local plans to incorporate modifications to the function and design of the interchanges must be consistent with the applicable regulatory requirements. The allowed land uses in the vicinity of the interchanges will also have an affect on the operation of the transportation facilities. The traffic generation potential of allowed and future land uses, both in the County and in the City, were examined as part of the development to of the IAMP to assess the combined affect on how the interchanges function.

The plans and policies technical memorandum singles out Statewide Planning Goal 2 as particularly important in planning for interchange areas. Goal 2 requires planning coordination between those local governments and state agencies "which have programs, land ownerships, or responsibilities within the area included in the plan." ODOT must coordinate with Douglas County and with the City Myrtle Creek, both of which have planning authority over the areas impacted by any proposed interchange improvements. Coordination is particularly important because development within both the City and the County will impact use of the proposed interchange, and land use decisions in that area could affect future use and operation of the

interchange.<sup>3</sup> Goal 2 also requires that city, county, state and federal agency and special district plans and actions related to land use be "consistent with the comprehensive plans of cities and counties and regional plans adopted under ORS Chapter 268." This provision is important because elements of an IAMP developed for these interchanges will need to be adopted by both the City and County and elements will need to be incorporated into the jurisdictions' transportation system plans (TSPs)<sup>4</sup>.

Statewide Planning Goal 12, Transportation, requires cities, counties, metropolitan planning organizations and ODOT to provide and encourage a safe, convenient and economic transportation system. This is accomplished through development of Transportation System Plans (TSPs) based on inventories of local, regional and state transportation needs. Goal 12 is implemented through OAR 660, Division 12, the Transportation Planning Rule (TPR). The TPR contains numerous requirements governing transportation planning and project development. The TPR requires local governments to adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors and sites for their identified functions OAR 660-012-0045(2)."

The IAMP for Interchange 103, 106 and 108 will need to be found in compliance with the provisions of the TPR before it can be adopted by the City and the County. LCDC's rules implementing Goal 12 do not regulate access management. ODOT adopted OAR 734, Chapter 51 to address access management and it is expected that ODOT, as part of this project, is engaging in access management consistent with its Access Management Rule. (See Section 7.0 Access Management.)

The 1999 Oregon Highway Plan (OHP) outlines the policies and strategies to guide the Highway Division's operating and fiscal activities. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems. Policy 3C calls for developing interchange area management plans to protect the function of the interchange to provide safe and efficient operations between connecting roadways and to minimize the need for major improvements of existing interchanges. Access management

---

<sup>3</sup> The Transportation Planning Rule also requires coordination among affected local governments, agencies and special districts. See OAR 660-012-0015(5).

<sup>4</sup> A TSP is an element of the local comprehensive plan. The City of Myrtle Creek's Planning Commission recommended approval of a draft TSP to the Myrtle Creek City Council on December 19, 2005. The City Council is expected to adopt the TSP by June 2006. While the city's TSP was developed to be consistent with the draft IAMP for interchanges 103, 106, and 108, the IAMP contains a detailed access management plan for Interchange 108 and the City will need to adopt the IAMP recommendations (see Section 8.0, Implementation of the IAMP).

standards are detailed in Policy 3C and include the distance required between an interchange and approaches and intersections. The most stringent standards apply in interchange areas.

OAR 734, Division 51 (Highway Approaches, Access Control, Spacing Standards and Medians) defines the State's role in managing access to highway facilities in outlines how the State will manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways. An important component of the State strategy is the development of interchange area management plans. Section –0155 identifies when, how, and why ODOT will develop access management plans for particular sections of a highway. Division 51 also contains the Oregon highway system spacing standards for interchanges.

Chapter 9, Intersection and Interchange Design, of the Highway Design Manual implements the OHP policies. The manual includes the design standards, guidelines, and processes for designing road approaches, signalized and unsignalized at-grade intersections, and interchanges for State Highways. Improvements to I-5 interchanges must be consistent with the standards in this manual.

### **3.3 Local Regulatory Context for Interchange Area Management Planning**

IAMPs must be consistent with the adopted local transportation system plans. The Douglas County Transportation System Plan (TSP) was adopted in 2001 and establishes a system of transportation facilities and level of service adequate to meet the County's transportation needs. The Myrtle Creek TSP was developed concurrently with this plan, but has not yet been adopted. The Douglas County TSP includes a determination of future transportation needs for road, transit, bicycle, pedestrian, air, water, rail, and pipeline systems; policies and regulations for the implementation of the TSP; and a transportation funding program. This plan will need to be updated to reflect the policies, recommended improvements, and access management plans included in the IAMP for interchanges 103, 106, 108. The Tri City Urban Unincorporated Circulation Plan (2001) was also considered during the development of the IAMP. This circulation plan is one of three urban unincorporated circulation plans that are part of the Douglas County TSP. Because the City of Myrtle Creek is updating transportation information and adopting a transportation system plan (TSP), the adopted policies and improvements in the City's Comprehensive Plan (1978, Updated 1991) also were reviewed for consistency with the IAMP.

## **4.0 ALTERNATIVES CONSIDERED**

As stated earlier, conceptual designs were only developed for Interchange 103 in this IAMP. Designs for interchanges 106 and 108 will be developed in the future planning efforts accounting for the Weaver Road Bridge and the Myrtle Creek Arch Bridge efforts, respectively. Funding for the Interchange 106 improvements is part of the federal transportation bill that was signed into law in August 2005 and conceptual designs will be coordinated with that effort as it develops.

Any future improvements to Interchange 108 will need to integrate the planning for Myrtle Creek Arch Bridge project.

For Interchange 103, four planning-level interchange concepts were evaluated to address existing deficiencies. The concepts are very conceptual in nature and, if moved forward, would likely be modified to reflect further analysis and data collection regarding: site topography, right-of-way conditions/needs, geotechnical conditions, geometric requirements for truck turning, cost considerations, and the need to keep the interchanges operational during construction.

Each concept assumed widening of the Pruner Road (crossroad) bridge from two to three lanes, and that the bridge would be long enough to accommodate I-5's expansion to six lanes. The four alternative configurations considered include:

- The Existing Configuration
- The Existing Configuration with Modified Ramp
- Diamond Configuration (Standard or Tight)
- Diamond Configuration with Two Northbound On-Ramps

The recommended alternative configuration for interchange 103 includes a northbound on-ramp in the northeast quadrant of the interchange consistent with the STIP. All of the diamond configurations considered are consistent with this recommendation (standard or tight diamond, and diamond configuration with two northbound on-ramps.) The recommended variation on the diamond interchange will be determined after further analysis of the impacts the designs.

Variations on the diamond interchange concept were discussed at length at public meetings with review of both a standard diamond interchange and a tight diamond interchange. Both variations of this concept remove the sub-standard loop ramp in the southeast quadrant of the interchange and add a northbound on-ramp in the northeast quadrant. In addition, the ramp terminals on all approaches to and from the Pruner Road are re-aligned to intersect the cross street at a 90-degree angle. In both variations, local access roads on either side of the interchange are to be maintained. More details regarding these two concepts can be found in Appendix B, Interchange 103 Concepts Memorandum.

Three other concepts were developed late in the IAMP development stages to evaluate alternatives that made improvements to the interchange without eliminating the existing loop ramp. These three concepts include: (1) keeping the existing folded diamond configuration but widening the Pruner Road bridge from two to three lanes; (2) modifying the loop ramp to improve the geometric deficiencies and improving the Pruner Road bridge, and (3) improving the loop ramp and bridge as in (2) and adding a north leg to the interchange so that there are two northbound ramps (a diamond configuration with two northbound ramps). The four design alternatives (new and existing configurations) and their potential advantages are discussed below.

The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek) Interchange Area Management Plan**



- Legend**
- Existing Mainline
  - Proposed Bridge Improvements
  - Proposed Ramp Improvements
  - Eliminated Ramps

- Number of Lanes**
- 1 ➔ One Lane
  - 2 ➔ Two Lanes

**Figure 5**  
I-5 Interchange 103 Existing Configuration with Bridge Improvements  
**Conceptual Design**

February 2006

The page intentionally left blank

## 4.1 Existing Configuration

The existing interchange configuration features a folded diamond for northbound traffic. (See Figure 5.) The northbound on-ramp has a sharp, low speed ramp. The merge with the northbound through lanes occurs before I-5 goes beneath the existing bridge. One of the advantages of this configuration is that traffic originating on the west side of the interchange that is seeking to go north on I-5 could do so making only right turns. There would be no need to make left turns that conflict with on-coming traffic. This is especially important for trucks when a traffic signal is not used at the ramp terminal. The existing configuration would be improved over today due to the widening of the bridge (Pruner Road) from two to three lanes. However, the loop ramp would still have geometric and ramp length deficiencies as discussed in Section 5 of this document. The three lane bridge (assumed for all the alternatives) would provide a left-turn lane improving traffic flow. This configuration is not recommended.

## 4.2 Existing Configuration with Modified Ramp

A modification of the existing configuration would retain the folded diamond configuration for northbound I-5 traffic. (See Figure 6). Preliminary analysis suggests that the sharp, low-speed ramp can be redesigned to provide for easier movements for large trucks, but this option would likely require a longer bridge span crossing I-5 since the merge point for the on-ramp would be to the north of the existing bridge. The length of the span would be determined during the design phase. This would likely add cost. Retaining this loop ramp in modified form allows the same advantages for right turns discussed above combined with improved ramp length and geometry. This configuration is not recommended.

## 4.3 Standard and Tight Diamond Interchange (Preferred Alternative, Option 1)

Both the standard or tight diamond interchange configuration are consistent with the preferred alternative calling for a northbound on-ramp in the northeast quadrant of the interchange.

A diamond interchange, such as that used at Weaver Road, is a possible configuration for Interchange 103. A diamond interchange can be described as a “standard” diamond or “tight” diamond depending on the distance between the ramp terminals. A standard diamond generally has sufficient separation that left-turn lanes at the ramp terminals do not overlap. With a tight diamond, left turn lanes in opposing directions are often side-by-side on the crossroad. To provide a through lane and a left-turn lane in each direction, a standard diamond requires a bridge three lanes wide, while a tight diamond requires four lanes.

Whether the redesigned interchange is classified as a standard diamond or a tight diamond, the design is governed by Oregon’s Highway Design Manual (HDM). Where the design does not meet applicable standards, a design exception would be required.

The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek) Interchange Area Management Plan**



<b>Legend</b>		<b>Number of Lanes</b>	
	Existing Mainline		One Lane
	Proposed Bridge Improvements		Two Lanes
	Proposed Ramp Improvements		
	Eliminated Ramps		

**Figure 6**  
I-5 Interchange 103 Existing Configuration with Modified Ramp  
**Conceptual Design**  
February 2006

The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek) Interchange Area Management Plan**



- Legend**
-  Existing Mainline
  -  Proposed Bridge Improvements
  -  Proposed Ramp Improvements
  -  Eliminated Ramps

- Number of Lanes**
-  One Lane
  -  Two Lanes

**Figure 7**

I-5 Interchange 103 Diamond Configuration

*Conceptual Design*

February 2006

The page intentionally left blank

A standard diamond interchange would likely be centered equally about I-5. (See Figure 7). The northbound and southbound ramp terminals would be likely be located in the same general location as today. The Pruner Road crossing is assumed to feature a three-lane cross-section, however this interchange configuration would not preclude future expansion to a five-lane section if desired. Both the acceleration and deceleration lengths on the entrance and exit ramps would be designed to meet current standards as required by the HDM.

Assuming the ramp terminals remain in approximately the current locations, the local access points along Pruner Road would probably not change, except for the removal of one access in the southwest quadrant of the interchange (one of the driveways serving the gas station). Access to properties in this vicinity might be preserved by extending Petite Street southward approximately 450 feet west of the existing road. (Petite Street is shown as platted to continue to the south on the Douglas County Tax Assessor's map.) To meet the 1,320-foot access spacing called for in the OHP, other local access points would need to either be closed, or re-routed to intersecting streets.

In a tight diamond interchange, the configuration would be similar, but the separation between the northbound and southbound ramp intersections would be shorter. A typical separation between ramp terminals at a tight diamond interchange is approximately 350 feet. Although tight diamond interchanges can operate equal to, or better than, wider "standard" diamond interchanges, the tight diamond ordinarily requires side-by-side turn lanes and a wider bridge. As described above, whatever configuration is chosen must be designed according to the HDM or exceptions must be approved.

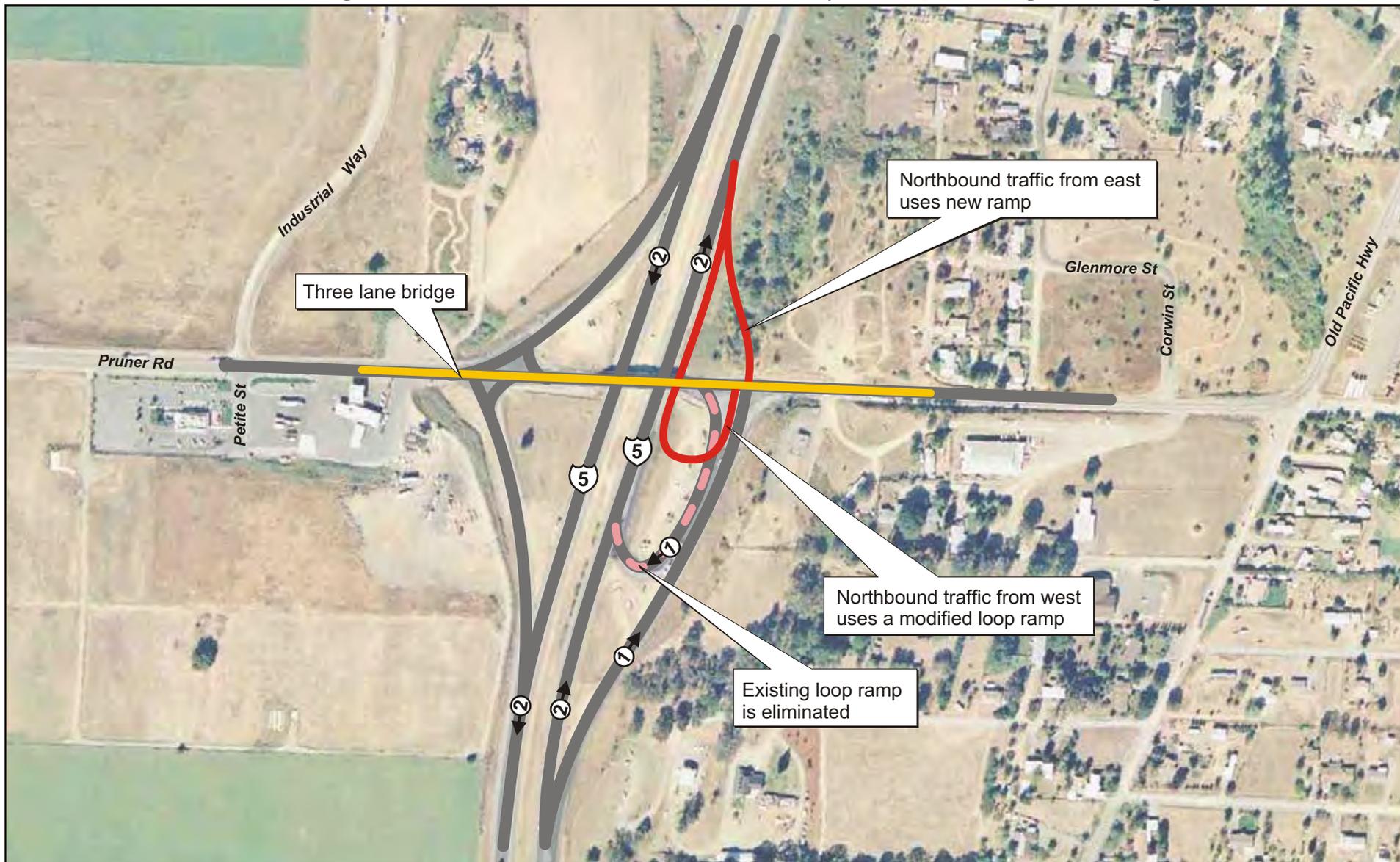
Similar to the standard diamond interchange concept described above, a tight diamond would provide for a separate left-turn lane and a separate through lanes at each ramp terminal. Thus, the Pruner Road crossing would likely feature a four-lane cross-section, but the configuration does not preclude future expansion to a six-lane section. Both the acceleration and deceleration lengths on the entrance and exit ramps would be designed to meet current HDM standards.

