

Interchange Area Management Plans VOLUME 1

I-5 Exits 40 and 43



Prepared For:
Oregon Department of Transportation

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I-5 EXITS 40 & 43

INTERCHANGE AREA MANAGEMENT PLANS

VOLUME 1

Prepared for

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EXECUTIVE SUMMARY

The combined I-5 Exits 40 and 43 Interchange Area Management Plans (IAMPs) examine how the interchanges and surrounding street system operate both now and over the next 20 years. The IAMPs identify strategies to preserve and improve the safety and capacity of the interchanges for the foreseeable future.

Goals and Objectives

The goal of these IAMPs is to develop a plan for improvements to the I-5 Exits 40 and 43 Interchange Management Study Areas (IMSAs) that can be implemented over time to maximize the function of the existing interchange areas and address the long-term needs of Gold Hill, Jackson County, and the Rogue Valley Corridor. Objectives are aimed at protecting the function of the interchange, improving safety, considering the regional and local needs for multimodal transportation, and aligning with the state's access management standards.

Identified Deficiencies

Baseline conditions were evaluated to understand land use, identify potential environmental constraints, and determine existing (year 2012) and future (year 2038) transportation deficiencies. Identified deficiencies for each interchange area are listed below. Concepts to address each deficiency were considered; however, may not be part of the recommended concept. Bridges along OR 234 (Sam's Valley Highway) that cross the Rogue River are out of the IMSAs, however, provide important links to the city and were considered at a high-level for this inventory.

I-5 Exit 40

The traffic analysis within the I-5 Exit 40 IMSA did not identify any operational or capacity issues.

However, the inventory identified geometric and facility deficiencies as listed below:

- ◆ Northbound and southbound ramps have inadequate deceleration distance and acceleration distance
- ◆ Several of the intersections within the IMSA were not designed with a turning radius large enough to accommodate a truck traffic design vehicle
- ◆ Adjacent public road intersections do not meet interchange spacing standards
- ◆ The bridge on OR 234 (Sam's Valley Highway, Gold Hill Bridge) crossing the Rogue River is structurally deficient (sufficiency rating: 57.9)
- ◆ The bicycle and pedestrian facilities within the IMSA are limited; there are no designated sidewalk areas or striped bicycle facilities, and shoulder widths for bicycle usage are insufficient along most roadways
- ◆ A review of the most recent five-year crash history indicated one serious injury crash on the I-5 northbound off ramp and one fatality on the I-5 mainline south of the I-5 northbound off ramp

I-5 Exit 43

The traffic analysis within the I-5 Exit 43 IMSA did not identify any operational or capacity issues. However, the inventory identified geometric and facility deficiencies as listed below:

- ◆ Northbound and southbound off ramps have inadequate deceleration distance
- ◆ Main Street, the cross street intersecting the northbound and southbound off ramps does not meet the desired stopping sight distance for the intersection
- ◆ Several of the intersections within the IMSA were not designed with a turning radius large enough to accommodate a truck traffic design vehicle



- ◆ Adjacent public road intersections do not meet interchange spacing standards
- ◆ The bridge on OR 234 (Sam’s Valley Highway)/OR 99 (Rogue River Highway, Rock Point Bridge) crossing the Rogue River and Lampman Road is identified as having issues with load capacity and a low service life (sufficiency rating: 43.3)
- ◆ The bicycle and pedestrian facilities within the IMSA are limited; there are no designated sidewalk areas or striped bicycle facilities, and shoulder widths for bicycle usage are insufficient along most roadways

Planned Improvements

The recommended I-5 Exits 40 and 43 IAMP concepts in this plan address the identified deficiencies, improve multimodal functionality, and safely and efficiently accommodate traffic, including freight, into the future. The locations of IAMP improvements are shown in Figure ES-1 and Figure ES-2. These figures include a brief description of each project along with a general priority. Detailed project sheets have been prepared for each improvement and are available in Chapters 3 and 4.

I-5 Exit 40

Table ES-1. I-5 Exit 40 IAMP Improvements

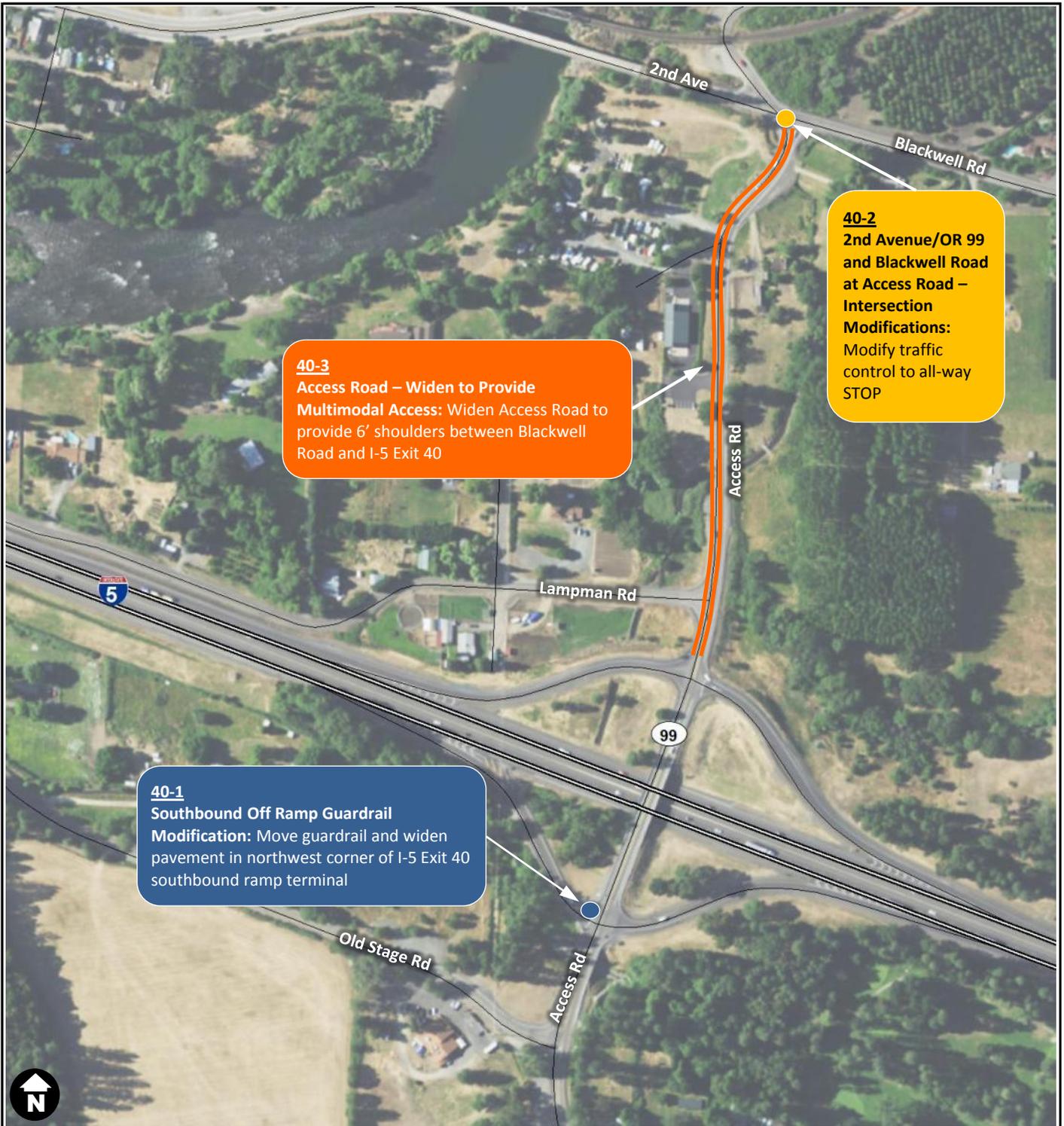
Concept	General Description	Recommendation Priority
40-1: Southbound Off Ramp – Guardrail Modification	Move guardrail and widen pavement in northwest corner of I-5 Exit 40 southbound ramp terminal	Medium Priority
40-2: 2nd Avenue/OR 99 and Blackwell Road at Access Road – Intersection Enhancements	Modify traffic control to all-way STOP	Medium Priority

Concept	General Description	Recommendation Priority
40-3: Access Road – Widen to Provide Multi-Modal Access	Widen to provide 6-foot shoulders between Blackwell Road and I-5 Exit 40	High Priority

I-5 Exit 43

Table ES-2. I-5 Exit 43 IAMP Improvements

Concept	General Description	Recommendation Priority
43-1: Rogue River Highway/2 nd Avenue at N. River Road – Intersection Enhancements	Improve turning radius, realign intersection and update traffic control	High Priority
43-2: IMSA Roadways – Multimodal Enhancements	Enhance multimodal access between I-5 and the City of Gold Hill. Add signage to travel lanes (Main Street and Rogue River Hwy) and widen shoulders where ROW exists	Low Priority
43-3: Rogue River Highway (Rock Point Bridge, 00332A) – Multimodal Enhancements	Enhance multimodal access across the bridge <ul style="list-style-type: none"> ▪ Option A: Add signage ▪ Option B: Build a new structure (all modes) 	Option A – High Priority Option B – Low Priority; will result in rerouting on highway
43-4: I-5 Exit 43 Interchange – Provide multimodal crossing of I-5	Provide multimodal crossing of I-5 by widening I-5 Exit 43 interchange structure to provide 8-foot shoulders	Medium Priority



40-3
Access Road – Widen to Provide Multimodal Access: Widen Access Road to provide 6' shoulders between Blackwell Road and I-5 Exit 40

40-2
2nd Avenue/OR 99 and Blackwell Road at Access Road – Intersection Modifications: Modify traffic control to all-way STOP

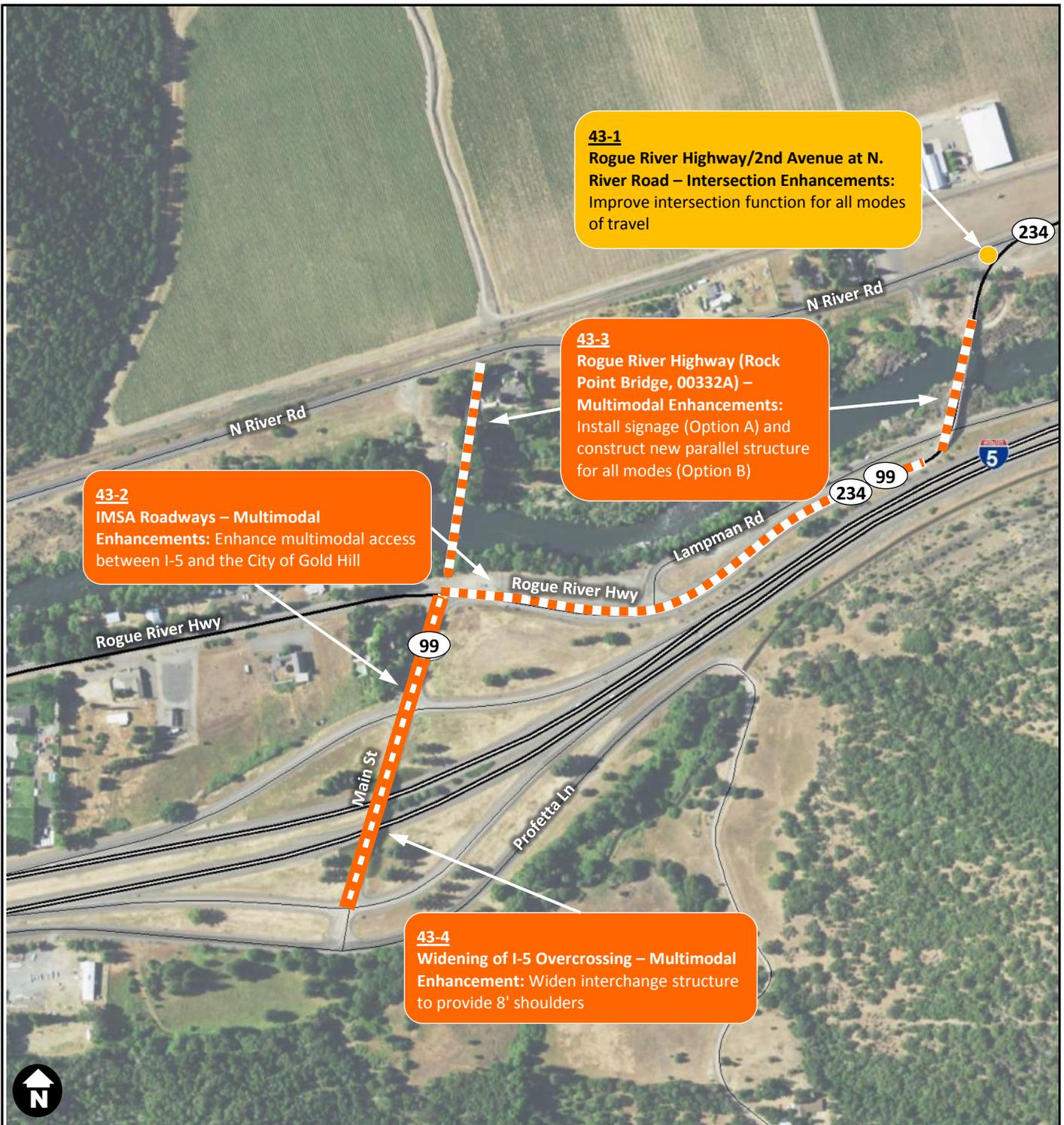
40-1
Southbound Off Ramp Guardrail Modification: Move guardrail and widen pavement in northwest corner of I-5 Exit 40 southbound ramp terminal

I-5 Exits 40 and 43 Interchange Area Management Plans

Figure ES-1
Locations of IAMP Improvements
 I-5 Exit 40

Legend

- Interchange Ramp Improvements
- Intersection Improvements
- Multimodal Improvements



I-5 Exits 40 and 43 Interchange Area Management Plans

Figure ES-2
Locations of IAMP Improvements
 I-5 Exit 43

Legend

- Interchange Ramp Improvements (None identified for IAMP 43)
- Intersection Improvements
- Multimodal Improvements



Implementation Actions

Implementation of the IAMPs will need to occur at the local and state level. The plan will be adopted as an amendment to the Oregon Highway Plan (OHP) as a facility plan by the Oregon Transportation Commission (OTC).

State Actions:

- ◆ The OTC will adopt the I-5 Exits 40 and 43 IAMPs as a transportation facility plan – an amendment to the OHP, per PLA 01, ODOT Transportation Facility Plan Adoption Process, effective October 12, 2006.
- ◆ ODOT will continue to coordinate with the City of Gold Hill and Jackson County as planning documents are updated and amended, and during the development review process.

Jackson County Actions: The County will consider the IAMPs during the update of the Jackson County Transportation System Plan (TSP)

City of Gold Hill Actions: None.



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VOLUME 2: REFERENCE MATERIAL (COMPANION DOCUMENT)

- Technical Memorandum #1: Review of Plans and Policies
- Technical Memorandum #2: Goals, Objectives, and Evaluation Criteria
- Technical Memorandum #3: Study Area Inventory
- Technical Memorandum #4: Existing Conditions Analysis
- Technical Memorandum #5: Future Baseline Traffic Conditions
- Technical Memorandum #6: Alternatives Analysis
- Technical Memorandum #7: Potential Management Actions*
- Technical Memorandum #8: Policy and Code Amendments*
- Technical Memorandum #9: Preferred Concept
- Comment Log – Final Draft IAMP

**Because the analysis found no capacity or operational issues within the Interchange Management Study Areas, this memorandum was not required for inclusion in the IAMPs.*



1. INTRODUCTION

The Oregon Department of Transportation (ODOT) encourages the development of Interchange Area Management Plans (IAMPs) to maintain and improve freeway performance and safety by improving system efficiency and management before adding capacity. The I-5 Exits 40 and 43 IAMPs are intended to protect the function of the interchanges for the foreseeable future.

1.1. Purpose of an IAMP

The IAMP planning process examines existing and potential future land use and transportation conditions, along with opportunities and limitations, and identifies long-range needs. Outcomes may include improvements to the local street network in the vicinity of the interchange needed to accommodate anticipated growth in the region, and land use actions and/or management measures to be applied in the management area.

1.2. IAMP Study Area

The IAMPs address two rural interchanges that serve the City of Gold Hill and Jackson County. As shown in Figure 1-1 (a & b), the layout of both interchanges is a conventional diamond with approximately 600 to 650 feet between northbound and southbound ramp terminals. The ramp terminals provide STOP-control for traffic exiting I-5. The bridges over I-5 are two lanes. The bridge overcrossing at Exit 40 includes shoulders (5-6 foot) which provide bicycle and pedestrian access. The Exit 43 bridge overcrossing has minimal shoulders (2 foot); therefore no bicycle or pedestrian facilities.

I-5 Exit 40 primarily provides access to the city of Gold Hill and nearby outdoor recreation areas, while Exit 43 primarily provides access to outdoor recreation areas and associated commercial

activities. The recreational areas are used by local residents as well as tourists in the area. Though bicycling is a popular recreational activity, the bicycle and pedestrian facilities in the vicinity of the interchanges are limited. Travel options for all modes and connections to the Rogue River Greenway need to be integrated into the IAMPs.

Additional details of the function of each interchange are described below.

Exit 40

I-5 Exit 40 is a rural interchange that currently functions as the southern of two access points to the City of Gold Hill in Jackson County. Additionally, it serves nearby outdoor recreation areas such as Ben Hur Lampman Park, Gold Nugget Recreation Area, multiple county parks, and campgrounds. It connects to the Tolo area, an identified Central Point urban reserve area that is envisioned to provide employment lands, via Blackwell Road (to the southeast).

Exit 43

I-5 Exit 43 is a rural interchange that currently functions as the northern of two access points to the City of Gold Hill in Jackson County. However, it primarily provides access to outdoor recreation areas such as Cypress Grove RV Park, Del Rio Vineyards, House of Mystery, and the Old Stage Road Historic Corridor, and associated commercial activities and nearby gravel pits (via North River Road).



Looking northwest from I-5 Exit 40 northbound off ramp



Objectives of the IAMPs

- ◆ Protect the function of the interchanges as specified in the Oregon Highway Plan (OHP) and Jackson County Transportation System Plan (TSP).
- ◆ Provide safe and efficient operations on I-5, Access Road, and Main Street as specified in the OHP and Jackson County TSP.
- ◆ Facilitate freight travel to the interchange from nearby resource lands.
- ◆ Maintain existing emergency routes and identify improvements to the transportation system that may enhance emergency vehicle access.
- ◆ Identify safe and convenient bicycle and pedestrian improvements to connect and enhance non-motorized travel at and around the interchanges, including access to the Rogue River Greenway.
- ◆ Incorporate bicycle and pedestrian elements, such as sidewalks and bike lanes or shoulders, in the roadway upgrades.
- ◆ Incorporate current and planned land uses into the design and management systems for Exits 40 and 43, including recommended strategies for land use control.
- ◆ Consider the Greater Bear Creek Valley Regional Problem Solving Plan (specifically inclusion and build-out of the adjacent Tolo industrial area) when evaluating design modifications and management systems for Exits 40 and 43, including recommended strategies for land use control.
- ◆ Develop an access management plan that provides for safe and acceptable operations on the transportation network, and meet OHP requirements and the access spacing standards in Oregon Administrative Rule (OAR) 734-051.
- ◆ Provide a process to educate and involve the public in the planning and funding for future transportation system improvements.