With a tight diamond configuration, shortening the distance between the ramp terminals allows the designer to achieve greater separation between the ramp terminals and the nearest local access points without moving them. With a tight diamond interchange, spacing to the closest local access point would be increased by approximately 200 feet relative to the existing configuration.

Though access spacing would be improved with the tight diamond concept, it still would not meet the 1,320-foot access spacing called for in the OHP. To meet spacing standards, other local access points would need to either be closed, or re-routed to intersecting streets. Access issues are discussed in detail in Section 7 of this report. The standard diamond option provides better traffic operations for left-turning traffic onto the I-5 ramps than the tight diamond because of the greater distance between the ramps. This concept would improve forecast operations at Interchange 103 compared to a tight diamond interchange option. Operations are discussed in more detail in Subsection 5.1.2 of this plan.

The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek) Interchange Area Management Plan**



Legend		Number of Lanes	
	Existing Mainline		One Lane
	Proposed Bridge Improvements		Two Lanes
	Proposed Ramp Improvements		
	Eliminated Ramps		

**Figure 8**  
I-5 Interchange 103 Diamond Configuration with Two Northbound Ramps  
*Conceptual Design*  
February 2006

The page intentionally left blank

## 4.4 Diamond Configuration with Two Northbound On-Ramps (Preferred Alternative, Option 2)

As mentioned above, this configuration is a second option for implementing the preferred alternative, adding a new northbound on-ramp. The design option would combine a diamond interchange with a loop ramp for the traffic from the west seeking to go north on I-5. (See Figure 8). This configuration would retain the advantage by which right turns are made by vehicles from the west seeking to travel north on I-5. It would also allow vehicles from the east use right turns to access I-5 northbound. This configuration would require a longer span for the bridge carrying the traffic across I-5. The need for signalization of the northbound ramp terminals would be delayed by several years.

## 4.5 Interchange 103 Alternatives Summary

Each conceptual design alternative for Interchange 103 has advantaged and disadvantages. These are summarized in Table 1 below.

<b>Table 1</b>		
<b>Interchange Configuration Advantages and Disadvantages</b>		
<b>Interchange Configuration</b>	<b>Advantages</b>	<b>Disadvantages</b>
Existing	<ul style="list-style-type: none"> <li>• Minimum span for bridge</li> <li>• Right turns are used for traffic from west seeking to go north on I-5</li> </ul>	<ul style="list-style-type: none"> <li>• Sharp, low-speed turn for northbound on-ramp</li> <li>• Left turns are used for traffic from east, Myrtle Creek and Tri-City, to go north on I-5</li> </ul>
Existing with Modified Ramp	<ul style="list-style-type: none"> <li>• Right turns are used for traffic from west seeking to go north on I-5</li> <li>• Ramp design speed is higher than existing loop ramp speed</li> </ul>	<ul style="list-style-type: none"> <li>• Left turns are used for traffic from Myrtle Creek and Tri-City to go north on I-5</li> <li>• Longer bridge required to span I-5 and new loop ramp</li> </ul>
Diamond <i>(Preferred Alternative, Option 1)</i>	<ul style="list-style-type: none"> <li>• Conventional interchange layout</li> <li>• Minimum span for bridge</li> <li>• Right turns are used by traffic from Myrtle Creek and Tri-City to go north on I-5</li> </ul>	<ul style="list-style-type: none"> <li>• Left turns are used for traffic from west seeking to go north on I-5</li> </ul>
Diamond with Two Northbound Ramps <i>(Preferred Alternative, Option 2)</i>	<ul style="list-style-type: none"> <li>• Right turns are used for traffic from Myrtle Creek and Tri-City to go north on I-5</li> <li>• Right turns are used for traffic from west seeking to go north on I-5</li> <li>• Signalization of the northbound ramp terminal may be delayed by several years due to the removal of many left turns from the intersection</li> </ul>	<ul style="list-style-type: none"> <li>• Longer bridge required to span I-5 to accommodate a new loop ramp <i>if</i> replacement the old loop ramp occurs</li> <li>• If the existing ramp remains in place, it does not meet current design standards</li> </ul>
<p>Note: The advantage of right turns at ramp terminals applies only if the ramp terminals are unsignalized.</p>		

### ***Signal Warrants***

Preliminary analysis of traffic volumes at the ramp terminals indicates that signal warrants for either the existing configuration or the diamond configuration would be met in a few years. Depending upon the rate of growth in regional traffic, traffic signal warrants could be met at both the northbound and southbound ramp terminals by approximately year 2007. However, signal installations require the approval of the State Traffic Engineer. Meeting warrants does not guarantee that they will be approved. Should the planned Weaver Road bridge connecting Interchange 106 to Myrtle Creek on the east side of the South Umpqua River be constructed, signal warrants may not be met for many years due to the shift in traffic patterns, drawing traffic from Interchange 103 and shifting it to Interchange 106.

The option that uses two northbound ramps (the loop ramp for traffic from the west and the second for traffic from the east) would further delay the need for a traffic signal at the ramp terminal. Without construction of a new Weaver Road Bridge, signal warrants would likely be met in approximately 2016 with this configuration featuring two the northbound ramps.

The ramp terminal for the southbound traffic is predicted to meet warrants for installation of a traffic signal as early as 2007 for all interchange concepts. The actual date at which the warrants will be met depends upon regional traffic growth and the presence or absence of the Weaver Road Bridge. The State Traffic Engineer must approve signal installations, and meeting warrants does not ensure approval.

### ***Capacity and Operations***

All of the potential configurations will satisfy travel demands in the future and all are expected to be far superior to the current situation because the new bridge will be designed with three lanes, allowing separation of left turns from through movements at the ramp terminals.

The traffic operations of the configurations are predicted to be similar. From a traffic standpoint, there do not appear to be significant factors influencing the selection of a preferred alternative. A determination of appropriate design elements may hinge on topographic constraints, right-of-way constraints, cost, or issues related to the construction sequence and phasing. Some design decisions may have to be made at the time of design for the replacement of the cracked bridge. However, the selection of a preferred alternative should be made prior to the design phase of the project. For planning purposes, it is important that all affected parties, including local jurisdictions and private property owners, accept the basic elements of a preferred alternative. Because all of the design options explored meet the project objectives for improving Interchange 103, all of the advantages offered under each were evaluated to determine which alternative was preferred. ODOT has determined that the operational performance and access provided by a diamond configuration that incorporates two northbound ramps is a preferable design, but is not recommending whether the preferred design concept will contain the loop ramps or not until a more detailed analysis of design considerations is undertaken.

## 5.0 EXISTING CONDITIONS INVENTORY AND DATA ANALYSIS

### 5.1 Transportation Facilities

#### 5.1.1 Geometric Conditions and Deficiencies

I-5 Interchanges 103, 106, and 108 were analyzed to determine existing geometric and roadside deficiencies. Findings from this analysis (Appendix C., Existing Geometric Conditions of Interchanges 103, 106, & 108) are summarized below.

**Interchange 103, Pruner Road/Riddle Bypass.** This interchange provides access to the Umpqua Industrial Park and some commercial development in the direct vicinity, Tri City and Myrtle Creek to the east, and Riddle to the west. It is an asymmetrical half-diamond on the west side; partial clover (“parclo” A) on the east side.

The spacing between the ramps of the Pruner Road interchange and the ramps of the next nearest interchange is greater than the two-mile minimum requirement and incidents at one interchange are not likely to impact the operation of the other. However, driveways and access points are located closer to the ramp terminals than allowed by current standards. To the west of the southbound ramps, there are several accesses and one intersection within 1,320 feet, the minimum access management spacing standard. East of the northbound ramps, there are two accesses within this distance. In addition, the end terminals for all guardrails at this interchange are not to current standards.

The I-5 mainline through the Interchange 103 meets the standards for a 70 m.p.h. design speed but the overhead clearance under the overpass, which ranges between 14’8” and 15’11”, is less than the required minimum clearance of 17 feet 6 inches. The *I-5 State of the Interstate Report* states that the crossroad presently has 4-foot shoulders and two 13-foot travel lanes and recommends upgrading this to 8-foot shoulders and a 40-foot-wide roadway.

This section of I-5 and the interchange were designed many years ago when different standards were applicable. The northbound off- and on-ramps at Interchange 103 are deficient when compared with current standards. The curve of the NB off-ramp does not provide a proper deceleration lane, exit angle, or spiral transition to aid in smooth exit speed reductions. The right-hand shoulder is 2 feet less than the required 6-foot width. The NB on-ramp’s tight loop configuration imposes a design speed below the minimum 25 mph. The existing northbound loop ramp has a design speed in the vicinity of 15 miles per hour with a 75 foot radius. The minimum allowable design speed with new construction is 25 miles per hour with a 159-foot minimum radius. The acceleration lane length is shorter than the required 1,420 feet and the taper length at the end of the acceleration lane is also shorter than the required 300 feet. The right-hand shoulder is 2 feet less than the required 6-foot width. Ramp terminal spacing along the crossroad is approximately 400 feet, less than the bare minimum standard of 600 feet. With the current ramp configuration, this is less of an issue since there are no eastbound left turning movements to

get onto the northbound on-ramp. Therefore, there are no potential conflicts with westbound left turning movements for the southbound on-ramp.

The southbound off- and on-ramps curve and spiral transition meet requirements for their design speed; however, both are shorter than their required lengths. For both, the right-hand shoulder is 2 feet less than the required 6-foot width. These also reflect the standards that were in effect at the time the interchange was designed and do not reflect current standards.

**Interchange 106, Weaver Road.** Interchange 106 provides access to the Myrtle Creek Airport and to agricultural uses. It is a standard diamond interchange. The spacing between entering and exiting tapers between the Weaver Road and Myrtle Creek (108) interchanges on both the north- and southbound directions are less than the standard two miles. Thus, traffic operations at the two interchanges have the potential to affect one another with respect to weaving movements.

Access points are located closer to the ramp terminals than permitted under current standards. To the west of the southbound ramps, there are accesses and an intersection that fall within 1,320 feet of the ramp terminals and east of the northbound ramps and one intersection falls within this distance.

The bridge is functionally obsolete and does not meet vertical clearance standards. In addition, the end terminals for all guardrails are not to current standards.

The northbound off- and on-ramps have an adequate design speed, but both the deceleration and acceleration lane lengths fall short of the required 540 feet for the existing geometry. If the geometry changes, the required lengths will increase. The distance between the existing ramp terminals is 475 feet and does not meet current standards. Thus, the traffic operations on these ramps have the potential to impact each other. Especially if the Weaver Road bridge is constructed and traffic volumes increase significantly, the spacing between the ramp terminals will likely be inadequate. The taper length following the acceleration lane is also deficient, being 50 feet short of the required 300 feet. Similarly, the southbound off- and on-ramps are shy of their required lengths.

**Interchange 108, Myrtle Creek.** This interchange has a unique configuration due in part to I-5's tight, reversing curves in this area. This interchange is the main access into the City of Myrtle Creek. It connects to the northern part of the city, including the downtown and numerous residential areas.

The entrance ramps have tight curves and deficient acceleration lengths. The overpass bridge is functionally obsolete. The abrupt and sharp curvature of the I-5 mainline alignment through this interchange has led to high accident rates. ODOT has installed special signage, including radar-activated devices, to warn drivers to slow down. The mainline median through the interchange is 8.4 feet in width, while the minimum required width of a median with barrier is 18 feet.

Measurements of as-built drawings show the vertical clearance underneath I-5 at the Myrtle Creek underpass at 16 feet, one foot short of the required 17 feet 6 inches. Like the two

interchanges to the south, the end terminals for all guardrail runs at Interchange 108 do not meet current standards.

The minimum required spacing from crossroad to crossroad in the vicinity of Myrtle Creek should be two miles. There is less than a two-mile separation between the Myrtle Creek interchange and the next interchange to the south. Also, there is a required spacing of two miles between the beginning and ending of exit and entrance ramp tapers. There is only approximately 1 mile distance between the Myrtle Creek interchange and the Weaver Road interchange. In addition, to the east of I-5 along Hwy 99 there are accesses that fall within 1,320 feet distance from the ramp terminals.

Both of the northbound off- and on- ramps are currently deficient. The northbound off-ramp does not conform to standard exit ramp design. The ramp diverges from the mainline at the start of a sharp curve on the mainline and features a reverse horizontal curvature and compound curvature; features that are not standard ramp design practice in Oregon.

The design speed of the ramp is limited to 30 miles per hour (mph), less than the minimum design speed of 35 mph. This vertical curve is immediately followed by a 6.6% downgrade that exceeds the desirable downgrade of 6%.

Regarding the northbound on-ramp, the *I-5 State of the Interstate Report* indicates that there is no spiral curve transition on the ramp, and while there is no data on the on-ramps given on the as-built drawings, it appears that the ramp radius is greater than the mainline radius. This would lead to speeds on the merging on-ramp to be higher than speeds on the mainline. Also, the length of the acceleration lane is inadequate. These deficiencies make it more difficult for traffic to safely merge onto I-5.

The right-hand shoulders for both off- and on-ramps are 2 feet less than the required 6-foot width. Neither cross-section of the ramps include a 2-foot “shy” distance from the edge of the standard shoulder to the face of guardrail.

The *I-5 State of the Interstate Report* indicates that the southbound off-ramp has deficiencies similar to the northbound on-ramp. The ramp’s radius is not equal to the main line curve radius, there is no spiral curve transition on the ramp, and the deceleration lane length is inadequate.

The southbound on-ramp begins as a frontage road that runs north, parallel to I-5. It crosses under I-5 and loops around to connect with southbound I-5. The loop portion of the ramp has a radius of 65 feet. This yields a degree of curvature significantly sharper than the standard of 36 degrees and a design speed less than the minimum 35 mph. The existing loop ramp has a design speed of about 15 mph, which is far below current ODOT standards as specified in the HDM. Additionally, the acceleration lane is approximately 325 feet in length, far short of the minimum requirement. If the ramp were designed to the 25 mph standard, the acceleration lane would need to be at least 1,430 feet in length. The ramp entrance angle is sub-standard, as the ramp converges with the mainline on a curve. These deficiencies make it more difficult for traffic to safely merge onto I-5.

Both the southbound off- and on-ramps have right-hand shoulders that are 2 feet less than the required 6-foot width. Neither cross-section of the ramps includes a 2-foot “shy” distance from the edge of the standard shoulder to the face of guardrail. All these deficiencies reflect the lower standards that were applicable when the facility was originally designed.