1.3. Goals and Objectives

The goal of this IAMP is to develop a plan for improvements to I-5 Exits 40 and 43 that can be implemented over time to maximize the function of the existing interchange areas and address the long-term needs of Gold Hill, Jackson County, and the Rogue Valley Corridor.

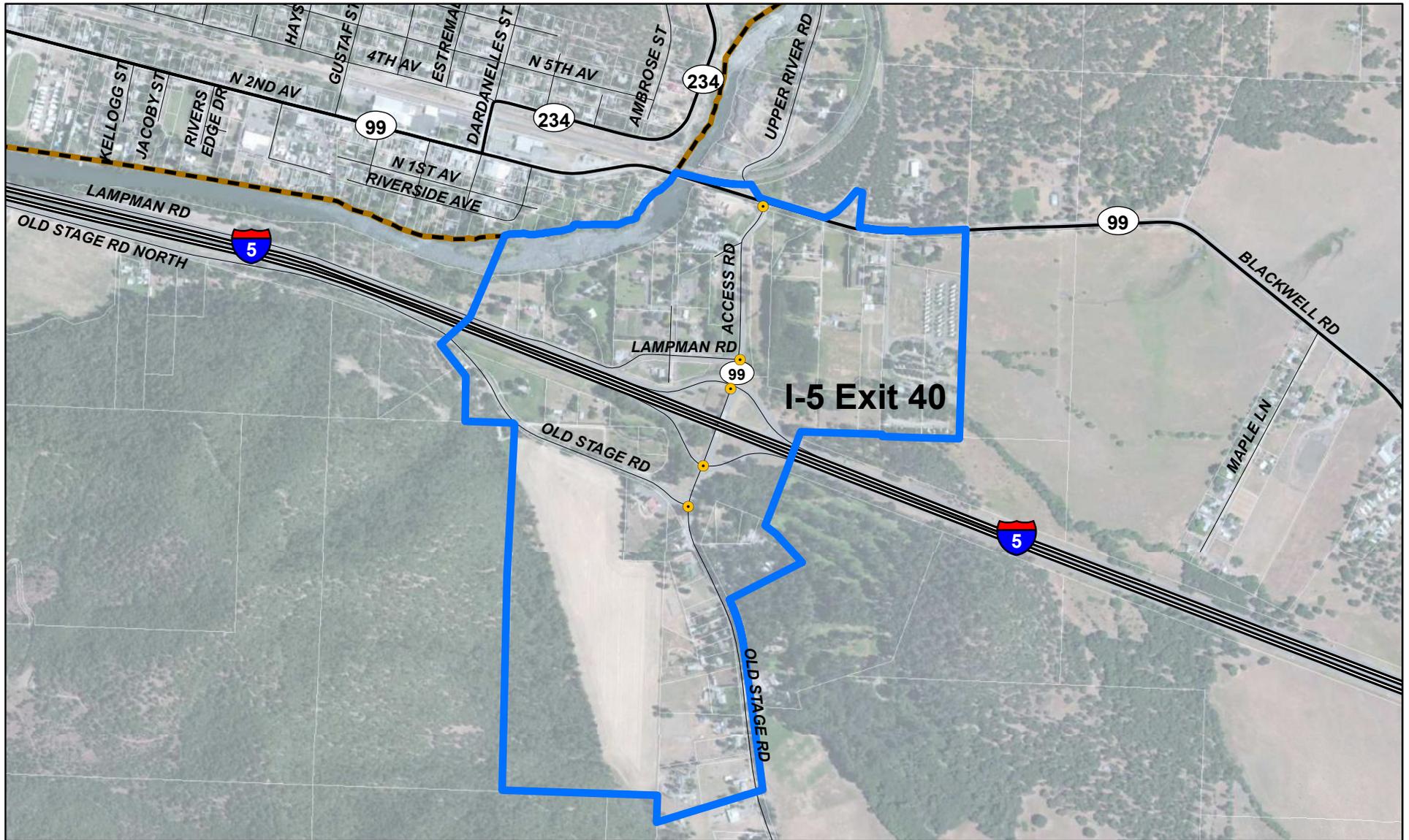
1.4. Planning Process

The IAMPs were developed through a series of technical analyses and community engagement opportunities. This document provides a summary of each of the key elements listed below. A second volume provides the detailed analysis and supporting documentation that led to the development of the IAMPs.

Two combined technical advisory committee (TAC) and citizen advisory committee (CAC) meetings were held for I-5 Exits 40 and 43. The meetings included graphic presentations and facilitated discussion to solicit input. The TAC/CAC included representation from ODOT, Jackson County, and the City of Gold Hill (see acknowledgements).

In addition to technical review and input, separate meetings were conducted with various ODOT departments (Roadway, Environmental, Traffic, Access Management, and District 8) to discuss improvement concepts and encourage consistent sharing of information.

Lastly, two community open houses were held. The first open house summarized project issues and presented improvement concepts. The second covered the elements of the draft plan.



I-5 Exits 40 and 43 Interchange Area Management Plans

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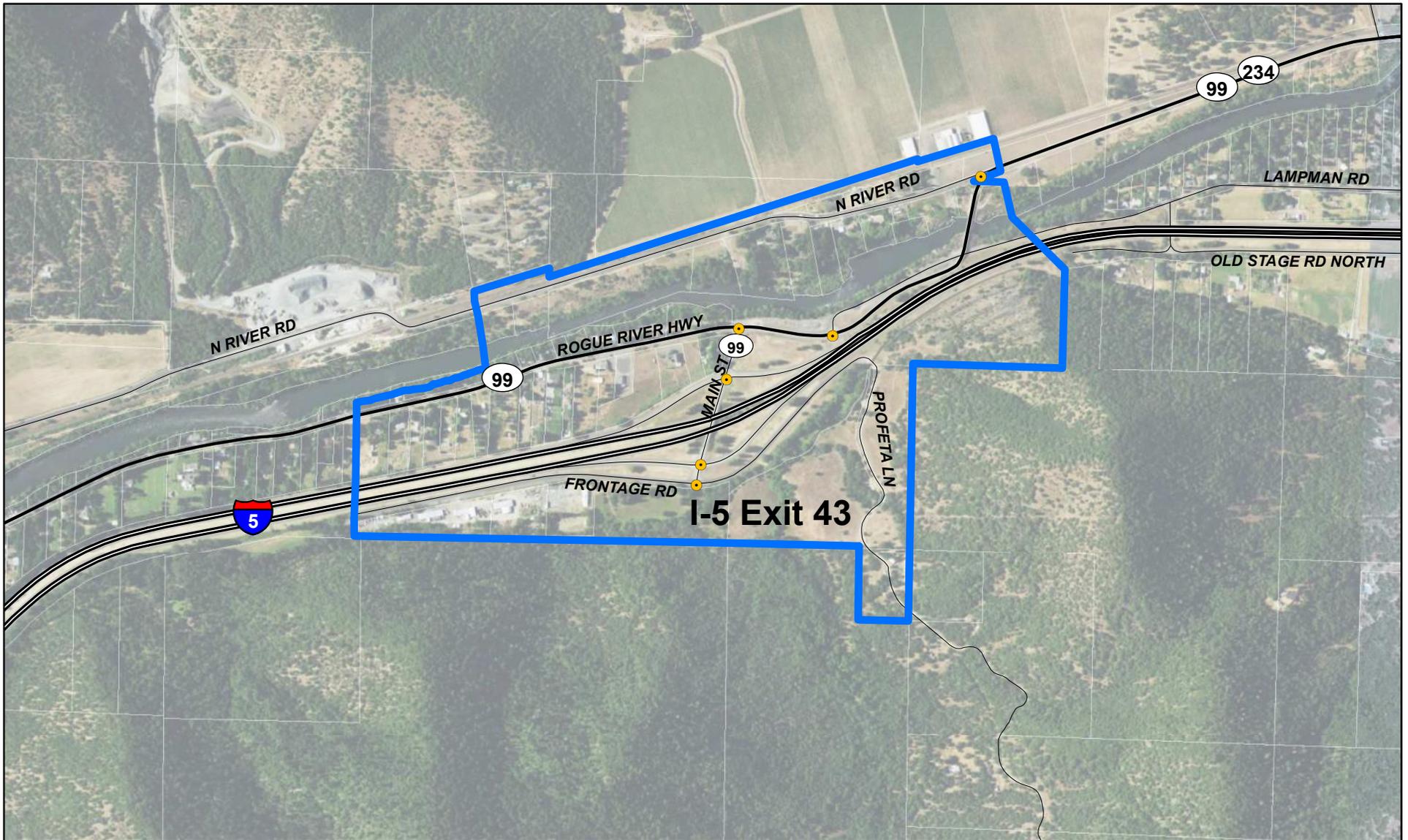
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Source Data: ESRI, Jackson County, NAIP 2009

Legend

- Interchange Management Study Area (IMSA)
- Urban Growth Boundary (UGB)
- Taxlot Boundaries indicated in white
- Interstate
- Highway
- Local Road
- Study Intersections

Figure 1-1a
Project Vicinity and Study Area
I-5 Exit 40



I-5 Exits 40 and 43 Interchange Area Management Plans



Source Data: ESRI, Jackson County, NAIP 2009

Legend

- Interchange Management Study Area (IMSA)
- Urban Growth Boundary (UGB)
- Taxlot Boundaries indicated in white
- Interstate
- Highway
- Local Road
- Study Intersections

Figure 1-1b
Project Vicinity and Study Area
I-5 Exit 43



2. STANDARDS AND REGULATIONS

State and local regulations, policies, and transportation and land use plans provided the legal framework for preparing the IAMPs. The language contained within these documents provides guidance to the state and local jurisdictions on how to manage transportation facilities and land uses within the Interchange Management Study Areas (IMSAs) to protect the interchange function, provide for safe and efficient operations, and minimize the need and expense for making major improvements to the interchange through the year 2038 planning horizon. (For a complete list of the guiding framework documents, refer to the summary description of all relevant plans and policies included in *Technical Memorandum #1: Review of Plans and Policies* in Volume 2 of this IAMP.)

Discussed below are the operational and access management standards. Operational standards and access management standards for roadway facilities are designated by ODOT and Jackson County.

2.1. Operational Standards

The OHP has established several policies that enforce general objectives and approaches for maintaining highway mobility. Of these policies, the Highway Mobility Policy (1F) establishes maximum volume-to-capacity (v/c) ratio targets¹ for peak hour operating conditions for all highways in Oregon based on the location and classification of the highway segment being examined. The OHP policy also specifies that the v/c ratio targets be

maintained for ODOT facilities through a 20-year horizon.

The three state highways within the study area are all located within the recently formed Middle Rogue Metropolitan Planning Organization (MPO): I-5 (interstate highway), OR 234 Spur/Access Road (district level highway), and Main Street (local interest road). The ODOT v/c ratio target assumed for I-5 and the ramp terminals is 0.85, while the target for OR 234 Spur/Access Road and Main Street is 0.95.

Jackson County has also established performance standards based on v/c ratio. These standards are outlined in the Jackson County TSP (0.95 inside the MPO boundary and 0.85 outside the MPO boundary). The County TSP language states that “where one or more approaches is maintained by a city or ODOT, the most restrictive of the County’s or other agency’s performance standards will be applied.” Since the management area intersections are assumed to be within the MPO boundary, the state target for district and local roads (0.95) is equivalent to the County standard. However, at the ramp terminals, the more restrictive ramp terminal target (0.85) is applied. Table 2-1 presents the applicable jurisdictional performance measures.

2.2. Access Spacing Standards

The OHP also addresses access management with the most recent revisions adopted in March 2012. More detailed requirements, definitions of access-related actions, and the access spacing standards for state highways are specified in OAR 734-051 (Division 51): Highway Approaches, Access Control, Spacing Standards, and Medians.

¹ Oregon Highway Plan Policy 1F Revisions (Adopted December 21, 2011), ODOT, Table 6: Volume to Capacity Ratio Targets for Peak Hour Operating Conditions.



Table 2-1. Performance Measures

Location	Applicable Jurisdictional Performance Measures	
	ODOT ¹ V/C	Jackson County ² V/C
I-5 Exit 40		
Access Rd & Blackwell Rd (OR 99)	Not applicable	0.95
Access Rd & Lampman Rd	Not applicable	0.95
I-5 NB Ramp Terminal	0.85	0.95
I-5 SB Ramp Terminal	0.85	0.95
Access Rd & Lampman Rd	Not applicable	0.95
I-5 Exit 43		
OR 99/OR 234 & N. River Rd	0.95	0.95
OR 99/OR 234 & Lampman Rd	0.95	0.95
OR 99/OR 234 & Main St	0.95	0.95
I-5 NB Ramp Terminal	0.85	0.95
I-5 SB Ramp Terminal	0.85	0.95
Main St & Profetta Ln	Not applicable	0.95

Notes:

1. Table 6: Volume to Capacity Ratio Targets for Peak Hour Operating Conditions, 1999 Oregon Highway Plan, Mobility Policy Revisions, 2011.
2. Jackson County Transportation System Plan, 2005.

Ideally, a roadway improvement or land development/redevelopment project includes provisions by which access can be made fully compliant with the spacing standards. In many instances, access needed for existing development will not allow these standards to be met. When the requirements and standards cannot be met for state highways, progress toward meeting the applicable standards must be demonstrated or a deviation must be justified and approved by the Region Access Management Engineer.

2.3. Existing Land Use and Zoning

This section summarizes existing land use conditions and potential design constraints found within the IMSAs. Figure 2-1 (a & b) shows the Comprehensive Plan designations, and Figure 2-2 (a & b) shows the zoning designations. The information in this section is taken primarily from published documents, maps, geographic information systems (GIS) data, the Jackson County website, and other Internet websites. For more

detailed information regarding this research, refer to *Technical Memorandum #3: Study Area Inventory* in Volume 2.

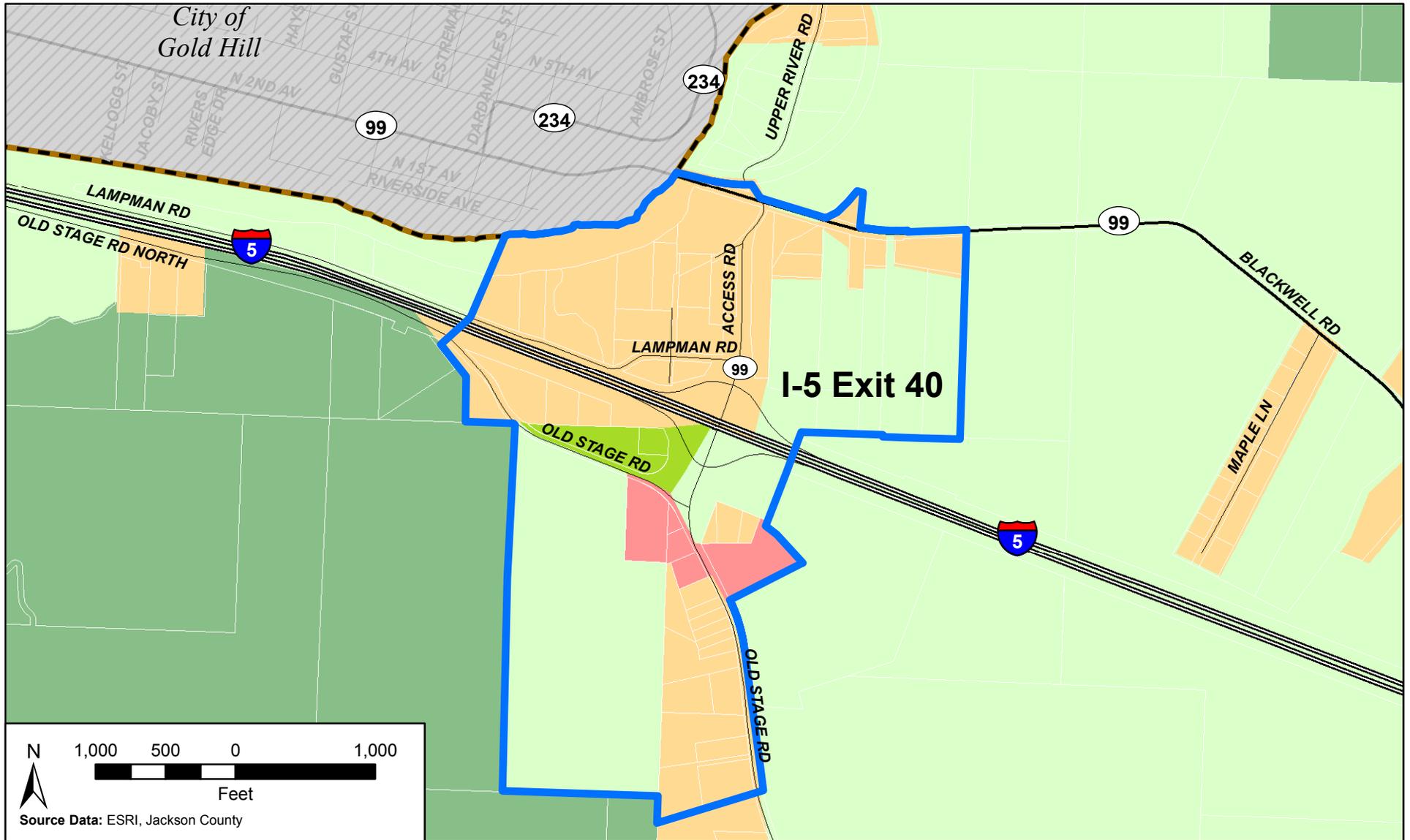
Both IMSAs are located within Jackson County, Oregon, one east (I-5 Exit 40) and one west (I-5 Exit 43) of the City of Gold Hill Urban Growth Boundary (UGB), between Grants Pass and Medford, Oregon. The Rogue River runs west to east through both IMSAs. The City of Gold Hill lies north of the river, between the two interchanges. The immediate area around the interchanges and I-5 is a narrow valley floor with largely undeveloped hills to the west and east.

For improvement concepts that require disturbing of the ground it is important to know the cultural resources in the area. This review of both IMSAs identified area features, potential conflicts and potential approvals and permits in the I-5 Exit IMSAs. Table 2-2 summarizes the resources that may present design constraints for both IMSAs.