### **5.1.2 Existing Traffic Operations in the Planning Area**

One of the objectives in developing the IAMP for Interchanges 103, 106, and 108 is to gain a better understanding of the current conditions, limitations, opportunities and needs for these interchanges. This section summarizes the methods, procedures, and data used in analyzing the traffic counts and developing the 30<sup>th</sup> Highest Hour Volume. Traffic operations, merge, and diverge analyses were performed for current traffic volumes on the existing road network. Complete results are presented the Interchanges 103, 106, and 108 Existing Transportation Analysis, Appendix D.

In order to determine traffic volumes, 48-hour tube counts, manual 14-hour classification counts, and intersection peak hour counts were taken at a variety of locations. There are eight intersections of interest surrounding these three interchanges. Four of those intersections are on the Pruner Road between Interchange 103 and Old Highway 99. Three additional intersections are located on Weaver Road at Interchange 106. The final intersection is the junction of the SB ramps and NB off-ramp at Interchange 108. All intersections are currently unsignalized. The lane configuration and traffic control at each of the intersections is illustrated in Figure 1 in Appendix D. The counts were examined to determine the peak hour volume, peak hour factor, and percent of heavy vehicles at each intersection. The system peak hour for the study area was found to occur between 4:00 and 5:00 PM.

Heavy vehicle percentages were determined for each intersection from the counts provided. The count data includes truck classifications by light, medium, and heavy. The medium category includes any vehicles with 3 axles, and heavy is defined by anything with more than 3 axles. The medium and heavy trucks were combined together for the percent heavy vehicles. The percent of heavy vehicles at select locations is summarized in Table 4 in Appendix D.

Using methodology developed by the Transportation Planning Analysis Unit (TPAU) for ODOT, current year 30<sup>th</sup> highest hour traffic volumes were calculated for the areas surrounding Interchanges 103, 106, and 108. The 30<sup>th</sup> highest hour provides a good approximation of peak traffic conditions without including the busiest hours due to outlying events like major holiday traffic.

### **5.1.3 Operational Criteria**

Transportation engineers have established various descriptors for traffic operations of intersections. The most common descriptor is the Level-of-Service (LOS) as defined by the HCM. The LOS concept requires consideration of factors that include travel speed, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort, convenience, and operating cost. Six standards have been established ranging from LOS A,

where traffic is relatively free flowing, to LOS F, where the street system is totally saturated with traffic and movement is very difficult. At both signalized and unsignalized intersections, LOS is based on control delay. At two-way stop controlled intersections, control delay is the total duration from the time a vehicle joins the back of the queue until it proceeds forward into the intersection from the first position at the stop sign. For freeway facilities, LOS is based on density in terms of passenger cars per mile per lane.

A comparison of traffic volume demand to intersection capacity is another method of evaluating how well an unsignalized intersection is operating. This comparison is presented as a volume-to-capacity (v/c) ratio. A v/c ratio of less than 1.0 indicates that the volume is less than the capacity of the facility. When it is closer to 0.0, traffic conditions are generally good with little congestion and low delays for most intersection movements. As the v/c ratio approaches 1.0, traffic becomes more congested and unstable with longer delays.

The 1999 Oregon Highway Plan<sup>5</sup> (OHP) sets standards for v/c ratios that are not to be exceeded for state highways. The standards show that Interstate 5 must operate with a v/c ratio at or below 0.70. The Douglas County TSP establishes standards for roads not under the state's jurisdiction. An LOS D is required for all signalized and unsignalized intersections.

In addition, analysis and results of the operational analysis for existing conditions were compiled for each ramp intersection for the three interchanges. The results of this analysis showed that all ramps are operating at an acceptable LOS and below the v/c standard of 0.70 set in the OHP. The merge and diverge analysis conducted on the freeway ramps shows that the ramps are currently operating at an acceptable LOS.

#### **5.1.4 Safety and Crash Analysis**

The safety analysis performed for the IAMP is intended to summarize and evaluate crashes along Interstate 5 (I-5) in the project area for Interchanges 103, 106, and 108. The safety analysis report (Appendix E) includes a review of ODOT's supplied Planning Research Corporation (PRC) crash listings (2001 to 2003), ODOT Safety Priority Index System (SPIS) data, and a comparison of calculated crash rates with statewide averages.

The first step in analyzing the safety data was to determine the location and frequency of crashes occurring in the study area. Next, crashes were totaled by segments of freeway and by on/off ramps of interchanges. Finally, interchange crash rates were calculated and compared to statewide averages.

#### **PRC Reports**

PRC reports are generated by ODOT personnel in the Crash Analysis and Reporting Unit from statewide crash databases. The PRC crash listings were obtained from ODOT for the most recent

---

<sup>5</sup> 1999 Oregon Highway Plan, Oregon Department of Transportation, Salem, OR, 1999.

three complete years of reported crashes, 2001-2003. The number of crashes was determined from the PRC reports. The ADT for each location was determined from the available traffic counts. Crash rates were then calculated for the entire three-year study period. These results are shown in Table 1 in Appendix E.

### **SPIS Data**

SPIS is a method developed by ODOT for prioritizing locations where funding for safety improvements can be spent most efficiently and effectively. Each SPIS site is assigned a Safety Investment Program (SIP) rating. This rating varies from 1 to 5, where a location having 10 or more fatal/injury crashes in a three-year period would be assigned the highest rating of 5.

A list of the sites with the top 10% SPIS scores is produced by ODOT each year. The study area has one Top 5% SPIS location, which lies between MP 107.9 and MP 108.03. It had 22 crashes within the three-year study period, with no fatal crashes. The SPIS score for the section ranges from 72.51 to 72.95 with a SIP rating of 3. The SPIS score and SIP ratings indicate that there is need for improvements to be made in the vicinity of MP 108.

### **Study Area Findings**

At Interchange 103, a total of eight accidents were recorded at the northbound ramp terminal intersection. Six angled crashes occurred while vehicles were turning. At the Interchange 103 southbound ramp terminal, seven crashes were recorded. Six of the seven crashes occurred while vehicles made a turning movement, resulting in three angled type crashes and three sideswipes. No crashes were recorded at the ramp terminals for interchange 106 or 108 during the three-year period examined. A summary of crashes by location for all the studied interchanges is included as Table 1 in Appendix E.

The spike in accidents occurred in 2003 might be a result of construction on the freeway, which sometimes caused traffic to detour through the Interchange 103 intersections. Crashes at the SB ramp terminal may be caused by poor sight distance for vehicles turning left from the off-ramp. The vertical curve of the bridge, along with the guardrail and security fence, combines to obscure WB cars on the overpass.

Crashes were also examined for the freeway mainline between MP 102.5 – MP 110.5. The segment of freeway between MP 108.0 – MP 108.5 has a considerably higher crash rate than the other segments. The crash rate for this segment of freeway is approximately five times higher than the statewide average crash rate for freeways. Thirty-four crashes have occurred in this segment, of which 22 have caused property damage only and the rest involved injuries. There were no fatal crashes in the segment. Seventeen of the crashes were fixed-object type. The remaining were as follows: seven sideswipes, five overturns, and four rear-end crashes involving a stopped vehicle. In addition, 55% of the crashes occurred due to excessive speed of drivers for the existing conditions, 16% due to improper lane change, 8% due to driving an unsafe vehicle and 8% of vehicles ran off the road.

The crash rate of 0.45 accidents per motor vehicle miles traveled for the segment between MP 103.0 – MP 103.5 is slightly higher than the statewide average crash rate for freeways. The segment had six crashes with two fixed object, two sideswipe crashes, a rear end, and an animal crash. Four out of the six accidents in the segment occurred on the curve. Table 2 in Appendix E summarizes the crashes on 0.5-mile segments of Interstate 5.

### **Recent Improvements**

In the spring of 2004, ODOT installed a radar gun and overhead variable message sign (VMS) for both directions of Interstate 5 at the beginning of the MP 108 curves. The radar checks the speed of approaching vehicles and displays it on the VMS board with the message “Your Speed Is XX mph.” In addition, curve warning signs with the appropriate speed are posted next to the VMS. The crash data from ODOT does not cover the time period since this technology was installed. However, area residents have voiced opinions that the sign reminds them to slow down when entering the curve.

### **Safety Conclusions**

The safety analysis showed high crash rates at the Interchange 103 ramps terminals and near Interchange 108 on the I-5 mainline. The segment of freeway between MP 108 – MP 108.5 on Interstate 5 had a crash rate approximately five times greater than the statewide crash rate for freeways with 34 crashes between 2000 and 2002. This “Top 5%” SPIS site had primarily fixed object crashes (50%). Due to the nature of fixed object crashes, there is no simple mitigation that can be suggested. Driver inattention and excessive speeds often cause these kinds of crashes. It can be inferred from the remaining crashes that they were caused either due to the vehicle being unable to maintain its lane or due to excessive speed. The data indicates that 22 of the 34 crashes occurred on the curve. The effectiveness of the radar gun and VMS should be evaluated, however, other potential mitigation measures could include:

- Realignment of Interstate 5 to reduce or eliminate the curve.
- Relocation and/or reconstruction of the on- and off- ramps and merge points.

Both northbound and southbound ramp terminals at Interchange 103 also had a high number of crashes. The northbound ramp terminal had eight crashes and the southbound ramp terminal had seven crashes between 2001 and 2003. The majority of crashes at both locations, 75% at the northbound ramp terminal and 86% at the southbound ramp terminal, occurred while vehicles were turning. Some general suggestions can be made for the improvement of safety at this location:

- Signalization of Interchange 103 ramp terminals if warrants are met.
- Installation of overhead illumination.
- The addition of a left-turn pocket for the westbound left turn leading to the NB on-ramp.
- Elimination of the guardrail sight-distance problem for the SB off-ramp.

## 5.2 Land Use

Transportation and land use are integrally related. The type and density of land uses in an area strongly impacts traffic levels and patterns on the roadways. This section looks at the existing land uses in the interchange areas, and the land use regulations that apply within those areas. By reviewing what exists today, vacant and underdeveloped areas, and land use regulations, we can reasonably forecast the potential for future development and redevelopment in the interchange areas. Knowledge of land uses informs decisions related to access and local circulation.

This section provides a summary of the existing comprehensive plan designations, zoning, and existing and future land uses, including vacant/developable land and property ownership in areas around the three subject interchanges. The information included also describes expected future growth and development patterns around these interchanges that will influence the transportation system. A more detailed description of current and future land uses is included in Appendix F.

### 5.2.1 Interchange 108 Land use Designations, Zoning, and Existing and Future Land Use

#### Interchange 108

##### *Comprehensive Plan Designations*

Areas of Douglas County within the Interchange 108 study area, outside of Myrtle Creek's UGB, are designated "Farm/Forest Transitional" on the County's Comprehensive Plan Map. This designation is intended to "conserve and maintain open space lands for forest use or farm use or both, or for the protection of natural resource areas."

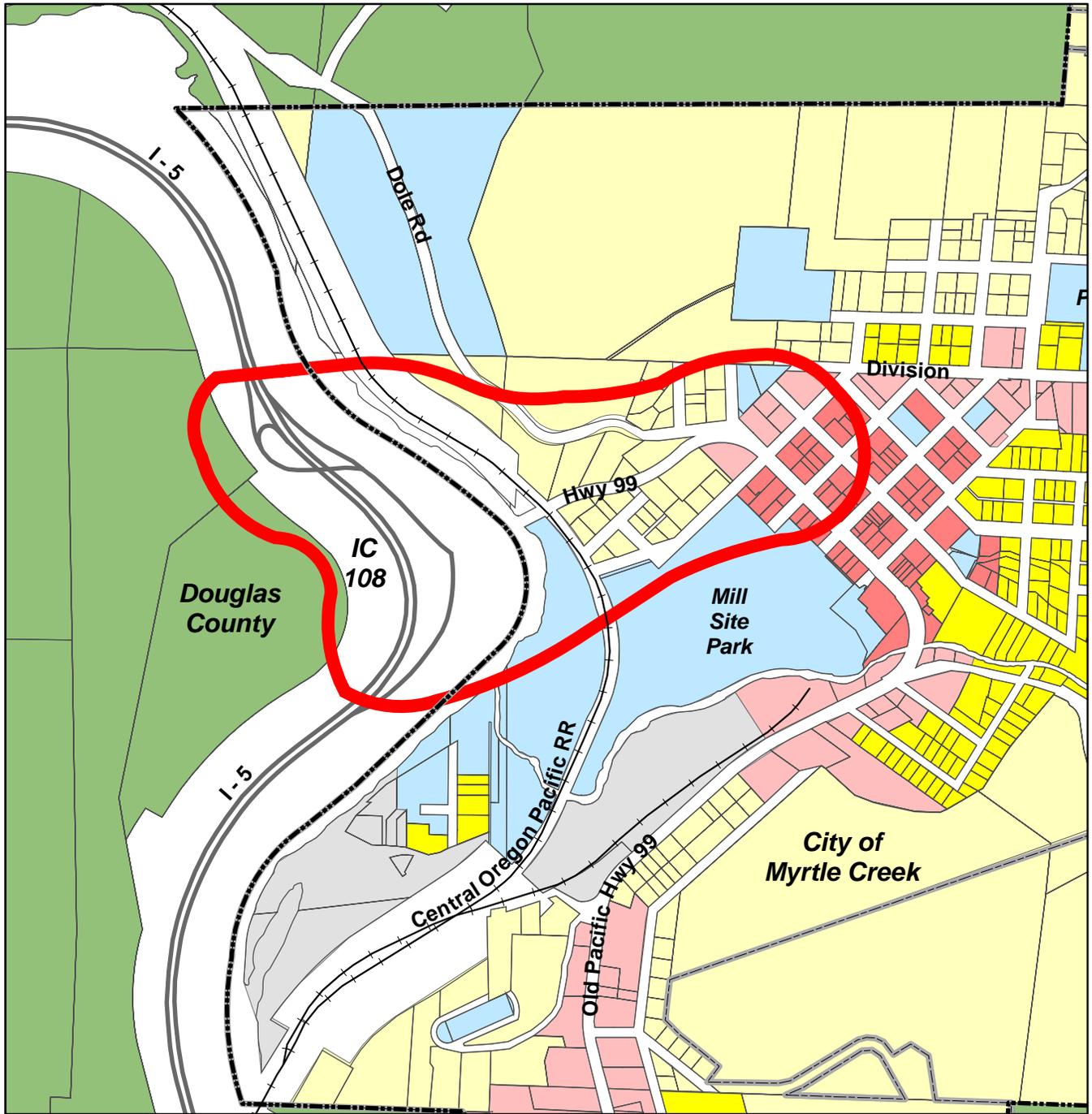
Only the land to the east of I-5 at Interchange 108 lies within the city limits of Myrtle Creek. As expected, the Myrtle Creek Comprehensive Plan designations within are more urban in nature. The Comprehensive Plan designates land in this area as Public/Semipublic, Low Density Residential, and Steep Slope Residential.

##### Zoning Classifications

Land to the east of I-5 at Interchange 108 is within the City of Myrtle Creek's city limits and zoned for various urban uses (See Figure 9.). The western half of Interchange 108 is outside the UGB and is zoned Farm Forest. Uses in this zone are limited to farm and forest use, associated buildings, and limited home occupations. The minimum lot size is 80 acres.

Development code designations within urban part of the study area include those for: community services and parks, single-family homes, and commercial development. Much of the residentially-zoned land is constrained by steep slopes and is limited to large lot development. Commercial zones allow a range of uses including lower intensity neighborhood commercial, downtown commercial development, and larger-scale commercial uses like department stores.

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek)  
Interchange Area Management Plan**



**Legend**

- Highway
- Railroad
- Myrtle Creek Urban Growth Boundary
- Myrtle Creek City Limits
- Parcel Boundary
- Interchange Area Management Plan Study Boundary

**Douglas County Zoning:**

- Farm / Forest

**Myrtle Creek Zoning:**

- Central Business District
- Commercial
- Industrial
- Low Density Residential
- High Density Residential
- Public / Semi-Public



**Figure 9**

I-5 Interchange 108  
Zoning and Existing Land Use

February 2006

The page intentionally left blank

### Existing and Future Land Uses

There is very little development in the immediate vicinity of Interchange 108, due to the natural topography and the South Umpqua River. Further east of the interchange within the city area, there is some residential (single-family) development, the northern part of the historic downtown with commercial development and part of Millsite park.

Potential for new development is constrained in much of the study area. Steep slopes and the restrictive Farm/Forest zoning preclude new development to the west of the interchange. Directly to the east, within the City limits of Myrtle Creek, there are some existing residences that overlook the South Umpqua River and North Main Street. There are some low density development opportunities to the northeast of these homes, in areas zoned Residential Hillside. There may be some redevelopment opportunities in areas zoned R-1 to slightly higher densities, but most of the area south of North Main is already developed with single-family homes. Commercially-zoned parcels in the study area are also predominantly developed, with little opportunity for redevelopment at a higher intensity than what currently exists.

### **5.2.2 Interchange 106 Land Use Designations, Zoning, and Existing and Future Land Use**

#### Comprehensive Plan Designations

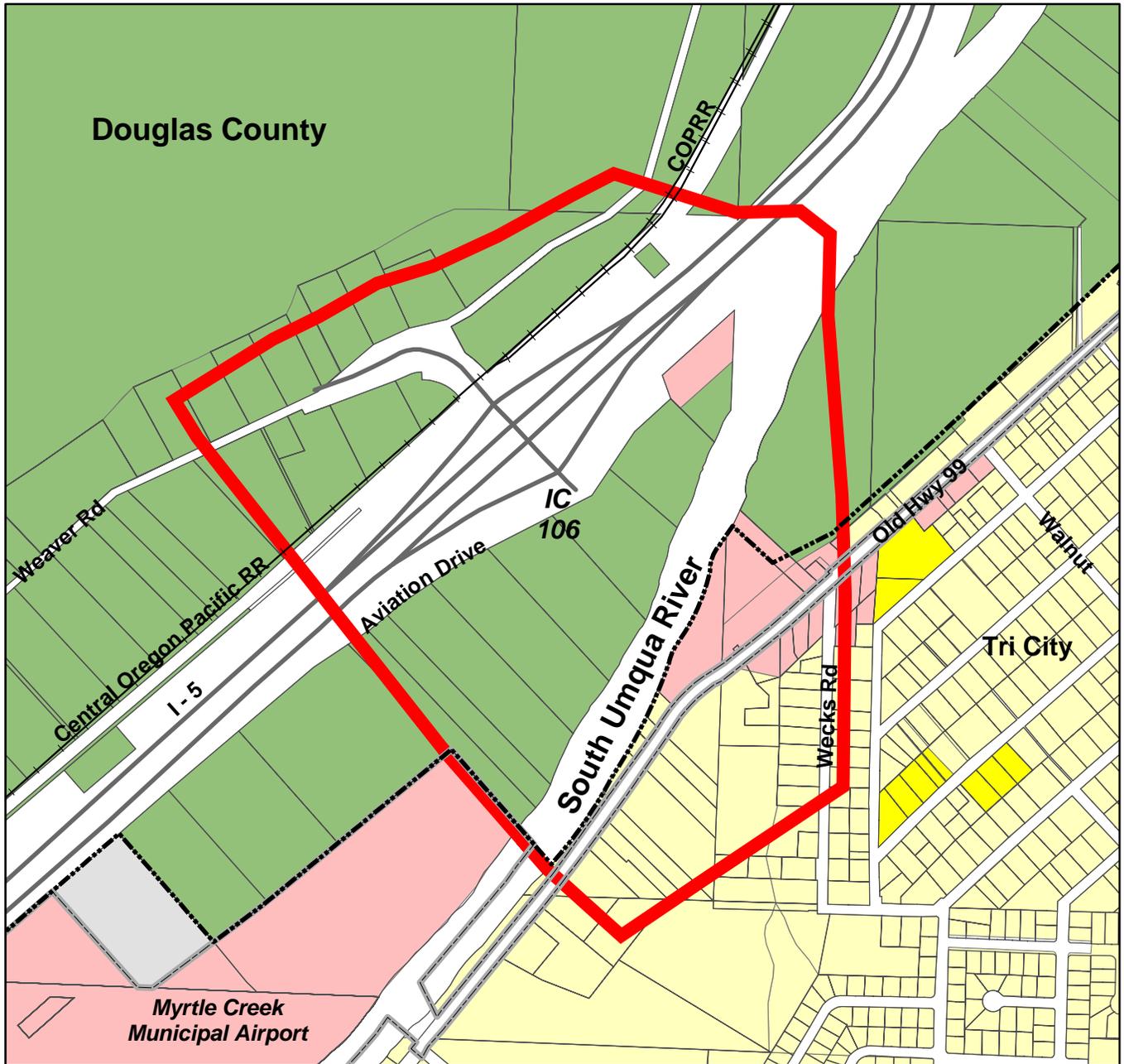
Interchange 106 is within Douglas County, wholly outside of the Myrtle Creek/Tri City UGB, with access from Weaver Road to the west and a frontage road, Aviation Drive, to the east (see Figure 10.). The immediate vicinity is designated “Agricultural” in the Douglas County Comprehensive Plan. This designation is intended to preserve and maintain prime agriculture lands for farm uses and provide protection from non-farm use. The Interchange 106 study area, or interchange area management plan boundary, encompasses land in the Myrtle Creek/Tri City UGB designated for commercial and residential uses.

#### Zoning Classifications

Interchange 106 is within Douglas County, and county land use zoning in the vicinity of the interchange limits development by only allowing agricultural use and other uses which are compatible with agricultural activities. Permitted uses are farm uses, their associated buildings and accessory uses, and the propagation or harvesting of a forest product. Property development standards require that created parcels be a minimum of 20 acres. Much of the study area is within the floodplain further restricting development.

The page intentionally left blank

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek)  
Interchange Area Management Plan**

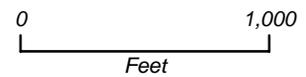


**Legend**

- Highway
- Railroad
- Myrtle Creek Urban Growth Boundary
- Myrtle Creek City Limits
- Parcel Boundary
- Interchange Area Management Plan Study Boundary

**Douglas County Zoning:**

- Commercial
- Farm / Forest
- Industrial
- Single Family Residential
- Multiple Family Residential



**Figure 10**

I-5 Interchange 106  
Zoning and Existing Land Use

February 2006

The page intentionally left blank

In addition, Douglas County has an airport impact overlay that restricts development on property near the Myrtle Creek Municipal Airport. The regulation (Section 3.334.800 of the Douglas County Zoning Code) calls for restrictions in the airport approach area and the airport clear area. Uses and activities permitted by the underlying zoning districts, as well as height and density are further restricted within these areas.

Currently, the overpass does not connect Interchange 106 to Highway 99 in Tri City. However, with the new Weaver Road bridge, the area will connect to property zoned for commercial and residential uses in Tri City as well as tribal land which is not subject to local zoning controls.

### **Existing and Future Land Use**

Uses surrounding the interchange are consistent with the agricultural comprehensive plan designation. Rural residences and associated grazing activity (horses, goats) and farming occupy land south of Weaver Road. North of Weaver the steep slope is not conducive to farming or grazing, but there are some existing residences. Land off of Aviation Drive southeast of the interchange is parcelized in lots ranging from 2.8 to 12.3 acres and is in active farm use. The majority of this property is owned by the US Trust for the Cow Creek Band of the Umpqua Indian Tribe and is not subject to local zoning controls. The tribe owns over 32 acres of land along Aviation Drive with 20 acres comprised of four contiguous lots (29-5W-32A lots 1700 and 1800, and 29-5W-32D lots 100 and 200).

The study area east of the South Umpqua River and along Highway 99 is developed with commercial and residential uses. The proposed arterial connection between Old Pacific Highway 99 and I-5 at the Weaver Road interchange could potentially affect properties in this area. Within the study area along Highway 99, there are large lot residences, a church, manufactured and mobile homes, and some businesses. There is a small “strip mall” and a restaurant northwest of Highway 99, just south of the Wecks Road intersection. Wecks Road is fully developed with single family residences, both “stick built” and manufactured, on predominantly small lots. The southwest corner of the intersection of Wecks and Highway 99 has a vacant lot and a convenience store; the northeast corner is vacant. The three lots directly north of the intersection are vacant and total just over four acres.

The new connection between Tri City and I-5 via the anticipated Weaver Road bridge and Interchange 106 may create pressure for new development. Future development in the vicinity of Interchange 106 is limited due to the Farm/Forest designation, the floodplain and airport. However, the Cow Creek Tribe’s land is not subject to land use zoning regulations. Consequently, the tribe could develop its 32 acres with land uses inconsistent with the rural designation. Some of this property could be taken up by the new bridge. In addition, much of the property appears to be in the floodplain.

Existing structures northwest of Highway 99 would likely be affected by any of the alignment options proposed for the new Weaver Road bridge (arterial connection to Interchange 106); right-of-way for a proposed four-way intersection at Wecks Road may also impact property southeast of the highway.

## **5.2.2 Interchange 103 Land Use Designations, Zoning, and Existing and Future Land Use**

### **Comprehensive Plan Designations**

Interchange 103 primarily serves the Tri City area and is within the Myrtle Creek/Tri City UGB (see Figure 11.). It also is the primary north access to the City of Riddle. Riddle is roughly four miles southwest of the interchange and has a population of approximately 1,000 people. Pruner Road/Old Pacific Highway 99 crosses over I-5 at this interchange, providing access to urban areas to the east; agricultural, industrial, and commercial areas to the west; and Riddle farther to the southwest. The Comprehensive Plan designations for the immediate vicinity are commercial and industrial to the west of I-5, and commercial and low density residential to the east of I-5. The Comprehensive Plan designation for the area south and west of the UGB is agricultural.

### **Zoning Classifications**

The study area is within the UGB and is subject to Douglas County zoning for Tri City. Most of the land on the west, north of Pruner Road, is part of a County-owned Industrial Park and is zoned Heavy Industrial (M-3). An Urban Growth Management Agreement (UGMA) between the City of Myrtle Creek and Douglas County allows manufacturing uses outright in the South Umpqua/Riddle Interchange Industrial Park. Other industrial uses in this area are subject to the provisions of the LUDO Article 3.35.300, Architecturally Controlled Districts.

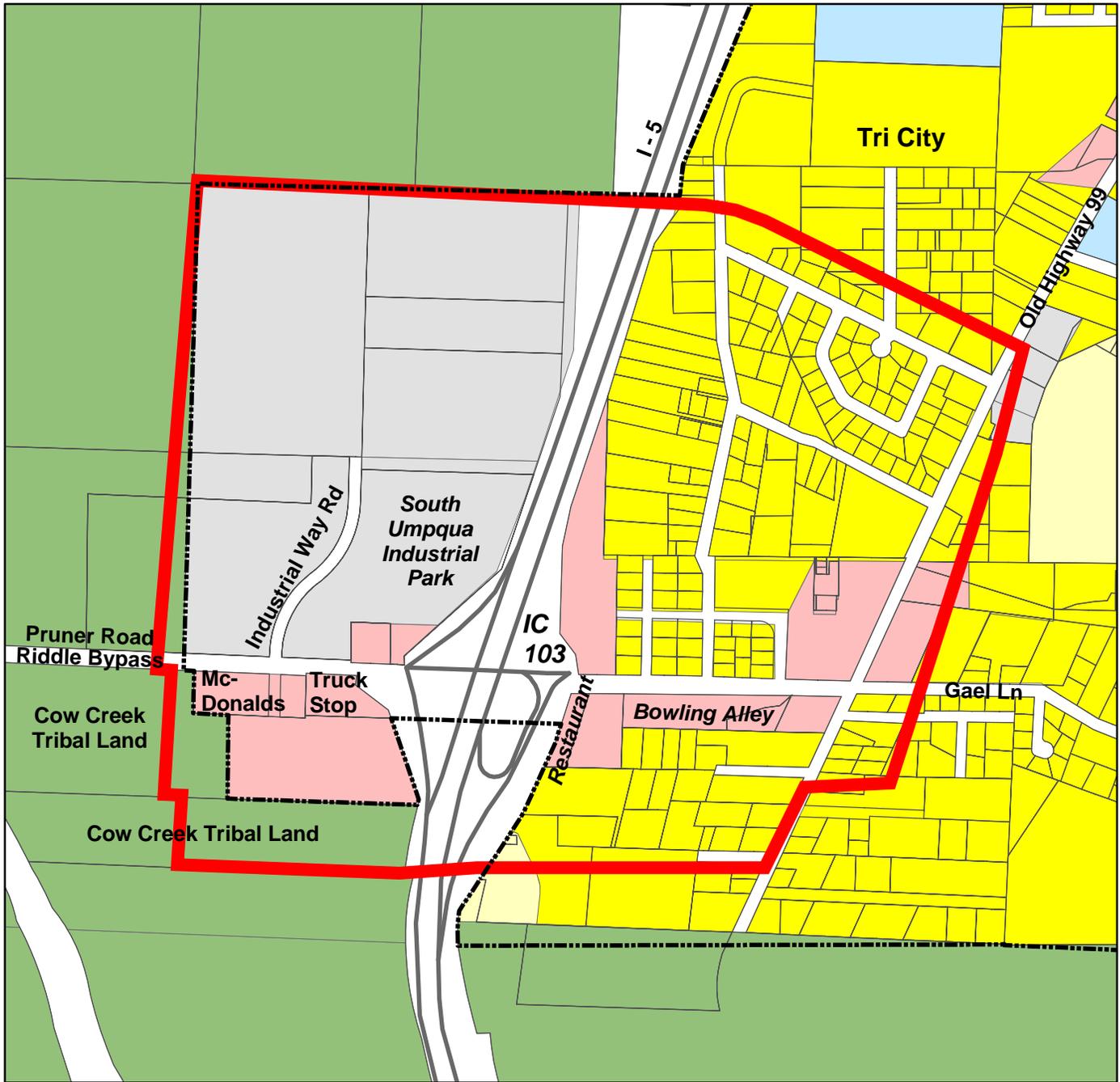
Parcels closest to the interchange are zoned tourist commercial (CT), as are some parcels east of the interchange, along Highway 99. The IAMP study area boundary for this interchange extends south of the UGB, west of I-5, to include a small area zoned F1 (Exclusive Farm Use – Cropland, 20 acres minimum lot size). Douglas County zoning in the study area east of the interchange is predominantly Single-Family Residential (R-1, 6,500 square foot minimum lot area), with the only exception being the area around the Old Pacific Highway 99 intersection, where there is some CT and C3 (General Commercial) zoning.