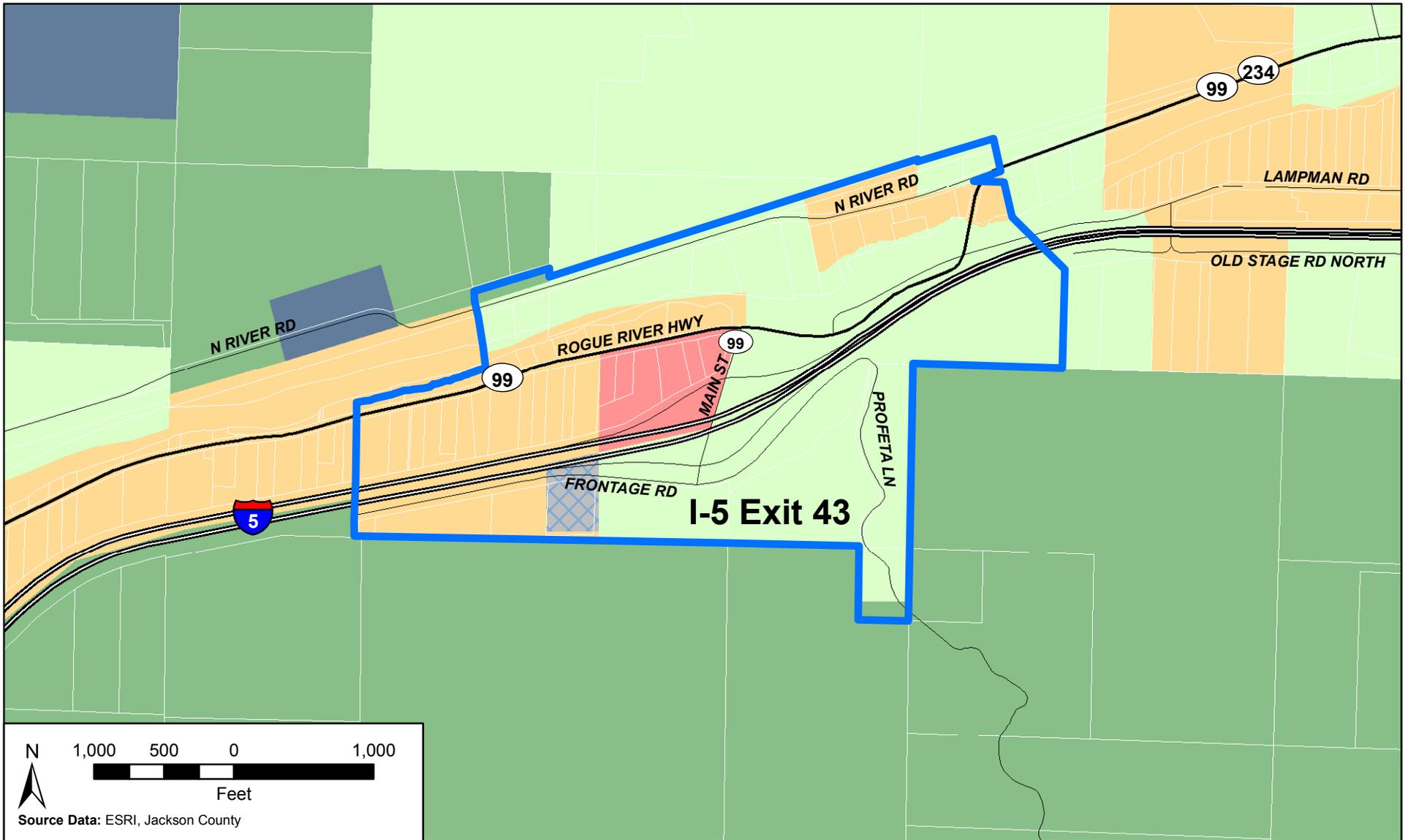
Table 2-2. Environmental and Land Use Summary

Feature	Summary of Key Resources and Concept Guidance	Key Potential Conflict Location(s)	Potential Approval/Permit If Resource Impacted
Wildlife Habitat and Wetlands	Riparian corridors, aquatic habitat, wildlife habitat, and wetlands along the Rogue River and Kane and Blackwell Creek. <i>Disturbance to undeveloped areas should be avoided if possible. Wetland delineations should be conducted once concept areas are identified. Impacts to wetlands should be avoided. Mitigation and permitting will be necessary if impacts cannot be avoided. Best Management Practices (BMPs) incorporated into project design and construction can help minimize impacts.</i>	Rogue River and Kane and Blackwell Creek	U.S. Army Corps of Engineers Oregon Department of State Lands Oregon Department of Fish and Wildlife Local land use approvals
Threatened and Endangered (T&E) Species	T&E species are found in the IMSAs. <i>Concepts should avoid disturbance of areas where the species are found and water quality impacts and physical impediments in T&E species contributing waterways.</i>	Rogue River and Kane and Blackwell Creek	Oregon Department of Fish and Wildlife, National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), Oregon Department of Agriculture (ODA) (State and Federal Endangered Species Act Consultation)
Floodplains and Floodways	Rogue River floodway and floodplain, Kane Creek floodplain. <i>Fill in floodways and floodplains should be avoided. No net rise will have to be demonstrated if improvements involve any sort of fill in floodways. Cut and fill requirements will need to be adhered to in floodplains.</i>	Rogue River and Kane Creek	Federal Emergency Management Agency (FEMA) regulations administered through local land use approvals
Socioeconomic and Environmental Justice (EJ)	Community resource and potential for EJ populations. <i>Displacements should be avoided or minimized.</i>	Throughout IMSAs: (Additional information necessary to determine if there are potential EJ populations.) Moose Family Center and Church (Exit 40).	The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) Title VI Compliance
Land Use and Zoning	EFU (Exclusive Farm Use), Areas of Special Concern Overlays. <i>Impacts to resource zones should be avoided. Impacts to EFU zones may require goal exception.</i>	Throughout IMSAs	Local land use approvals Potential goal exception for use of Agricultural lands
Historical and Archaeological Resources	Historical and cultural resources. <i>Further surveys will need to be completed, especially if improvements will include ground-disturbing activities and or right-of-way acquisition of lots with potential historical resources.</i>	Throughout IMSAs	Local land use approvals State Historic Preservation Office, and Federal Highway Administration (FHWA) – 4(f)
Parks and Recreation and Section 4(f) Resources	Parks and Historical/Cultural Resources. <i>Avoid resources if possible. Any “use” of Section 4(f) lands will need to demonstrate that it is either a “de minimis” impact or that there was no alternative for the impact.</i>	Throughout IMSAs	FHWA consultation and approval Local land use approvals Oregon Parks and Recreation/National Parks Service
Section 6(f) Resources	None.	N/A	National Parks Service consultation and approval
Hazmat	Areas along highly traveled roads and highways.	Throughout IMSAs	Coordination with Department of Environmental Quality (DEQ)



I-5 Exits 40 and 43 Interchange Area Management Plans

<p>Legend</p> <ul style="list-style-type: none"> Interchange Management Study Area (IMSA) Urban Growth Boundary (UGB) Taxlot Boundaries indicated in white Interstate Highway Local Road 		<p>Jackson County Comprehensive Plan Designations</p> <ul style="list-style-type: none"> Agricultural Land Commercial Land Forestry / Open Space Land Limited Use Land Rural Residential Land No Data 		<p>Figure 2-1a Jackson County Comprehensive Plan Designations I-5 Exit 40</p>
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I-5 Exits 40 and 43 Interchange Area Management Plans

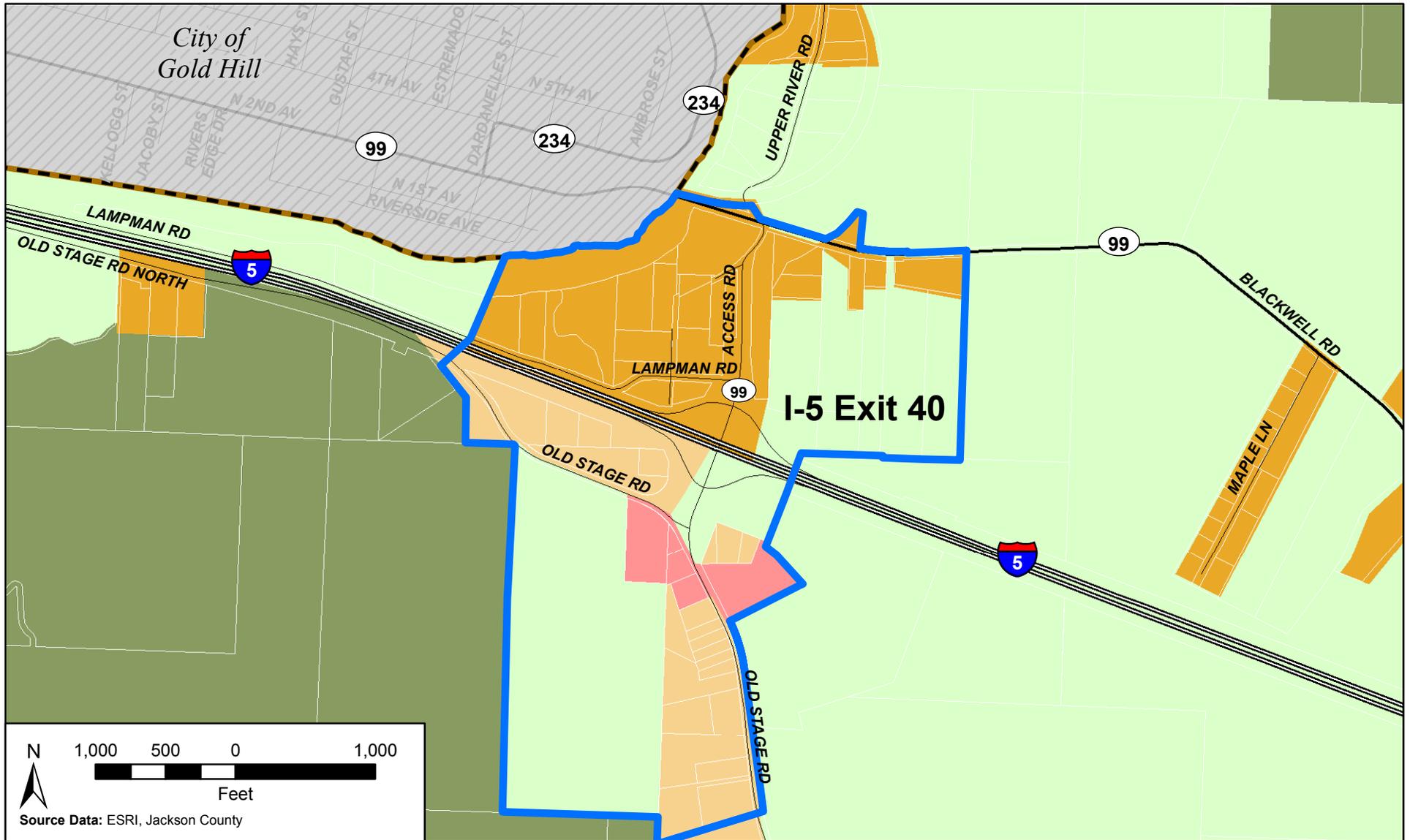
Legend

-  Interchange Management Study Area (IMSA)
-  Urban Growth Boundary (UGB)
- Taxlot Boundaries indicated in white
-  Interstate
-  Highway
-  Local Road

Jackson County Comprehensive Plan Designations

-  Aggregate Removal Land
-  Forestry / Open Space Land
-  Agricultural Land
-  Industrial Land
-  Commercial Land
-  Rural Residential Land

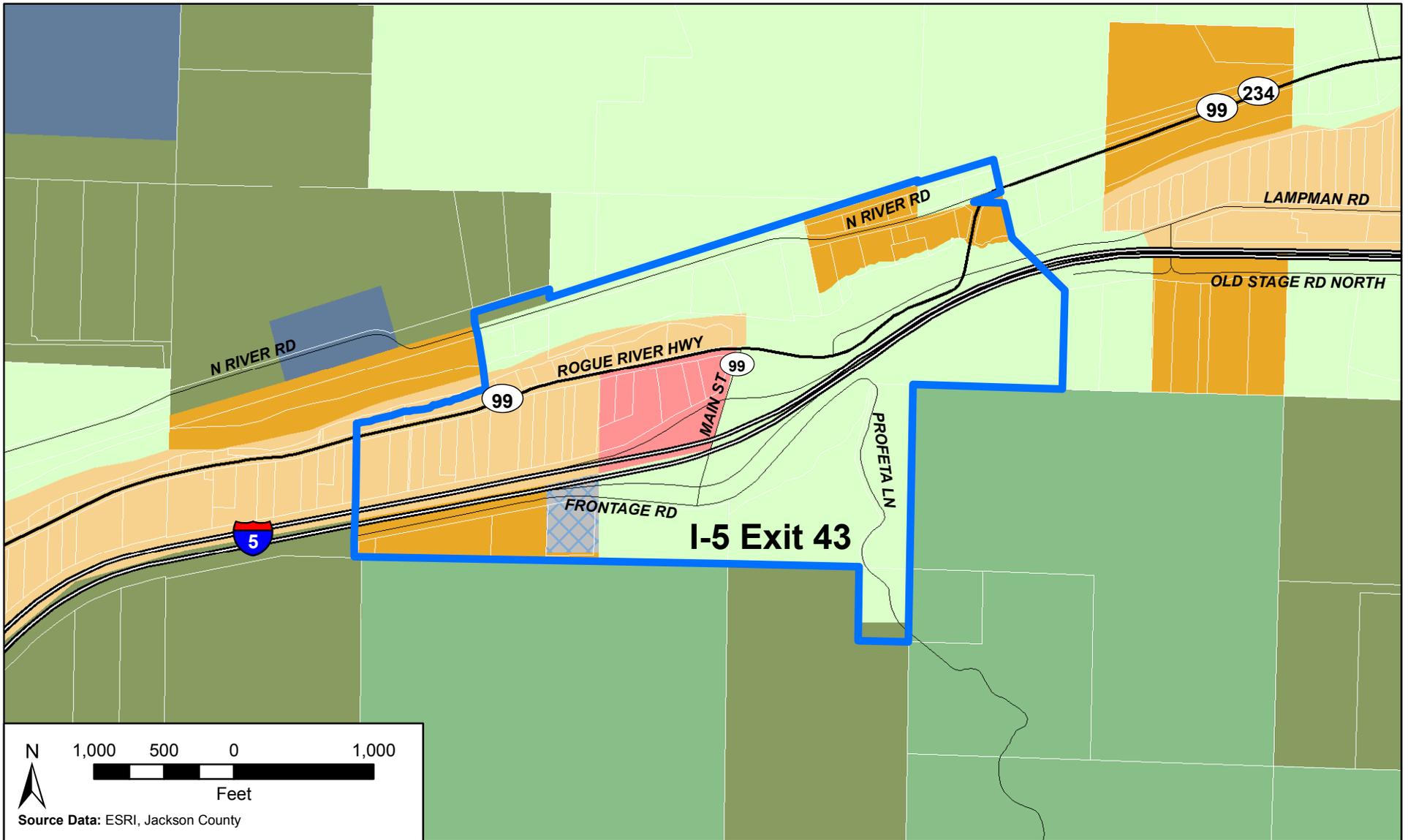
Figure 2-1b
Jackson County Comprehensive
Plan Designations
I-5 Exit 43



I-5 Exits 40 and 43 Interchange Area Management Plans

Legend		Jackson County Zoning Designations	
	Interchange Management Study Area (IMSA)		Exclusive Farm Use (EFU)
	Urban Growth Boundary (UGB)		Interchange Commercial (IC)
	Taxlot Boundaries indicated in white		Rural Residential - 2.5 (RR-2.5)
	Interstate		Rural Residential - 5 (RR-5)
	Highway		Woodland Resource (WR)
	Local Road		

Figure 2-2a
Jackson County Zoning Designations
I-5 Exit 40



I-5 Exits 40 and 43 Interchange Area Management Plans

Legend		Jackson County Zoning Designations	
	Interchange Management Study Area (IMSA)		Aggregate Removal (AR)
	Urban Growth Boundary (UGB)		Exclusive Farm Use (EFU)
	Taxlot Boundaries indicated in white		Forest Resource (FR)
	Interstate		Interchange Commercial (IC)
	Highway		Rural Residential - 2.5 (RR-2.5)
	Local Road		Rural Residential - 5 (RR-5)
			Woodland Resource (WR)
			Rural Light Industrial (RLI)

Figure 2-2b
Jackson County Zoning Designations
I-5 Exit 43



3. I-5 EXIT 40

3.1. I-5 Exit 40 Existing Conditions

I-5 Exit 40 provides access to the City of Gold Hill and nearby outdoor recreation areas. The recreational areas are used by local residents as well as tourists in the area. This section provides IAMP elements specific to Exit 40.

3.1.1. Multimodal System Inventory

The transportation system inventory examines the roadways, access points, and bicycle and pedestrian facilities along the study area roadways within the IMSA. (For more detailed system inventory information, refer to Technical Memorandum #3: Study Area Inventory in Volume 2.)

Freeway/Interchange

The Exit 40 interchange has a conventional diamond layout. All ramp terminal intersections are STOP-controlled with single-lane off ramps that flare at the approaches to the local roadway system.

The existing interchange geometric design at Exit 40, as summarized by ODOT in the *I-5 State of the Interstate Report*, does not meet some of the current design guidelines, which raises potential safety concerns. The geometric assessment, conducted in 2000 and visually confirmed (year 2015) using aerial imaging, showed the following deficiencies:

- ◆ Northbound Off Ramp: Does not have adequate deceleration distance before horizontal curves on ramp (200 feet versus desired 460 feet for 35 mph curve)
- ◆ Southbound Off Ramp: Does not have adequate deceleration distance before

horizontal curves on ramp (280 feet versus desired 500 feet for 30 mph curve)

- ◆ Northbound On Ramp: Does not have adequate acceleration length after horizontal curves on ramp (770 feet versus desired 1,100 feet after a 30 mph curve)
- ◆ Southbound On Ramp: Does not have adequate acceleration length after horizontal curves on ramp (710 feet versus desired 1,100 feet after a 30 mph curve)

The bridge over I-5 at Exit 40 was repaired as part of the Oregon Transportation Investment Act (OTIA), and construction was completed in 2009. The bridge is now two lanes wide and has a paved width of approximately 36 feet. This allows for 12-foot travel lanes and 5- to 6-foot shoulders on both sides of the road.

Roadway Network

The roadways within the IMSA are largely rural and do not have any on-street parking. Table 3-1 provides an inventory of the roadway characteristics. The inventory reviews the state and local (Jackson County) functional classification as well as posted speed, number of lanes and widths of the travel lanes, travel surface, and paved surface. The majority of the inventory was constructed from ODOT mapping and online databases, specifically TransGIS.

Bicycle and Pedestrian Facilities

Traditional pedestrian and bicycle facilities do not exist within the IMSA; none of the IMSA roadways have paved sidewalks or striped bicycle lanes. In addition to the lack of established pedestrian and bicycle facilities, many of the roads have substandard shoulder width and pavement quality.