The Cow Creek Band of the Umpqua Tribe owns two large parcels south of Pruner Road and west of the interchange, totaling 35 acres. The property has an “Exclusive Farm Use-Cropland (F1)” zone designation, which allows agricultural use. It is expected that these parcels will ultimately be placed in the Tribal Trust, at which time land uses will be determined by the Tribe.

### **Existing and Future Land Use**

Commercial property in the southwest quadrant of Interchange 103 is developed with traveler-oriented services, including a fast food/drive-through restaurant and a truck stop (gas, drive-through restaurant, and convenience store). Property south of these commercial properties is outside of the UGB and is in active farm use.

**Interstate 5 Interchanges 103 (Riddle Road), 106 (Weaver Road), and 108 (Myrtle Creek)  
Interchange Area Management Plan**



**Legend**

- Highway
- Myrtle Creek Urban Growth Boundary
- Parcel Boundary
- Interchange Area Management Plan Study Boundary

**Douglas County Comprehensive Plan:**

- Commercial
- Farm / Forest
- Industrial
- Low Density Residential
- Medium Density Residential
- Public / Semi-Public



**Figure 11**  
I-5 Interchange 103  
Zoning and Existing Land Use

February 2006

The page intentionally left blank

The Douglas County-owned South Umpqua Industrial Park is north of Pruner Road. This area is largely undeveloped and, according to the South Umpqua Development Partnership website (<http://www.umpquaedp.org>), 48 acres remain available for future development. A sign in the vicinity of the interchange indicates that Roseburg Trailer Works, a horse trailer manufacturer, will soon be located in the area and a WinCo Distribution Center is visible from I-5 and takes access from Pruner Road. The type of businesses that are eligible for the Enterprise Zone credit in the industrial park are either industrial or manufacturing in nature. Business that are deemed more traditionally retail, or commercial do not qualify. Though, warehouses for retail chains are eligible.

Uses east of the highway within the study area include a restaurant, a bowling alley, a church, manufactured homes and other residences, and a grocery store. A heavy-industrial use (Tri City Retread Company) occupies the site to the east, across Highway 99. Although much of the study area property is already developed, there is some infill development potential east of the interchange. Notably, there are four sizeable vacant commercial properties that take access from Highway 99 totaling a little over 16 acres.

The most apparent residential development activity was northwest of the Highway 99 intersection where there are new manufactured homes and some (potentially 3) vacant lots for sale off of Corwin Street. The area directly north of this is vacant and zoned for low-density residential.

The portion of the IAMP study area east of the interchange and south of Highway 99 is predominantly residential, with existing manufactured and “stick built” homes. There is a vacant lot advertising 18 spaces available for mobile homes. There is limited potential for infill development, where lots are large enough to be partitioned. In addition to sites already discussed, a recent site visit identified only one large homestead (at the southwest corner of Susan Street and Old Pacific Highway) that was large enough to be subdivided.

There are industrial development opportunities in the South Umpqua Industrial Park and vacant land available for commercial development at Interchange 103. The 103 bridge has been load posted due to deficiencies. Once the bridge is repaired, there may be more pressure for development in the area. There is some vacant commercial and residential property to the east of the interchange, near the intersection of Highway 99. As is the case near interchange 106, the Cow Creek Tribe owns a large amount of land (35 acres) near the interchange. If the land is put into the tribal trust, it will not be subject to local land use regulations limiting development to commercial use. Development of the vacant parcels could be agricultural, commercial, industrial, or residential in nature. ODOT should coordinate with the Cow Creek Tribe to help protect access and functioning of the interchange.

## 5.4 Natural and Historic Resources

The most prominent natural features in the Tri City area is the South Umpqua River<sup>6</sup> and a ridge line (2,100 feet) that forms the eastern boundary of the Urban Unincorporated Area. Storm water runoff creates “V” shaped creeks that eventually sheet over flat land near Old Pacific Highway 99. Historically, most storm drainage has been handled by a combination of roadside ditches, driveway and road culverts, swales and creeks.

Per Chapter 6 of the Douglas County Comprehensive Plan, Natural Features Element, there are no listed significant wetlands in the vicinity of the three interchanges. There are wetlands identified on the U.S. Fish and Wildlife Service National Wetlands Inventory map. (These are shown on the baseline report maps included in the appendix of the IAMP.) The County has not adopted the National Wetland Inventory.

There are no mapped National Historic Register sites or Douglas County historical sites in the study area. The Cultural and Historic Resource Inventory for Douglas County was updated in 2002. There is one property listed on the Myrtle Creek Historic Register that is within the IAMP study area for Interchange 108. This property is north of Dole Road and is listed because there are signs of the Applegate Trail in this area. Improvements to this property are subject to review by the Myrtle Creek Historic Resource Review Committee prior to City approval.

Appendix G documents the existing natural and historic resources in the vicinity of Interchanges 103, 106, and 108. Sensitive natural and historic resources in the planning area are identified, as well as potential constraints that could pose challenges or barriers to future transportation facility improvements. The following information was reviewed:

- Goal 5 resources;
- Federal Emergency Management Agency (FEMA) floodplains;
- Known Threatened and Endangered (T&E) listed species;
- Wetlands and the presence of hydric soils;
- Cultural and historic resources; and
- Agency Cultural Resource Specialist for potential archeology sites.

### 5.4.1 Goal 5 Resources

All interchanges are located within the Middle South Umpqua River watershed within the South Umpqua subbasin. The Douglas County Comprehensive Plan (1997) identifies Goal 5 resources within the entire County and establishes goals and policies for the protection of those resources. None of the maps included in the Comprehensive Plan identify any Goal 5 resources within the

---

<sup>6</sup> Section 3.32.200, Riparian Vegetation Corridor Overlay (RVCO), of the Douglas County Land Use and Development Ordinance regulates development along all perennial and intermittent watercourses in Douglas County.

vicinity of the interchanges. The South Umpqua River was not identified as a Goal 5 resource, but has been identified as having severe water quality impacts and is on the DEQ list of water quality limited streams.<sup>7</sup>

#### **5.4.2 Floodplain**

Floodplains are the dynamic areas along the boundaries of surface waters that provide the transition from open waters to uplands. Floodplains provide important benefits including flood control and water quality protection. They also provide important habitat for plants, animals, and other organisms.

FEMA Floodplain maps identify 100-year and 500-year flood zones for the three interchanges. Floodplains for the South Umpqua River are located adjacent to much of I-5 and near the interchanges. Interchange 106 may be the most constrained of the three interchanges because the floodplain is located on both sides of the interstate and even includes portions of the interchange itself. Further analysis is necessary to determine the level of constraint for the interchanges. Appendix G includes an analysis of potential floodplain impacts for each interchange.

#### **5.4.3 Endangered Species**

The Endangered Species Act of 1973 was enacted to help protect threatened and endangered species and the environment in which they live. In order to meet this requirement, any projects planned in the area must determine the impact on threatened and endangered species in the area. The natural resources analysis (Appendix G) found that there are no endangered species near the three interchanges.

#### **5.4.4 Wetlands**

Per Chapter 6 of the Douglas County Comprehensive Plan, Natural Features Element, there are no listed significant wetlands in the vicinity of the three interchanges. There are wetlands identified on the U.S. Fish and Wildlife Service National Wetlands Inventory map, although the County has not adopted the National Wetland Inventory (NWI). An analysis of wetlands in the vicinity of each of the subject interchanges is found in Appendix G.

Improvements to the 103 interchange will almost certainly lead that unavoidable impacts to a wetland and will require permits or consultation from both U.S. Army Corps of Engineers and the Oregon Division of State Lands. The wetland will need to be delineated and the delineation report will need to be reviewed for a jurisdictional determination by the Division of State Lands and the U.S. Army Corps of Engineers. Additional fieldwork may be required to determine if any wetlands exist in the vicinity of Interchange 106. On-site observations did not identify any wetlands in the vicinity of Interchange 108.

---

<sup>7</sup> Oregon Department of Fish and Wildlife evaluation, *I-5 State of the Interstate Report (2000)*.

#### **5.4.5 Hazardous Materials**

An evaluation of the regulatory status of sites within a 2,000-foot radius of each bridge was performed through a review of reasonably available state and federal public agency computer databases to help identify recognized environmental conditions. Databases reviewed include those at the Department of Environmental Quality (DEQ) and Environmental Protection Agency. The database searches were performed by Environmental Data Resources, Inc. This review was limited to computer databases, historical topographic maps, and historical photographs or historical Sanborn maps. It did not include a review of archived files. In addition, a drive-by reconnaissance of the bridge and the area surrounding each bridge was performed in order to evaluate the potential for recognized environmental conditions. This research is compiled in the Existing Soils, Agriculture, and Natural Resources Narrative in Appendix G.

The research revealed that there are three sites of concern located near Interchange 103. If either right-of-way or easement acquisition or construction activities (e.g., subsurface excavation for utility work) are anticipated at or near these properties, environmental assessment work may be required.

Interchange 106 was not mapped for hazardous materials, but information was mapped for the area for a nearby bridge. A review of that data showed only one identifiable site of concern. The Myrtle Creek Municipal Airport, located approximately 1/3 mile south of the interchange 106, may contain hazardous materials. It is likely that chemicals such as fuel and oils are located at the airport. Prior to ground disturbance, an evaluation of potential hazardous materials and other sites of concern will need to be completed for areas in the vicinity of Interchange 106

One site of concern was located near interchange 108, where a diesel spill occurred. Based on available information, this site is a recognized environmental concern and should be taken into account if construction is planned there.

#### **5.4.6 Cultural and Historic Resources**

##### **Archeological Record**

The Oregon State Museum of Anthropology conducted surface surveys near the three interchanges. The state museum conducted an investigation of background records and literature to determine if there were any previously recorded sites. The field survey also included a review and assessment of the following:

- Tribal information (if appropriate)
- Historic/ethnographic/past research
- Cultural and historic context
- Geologic/geographic setting
- Current and past ecological environment

- Setting, including vegetation, visibility, soils, topography, and water (type, direction, and aspect)

## **Historic Resources**

A literature review was conducted at the State Historic Preservation Office (SHPO) to identify previously documented sites located near the interchanges. This literature search included National Register of Historic Places (NRHP) listed sites, sites listed in the local County Historic Resource Inventory (where applicable), and sites documented through the Section 106 process.

There are no mapped National Historic Register sites or Douglas County historical sites in the study area for the three interchanges. There is one property listed on the Myrtle Creek Historic Register that is within the IAMP study area for interchange 108. This property is north of Dole Road and is listed because there are signs of the Applegate Trail in this area. Improvements to this property are subject to review by the Myrtle Creek Historic Resource Review Committee prior to City approval.

No special protective measures or mitigation are recommended prior to bridge construction. However, if previously undetected cultural resources are encountered during the course of the project, all ground disturbing activities must cease and personnel at ODOT’s Environmental Services division notified immediately.

Surface examinations in the vicinity of Interchange 103 and Interchange 108 in July 2003 did not identify any archaeological sites. Because of the degree of disturbances at these interchanges, buried cultural deposits are unlikely to be present. At Interchange 103, two historic resources were identified near the interchange, including the existing bridge and one commercial building. Neither of these structures appears to be eligible for inclusion in the NRHP. The Interchange 108 area contains one resource (Myrtle Creek Bridge 490A) that has been previously determined eligible for the NRHP. No further research is necessary for historic properties near these interchanges.

Site surveys were not completed for interchange 106 as part of the baseline report and no cultural resource surveys have been completed by the state near interchange 106. SHPO believes there is a high probability that the area contains cultural resources and recommended caution during any future ground disturbing activities. Additional work may be required to identify any cultural or historic resources that may be located in the vicinity of the interchange.

## **6.0 FUTURE TRANSPORTATION CONDITIONS AND PLANNING AREA IMPROVEMENTS**

The Interchanges 103, 106, and 108 Future Transportation Conditions Report (Appendix H) focuses on long-range improvement needs to these Interstate 5 interchanges in the Myrtle Creek area of Douglas County, south of Roseburg. This section summarizes the information in the technical report, which is based on projected 2025 traffic volumes and the results of the future traffic operations analysis for 2025 under the No-Build Conditions and two Build Scenarios. The

Build Option #1 focuses on improvements to the Interchange 103 bridge and ramps. Build Option #2 includes the addition of a bridge (“Weaver Bridge”) across the South Umpqua River connecting Interchange 106 to Old Pacific Highway.

## **6.1 Planning Area Improvements**

### **6.1.1 103 Improvements**

The planned improvements at Interchange 103 include reconstruction of the bridge to a 3-lane facility and implementing one of four alternative ramp configurations. The ramp configurations range from keeping the current configurations with a folded diamond northbound ramp, keeping the folded diamond configurations but modifying the loop ramp to improve geometry and ramp length, removing the current northbound loop ramp and creating either a standard diamond or tight diamond configuration, and a diamond configuration with two northbound ramps (keeping the northbound loop ramp and adding another northbound on-ramp).

The preferred alternative will be selected after further analysis of geometric, right-of-way, cost and construction implications is completed. The widened bridge allows for a new left turn lanes at the ramp terminals reducing traffic delays. It is assumed that signals will be installed at the ramp terminals. These projects are included in the 2004-2007 and the 2006-2009 STIP.

### **6.1.2 Weaver Road Bridge**

This project would extend Weaver Road across the South Umpqua River and provide a new connection to the Old Pacific Highway at Weeks Road. It is expected that the new roadway would sit at least 10-15 feet above the existing ground elevation in order to connect with the Interchange 106 overpass and the planned Umpqua River Bridge. The design process must ensure the proposed roadway will not encroach on the runway glide slope of the Myrtle Creek Municipal Airport. It will also need to be closely coordinated with ODOT to ensure compatibility with improvements to Interchange 106.

### **6.1.3 South Umpqua Bridge Rehabilitation**

The Myrtle Creek Arch Bridge is scheduled to be widened and strengthened as part of the Oregon Transportation Investment Act III (OTIA III) bonding package under the direction of the Governor and Legislature. The bridge went through a deck-widening project in 1987. Original roadway on the deck was 20 feet. The project will enhance the historical features of the bridge, and will double the width of the deck. The bridge will remain a two-lane facility, but the deck widening will provide 7-foot shoulders for emergency work and pedestrian facilities. Currently this bridge is weight restricted and is eligible for listing on the National Historic Register.

As part of the project planning process, the two main goals of the project are to widen the structure to current standards and strengthen the superstructure enough to remove the weight restriction limits. Concurrently, the project team decided to improve Highway 99 east of the bridge to tie the bridge improvements into recently improved Main Street.

Douglas County provided the following description of the bridge improvement project:

- Build a twin structure on the upstream side. This structure will be the stronger of the two and thereby relieve some burden of the old structure and provide needed seismic resistance. Construct a railroad crash wall at the east bent.
- Strengthen the old structures approach girders where load cannot be transferred to the new structure.
- Tie the old and new deck together to provide two-12-foot travel lanes and two 7-foot multi-use shoulders. Construct a deck overlay, install new bridge joints to limit water infiltration.
- Replace existing concrete bridge rail with historically similar, but crashworthy rails.
- Replace existing luminaries with more appropriate period lighting.
- Roadway improvements are as follows:
  - Widen the road from east end of bridge to the end of recently constructed south side sidewalk. Road section will be two, 12-foot lanes, two, 5-foot bike lanes, one, 6-foot sidewalk on south side, from 5<sup>th</sup> Street to that location.
  - Road widening will occur mostly on the north side of road. This will correct sight distance and cross-slope issues. Curb and gutter will be installed and a new road surface will be laid down.
  - Close the 5<sup>th</sup> Street access point to vehicles, but leave it open to pedestrians and bicycles. Close the one private access on south side of road. This is a secondary residential access and the owners have it chained off.