The IMSA for Exit 40 includes or abuts several popular bike routes. One route runs along Old Stage Road from Gold Hill, crosses the freeway



Table 3-1. I-5 Exit 40 Roadway Inventory. Roadway Inventory

Roadway/ Highway Name	Jurisdiction ^{1,2}	ODOT/Federal Functional Classification ^{1,2}	City/County Functional Classification ^{1,2}	Posted Speed (mph)	No. of Lanes	Width (feet)	
						Travel Surface	Paved Surface
I-5							
Mainline	ODOT	Interstate, FR, NHS	-	65	4	48	86
I-5 Exit 40 Ramps	ODOT	Interstate, NHS	Minor Arterial (SB ramps only)	45 ³	1	16	26
I-5 Exit 40							
Access Rd (OR 99)	ODOT	Rural Minor Arterial	Minor Arterial	35	2	24-26	24-34
Blackwell Rd	Jackson County	Rural Major Collector	Major Collector	40	2	24	28
2 nd Ave (OR 99)	ODOT	Rural Minor Arterial	Minor Arterial	40	2	22	24
Lampman Rd	Jackson County	Local	Local	45	2	18-22	18-22
Old Stage Rd	Jackson County	Local/Rural Major Collector ⁴	Local/Rural Major Collector ⁴	45	2	21	21

Acronyms: NHS = National Highway System; FR = Freight Route; TR = Truck Route; SB = southbound.

Notes:

1. State functional classification maps and TransGIS mapping tool.
2. Jackson County Transportation System Plan, 2005.
3. The Exit 40 southbound off ramp has a posted speed of 35 mph.
4. The Jackson County TSP classifies Old Stage Road as a local road west of Access Road, and a rural major collector south of Access Road.

(through the IMSA), and continues southward towards Medford and Jacksonville. The nearby Rogue River Greenway Trail (RRGT) runs through Gold Hill on a combination of city streets and a multi-use path that runs along the Rogue River northeast of the city. Several bicycling websites identify loops that use both the RRGT and Old Stage Road.

Transit

Transit is limited through the IMSA, with the only stops being in Gold Hill for the Southwest Point Shuttle and the Rogue Valley Commuter Line. The Southwest Point Shuttle (operated by Klamath Shuttle) makes a daily round trip between Brookings and Klamath Falls, with a westbound morning and eastbound afternoon stop in Gold Hill. Klamath Shuttle is interlined with Greyhound Lines, Inc., and Greyhound tickets can be purchased through Klamath Shuttle. The Rogue Valley Commuter Line is a three-year demonstration

project that provides round-trip bus service from Grants Pass to Medford. The commuter bus makes five trips per day in each direction and will only stop in Gold Hill if the user calls ahead. The Gold Hill stop is on Access Road north of Exit 40 at the Jackson County Fire District parking lot.

Access Inventory

Access inventory data was obtained from aerial photography and site visits. This data includes public street intersections, as well as both public and private access points to businesses and residences. For Exit 40, 34 access points were identified along the IMSA roads. Figure 3-1 presents the access points within the IMSA.

At Exit 40, the northbound and southbound ramp terminals are spaced approximately 615 feet apart with accesses located as close as 185 feet from the



I-5 Exits 40 and 43 Interchange Area Management Plans

Figure 3-1
Access Inventory
I-5 Exit 40



- Legend**
- Interchange Management Study Area (IMSA)
 - Urban Growth Boundary (UGB)
 - Taxlot Boundaries indicated in white
 - Interstate
 - Highway
 - Local Road
 - Access Points

Source Data: ESRI, Jackson County, NAIP 2009



ramps. The OHP recommends a minimum spacing of 1,320 feet (¼ mile) on either side of freeway ramps. As traffic volumes continue to grow, the proximity of these intersections could affect the safe and efficient function of the interchange area.

Outside the ¼-mile influence area of the ramp terminals, Jackson County uses spacing standards for minor collectors (150 feet), major collectors (225 feet), and arterials (300 feet), as identified in its TSP.²

3.1.2. I-5 Exit 40 Existing Safety and Operations

This section summarizes the analysis of the historical crash data within the I-5 Exit 40 IMSA as well as the existing traffic conditions. It also identifies potential constraints found within the IMSA. For more detailed data and evaluation results, refer to *Technical Memorandum #4: Existing Conditions Analysis* in Volume 2.

Safety Review

A crash history analysis was conducted to determine whether any significant, documented safety issues exist within the I-5 Exit 40 IMSA. The ODOT database (years 2007 through 2011) has 39 crashes within the IMSA, including 26 on the mainline. Two of the reported crashes resulted in a fatality, one resulted in a serious injury, and 19 resulted in a minor injury or minor injuries.

Only two of the study area intersections had reported crashes during the five-year analysis period: Access Road at Blackwell Road (four crashes) and Access Road at I-5 Northbound Ramps (seven crashes). One crash resulted in a severe (debilitating) injury; others resulted in minor

injuries, while the remaining four were property damage only. Crash types varied at both intersections: There were no consistent patterns.

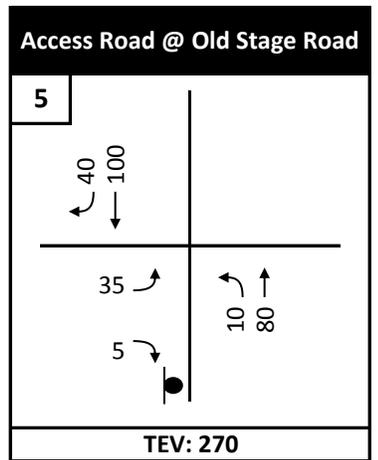
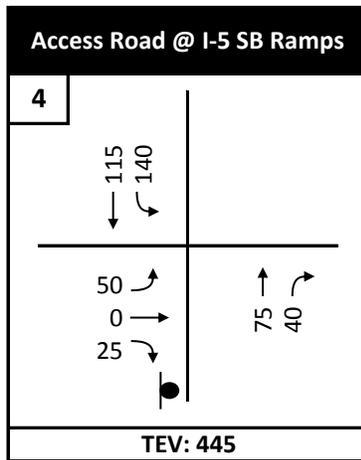
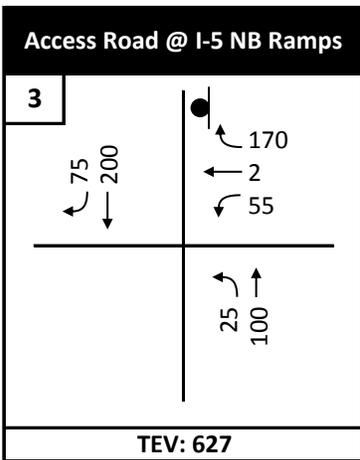
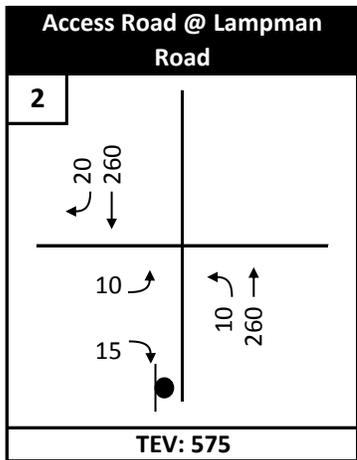
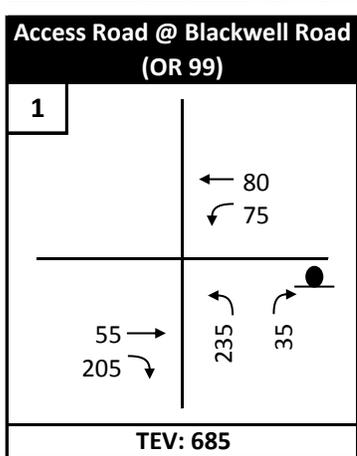
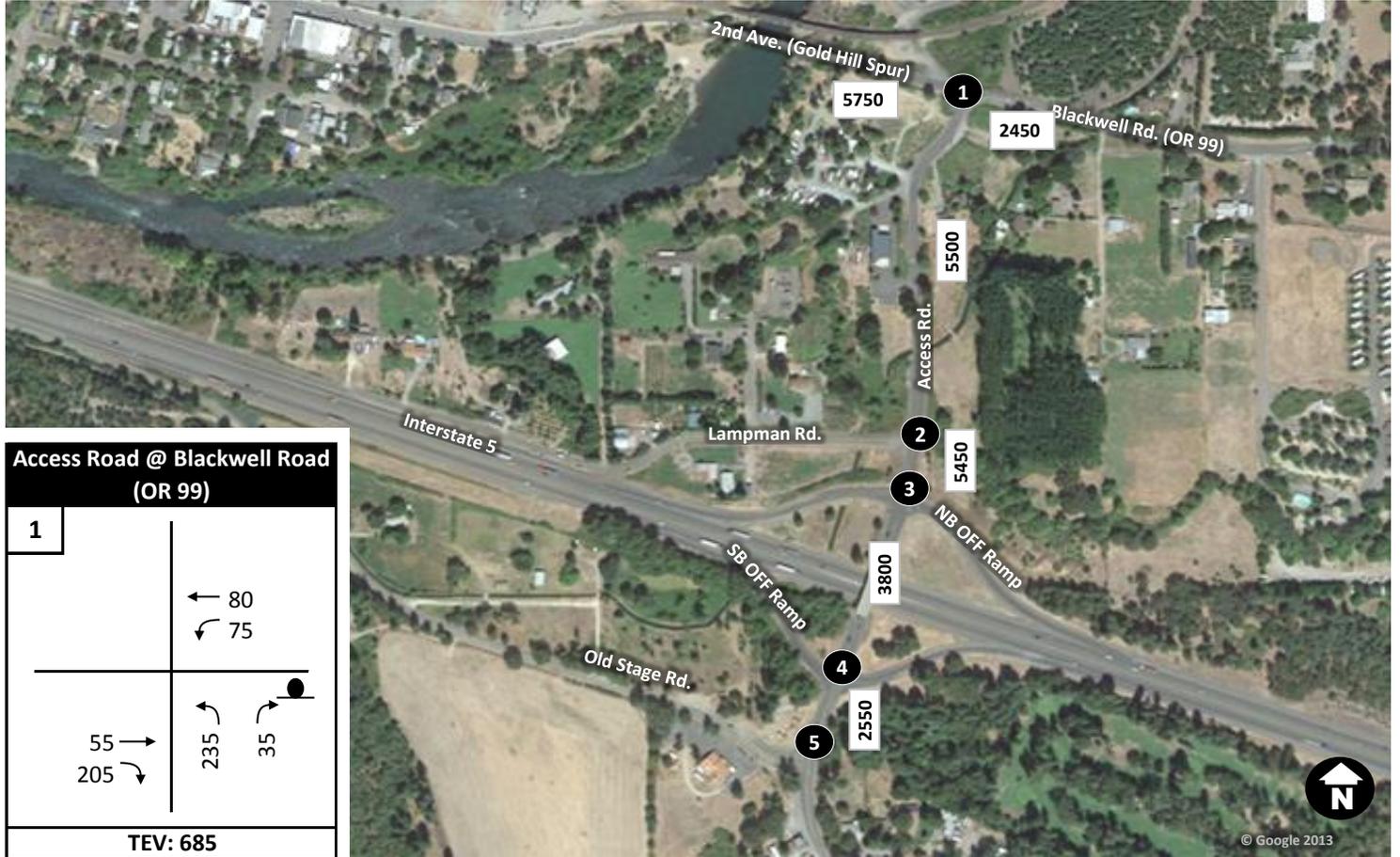
The segment of Access Road between Blackwell Road and Lampman Road was the only stretch of roadway with crashes between intersections. The calculated crash rate for this segment is 1.66 crashes per million vehicle miles of travel. Only two crashes occurred on this segment; however, the higher crash rate is largely due to the short distance and relatively low volumes of traffic between Blackwell Road and Lampman Road.

Traffic Demand

Traffic counts were collected in the year 2012 and adjusted to correspond to traffic volumes that are seen in the peak months of the year (July/August). After peak hour count data was seasonally adjusted, volumes were balanced to achieve a uniform dataset for analysis. The common peak hour was found to occur between 3:30 and 4:30 PM.

Generally, volumes along study area roadways within the IMSA are low, with each of the ramp terminals experiencing less than 2,000 vehicles per day. These traffic volumes are illustrated in Figure 3-2.

² Jackson County Transportation System Plan, Table 5-2, 2005.



I-5 Exits 40 and 43 Interchange Area Management Plans

Legend

→ Allowable Movement

● STOP Controlled Approach

TEV: Total Entering Volume

▲ Yield Controlled Movement

PM Peak Hour Turning Movement Volume

ADT

Figure 3-2
Existing (2012)
PM Peak Hour Volumes
I-5 Exit 40



Existing Intersection Operations

Analysis for the PM peak period shows that all of the intersections in the I-5 Exit 40 IMSA currently meet applicable mobility thresholds.

Table 3-3 summarizes the analysis results for all intersections within the IMSA.

Existing Freeway Operations

It is also important to evaluate how the interchange ramps interact with the mainline freeway traffic on I-5 through analyses of the points where traffic enters, or merges, onto the highway and where it exits, or diverges, from the highway. The results of these analyses are summarized in Table 3-2.

The merge and diverge analyses show that the freeway and the merge and diverge points associated with the interchange are currently operating well below the mobility target of 0.85.

Table 3-2. I-5 Exit 40 Existing (Year 2012) Freeway Operations

Direction/Location	V/C Ratio ^{1,2}
I-5 Northbound	
Mainline: South of Exit 40	0.34
Diverge: Exit 40 Northbound Off Ramp	0.09
Mainline: Between Exit 40 Ramps	0.30
Merge: Exit 40 Northbound On Ramp	0.33
Mainline : North of Exit 40	0.32
I-5 Southbound	
Mainline: North of Exit 40	0.28
Diverge: Exit 40 Southbound Off Ramp	0.29
Mainline: Between Exit 40 Ramps	0.02
Merge: Exit 40 Southbound On Ramp	0.28
Mainline: South of Exit 40	0.29

Notes:

1. The v/c ratios for the merge/diverge analyses are calculated based on the methodologies outlined in ODOT's Analysis Procedures Manual.
2. The design hour is the hour between 3:30 and 4:30 PM, which coincides with non-freeway system peaking.

Source: David Evans and Associates, Inc.

Table 3-3. I-5 Exit 40 Existing (Year 2012) PM Peak Hour Traffic Operations

Intersection	Controlling Movement ¹	V/C Ratio ²	LOS ²	Mobility Targets ³ (V/C)
I-5 Exit 40				
Access Rd at Blackwell Rd (OR 99)	NB L/R	0.55	C	0.95
Access Rd at Lampman Rd	EB L/R	0.06	B	0.95
Access Rd at I-5 NB Ramps	WB L/T/R	0.29	B	0.85
Access Rd at I-5 SB Ramps	EB L/T/R	0.20	B	0.85
Access Rd at Old Stage Rd	EB L/R	0.07	B	0.95

Acronyms: LOS = level of service. EB = eastbound; WB = westbound; NB = northbound; and SB = southbound. L = left; T = through; and R = right.

Notes:

1. At unsignalized intersections the results reported are for the movement with the worst v/c ratio.
2. The v/c ratios and LOS are based on the results of the macrosimulation analysis using Synchro, which cannot account for the influence of adjacent intersection operations.
3. The Jackson County TSP designates the traffic operations standard as the more restrictive of County and ODOT targets for intersections with one or more approaches maintained by ODOT.

Source: David Evans and Associates, Inc.



I-5 Exit 40 Existing Deficiencies

The traffic analysis within the I-5 Exit 40 IMSA did not identify any operational or capacity issues. However, the inventory identified geometric and facility deficiencies as listed below:

- ◆ Northbound and southbound ramps have inadequate deceleration distance and acceleration lengths
- ◆ Several of the intersections within the IMSA were not designed with a turning radius large enough to accommodate a truck traffic design vehicle
- ◆ Adjacent public road intersections do not meet interchange spacing standards
- ◆ The bridge on OR 234 (Gold Hill) crossing the Rogue River is structurally deficient (sufficiency rating: 57.9)
- ◆ The bicycle and pedestrian facilities within the IMSA are limited; there are no designated sidewalk areas or striped bicycle facilities, and shoulder widths for bicycle usage are insufficient along most roadways
- ◆ A review of the most recent five-year crash history indicated one serious injury crash on the I-5 northbound off ramp and one fatality on the I-5 mainline south of the I-5 northbound off ramp

3.2. I-5 Exit 40 Future Conditions

The analysis of future baseline conditions examines long-term operational and safety concerns of the transportation system. (Detailed discussions of future conditions can be found in *Technical Memorandum #5: Future Baseline Traffic Conditions* in Volume 2 of this IAMP.)

3.2.1. I-5 Exit 40 Future Operations

The analysis examines conditions where the transportation system has been improved by

projects with programmed funding sources, and where traffic volumes continue to grow based on current trends and land use assumptions in Jackson County and the nearby City of Gold Hill. The analysis identifies anticipated operational deficiencies and serves as the basis for later evaluation to compare project alternatives that address deficiencies.

Future Land Use Assumptions

The long-range population forecasts presented in the Jackson County Comprehensive Plan are based on the year 2005 estimates of population prepared by Portland State University (PSU) for Jackson County. Future land use is not anticipated to be significantly different from the existing land use. The population growth forecasts assume an annual growth rate of 1.63 percent within the City of Gold Hill and 1.31 percent outside of the city.

There are no approved and/or pending developments within the study area at this time; however, recurring discussions regarding the potential development of a truck stop at one of the two study interchanges has prompted the evaluation of an alternative land use scenario. Although not presented in Volume 1 of the IAMPs, a detailed analysis of this scenario is available in *Technical Memorandum #5: Future Baseline Traffic Conditions* in Volume 2.

Future Traffic Demand

Future baseline traffic volume forecasts for the year 2038 were developed using historical traffic trends. The trend-based forecasting process is generally used for small urban areas that are growing at a fairly uniform rate or for areas where only minor changes are expected to take place.