The estimated cost of this project is \$8 million dollars. It is scheduled to begin March 2006 and run until August 2007. Through much of the construction the bridge will be restricted to one lane and a full closure is expected for 4 months in spring 2007.

#### **6.1.4 Myrtle Creek Curves**

This project was intended to improve safety on Interstate 5 by creating a new alignment through the mountain located west of Myrtle Creek. The project was identified in the Myrtle Creek Comprehensive Plan and was included as a modernization project in the 2006 and 2009 STIP. Various smaller projects have tried to improve safety in this area with little success. Such measures as reduced speed, advanced warning signs, and improvements to the super-elevation have all failed to reach the desired level of crash reductions.

Although this project was scheduled to begin construction in 2009, the preliminary planning for the project found daunting geotechnical issues that have resulted in the abandonment of the project. Geotechnical analysis of the rock substrates showed that if the rock were cut to straighten the mainline, it would not weather well and could become unstable. This could result in a catastrophic failure of the cut slopes. Consequently, a cut option is not feasible. The other

remaining option of building a tunnel, would cost more than the amount of funds available. Consequently, this project has been dropped and the STIP is being revised to reflect the change.

## **6.2 2025 Future Operations Analysis**

### **6.2.1 Build Options**

The No-Build scenario assumes no changes to the existing lane configuration or traffic control.

The Option 1 scenario assumes improvements to Interchange 103 as discussed under Section 6.1 above.

The Option 2 scenario includes all 103 improvements described above along with a new Weaver Road Bridge over the South Umpqua River. The connection between Weaver Road and Old Pacific Highway is assumed to be just south of Weeks Road. No changes are assumed for the Interchange 106 ramp terminals.

### **6.2.2 Traffic Forecasts**

The methodology for forecasting the 2025 volumes is summarized in Appendix I, Forecasting Methodologies for Intersection and Roadway Segment Analysis. The methodology was used for both this IAMP and the Myrtle Creek TSP. It involved a multi-step approach applying a background growth rate, a freeway volume growth rate, a review of vacant and underdeveloped lands in the Myrtle Creek Urban Growth Boundary, and forecast of anticipated site-specific growth. The forecast volumes are the same for the No Build and Option 1 analyses.

The completion of the Weaver Road Bridge, as demonstrated by the traffic forecasting for Option 2, is expected to trigger a significant change in use of all three interchanges. Table 1 in Appendix H summarizes the 2025 No Build forecast volumes by ramp for both the No Build/Build Option 1 and the Build Option 2.

### **6.2.3 Traffic Operations Analysis**

The level of service<sup>8</sup> and a comparison of traffic volume demand to intersection capacity (v/c) was determined for the approach ramps no-build and the two build options. In addition, a signal warrant analysis was performed for Interchange 103, 106 and the connection of Weaver Road at

---

<sup>8</sup> The LOS concept requires consideration of factors that include travel speed, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort, convenience, and operating cost. Six standards have been established ranging from LOS A, where traffic is relatively free flowing, to LOS F, where the street system is totally saturated with traffic and movement is very difficult.

Old Pacific Highway for Build Option #2. Finally, an intersection analysis was performed for each interchange, using 2025 traffic volumes and traffic and signal/unsignalized assumptions for the No Build and Build options. Table 5 in Appendix H shows the LOS for individual movements at the intersections under each scenario.

Conclusions resulting from this analysis are as follows:

- The Interchange 103 ramp terminals will operate at LOS F within 20 years unless improvements are made. The planned widening of the bridge and likely signalization of the ramps will allow the intersections to operate at LOS B and C during the PM peak hour.
- The ramp merge and diverge areas for all three interchanges will continue to operate at acceptable LOS within the next 20 years.
- The intersection of Pruner Road and Old Pacific Highway should be redesigned with a curve between the north and west legs and removal of the stop signs for these approaches. This would allow for the heavy north-west traffic movements to flow freely. The east and south legs could be combined into one approach with a stop sign.
- The Interchange 106 ramp terminals will be able to handle the additional traffic demand resulting from the construction of the Weaver Road Bridge without any improvements. Ramp terminals for Interchange 106 are predicted to operate at an acceptable level of service under stop control with volume to capacity ratios well below the ODOT standards even with construction of the proposed bridge.
- The increase in truck volume at Interchange 106 may be problematic due to current deficiencies in the interchange geometry. Douglas County will need to examine heavy vehicle turning radii to make sure the appropriate design vehicle can be accommodated at the existing ramp terminals when making improvements in the Weaver Road corridor, including Interchange 106. Modification to the existing ramp terminal geometrics or increasing the bridge width may be necessary to accommodate heavy trucks.

## 7.0 ACCESS MANAGEMENT

Access management is an essential tool for maintaining capacity and traffic flow. The access management strategy and plan are major components of this IAMP. One of the goals of the IAMP is to develop an access management strategy that helps preserve the functionality of the interchanges, protecting their 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 to their businesses and residences but 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.

The access management strategy must balance the competing needs of traffic capacity and safety for I-5 and local access needs. The Oregon Highway Plan (OHP) devotes an entire section to the

discussion of access management. More detailed requirements and the access spacing standards for state highways are specified in Oregon Administrative Rule (OAR) 734-051 (Division 51): Highway Approaches, Access Control, Spacing Standards, and Medians. 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, the access management strategy must demonstrate progress toward meeting the applicable standards.

This section summarizes the IAMP's Access Management Plan (Appendix J). Although the access management plan imposes some restrictions and reductions of access for property near the interchanges, 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. The access management plan will help to maintain the locational advantage for these properties by improving traffic circulation, mobility, and freeway access.

## 7.1 Access Standards

OAR 734-051 and the OHP contain standards for private driveway and public road approach spacing based on highway classifications and speeds. According to these standards, the first full intersection on the crossroad at an interchange should be no closer than 1,320 feet for rural interchanges with two-lane crossroads. Approach roads that are less than 1,320 feet but no closer than 750 feet shall be limited to right-in/right-out. 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.” The OAR 734-051 and OHP access spacing standards apply to both streets and driveway approaches and are measured from the center of one access to the center of the next access on the same side of the road.

## 7.2 Existing Access and Permits

An inventory was conducted of public street intersections and approaches to major roads within the study area. The locations are shown on the access recommendation maps (Figures 12, 13, and 14). Numerous access points do not meet ODOT's standards for access near the interchanges. For private approaches, information including the tax lot, property owner, use, and related information is summarized in the approach inventory and access management actions tables in Appendix J: Access Management Plan.

ODOT requires approach permits for approaches to highways under its jurisdiction, but many driveways and public streets predate the permitting process or have come into existence without

permits. Access permits were found for only four approaches in the planning area. Of these, the permit for Weaver Road is outside of the 1,320 foot influence area. The permits for the properties near Interchange 108 provide access to Dole Road rather than the interchange crossroad and are therefore acceptable. The permit near Interchange 103 provides access to a rural use which will need to be addressed if the use changes.

### **7.3 Access Management Strategy and Access Management Plan**

An access management strategy identifies the location and type of approaches and any other necessary improvements to the highway (operations, medians, etc.) within the project area. The access management plan includes the elements of the strategy with the addition of a comprehensive area-wide solution for local access and circulation to minimize use of state highway for local access and circulation and to preserve the functional capacity of the highway. The IAMP's access management strategy contains short-term actions that may be implemented and that are consistent with the IAMP goals. The short-term actions are those that may be implemented in connection with the Interchange 103 Improvement Project and the Interchange. The Access Management Plan includes medium- and long-term actions recommended as land use changes and redevelopment occurs or in concurrence with future roadway improvement projects.

The strategy and actions in the IAMP are based on existing land uses for each parcel. 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 IAMP will guide ODOT and Douglas County when completing a change-of-use assessment.

The access management strategy and actions presented in this section of the IAMP are intended to improve highway conditions by moving towards meeting the appropriate ODOT access management standards, while at the same time taking into consideration the need to maintain reasonable access to existing properties and addressing safety priorities. The IAMP relies upon changes that will occur as part of future construction projects, or when property is developed, redeveloped, or undergoes a change-of-use to improve access spacing near the interchange. Construction projects and land use changes near interchange 103, 106, and 108 will require approach permits from ODOT. Because modifying approach roads in the planning area to meet spacing standards would create safety and traffic operations problems, findings will be prepared as part of the approach permit approval process to explain why the approach cannot meet the standards as required by OAR 734-051-0135 (Deviations from Access Management Spacing Standards). 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.<sup>9</sup> This IAMP identifies measures to reduce the number of approaches near Interchanges 103/106/108, and therefore would fulfill this potential requirement.

---

<sup>9</sup> In accordance with OAR 734-051-0135 (7).

The overall goal of the access management plan is to protect traffic operations and safety within the interchange area management plan boundary. This will have the affect 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 short, medium, and long-term actions in the area. Actions for individual approaches are summarized below.

### **7.3.1 Access Management Strategy (Short-Term Actions)**

#### **Interchange 103**

Access management actions may be incorporated into the bridge reconstruction and ramp building project that is planned for this interchange. Although, the decision of whether to pair a northbound loop ramp with the new northbound ramp in the preferred alternative will be determined after further analysis, the access management strategy will serve any of the alternatives under consideration. (See IAMP Section 4.0, Alternatives Considered.)

Access management actions for Interchange 103 are illustrated in Figure 12 and are described as follows:

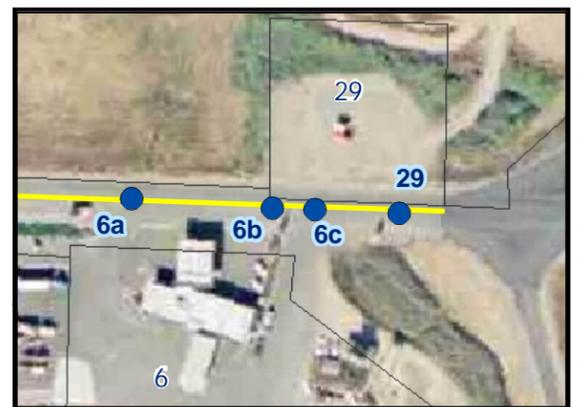
1. ODOT intends to acquire jurisdiction and potentially, access control of the interchange crossroad, Pruner Road, within the immediate interchange area. This access control area will encompass Pruner Road from the eastern boundary of Industrial Way's right-of-way to the western boundary of Corwin Street's right-of-way.
2. Reservations of access would be issued for existing approaches within the access control area on Pruner Road, as described above, for properties with no alternative access. A reservation of access gives a property owner the right to submit an Application for State Highway Approach at a specific location where ODOT has acquired access control. A reservation of access may contain use restrictions and does not guarantee approval of the approach or the location of the approach.
3. ODOT intends to acquire Parcel 29 and the existing access for this parcel (TL T30S R5W Section 7C 300) in the northwest quadrant of the interchange area. Parcel 29 is currently a gravel parking lot. For future development, ODOT may choose to work out an access agreement with the owner of Parcel 1(TL T30S R5W Section 7C 200) providing Parcel 29 access to Industrial Way.
4. Access to the Pruner Road Chevron (TL 30S 5W 7C 400) would be reduced from three access points (6a, 6b, and 6c) to two. Access 6a shall be narrowed from approximately 80 feet in width to 40 feet in width. Access points 6b and 6c shall be combined to one access, 40 feet in width. The new access will be restricted to right-in/right-out movements. A median shall be constructed on Pruner Road to prevent left turns in and out of this driveway.



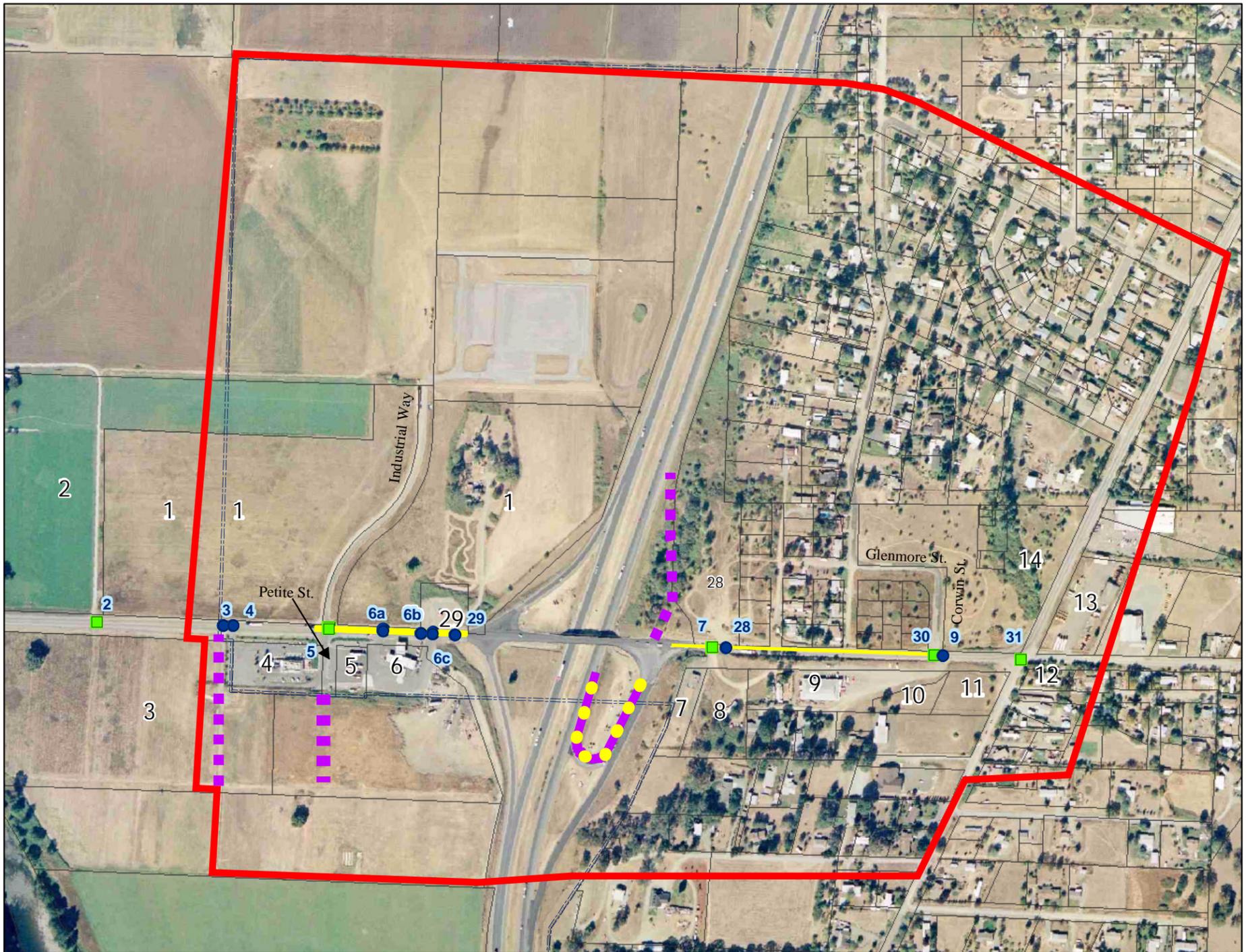
Recommendation to County:  
When parcel 3 is developed, construct circulation road to the south. Close driveway 4 and build new driveway off of circulation road.



Continue building Petite Street southward to access properties south of existing commercial.



Narrow 6a to 40 feet and ensure reciprocal access agreement is in place with Parcel 5. Combine together 6b, 6c as right-in, right-out. Install median on Pruner Road. Close driveway 29 and develop alternative access to street.



Restrict all movements at driveways 7 and 28 to right-in, right-out. Install median on Pruner Road. Build deceleration lane for EB right-in to driveway 7. Parcel 28 has access via Glenmore Street to East.



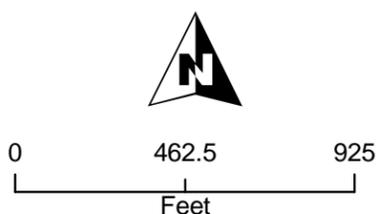
Driveway 9 is aligned with approach 30 (Corwin St.). All movements allowed at intersection 30.

**Legend**

- Potential Ramp Modifications
- Future Public Road
- Road Approach
- Driveway Approach
- ODOT Access Control Area
- Approach Number
- Parcel Number
- Access Study Area
- Urban Growth Boundary



DAVID EVANS AND ASSOCIATES INC.



**Notes:**  
The ODOT Access Control Area indicates the area in which ODOT will purchase rights of access.

**Figure 12**  
Access Management Plan for I-5 Interchange 103  
Map is for general planning purposes only.  
June 2006

The page intentionally left blank

5. To improve circulation, Parcel 6 (Chevron, TL 30S 5W 7C 400) should obtain a reciprocal cross-access agreement with Parcel 5 (TL 30S 5W 7C 500). Parcel 5 is currently used for parking large trucks and could easily have a lane reserved for truck maneuvering in and out of the service station.
6. Access 7, providing access to Parcel 7, (Broasters Chicken, TL 30S 5W Section 7DC 400) would be restricted to right-in, right-out movements. A deceleration lane would be built on Pruner Road for eastbound right-in movement and a median shall be constructed to prevent left turns in and out of this driveway.

It is recommended that the private properties which are located along the driveway with an outlet at Access 7 (Broaster's Chicken) and Access 9 (Nickel Bowl) develop a reciprocity agreement to share the private drive which parallels Pruner Road or dedicate the drive to a public entity and make it a public roadway. This will allow vehicles that can no longer turn left from Access 7 onto Pruner Road to do so from Access 9.

### **Interchange 106**

No short-term access management actions are proposed for the Interchange 106 area.

### **Interchange 108**

No short-term access management actions are proposed for the Interchange 108 area. Due to the configuration of the I-5 ramps, topographical constraints and limited number of existing approaches, new access management actions are not critical to the functioning of this interchange.

## **7.3.2 Access Management Plan**

The actions described in this plan are intended to serve as a guide to maintain the capacity and traffic flow in the interchange areas. They may not be implemented exactly as stated, as conditions may change over time.

### **7.3.2.1 Medium-Term Actions**

#### **Interchange 103**

1. When a change of use occurs on Parcel 28 (T30D R5W Sec 7DB TL 2400), Access 28 onto Pruner Road will be restricted to right-in, right-out movements. Glenmore Street stubs to Parcel 28's eastern lot line providing an alternate access.
2. If a change of use occurs on Parcel 9 (Nickel Bowl T30S R5W Sec 7DC TL 200) or Pruner Road is widened along the parcel frontage, Access 9 will be moved to align with Corwin Street (Access 30).

3. Petite Street should be continued southward on the west side of the freeway to provide access to any future development of property behind (south of) the existing Chevron station and McDonalds restaurant on Pruner Road.

### **Interchange 106**

Access management actions should be incorporated into the construction of a new bridge over the South Umpqua River. These actions are shown on Figure 13 and described as follows:

1. To the west of Interchange 106, ODOT will acquire access control and jurisdiction of Weaver Road within the interchange area management plan boundary to a distance of 750 feet of the I-5 ramp terminals. To the east of Interchange 106, ODOT will acquire access control and jurisdiction of Weaver Road from the ramp terminal to the abutment of the new Weaver Road bridge. Reservations of access will be issued for existing approaches within the interchange access control area for properties with no alternative access.<sup>10</sup>
2. Upon change of use, Parcel 1 (T29S R5W Sec 32A TL 1500) should develop alternative access to Weaver Road spur road to the north of Weaver Road.
3. Circulation plans should be developed for large developments to provide access on secondary roadways as practical.
4. ODOT should work with the County to relocate the intersection of Weaver Road/Aviation Drive further east from the interchange.
5. In conjunction with a new Weaver Road bridge, the Weaver Road/Aviation Drive intersection would be relocated and redesigned.
6. In conjunction with a new Weaver Road bridge, driveway Access 20 (Tax lot T29S R5W Section 32D TL 100) will need to be relocated. Preferably, the parcel would take access from a secondary roadway.
7. If a change of use occurs on properties within 1,320 feet of the ramp terminals, access points will be consolidated.

---

<sup>10</sup> A reservation of access gives a property owner the right to submit an Application for State Highway Approach at a specific location where ODOT has acquired access control. A reservation of access may contain use restrictions and does not guarantee approval of the approach or the location of the approach.

## **Interchange 108**

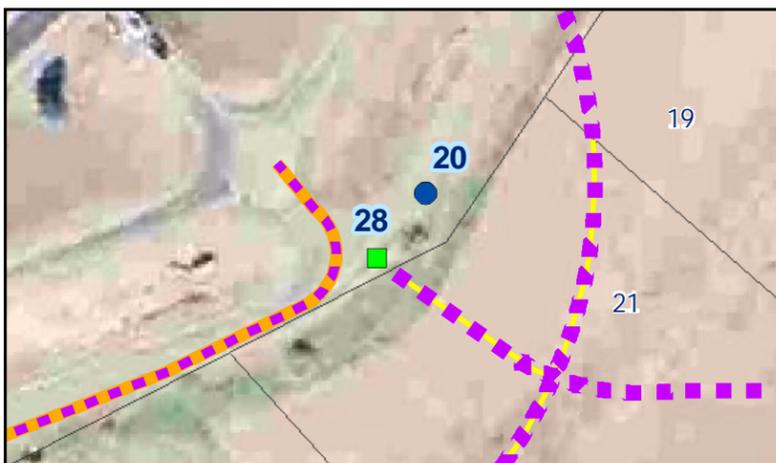
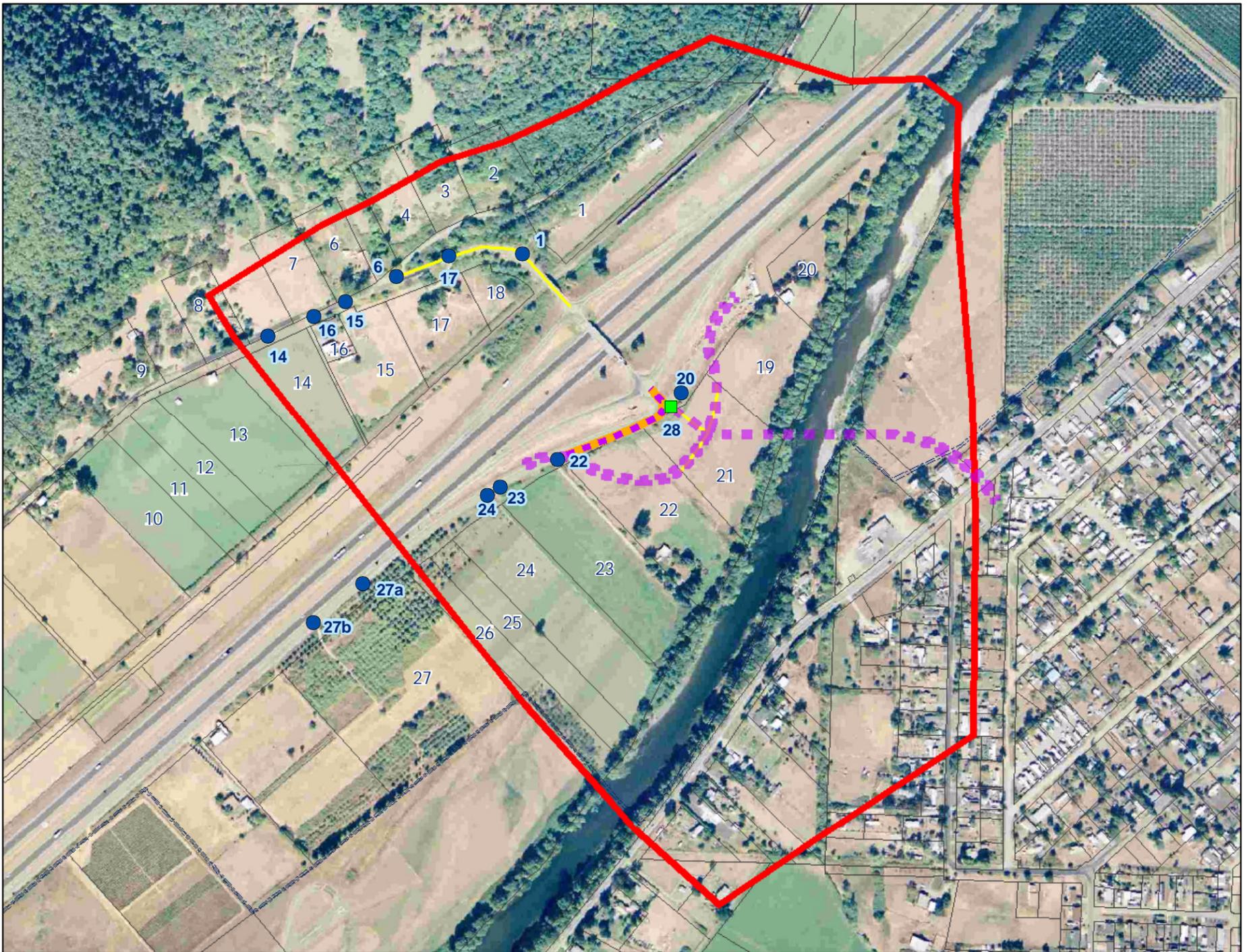
Access management actions will be incorporated into the re-alignment of I-5 if this project moves forward. These actions are shown on Figure 14 and described as follows:

1. The gravel parking area next to the river has no defined driveway with cars entering and exiting along its entire length. Reduce the access to a standard width, single access point to reduce conflicts and driver confusion when the alignment improvements occur.
2. As new development occurs, access to Old Pacific Highway (Highway 99) should be closed for properties with alternative access points.

The page intentionally left blank



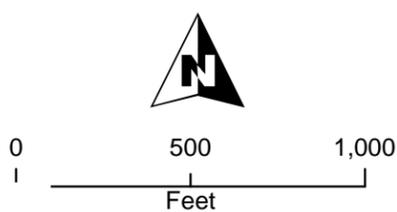
Consolidate access points on property lines when possible.  
Develop plan for local circulation roads as properties develop.



Shift intersection 28 to align with reconfigured frontage road. Relocate driveway 20.

**Legend**

-  Future Road
-  Road Approach
-  Driveway Approach
-  ODOT Access Control Area
-  Approach Number
-  Parcel Number
-  Access Study Area
-  Urban Growth Boundary
-  Remove Road



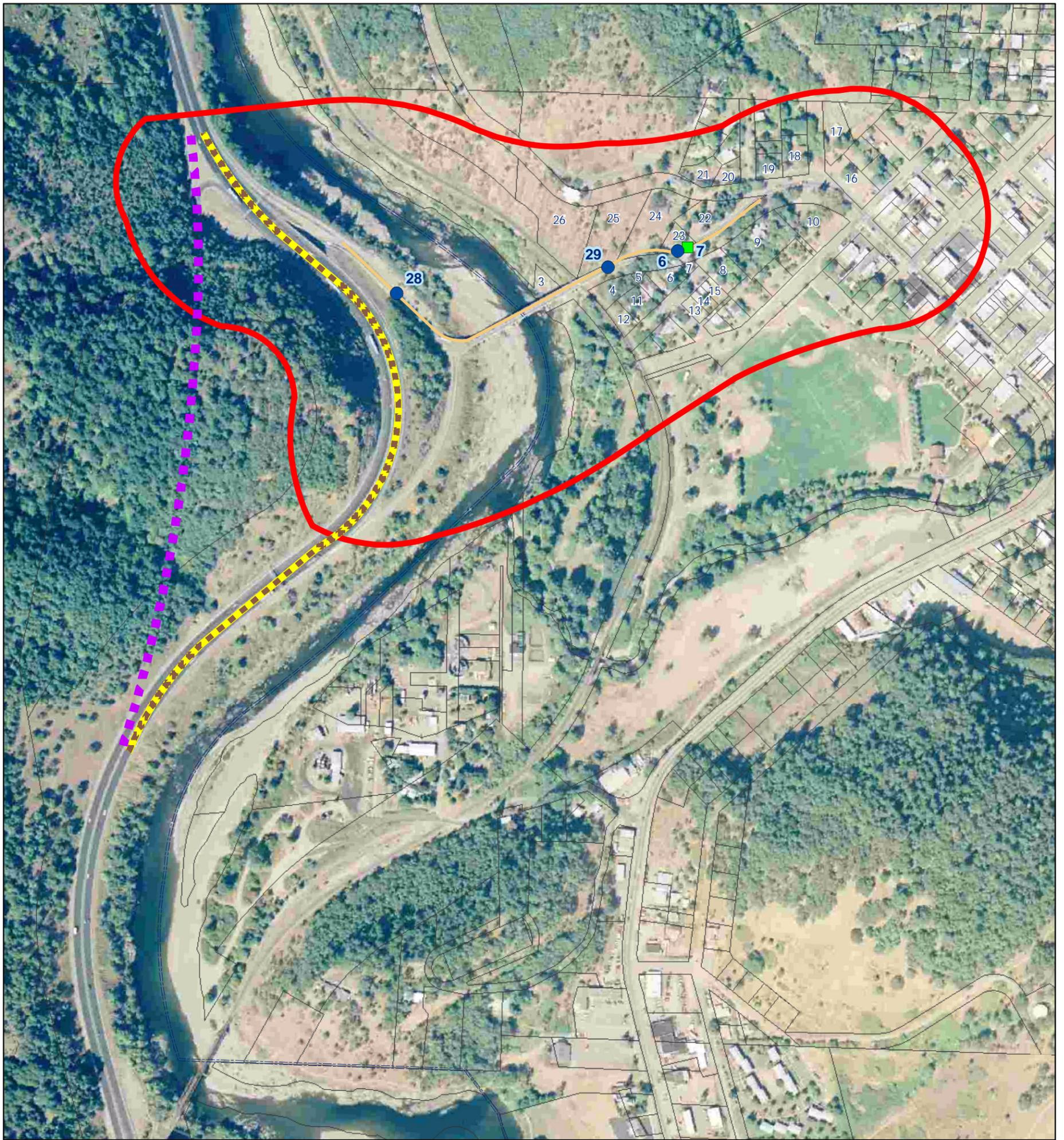
**Notes:**  
The ODOT Access Control Area indicates the area in which ODOT will purchase rights of access.