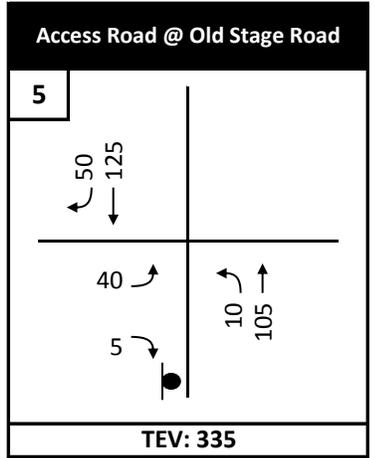
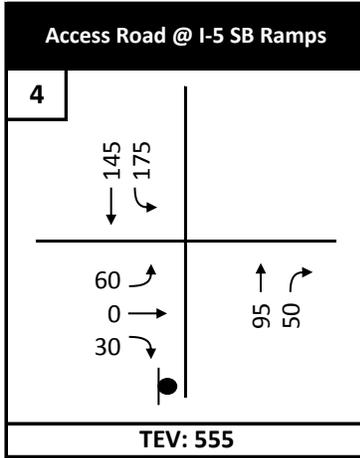
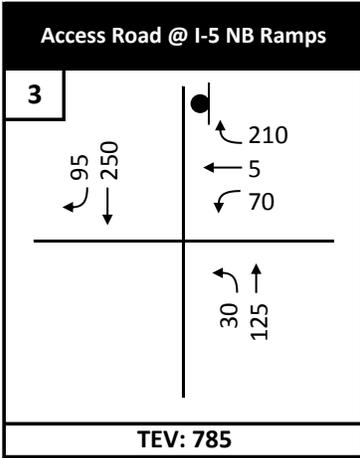
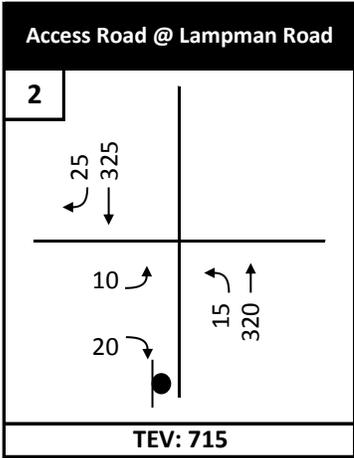
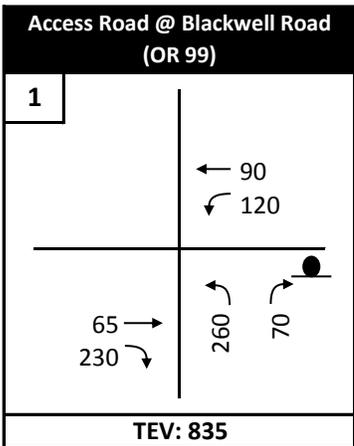
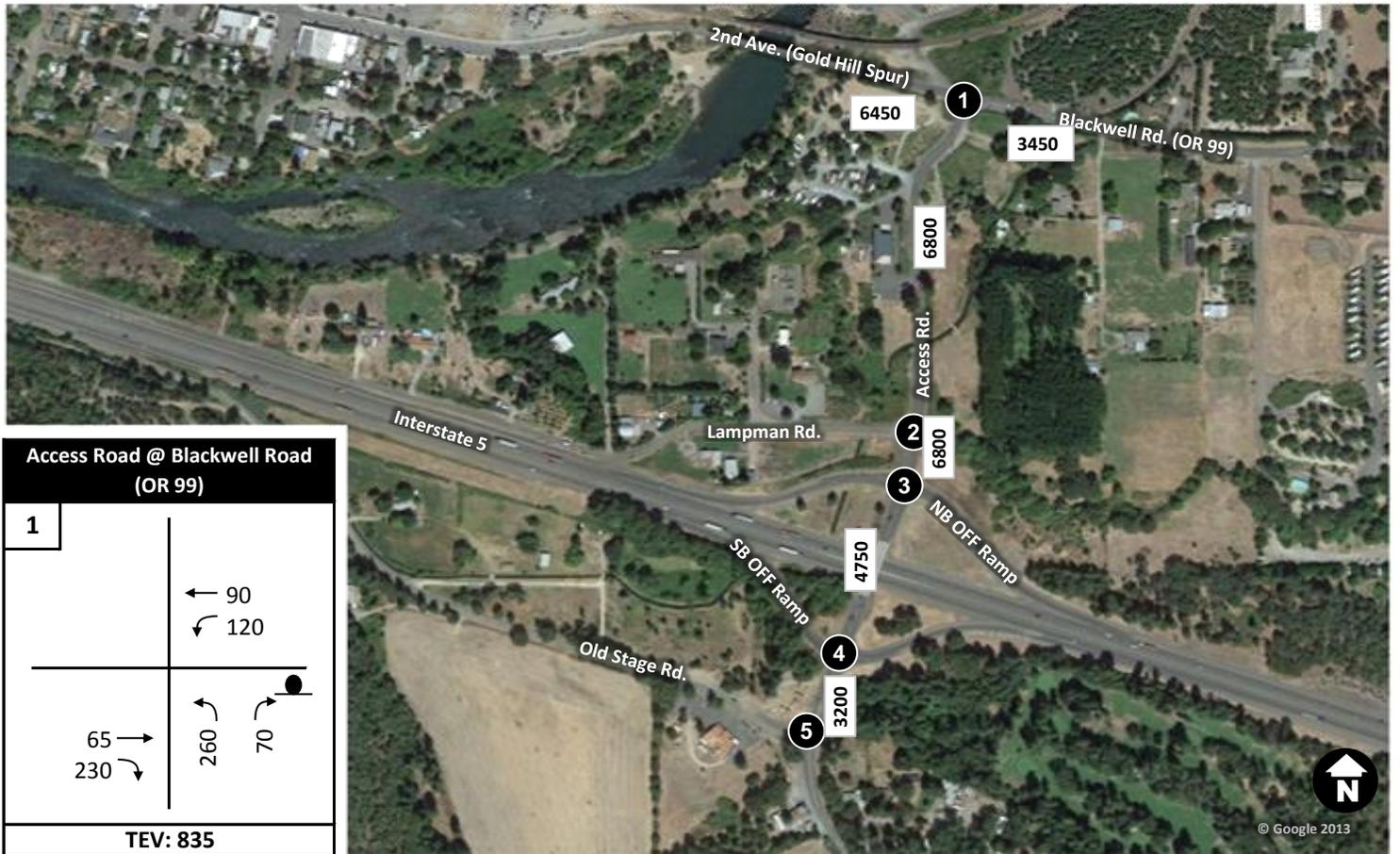
Traffic forecasts for the year 2038 future baseline scenario at the study area intersections were developed from growth rates calculated from the 2031 Future Volume Tables for I-5 and OR 99 and



OR 234 as well as Jackson County historical traffic volumes (along Blackwell Road). These growth rates were applied to the 2012 existing traffic data. The process followed the procedures from ODOT's Analysis Procedures Manual (APM).³ There are no approved and/or pending developments within the study area at this time; therefore, no additional development traffic was included in the baseline forecasts.

Generally, volumes along study area roadways within the IMSA are low, with each of the ramp terminals experiencing less than 2,000 vehicles per day. These traffic volumes are illustrated in Figure 3-3.

³ Analysis Procedures Manual, Oregon Department of Transportation, Transportation Development Division Planning Section, Transportation Planning and Analysis Unit, Salem, Oregon, April 2006, Section 4.3.



I-5 Exits 40 and 43 Interchange Area Management Plans

Legend

↔ Allowable Movement

● STOP Controlled Approach

TEV: Total Entering Volume

△ Yield Controlled Movement

PM Peak Hour Turning Movement Volume

Figure 3-3
*Future (2038) Baseline
 PM Peak Hour Volumes
 I-5 Exit 40*



Future Intersection Operations

The analysis results show that under the year 2038 future baseline conditions, all five of the IMSA intersections would meet mobility targets during the PM peak period. The intersection with the worst operations is Access Road at Blackwell Road (OR 99), though the controlling movement still meets mobility targets with a v/c ratio of 0.76. Table 3-4 summarizes the results of the traffic operations analysis for I-5 Exit 40 with respect to the year 2038 future baseline scenario.

Traffic queuing is not expected to exceed available storage or extend beyond the nearest public access for year 2038 baseline conditions. The lane group with the longest queue is the northbound left-right movement on Access Road at Blackwell Road. The queues for this lane are approximately 175 feet, compared to 300 feet to the public access point. The existing storage on the northbound and southbound ramps provides adequate stopping sight distance for the queues that are forecasted.

Future Freeway Operations

The future baseline operations of the interchange ramp interaction with the mainline highway traffic were also evaluated. The results of these analyses

are summarized in Table 3-5.

The merge and diverge analyses for the future baseline show that the freeway and the merge and diverge points for both freeway exits are expected to continue operating well below the mobility target of 0.85 through the planning horizon.

3.2.2. Summary of Deficiencies

No significant operational deficiencies are anticipated under future (year 2038) baseline conditions. Only one intersection is expected to approach the operational threshold of a v/c ratio of 0.95, and that is Access Road at Blackwell Road (OR 99) with an anticipated LOS D and v/c ratio of 0.76 for the future baseline scenario.

3.3. I-5 Exit 40 Planned Improvements

This section presents the improvements to address deficiencies within the I-5 Exit 40 IMSA, as identified through existing and future baseline analysis. The improvements were developed to meet the identified goals and objectives of this plan. (Detailed discussions of concept development can be found in *Technical Memorandum #6: Alternatives Analysis* and

Table 3-4. I-5 Exit 40 Future (Year 2038) Baseline PM Peak Hour Traffic Operations

Intersection	Controlling Movement ¹	V/C Ratio ²	LOS ²	Mobility Targets ³ (V/C)
I-5 Exit 40				
Access Rd at Blackwell Rd (OR 99)	NB L/R	0.76	D	0.95
Access Rd at Lampman Rd	EB L/R	0.06	B	0.95
Access Rd at I-5 NB Ramps	WB L/T/R	0.41	B	0.85
Access Rd at I-5 SB Ramps	EB L/T/R	0.24	C	0.85
Access Rd at Old Stage Rd	EB L/R	0.07	B	0.95

Acronyms: LOS = level of service. EB = eastbound; WB = westbound; NB = northbound; and SB = southbound. L = left; T = through; and R = right.

- Notes:
1. At unsignalized intersections the results reported are for the movement with the worst v/c ratio.
 2. The v/c ratios and LOS are based on the results of the macrosimulation analysis using Synchro, which cannot account for the influence of adjacent intersection operations.
 3. The Jackson County TSP designates the traffic operations standard as the more restrictive of County and ODOT targets for intersections with one or more approaches maintained by ODOT.

Source: David Evans and Associates, Inc.



Table 3-5. I-5 Exit 40 Future (Year 2038) Baseline Freeway Operations

Direction/Location	V/C Ratio ^{1,2}
I-5 Northbound	
Mainline: South of Exit 40	0.49
Diverge: Exit 40 Northbound Off Ramp	0.14
Mainline: Between Exit 40 Ramps	0.43
Merge: Exit 40 Northbound On Ramp	0.47
Mainline : North of Exit 40	0.46
I-5 Southbound	
Mainline: North of Exit 40	0.40
Diverge: Exit 40 Southbound Off Ramp	0.05
Mainline: Between Exit 40 Ramps	0.38
Merge: Exit 40 Southbound On Ramp	0.44
Mainline: South of Exit 40	0.43

Notes:

1. The v/c ratios for the merge/diverge analysis are calculated based on the methodologies outlined in ODOT’s APM.
2. The design hour is the hour between 3:30 and 4:30 PM, which coincides with non-freeway system peaking.

Source: David Evans and Associates, Inc.

Technical Memorandum #9: Preferred Concept in Volume 2.)

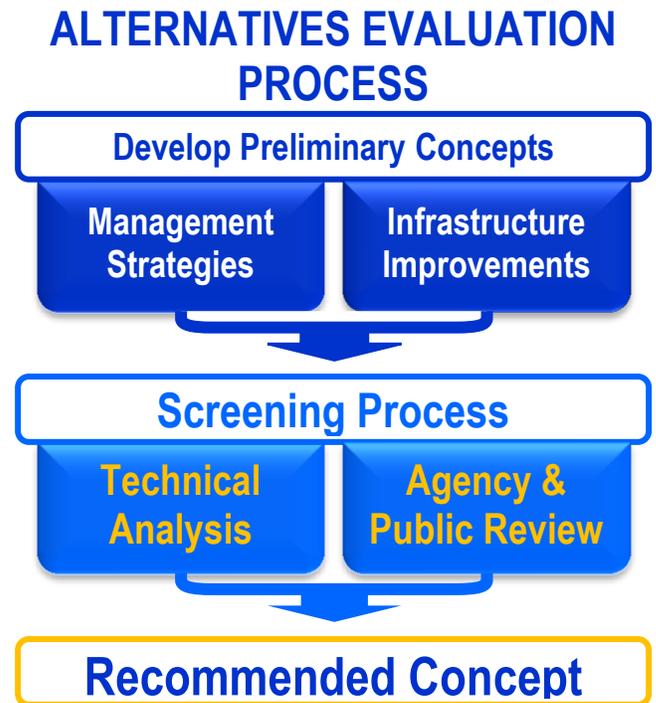
3.3.1. Alternatives Evaluation Process

After identifying existing and future deficiencies, a list of potential concepts was created. Each concept was developed to address specific deficiencies, safety issues, or access concerns. These concepts were not limited to roadway issues, and include many bicycle and pedestrian-related projects.

The technical analysis included an evaluation of traffic operations at key intersections to help determine how well each recommended concept would address deficiencies. In addition, right-of-way needs, resource impacts, and preliminary-level cost opinions were prepared in order to compare the concepts to each other.

The feedback from committees and the public, along with the technical findings, was considered

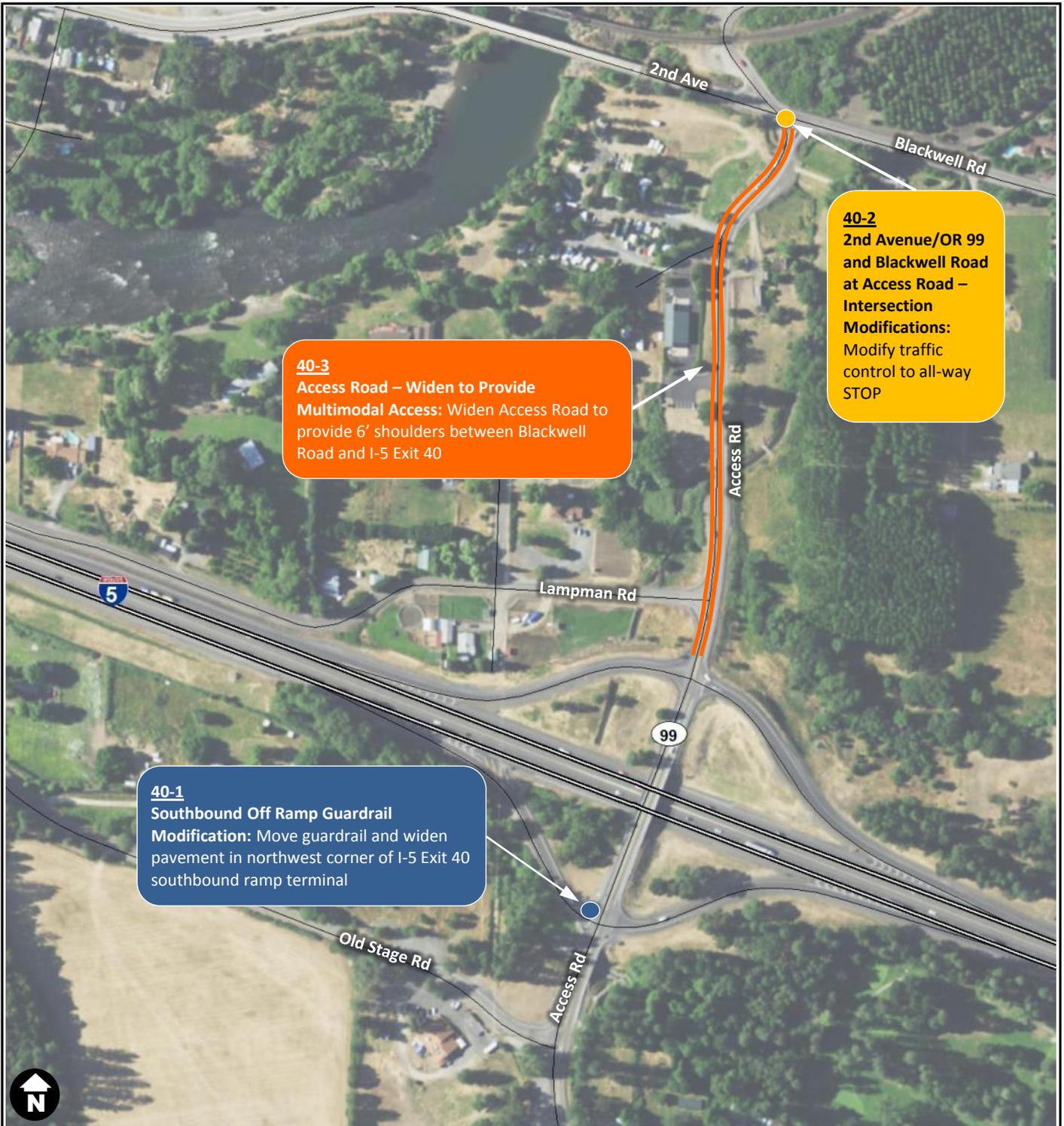
and recommendations were made. Finally, the Recommended Concept was developed by combining the recommended concepts into a unified plan for the interchange area.



3.3.2. I-5 Exit 40 IAMP Improvements

The I-5 Exit 40 IAMP consists of three new projects within the IMSA. Figure 3-4 illustrates the locations of the IAMP improvement projects. Table 3-6 provides descriptions, benefits, and considerations of the IAMP projects as well as recommendations for agency priority and triggers for implementation.

Project sheets that illustrate the improvements are included in Section 3.3.3. These sheets include more detailed information about features and considerations for each project.



I-5 Exits 40 and 43 Interchange Area Management Plans

Figure 3-4
Locations of IAMP Improvements
 I-5 Exit 40

Legend

- Interchange Ramp Improvements
- Intersection Improvements
- Multimodal Improvements



3.3.3. I-5 Exit 40 Project Sheets

Project sheets have been prepared for each planned conceptual improvement that identifies:

- Name
- Location
- Recommended improvement
- Project purpose
- Existing/future deficiencies without project
- Result of improvements (i.e., how the project addresses deficiencies)
- Considerations/potential impacts
- Cost opinion (order of magnitude)
- Implementation (priority, phasing, triggers)
- Illustration

Table 3-6. Summary of Recommended I-5 Exit 40 IAMP Improvements

Improvement		Description	Implementation		Mobility	Safety	Multimodal	Estimated Cost ¹	State	Local
			Priority	Trigger						
Interchange Ramp Improvements										
40-1	I-5 Exit 40 Southbound Off-Ramp Sight Distance Improvements	Move guardrail and widen pavement in northwest corner of I-5 Exit 40 southbound ramp terminal	Medium	<ul style="list-style-type: none"> ▪ Crash pattern of angle collisions ▪ Increased traffic volumes ▪ Area Development 	✓	✓		\$240,000	✓	
Intersection Improvements										
40-2	2nd Avenue/OR 99 and Blackwell Road at Access Road Intersection Enhancements	Modify traffic control to all-way STOP	Medium	<ul style="list-style-type: none"> ▪ Crash pattern of angle collisions ▪ Increased traffic volumes (operational) 	✓	✓	✓	\$10,000	✓	✓
Multimodal Improvements										
40-3	Access Road – Widen to Provide Multi-Modal Access	Widen Access Road to provide 6’ shoulders between Blackwell Road and I-5 Exit 40	High	<ul style="list-style-type: none"> ▪ Existing deficiency 		✓	✓	\$925,000	✓	✓



Project 40-1. I-5 Exit 40 Southbound Off-Ramp Sight Distance Improvements

I-5 Exits 40 (Kane Creek) & 43 (Rock Point): Interchange Area Management Plans



Description	Move guardrail and widen pavement in northwest corner of I-5 Exit 40 southbound ramp terminal	
Purpose	Improves sight distance for eastbound left-turning vehicles stopped at southbound off-ramp	
Roadway Characteristics	<ul style="list-style-type: none"> ▪ Off-ramp has single 16' lane ▪ Current sight distance for vehicles on the southbound off-ramp looking left (north) at oncoming traffic on Access Road is limited by guardrail ▪ Improvements anticipated to be within ODOT ROW ▪ Off-ramp ADT (vpd): Existing – 750; Future (2038) – 900 ▪ Critical movement (EB L/T/R) V/C: Existing – 0.20; Future (2038) – 0.24 ▪ Critical movement (EB L/T/R) LOS: Existing – B; Future (2038) – C ▪ 1 fatal crash during 5-year analysis period 	
How Improvement Addresses Deficiencies	Existing/Future Deficiency	With Improvement
	If a driver is stopped on the southbound off-ramp and the driver's eye level is approximately 3.5 feet from the pavement (e.g., when driving a sedan), the driver's sight distance is obstructed to the north by the guardrail on the west side of Access Road.	<ul style="list-style-type: none"> ▪ Would provide additional sight distance for vehicles on southbound off-ramp; may decrease eastbound delay ▪ No change to ramp capacity/operations
Additional Considerations	<ul style="list-style-type: none"> ▪ Existing zoning is rural residential, and EFU; EFU impacts would necessitate determination whether a Statewide Planning Goal Exception is needed ▪ High potential for archeological resource impacts in areas of undisturbed soils ▪ Nearby Kane Creek and ditch/irrigation canal ▪ Additional stormwater treatment may be needed with increased impervious surface ▪ Opportunity for gateway treatment to Gold Hill ▪ There is no access management needed for this concept 	
Cost Opinion	<ul style="list-style-type: none"> ▪ \$240,000 ▪ Does not include utility relocation or hazardous materials 	
Implementation	Medium priority <ul style="list-style-type: none"> ▪ Triggers: Crash pattern of angle collisions, increased traffic volumes, or area development 	



Project 40-2. 2nd Avenue/OR 99 and Blackwell Road at Access Road Intersection Enhancements

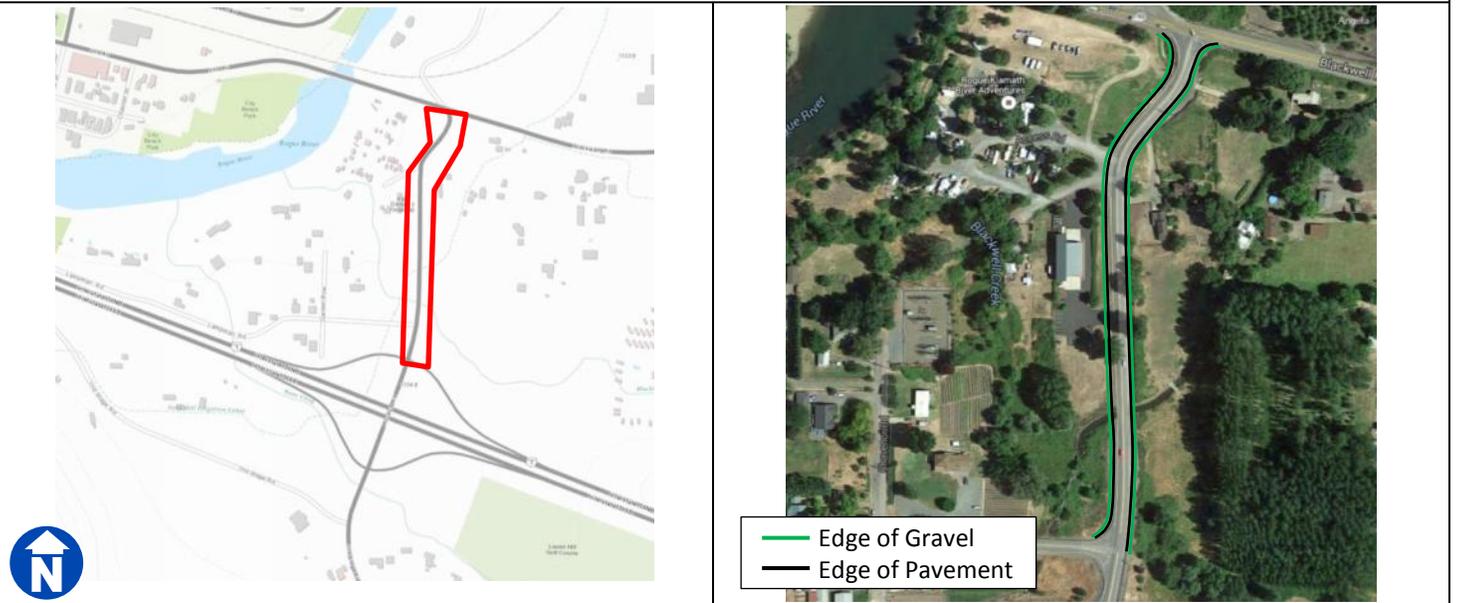
I-5 Exits 40 (Kane Creek) & 43 (Rock Point): Interchange Area Management Plans



Description	Modify traffic control to all-way STOP	
Purpose	Better facilitate turning movements and pedestrian crossing	
Roadway Characteristics	<ul style="list-style-type: none"> ▪ Existing travel lanes: 11-12' (all roadways) ▪ Existing shoulder width: 0'-2' (all roadways- most sections) ▪ Existing paved width: 24'-34' (all roadways); ▪ Blackwell Road ADT (vpd): Existing – 2,500; Future (2038) – 3,500 ▪ 2nd Avenue ADT (vpd): Existing – 5,800; Future (2038) – 6,500 ▪ Access Road ADT (vpd): Existing – 5,500; Future (2038) – 6,800 ▪ Critical movement (NB L/R) V/C: Existing – 0.55; Future – 0.76 ▪ Critical movement (NB L/R) LOS: Existing – C; Future – D ▪ Critical movement (NB L/R) Queue: Existing – 125'; Future – 175' ▪ 4 crashes during 5-year analysis period, including 3 minor injury, 1 property damage only (PDO) 	
How Improvement Addresses Deficiencies	Existing/Future Deficiency	With Improvement
	The current design of the intersection creates safety concerns for vehicles turning onto Blackwell Road/2nd Avenue from Access Rd as well as westbound left-turns stopped in the shared travel lane.	<ul style="list-style-type: none"> ▪ Pedestrian/bicycle crossings easier with traffic stopped on 2nd Avenue/OR 99 and Blackwell Road ▪ Critical movement (NB L/R) V/C: Existing – 0.44; Future – 0.55 ▪ All-way STOP LOS: Existing – B; Future – B ▪ Critical movement (NB L/R) Queue: Existing – 100'; Future – 125'
Additional Considerations	<ul style="list-style-type: none"> ▪ Stopping traffic on 2nd Avenue/OR 99 and Blackwell Road may facilitate posted speed transition but may result in more rear-end collisions ▪ No land use or environmental impacts ▪ There is no access management needed for this concept 	
Cost Opinion	\$10,000	
Implementation	Medium priority <ul style="list-style-type: none"> ▪ Triggers: Crash pattern of angle collisions or increased traffic volumes (operational) 	



Project 40-3. Access Road – Widen to Provide Multi-Modal Access **I-5 Exits 40 (Kane Creek) & 43 (Rock Point): Interchange Area Management Plans**



Description	Widen Access Road to provide 6' shoulders between Blackwell Road and I-5 Exit 40	
Purpose	Provide facilities for all modes of travel, enhance access to the city, and improve safety	
Roadway Characteristics	<ul style="list-style-type: none"> ▪ Existing travel lanes: 12' (Access Road) ▪ Existing shoulder: 0–5' ▪ Improved shoulder width: 6' ▪ Existing paved width: 24'–34' (Access Road), 40' with improvement ▪ Access Road ADT (vpd): Existing – 5,500; Future (2038) – 6,800 ▪ 2 crashes during 5-year analysis period, including 3 minor injury 	
How Improvement Addresses Deficiencies	Existing/Future Deficiency	With Improvement
	Currently non-motorized traffic must travel on the edge of the roadway, pinched between the roadway edge and higher speed vehicles, which is a safety concern	<ul style="list-style-type: none"> ▪ Provide facilities for all modes of travel, enhance access to the city, and improve safety ▪ Project could connect other multimodal facilities ▪ Improved level of service/experience/connectivity for non-motorized users ▪ No change to roadway capacity/operations
Additional Considerations	<ul style="list-style-type: none"> ▪ ROW required ▪ The guardrail at the intersection between Access Road and Lampman Road will need to be shifted ▪ There is an irrigation channel crossing Access Road where the culvert would have to be extended ▪ Progress toward meeting the applicable access spacing standards must be demonstrated or a deviation must be justified and approved by the Region Access Management Engineer 	
Cost Opinion	<ul style="list-style-type: none"> ▪ \$925,000 ▪ Includes culvert extension ▪ Does not include utility relocation, hazardous materials, or ROW 	
Implementation	High Priority <ul style="list-style-type: none"> ▪ Triggers: None; existing deficiency 	



3.4. I-5 Exit 40 Implementation

Implementation of the I-5 Exit 40 IAMP will need to occur at the local and state level. The plan will be adopted as an amendment to the OHP as a facility plan by the Oregon Transportation Commission. The plan will also be adopted as an amendment to the Jackson County TSP.

Improvement Agreement (CIA) with ODOT. Highway projects that are programmed in the STIP to be constructed may have to be altered or cancelled at a later time to meet changing budgets or unanticipated conditions such as environmental constraints.

3.4.1. State Actions

Adoption of the IAMP is a state responsibility. The OTC will adopt the I-5 Exit 40 IAMP as a transportation facility plan—an amendment to the OHP, per PLA 01, ODOT Transportation Facility Plan Adoption Process, effective October 12, 2006.

ODOT will continue to coordinate with the City of Gold Hill and Jackson County as planning documents get updated and amended, and during the development review process to ensure the interchange is protected.

3.4.2. Jackson County Actions

The County will consider the IAMPs during the update of the Jackson County TSP.

3.4.3. City of Gold Hill Actions

No action required.

3.4.4. Project Funding Disclosure

The inclusion of an improvement concept in the I-5 Exit 40 IAMP does not represent a commitment by ODOT to fund, allow, or construct the project. Projects on the state facilities are not considered “planned” projects until they are programmed into the Statewide Transportation Improvement Program (STIP). As such, local governments and/or private developers cannot rely upon the projects proposed in the IAMP to mitigate significant traffic effects unless they are programmed into the STIP, or into a local Capital Improvement Program (CIP), or funded privately through a Cooperative



4. I-5 EXIT 43

4.1. I-5 Exit 43 Existing Conditions

I-5 Exit 43 provides access to outdoor recreation areas and associated commercial activities. The recreational areas are used by local residents as well as tourists in the area. This section provides IAMP elements specific to Exit 43.

4.1.1. Multimodal System Inventory

The transportation system inventory examines the roadways, access points, and bicycle and pedestrian facilities along the study area roadways within the IMSA. (For more detailed system inventory information, refer to *Technical Memorandum #3: Study Area Inventory* in Volume 2.)

Freeway/Interchange

The I-5 Exit 43 interchange has a conventional diamond layout. All ramp terminal intersections are STOP-controlled with single-lane off ramps that flare at the approaches to the local roadway system.

The existing interchange geometric design at Exit 43 also has safety concerns that are summarized by ODOT in the *I-5 State of the Interstate Report*. The geometric deficiency assessment, conducted in 2000 and visually confirmed (year 2015) using aerial imaging, showed the following deficiencies:

- ◆ Northbound Off Ramp: Does not have adequate deceleration distance before horizontal curves on ramp (305 feet versus desired 350 feet for 55 mph curve)
- ◆ Southbound Off Ramp: Does not have adequate deceleration distance before horizontal curves on ramp (280 feet versus desired 350 feet for 65 mph curve)
- ◆ Northbound Off Ramp Intersection: Cross street does not meet desired stopping sight distance (165 feet versus 250 to 280 feet for 55 mph speed and crest vertical curve)
- ◆ Southbound Off Ramp Intersection: Cross street does not meet desired stopping sight distance (165 feet versus 250 to 280 feet for 55 mph speed and crest vertical curve)

Although the stopping sight distance at the off ramp intersections with Main Street does not meet the standard for a 55 mph speed, few vehicles are likely to be traveling at that speed on Main Street because of the nearby intersections and the grade at the overpass.

The bridge over I-5 at Exit 43 is two lanes wide and has a paved width of approximately 30 feet. This provides 12-foot travel lanes and 2-foot shoulders with raised curbs on both sides of the road.

Roadway Network

The roadways within the IMSA are largely rural and do not have any on-street parking. Table 4-1 provides an inventory of the roadway characteristics. The inventory reviews the state and local (Jackson County) functional classification as well as posted speed, number of lanes and widths of the travel lanes, travel surface, and paved surface. The majority of the inventory was constructed from ODOT mapping and online databases, specifically TransGIS.

Bicycle and Pedestrian Facilities

Traditional pedestrian and bicycle facilities do not exist within the IMSA; none of the IMSA roadways have paved sidewalks or striped bicycle lanes. In addition to the lack of established pedestrian and bicycle facilities, many of the roads have substandard shoulder width and pavement quality.



Table 4-1. I-5 Exit 43 Roadway Inventory

Roadway/ Highway Name	Jurisdiction ^{1,2}	ODOT/Federal Functional Classification ^{1,2}	City/County Functional Classification ^{1,2}	Posted Speed (mph)	No. of Lanes	Width (feet)	
						Travel Surface	Paved Surface
Interstate 5							
Mainline	ODOT	Interstate, FR, NHS	-	65	4	48	86
I-5 Exit 43 Ramps	ODOT	Interstate, NHS	Minor Arterial (all except NB on ramp)	45	1	16	26
I-5 Exit 43							
OR 234 / Rogue River Hwy (OR 99)	ODOT	Rural Minor Arterial	Minor Arterial	45	2	18-28	18-38
Main St (OR 99)	ODOT	Rural Minor Arterial	Minor Arterial	Basic Rule	2	26	26-36
N River Rd	Jackson County	Rural Major Collector	Minor Collector	45	2	24	24
Profetta Ln	Jackson County	Local	Local	Basic Rule	2	20-22	20-22
Frontage Rd	Jackson County	Local	Local	45	2	22	22

Acronyms: NHS = National Highway System; FR = Freight Route; TR = Truck Route.

Notes:

1. State functional classification maps and TransGIS mapping tool.
2. Jackson County Transportation System Plan, 2005.

The IMSA for Exit 43 includes the Rogue River Greenway Trail, or RRG T, which runs on-street along OR 234 to N River Road. This on-street segment of the RRG T connects two multi-use paths and the Valley of the Rogue State Park, making it a popular route for cyclists.

Transit

Transit is limited throughout the IMSA and in the surrounding area, with the only stops being in Gold Hill for the Southwest Point Shuttle and the Rogue Valley Commuter Line. Transit does not use the I-5 Exit 43 interchange. The discussion of transit for Exit 40 in Chapter 3 (page 3-2) is applicable to Exit 43 as well.

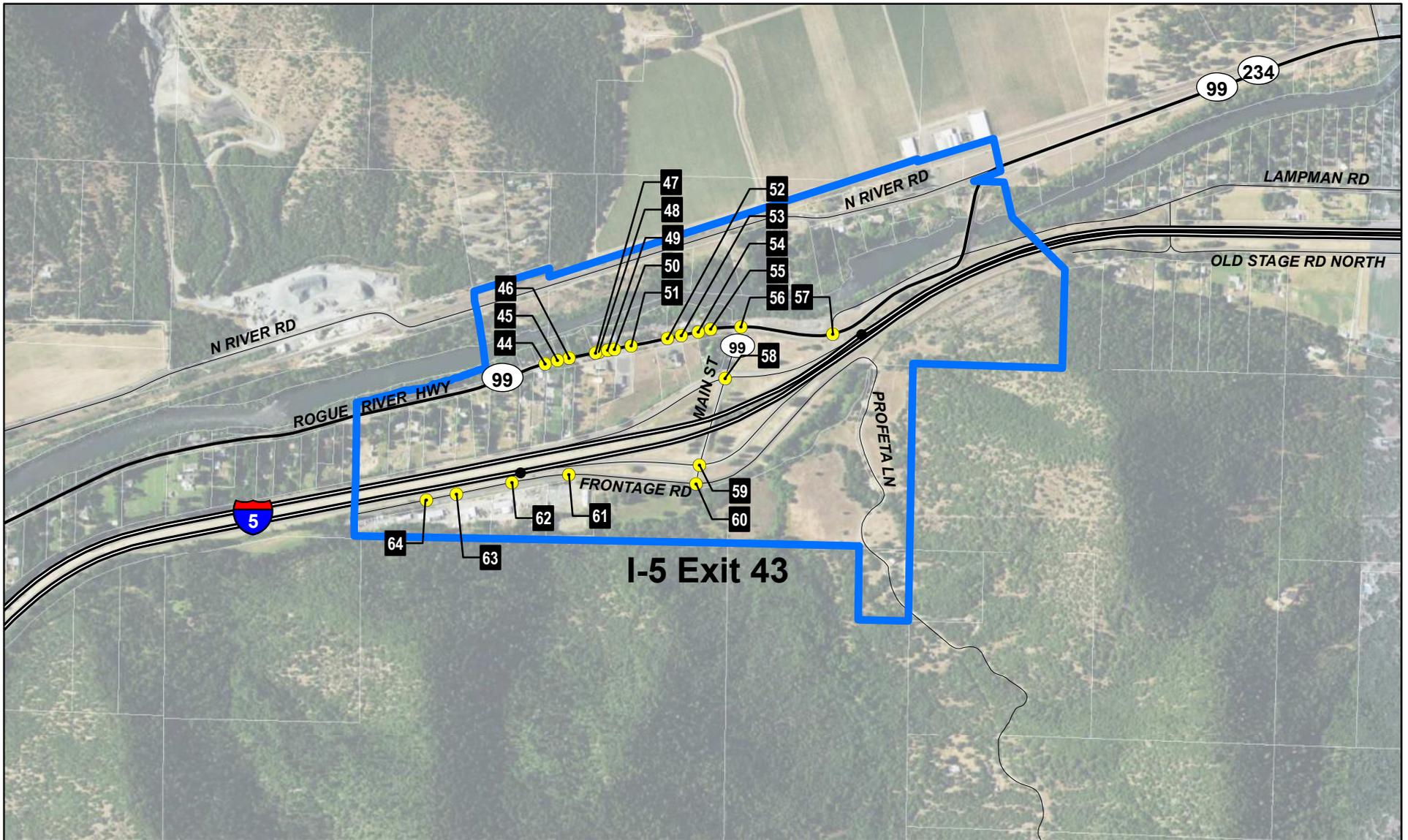
Access Inventory

Access inventory data was obtained from aerial photography and site visits. This data includes public street intersections, as well as both public and private access points to businesses and residences. For Exit 43, 21 access points were

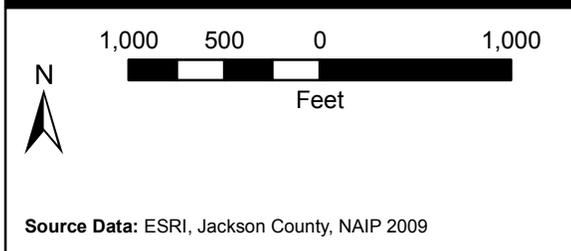
identified along the IMSA roads. Figure 4-1 presents the access points within the IMSA.