**Figure 13**  
Access Recommendations  
for I-5 Interchange 106

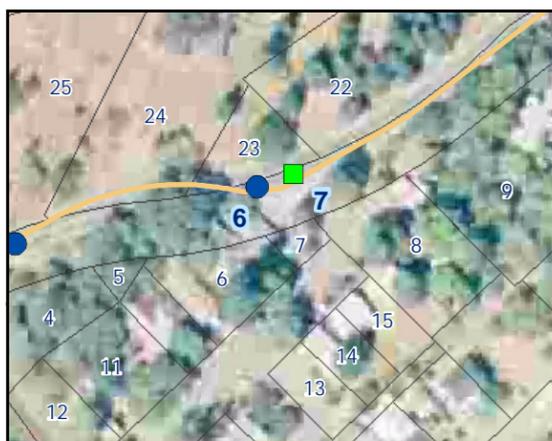
Map is intended for general planning purposes only.

June 2006

The page intentionally left blank



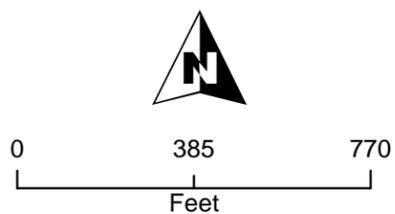
Concurrent with I-5 alignment, minimize access to a single point between bridge and ramp termini.



As development occurs, access to Old Pacific Highway should be closed for properties with alternative access points.

**Legend**

-  Future Road
-  Road Approach
-  Driveway Approach
-  Interchange Influence Area
-  Approach Number
-  Parcel Number
-  Access Study Area
-  Urban Growth Boundary
-  Realigned Road/Highway



**Notes:**  
The Interchange Influence Area indicates the area within 1,320 feet of the I-5 ramp terminal.

**Figure 14**  
Access Management Plan  
for I-5 Interchange 108

Map is intended for general planning purposes only.

June 2006

The page intentionally left blank

### 7.3.2.2 Long-Term Actions

Long-range actions are those which could be implemented as land use changes and redevelopment occur, in concurrence with future roadway improvement projects, or as needed to rectify safety problems. 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 factors that need to be considered for each approach before an access is altered include: access rights, safety concerns, existing and potential land use, existing site development including access use and function, parking, and circulation. Also, 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 needs to be considered.

## 8.0 IMPLEMENTATION OF THE IAMP

The IAMP for the interchanges 103, 106, and 108 will be jointly adopted by the Oregon Transportation Commission (OTC), the City of Myrtle Creek and Douglas County. The Statewide Transportation Improvement Program (STIP) for the Interchange 103 project requires the completion of the 103, 106, 108 IAMP as a condition of approval prior to construction contract being awarded. In addition, the IAMP will need to be adopted prior to the Weaver Road extension occurring since this project will connect the rural interchange to urban uses significantly and result in significant altering and modernization of Interchange 106.

The preparation of the IAMP needs to be completed before the construction contracts can be awarded for the interchange 103 northbound improvements. The IAMP has been developed in accordance with the Oregon Highway Plan Policy 3C, Oregon Administrative Rule 734-051-125, and Interchange Access Management Standards for Approaches. The 103, 106, 108 IAMP also complies with the Oregon Transportation Investment Act (OTIA) conditions for interchanges adopted by the Oregon Transportation Commission (OTC) on January 6, 2002. In addition, it complies with recently modified plans and policies of the local jurisdictions.

The Myrtle Creek Curves project that was identified for funding in the STIP also required completion of the IAMP prior to construction contracts being awarded. That project is no longer

going forward. However, the research and analysis conducted for that interchange is still included in this document. It will provide an understanding of the conditions and concerns near Interchange 108 for any future planning efforts there.

The Southern Douglas County area has been promoted and targeted for new industrial growth. Interchanges 103, 106, and 108 are important to achieve economic development goals in the area. They provide vital access between I-5 and the communities of Myrtle Creek, Tri City, and Riddle; the Myrtle Creek Airport; and the South Umpqua Industrial Park at Interchange 103. Making improvements to these three interchanges is integral to ensuring a viable statewide highway system, as well as providing for safe and efficient access to I-5 for businesses and residents that rely on the Interstate. The interchange improvements outlined for interchange 103 IAMP are not intended to facilitate unplanned major commercial or residential development in the interchange area. However, the interchange's continued smooth operation is necessary to support future expected job growth in the County, as well as existing businesses and residents that rely on the interchanges to access I-5.

The implementation of the IAMP requires extensive coordination between the jurisdictions. In particular, the Weaver Road Bridge project, led by Douglas County, must be coordinated with ODOT to ensure that the new facility is compatible with Interchange 106. An intergovernmental agreement (IGA) will need to be adopted by ODOT and Douglas County describing how the coordination will be conducted as well as each party's responsibilities. The IGA should include a discussion of who is responsible for the Federal Access Modification Request. In addition, the Weaver Road bridge should be designed so that it does not preclude future improvements to the interchange.

Douglas County will amend the Douglas County TSP to include the 103, 106, 108 IAMP. Because the TSP is an element of the County's comprehensive plan, adopting the IAMP is considered a legislative action, subject to the procedures in the Douglas County Douglas County Land Use and Development Ordinance (LUDO). The adoption of the IAMP constitutes a major text amendment, as it adopts new policy and implementation measures for the interchange areas. The approval criteria for a legislative amendment can be found in the LUDO.

The Myrtle Creek Transportation System Plan (TSP) update was conducted concurrently with development of the IAMP. The City has considered the Draft TSP at public hearing and it is expected to be adopted in the first half of 2006. While the findings and recommendations of the IAMP process are integrated into the Myrtle Creek TSP, the City will also adopt the 103, 106, 108 IAMP. Once adopted, the IAMP will amend the City's TSP, and element of the City's comprehensive plan, to include policy language, necessary transportation improvements, and access management strategies that will enable improvements at the interchanges.

## 8.1 Proposed Amendments

### 8.1.1 Douglas County

- The following summarizes the major Douglas County TSP amendments that will need to occur to support adoption of the I-5 Interchange 103/106/108 IAMP.
- The list of Roadway Improvement Projects necessary to implement the preferred alternative for Interchange 103 improvements shall be adopted by reference into the Douglas County TSP. The list of Roadway Improvement Projects includes transportation projects that implement the “Option 2” build scenario that anticipates a new Weaver Road Bridge over the South Umpqua River. The projects include:
  - The extension of Petite Street southward approximately 450 feet west of the existing road at Interchange 103.
  - The redesign of the Pruner Road/Old Pacific Highway intersection redesign to include a curve between the north and west legs and removal of stop signs for these approaches.
  - Widening the Interchange 103 bridge, reconfiguration of ramps on the east side, and eventual signalization of the ramps.
  - A new connection between Weaver Road and Old Pacific Highway (Highway 99) south of Weeks Road to accommodate a new Weaver Road Bridge over the South Umpqua River at Interchange 106.
  - A reconfiguration of Aviation Drive and potentially relocated intersection with Weaver Road to accommodate the new Weaver Road Bridge.
- The Short-Term Access Management Strategies and the Medium- and Long-Term Actions of the IAMP’s Access Management Plan (Appendix J and summarized in Section 7.3.1 of the IAMP) that are necessary to implement the interchange improvements shall be adopted by reference into the County’s TSP. Adoption of these strategies and actions is necessary wherever ODOT does not have jurisdiction of the roadway right-of-ways.

In addition, upon County adoption of the IAMP, the following policy statements that support the preferred alternative for Interchange 103 improvements and access management strategies for interchanges 103, 106, 108 will be incorporated into the Douglas County TSP:

- *Douglas County recognizes the importance of Interstate 5 in the movement of people and goods to and from the region and is committed to protecting the function of interchanges 103, 106, and 108 to provide access to I-5. The function of these interchanges, as defined in the I-5 Interchange 103, 106, 108 Interchange Area Management Plan, is to safely and efficiently accommodate the future traffic demands associated with current rural and urban land uses in the planning area and the expected state and regional growth.*

- *The County supports land uses in the vicinity of interchanges 103, 106, and 108 consistent with the adopted improvements in the Interchange Area Management Plan for these interchanges. Consistent with this policy, the County supports continued agricultural use of land in the Interchange 106 interchange study area, in accordance with the Exclusive Farm Use zoning designation that currently exists in most of this defined area.*
- *Douglas County will coordinate with ODOT in evaluating land use actions that could affect the function of interchanges 103, 106, and 108.*
- *Douglas County will coordinate with ODOT prior to amending its transportation system plan or proposing transportation improvements that could affect the function of interchanges 103, 106, 108.*
- *Douglas County will not rely on interchanges 103, 106, or 108 for providing additional capacity to support future land use actions in the County that are not consistent with the planned improvements to these interchanges.*

### **8.1.2 City of Myrtle Creek**

The following summarizes the major Myrtle Creek TSP amendments that will need to occur to support adoption of the I-5 Interchange 103/106/108 IAMP.

- The Short-Term Access Management Strategies and the Medium- and Long-Term Actions of the IAMP's Access Management Plan (Appendix J and summarized in Section 7.3.1 of the IAMP) that are necessary to implement the interchange improvements at Interchange 106 and 108 shall be adopted by reference into the County's TSP.
- The transportation improvements necessary to extend Weaver Road across the South Umpqua River and provide a new connection to the Old Pacific Highway at Weeks Road, as described in Section 6.1.2 and Appendix H, Future Transportation Conditions Report, of the 103, 106, 108 Interchange Area Management Plan.
- The transportation improvements necessary to implement the Myrtle Creek Arch Bridge Rehabilitation, as described in Section 6.1.3 and Appendix H, Future Transportation Conditions Report, of the 103, 106, 108 Interchange Area Management Plan.

In addition, upon City adoption of the IAMP, the following policy statements that support the preferred alternative for access management strategies for interchanges 106 and 108 will be incorporated into the Myrtle Creek TSP:

- *The City of Myrtle Creek recognizes the importance of Interstate 5 in the movement of people and goods to and from the region and is committed to protecting the function of interchanges 106 and 108 to provide access to I-5. The function of these interchanges, as defined in the I-5 Interchange 103, 106, 108 Interchange Area Management Plan, is to safely and efficiently accommodate the future traffic demands associated with current*

*rural and urban land uses in the planning area and the expected state and regional growth.*

- *The City supports land uses in the vicinity of interchanges 103, 106 and 108 consistent with the expected improvements in the Interchange Area Management Plan for these interchanges (see Section 6.0 of the IAMP and Appendix K. Roadway Improvement Projects). Consistent with this policy, the City supports continued agricultural use of land in the Interchange 106 interchange study area, in accordance with the Douglas County Exclusive Farm Use zoning designation that currently exists in most of this defined area.*
- *The City will coordinate with ODOT in evaluating land use actions that could affect the function of interchanges 106 and 108.*
- *The City will coordinate with ODOT prior to amending its transportation system plan or proposing transportation improvements that could affect the function of interchanges 103, 106 and 108.*
- *The City will not rely on interchanges 106 or 108 for providing additional capacity to support future land use actions in the City that are not consistent with the planned improvements to these interchanges.*

## **8.2 Other Related Actions**

### **8.2.1 Protection of Farmland**

The existing state statutes and administrative rules, combined with the Oregon Statewide Planning Goals and implementing regulations, have been very effective in protecting resource lands and it is expected that they will provide long-term protection for the agricultural lands and land uses in the vicinity of interchanges 103, 106, and 108. As documented in the Existing Land Use Analysis (Appendix F), there is County resource land in the vicinity of all three interchanges.

Areas within the Interchange 108 study area, outside of the UGB, are zoned Farm Forest. Uses in this zone are limited to farm and forest use, associated buildings, and limited home occupations. The minimum lot size is 80 acres. Interchange 106 is wholly outside of the Myrtle Creek/Tri City UGB, with access from Weaver Road to the north and a frontage road, Aviation Drive, to the south (see Figure 9.). Interchange 106 is within Douglas County, and land in the vicinity of the interchange is zoned Exclusive Farm Use – Cropland (FC). Development is limited by the FC zone which only allows agricultural use and other uses which are compatible with agricultural activities. Permitted uses are farm uses, their associated buildings and accessory uses, and the propagation or harvesting of a forest product. Property development standards for land in the vicinity of Interchange 106, which is classified “FC-1,” requires that

created parcels be a minimum of 20 acres. Land to the west of Interchange 103, south of Pruner Road, is also designated Exclusive Farm Use-Cropland.<sup>11</sup>

### **8.2.2 Potential Future Urbanization**

Interchanges 103 and 108 partially lie in unincorporated Douglas County and Interchange 106 lies wholly within the County. All three interchanges face urbanization pressures and interchange improvements can act as a catalyst to attracting more growth, in particular attracting commercial uses that benefit from highway visibility. In the case of Interchange 106, the new Weaver Road bridge is likely to create more pressure for development, as well.

The policies contained in Section 8.3 are recommended to protect the function of the interchange in the event that the UGB is expanded into the area or urban uses are allowed to occur at an intensity that is not anticipated by the IAMP.

## **8.3 Additional Proposed Amendments**

The following additional policies are recommended for incorporation into the Douglas County and City of Myrtle Creek TSPs respectively to address potential land use changes that could have the effect of negatively impacting transportation operations at interchanges 103, 106, and 108. These policies establish a process by which ODOT and the local jurisdictions will coordinate planning efforts in the event of changes to the adopted land use designations (comprehensive plan designations).

ODOT will continue to coordinate with local jurisdictions and state agencies, through the plan amendment and development review process, to keep existing land use protections in place. ODOT will also monitor and comment on any future actions that would amend the urban growth boundary in the vicinity of interchanges 103, 106 and 108.

### **8.3.1 Douglas County**

- *ODOT will continue to coordinate with local jurisdictions and state agencies, through the plan amendment and development review process, to keep existing land use protections in place. ODOT will also monitor and comment on any future actions that would amend the urban growth boundary in the vicinity of interchanges 103, 106 and 108.*

---

<sup>11</sup> The Cow Creek Band of the Umpqua Tribe has recently purchased two large parcels south of Pruner Road and west of the interchange, totaling 35 acres. It is expected that these parcels will ultimately be placed in the Tribal Trust at which time land uses will be determined by the Tribe.

- *If future County-initiated changes to the land use designations or uses allowed in the IAMP Planning Area result in the need for additional capacity at the interchange, Douglas County shall prepare amendments to the IAMP and shall adopt a funding plan for the provision of any improvements to interchanges 103, 106 or 108. Proposed IAMP amendments shall be coordinated with ODOT staff and the revised IAMP and funding plan shall be submitted to the OTC for approval.*
- *If future County-initiated changes to the land use designations or allowed uses outside the IAMP Planning Area result in the need for additional capacity at the interchange, Douglas County shall prepare amendments to the IAMP and shall adopt a funding plan for the provision of any improvements to interchanges 103, 106 and/or 108. Proposed IAMP amendments shall be coordinated with ODOT staff and the revised IAMP and funding plan shall be submitted to the OTC for approval.*

### **8.3.2 City of Myrtle Creek**

- *If the City of Myrtle Creek proposes to expand its UGB to include additional land within the interchange study areas of Interchange 106 or Interchange 108, then the City will amend its TSP to incorporate all applicable IAMP policies and implementation measures, previously only applicable to the County. Prior to, or concurrently with, plan amendments or rezoning of land that affects the IAMP Planning Areas, the City of Myrtle Creek will prepare amendments to the IAMP to identify any additional improvements to the affected interchange and shall adopt an accompanying funding plan to provide those improvements. Proposed IAMP amendments and any associated funding plan shall be coordinated with ODOT and submitted to the Oregon Transportation Commission for approval.*

O:\PROJECT\O\Odot0000-0456\DOCS\920 Final I Amp\Final IAMP 103-106-108 6\_16\_06.doc