At Exit 43, the northbound and southbound ramp terminals are spaced approximately 650 feet apart, and accesses are located as close as 140 feet from the ramps. The OHP recommends a minimum spacing of 1,320 feet (¼ mile) on either side of freeway ramps. As traffic volumes continue to grow, the proximity of these intersections could affect the safe and efficient function of the interchange area.

Outside the ¼-mile influence area of the ramp terminals, Jackson County uses spacing standards for minor collectors (150 feet), major collectors (225 feet), and arterials (300 feet), as identified in its TSP.



I-5 Exits 40 and 43 Interchange Area Management Plans



Legend

-  Interchange Management Study Area (IMSA)
-  Urban Growth Boundary (UGB)
-  Taxlot Boundaries indicated in white
-  Interstate
-  Highway
-  Local Road
-  Access Points

Figure 4-1
Access Inventory
I-5 Exit 43

Source Data: ESRI, Jackson County, NAIP 2009



4.1.2. I-5 Exit 43 Existing Safety and Operations

This section summarizes the analysis of the most recent crash history within the I-5 Exit 43 IMSA as well as the existing traffic conditions. It also identifies potential constraints found within the IMSA. For more detailed data and evaluation results, refer to *Technical Memorandum #4: Existing Conditions* in Volume 2.

Safety Review

A crash history analysis was conducted to determine whether any significant, documented safety issues exist within the I-5 Exit 43 IMSA. The ODOT database (years 2007 through 2011) has 32 crashes within the IMSA, 30 of which were on the mainline. One of the reported crashes resulted in a serious injury, and eight resulted in a minor injury or minor injuries. Approximately one-third of crashes were attributed to speed.

None of the intersections had reported crashes in the five-year analysis period.

Only one non-freeway segment, OR 99 (Rogue River Highway)/OR 234 (Sam's Valley Highway) between Lampman Road and N. River Road, had two reported fixed object crashes. The calculated crash rate for this segment is 3.72 crashes per million vehicle miles of travel. Only two crashes occurred on this segment; however, the higher rate is largely due to the short distance and relatively low volumes of traffic on this segment. The two crashes occurred at the bridge, and no injuries were reported.

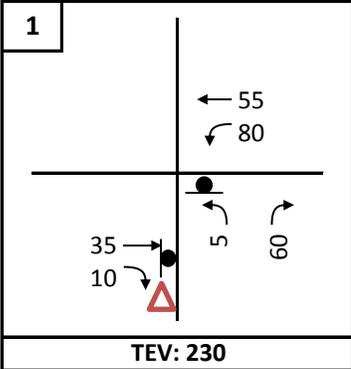
Traffic Demand

Traffic counts were collected in the year 2012 and adjusted to correspond to traffic volumes that are seen in the peak months of the year (July/August). After peak hour count data was seasonally adjusted, volumes were balanced to achieve a

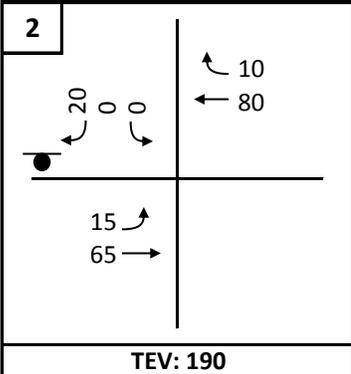
uniform dataset for analysis. The common peak hour was found to occur between 3:30 and 4:30 PM, which is the same as I-5 Exit 40 common peak hour.

Generally, volumes along study area roadways within the I-5 Exit 43 IMSA are lower than those of the I-5 Exit 40 IMSA, with average daily traffic on study area roadways of less than 500 vehicles per day. These traffic volumes are illustrated in Figure 4-2.

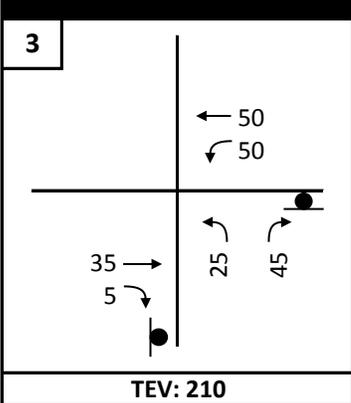
OR 99/OR 234 @ N. River Road



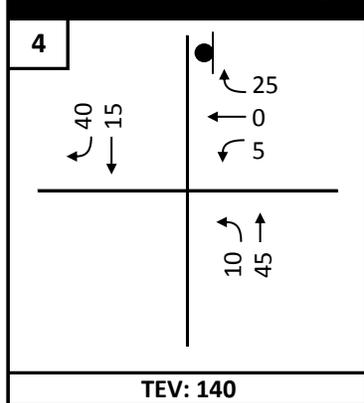
OR 99/OR 234 @ Lampman Road



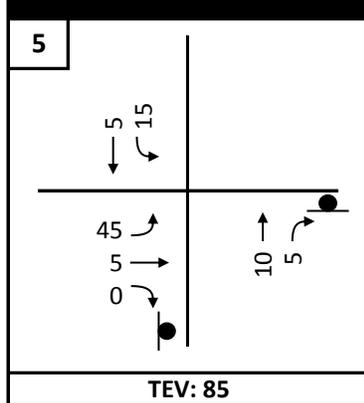
Main Street @ OR 99/OR 234



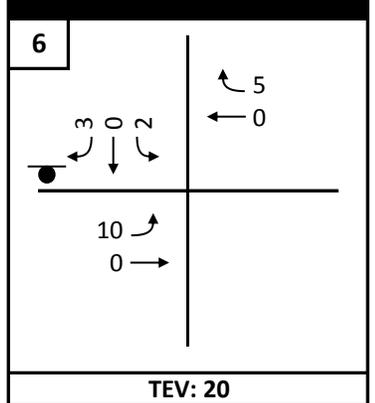
Main Street @ I-5 NB Ramps



Main Street @ I-5 SB Ramps



Main Street @ Profetta Lane



I-5 Exits 40 and 43 Interchange Area Management Plans

Legend

→ Allowable Movement

● STOP Controlled Approach

TEV: Total Entering Volume

△ Yield Controlled Movement

PM Peak Hour Turning Movement Volume

ADT

Figure 4-2
Existing (2012)
PM Peak Hour Volumes
I-5 Exit 43



Existing Intersection Operations

Analysis of the PM peak period shows that all of the intersections in the I-5 Exit 43 IMSA currently meet applicable mobility thresholds.

Table 4-3 summarizes the analysis results for all intersections within the IMSA.

Existing Freeway Operations

It is also important to evaluate how the interchange ramps interact with the mainline freeway traffic on I-5 through analyses of the points where traffic enters, or merges, onto the highway and where it exits, or diverges, from the highway. The results of these analyses are summarized in Table 4-2.

The merge and diverge analyses show that the freeway and the merge and diverge points associated with the interchange are currently operating well below the mobility target of 0.85.

Table 4-2. I-5 Exit 43 Existing (Year 2012) Freeway Operations

Direction/Location	V/C Ratio ^{1,2}
I-5 Northbound	
Mainline : South of Exit 43	0.32
Diverge: Exit 43 Northbound Off Ramp	0.01
Mainline: Between Exit 43 Ramps	0.31
Merge: Exit 40 Northbound On Ramp	0.33
Mainline: North of Exit 43	0.32
I-5 Southbound	
Mainline: North of Exit 43	0.29
Diverge: Exit 43 Southbound Off Ramp	0.02
Mainline: Between Exit 43 Ramps	0.28
Merge: Exit 43 Southbound On Ramp	0.29
Mainline: South of Exit 43	0.28

Notes:

1. The v/c ratios for the merge/diverge analysis are calculated based on the methodologies outlined in ODOT's APM.
2. The design hour is the hour between 3:30 and 4:30 PM, which coincides with non-freeway system peaking.

Source: David Evans and Associates, Inc.

Table 4-3. I-5 Exit 43 Existing (Year 2012) PM Peak Hour Traffic Operations

Intersection	Controlling Movement ¹	V/C Ratio ²	LOS ²	Mobility Targets ³ (V/C)
I-5 Exit 40				
OR 99/OR 234 at N. River Rd ⁴	EB T/R	0.05	A	0.95
OR 99/OR 234 at Lampman Rd	SB L/R	0.02	A	0.95
OR 99/OR 234 at Main St ^{4,5}	NB L/R	0.09	A	0.95
Main St at I-5 NB Ramps	WB L/T/R	0.03	A	0.85
Main St at I-5 SB Ramps	EB L/T/R	0.07	A	0.85
Main St at Profetta Ln	EB L/T	0.02	A	0.95

Acronyms: LOS = level of service. EB = eastbound; WB = westbound; NB = northbound; and SB = southbound. L = left; T = through; and R = right.

Notes:

1. At unsignalized intersections the results reported are for the movement with the worst v/c ratio.
2. The v/c ratios and LOS are based on the results of the macrosimulation analysis using Synchro, which cannot account for the influence of adjacent intersection operations.
3. The Jackson County TSP designates the traffic operations standard as the more restrictive of County and ODOT targets for intersections with one or more approaches maintained by ODOT.
4. Intersection operations analyzed with alternative geometric configurations to meet Highway Capacity Manual (HCM) methodology.
5. Intersection operations based on HCM 2000 methodology.

Source: David Evans and Associates, Inc.



I-5 Exit 43 Existing Deficiencies

The traffic analysis within the I-5 Exit 43 IMSA did not identify any operational or capacity issues. However, the inventory identified geometric and facility deficiencies as listed below:

- ◆ Northbound and southbound off ramps have inadequate deceleration distance
- ◆ The cross street intersecting the northbound and southbound off ramps does not meet desired stopping sight distance for the intersection
- ◆ Several of the intersections within the IMSA were not designed with a turning radius large enough to accommodate a truck traffic design vehicle
- ◆ Adjacent public road intersections do not meet interchange spacing standards
- ◆ The bridge on OR 234 (Sam's Valley Highway)/OR 99 (Rogue River Highway, Rock Point Bridge) crossing the Rogue River and Lampman Road is identified as having issues with load capacity and a low service life (sufficiency rating: 43.3)
- ◆ The bicycle and pedestrian facilities within the IMSA are limited; there are no designated sidewalk areas or striped bicycle facilities, and shoulder widths for bicycle usage are insufficient along most roadways

4.2. I-5 Exit 43 Future Conditions

The analysis of future baseline conditions examines long-term operational and safety concerns of the transportation system. (Detailed discussions of future conditions can be found to *Technical Memorandum #5: Future Baseline Traffic Conditions* in Volume 2.)

4.2.1. I-5 Exit 43 Future Operations

The analysis examines conditions where the transportation system has been improved by projects with programmed funding sources and where traffic volumes continue to grow based on current trends and land use assumptions in Jackson County and the nearby City of Gold Hill. The analysis identifies anticipated operational deficiencies and serves as the basis for later evaluation to compare project alternatives that address deficiencies.

Future Land Use Assumptions

The long-range population forecasts presented in the Jackson County Comprehensive Plan are based on the year 2005 estimates of population prepared by PSU for Jackson County. Future land use is not anticipated to be significantly different from the existing land use. The population growth forecasts assume an annual growth rate of 1.63 percent within the City of Gold Hill and 1.31 percent outside of the city.

There are no approved and/or pending developments within the study areas at this time; however, recurring discussions regarding the potential development of a truck stop at one of the two study interchanges has prompted the evaluation of an alternative land use scenario. Although not presented in Volume 1 of the IAMPs, a detailed analysis of this scenario is available in *Technical Memorandum #5: Future Baseline Traffic Conditions* in Volume 2.

Future Traffic Demand

Future baseline traffic volume forecasts for the year 2038 were developed using historical traffic trends. The trend-based forecasting process is generally used for small urban areas that are growing at a fairly uniform rate or for areas where only minor changes are expected to take place.



Traffic forecasts for the year 2038 future baseline scenario at the study area intersections were developed from growth rates calculated from the 2031 Future Volume Tables for I-5 and OR 99 (Rogue River Highway) and OR 234 (Sam’s Valley

day. These traffic volumes are illustrated in Figure 4-3.

Future Intersection Operations

The analysis results show that under the year 2038

Table 4-4. I-5 Exit 43 Future (Year 2038) Baseline PM Peak Hour Traffic Operations

Intersection	Controlling Movement ¹	V/C Ratio ²	LOS ²	Mobility Targets ³ (V/C)
I-5 Exit 40				
OR 99/OR 234 at N. River Rd ⁴	EB T/R	0.06	A	0.95
OR 99/OR 234 at Lampman Rd	SB L/R	0.03	A	0.95
OR 99/OR 234 at Main St ^{4,5}	NB L/R	0.09	A	0.95
Main St at I-5 NB Ramps	WB L/T/R	0.04	A	0.85
Main St at I-5 SB Ramps	EB L/T/R	0.07	A	0.85
Main St at Profetta Ln	EB L/T	0.01	A	0.95

Acronyms: LOS = level of service. EB = eastbound; WB = westbound; NB = northbound; and SB = southbound. L = left; T = through; and R = right.

Notes:

1. At unsignalized intersections the results reported are for the movement with the worst v/c ratio.
2. The v/c ratios and LOS are based on the results of the macrosimulation analysis using Synchro, which cannot account for the influence of adjacent intersection operations.
3. The Jackson County TSP designates the traffic operations standard as the more restrictive of County and ODOT targets for intersections with one or more approaches maintained by ODOT.
4. Intersection operations analyzed with alternative geometric configurations to meet HCM methodology.
5. Intersection operations based on HCM 2000 methodology.

Source: David Evans and Associates, Inc.

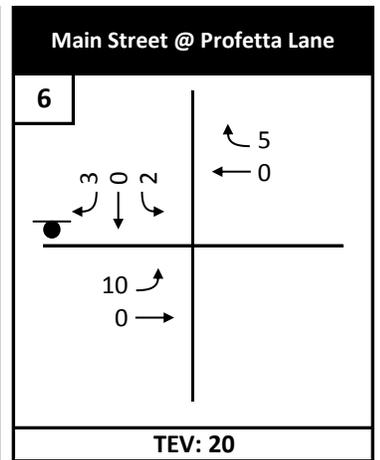
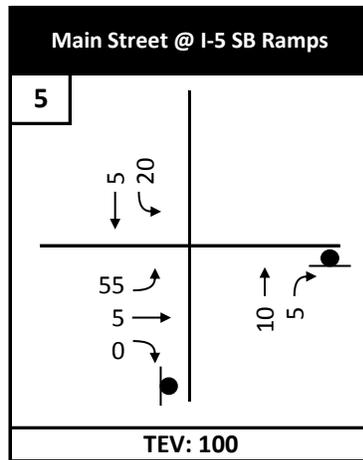
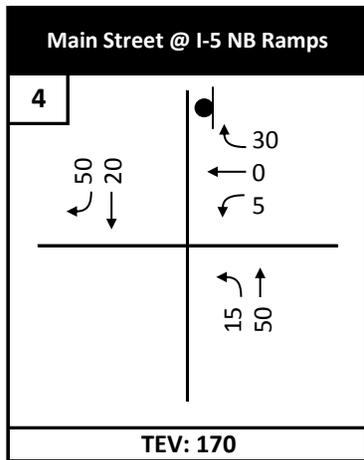
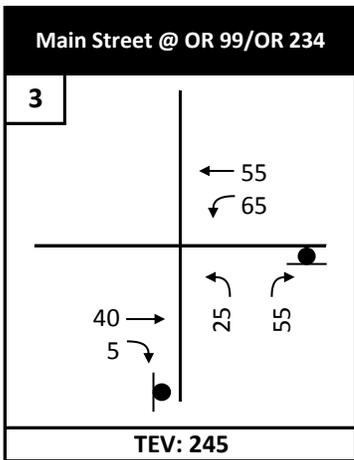
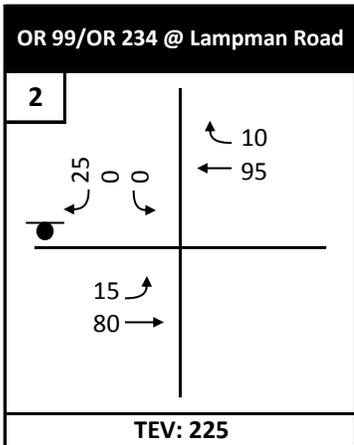
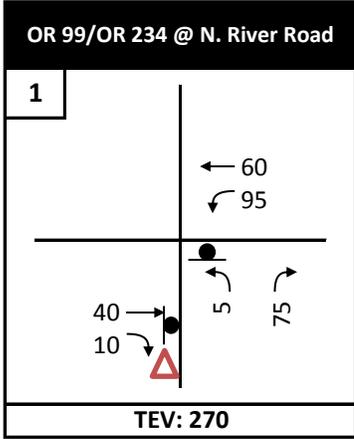
Highway) as well as Jackson County historical traffic volumes (along Blackwell Road). These growth rates were applied to the 2012 existing traffic data. The process followed the procedures from ODOT’s APM.⁴ There are no approved and/or pending developments within the study areas at this time; therefore, no additional development traffic was included in the baseline forecasts.

Generally, volumes along study area roadways within the IMSA are low, with each of the ramp terminals experiencing less than 2,000 vehicles per

future baseline conditions, all six study area intersections would meet mobility targets during the PM peak period. The intersection with the worst operations is OR 99 (Rogue River Highway)/OR 234 (Sam’s Valley Highway) at Main Street, though the controlling movement (v/c ratio of 0.09) still operates well below mobility targets. Table 4-4 summarizes the results of the traffic operations analysis.

The study intersections appear to have adequate capacity and storage for the anticipated demand.

⁴ Analysis Procedures Manual, Oregon Department of Transportation, Transportation Development Division Planning Section, Transportation Planning and Analysis Unit, Salem, Oregon, April 2006, Section 4.3.



I-5 Exits 40 and 43 Interchange Area Management Plans

Legend

→ Allowable Movement

● STOP Controlled Approach

TEV: Total Entering Volume

△ Yield Controlled Movement

PM Peak Hour Turning Movement Volume

Figure 4-3
*Future (2038) Baseline
 PM Peak Hour Volumes
 I-5 Exit 43*



Future Freeway Operations

The future baseline operations of the interchange ramp interaction with the mainline highway traffic were also evaluated. The results of the analyses are summarized in Table 4-5.

The merge and diverge analyses for the future baseline show that the freeway and the merge and diverge points for the freeway exit are expected to continue operating well below the mobility target of 0.85 through the planning horizon.

Table 4-5. I-5 Exit 43 Future (Year 2038) Baseline Freeway Operations

Direction/Location	V/C Ratio ^{1,2}
I-5 Northbound	
Mainline : South of Exit 43	0.46
Diverge: Exit 43 Northbound Off Ramp	0.02
Mainline: Between Exit 43 Ramps	0.45
Merge: Exit 43 Northbound On Ramp	0.47
Mainline: North of Exit 43	0.46
I-5 Southbound	
Mainline: North of Exit 43	0.41
Diverge: Exit 43 Southbound Off Ramp	0.03
Mainline: Between Exit 43 Ramps	0.39
Merge: Exit 43 Southbound On Ramp	0.41
Mainline: South of Exit 43	0.40

Notes:

- The v/c ratios for the merge/diverge analysis are calculated based on the methodologies outlined in ODOT's APM.
- The design hour is the hour between 3:30 and 4:30 PM, which coincides with non-freeway system peaking.

Source: David Evans and Associates, Inc.

4.2.2. Summary of Deficiencies

No significant operational deficiencies are anticipated under future (year 2038) baseline conditions.

4.3. I-5 Exit 43 Planned Improvements

This section presents the improvements to address deficiencies within the I-5 Exit 43 IMSA, as

identified through existing and future baseline analysis. The improvements were developed to meet the identified goals and objectives of this plan. (Detailed discussions of concept development can be found in *Technical Memorandum #6: Alternatives Analysis* and *Technical Memorandum #9: Preferred Concept* in Volume 2.)

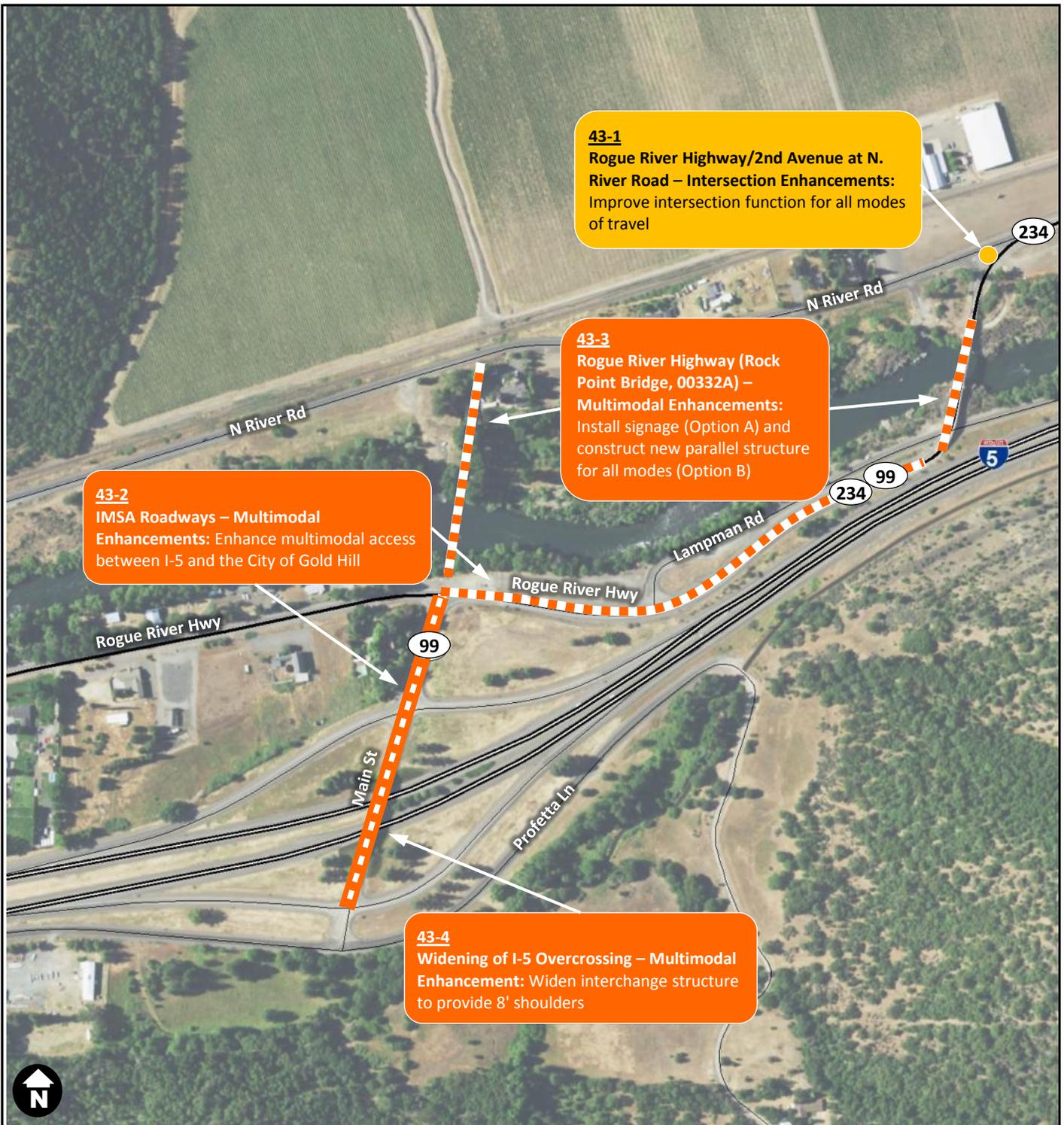
4.3.1. Alternatives Evaluation Process

An overview of the alternative evaluation process was previously summarized in Chapter 3 (3-11).

4.3.2. I-5 Exit 43 IAMP Improvements

The I-5 Exit 43 IAMP consists of four new projects within the IMSA. Figure 4-4 illustrates the locations of the IAMP improvement projects. Table 4-6 provides descriptions, benefits, and considerations of the IAMP projects as well as recommendations for agency priority and triggers for implementation.

Project sheets that illustrate the improvements are included in Section 4.3.3. These sheets include more detailed information about features and considerations for each project.



I-5 Exits 40 and 43 Interchange Area Management Plans

Legend

- Interchange Ramp Improvements (None identified for IAMP 43)
- Intersection Improvements
- Multimodal Improvements

Figure 4-4
Locations of IAMP Improvements
I-5 Exit 43



4.3.3. I-5 Exit 43 Project Sheets

Project sheets have been prepared for each planned conceptual improvement that identifies:

- Name
- Location
- Recommended improvement
- Project purpose
- Existing/future deficiencies without project
- Result of improvements (i.e., how project addresses deficiencies)
- Considerations/potential impacts
- Cost opinion (order of magnitude)
- Implementation (priority, phasing, triggers)
- Illustration

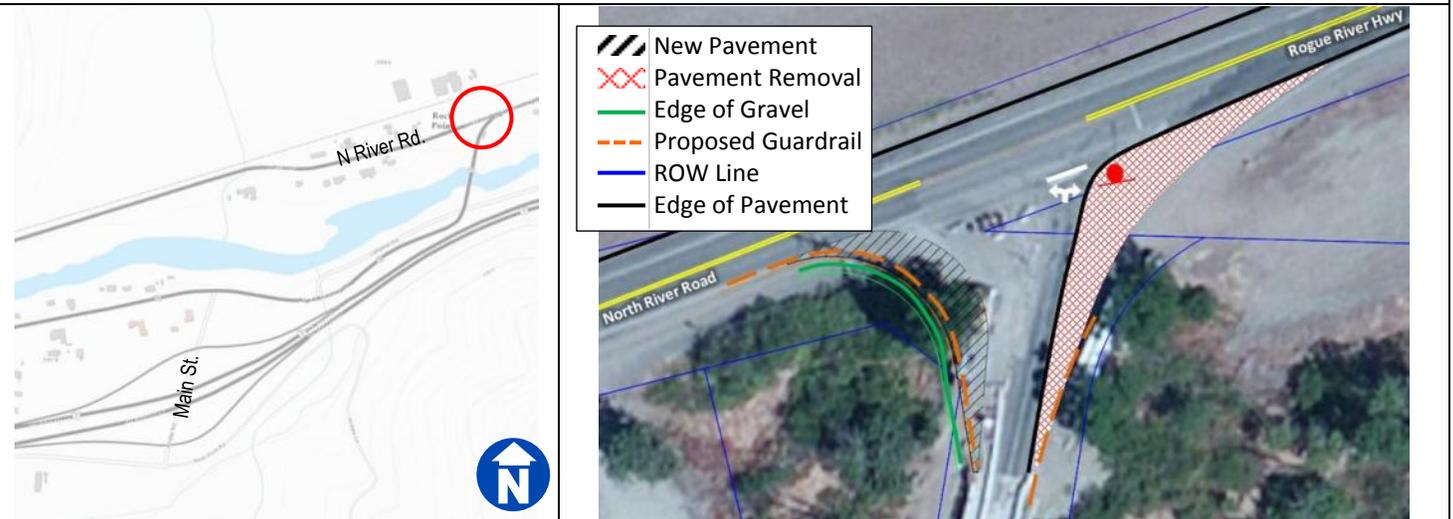
Table 4-6. Summary of Recommended I-5 Exit 43 IAMP Improvements

Improvement	Description	Implementation			Mobility	Safety	Multimodal	Estimated Cost ¹	State	Local
		Priority	Trigger							
Intersection Improvements										
43-1	Rogue River Highway/2 nd Avenue at N. River Road – Intersection Enhancements	<ul style="list-style-type: none"> ▪ Modify southwest corner of intersection to better accommodate truck movements (EBL) ▪ Intersection realignment ▪ Modify intersection traffic control 	High	<ul style="list-style-type: none"> ▪ Queuing into travel lanes ▪ Crash pattern of rear-end collisions ▪ Area development 	✓	✓	✓	\$230,000	✓	
Multimodal Improvements										
43-2	IMSA Roadways – Multimodal Enhancements	Enhance multimodal access between I-5 and the City of Gold Hill. Add signage to travel lanes (Main Street and Rogue River Hwy) and widen shoulders where ROW exists	Low	<ul style="list-style-type: none"> ▪ Crash pattern of bicycle/pedestrian collisions ▪ Area development 		✓	✓	\$465,000	✓	
43-3	Rogue River Highway (Rock Point Bridge, 00332A) – Multimodal Enhancements	Enhance multimodal access across the Rock Point Bridge: <ul style="list-style-type: none"> ▪ Option A: Add signage to the structure ▪ Option B: Build a parallel structure directly north of the Main Street/Rogue River Highway intersection and connecting to N. River Road to serve all modes of traffic 	Option A: High Option B: Low	<ul style="list-style-type: none"> ▪ Crash pattern of bicycle/pedestrian collisions ▪ Area development 		✓	✓	Option A: \$1,500 Option B: \$16.6 million	✓	
43-4	Widening of I-5 Overcrossing	Provide multimodal crossing of I-5 by widening I-5 Exit 43 interchange structure to provide 8-foot shoulders	Medium	<ul style="list-style-type: none"> ▪ Funding ▪ Crash pattern of bicycle/pedestrian collisions ▪ Area development 		✓	✓	\$3.6 million	✓	



Project 43-1. Rogue River Highway/2nd Avenue at N. River Road – Intersection Enhancements

**I-5 Exits 40 (Kane Creek) & 43 (Rock Point):
Interchange Area Management Plans**



Description	<ul style="list-style-type: none"> ▪ Modify southwest corner of intersection to better accommodate truck movements (EBR, WBL) ▪ Intersection realignment ▪ Modify intersection traffic control 	
Purpose	Provide facilities for all modes of travel including WB-67 trucks	
Roadway Characteristics	<ul style="list-style-type: none"> ▪ Existing travel lanes: 12' (both roadways) ▪ Existing shoulder width: 0' (N. River Road) to 2' (Rogue River Highway) ▪ Existing paved width: 24' (N. River Road); 18' to 38' (Rogue River Highway) ▪ Physical constraints: utility corridor, railroad tracks, and historic Rogue River Bridge ▪ N. River Road ADT (vpd): Existing – ~1,100; Future (2038) – ~1,200 ▪ Rogue River Highway ADT (vpd): Existing – ~1,600 to 2,300; Future (2038) – ~1,900 to 2,700 ▪ Critical movement (NBL) V/C: Existing – 0.08; Future (2038) – 0.09 ▪ Critical movement (NBL) LOS: Existing – A; Future (2038) – A ▪ Critical movement (NBL) Queue: Existing – 25'; Future (2038) – 25' 	
How Improvement Addresses Deficiencies	Existing/Future Deficiency	With Improvement
	The intersection is skewed, has unconventional traffic control and lacks appropriate storage space for northbound left-turns	<ul style="list-style-type: none"> ▪ Side street STOP: Existing NBL/T V/C – 0.07; Future NB V/C – 0.09 ▪ Critical movement (NBL) Queue: Existing – 25'; Future (2038) – 50' ▪ Would make truck turning and acceleration easier ▪ Conventional STOP control conducive to driver expectation and indicator of changing roadway conditions, though 45 mph speed is a concern ▪ Potential increase in the number of rear-end collisions
Additional Considerations	<ul style="list-style-type: none"> ▪ Could add later phase to provide a left-turn refuge lane for westbound traffic ▪ Any impact to the new multi-use path could trigger Section 6(f) concerns ▪ Near Rogue River; 2 classified habitats that need to be considered ▪ Progress toward meeting the applicable access spacing standards must be demonstrated or a deviation must be justified and approved by the Region Access Management Engineer 	
Cost Opinion	<ul style="list-style-type: none"> ▪ \$230,000 	
Implementation	<p>High priority</p> <ul style="list-style-type: none"> ▪ Trigger: Queuing into travel lanes, pattern of rear end collisions, or area development 	



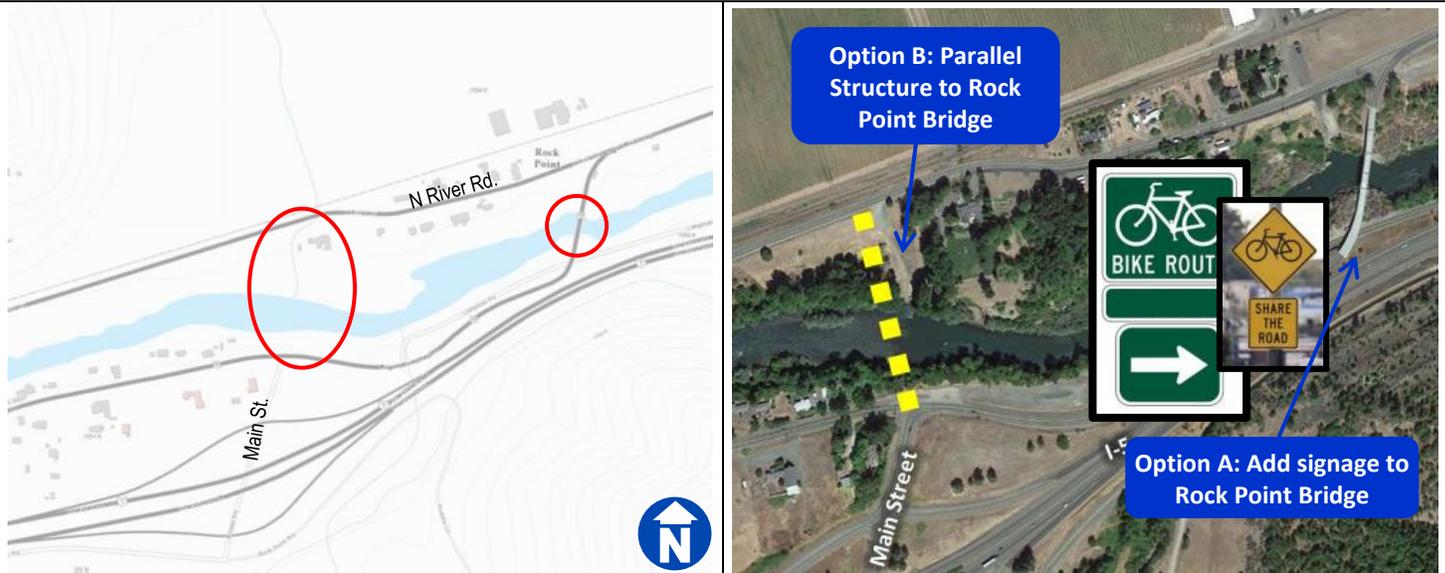
Project 43-2. IMSA Roadways – Multimodal Enhancements **I-5 Exits 40 (Kane Creek) & 43 (Rock Point):
Interchange Area Management Plans**



Description	Enhance multimodal access between I-5 and the City of Gold Hill (south of the Rock Point Bridge) by adding signage to travel lanes (Main Street and Rogue River Hwy) and widening shoulders where ROW exists	
Purpose	Provide facilities for all modes of travel and enhance safety	
Roadway Characteristics	<ul style="list-style-type: none"> ▪ Existing travel lanes: 11’–14’ ▪ Existing shoulder width: 0–5’ ▪ Existing paved width: 22’–38’ ▪ Posted speed: 45 mph (Rogue River Highway); Main Street speed is not posted ▪ Main Street ADT (vpd): Existing – 200 to 1,300; Future (2038) – 200 to 1,500 ▪ Rogue River Highway ADT (vpd): Existing – 1,600 to 2,300; Future (2038) – 1,900 to 2,700 ▪ 2 crashes (Rogue River Highway) reported during 5-year analysis period, both PDO 	
How Improvement Addresses Deficiencies	Existing/Future Deficiency	With Improvement
	The roadways within the Interchange Management Study Area (IMSA) lack bicycle & pedestrian facilities	<ul style="list-style-type: none"> ▪ Provide facilities for all modes of travel ▪ Increases awareness of bicycle presence ▪ No change to roadway capacity/operations
Additional Considerations	<ul style="list-style-type: none"> ▪ Improved pedestrian/bicycle access generally benefits socioeconomically disadvantaged populations ▪ Would maintain existing paved section and ROW ▪ There is no access management needed for this concept 	
Cost Opinion	<ul style="list-style-type: none"> ▪ \$465,000 	
Implementation	Low priority <ul style="list-style-type: none"> ▪ Triggers: Crash pattern of bicycle/ pedestrian collisions or area development 	



Project 43-3. Rogue River Highway (Rock Point Bridge, 00332A) – I-5 Exits 40 (Kane Creek) & 43 (Rock Point): Enhance Multimodal Access Interchange Area Management Plans



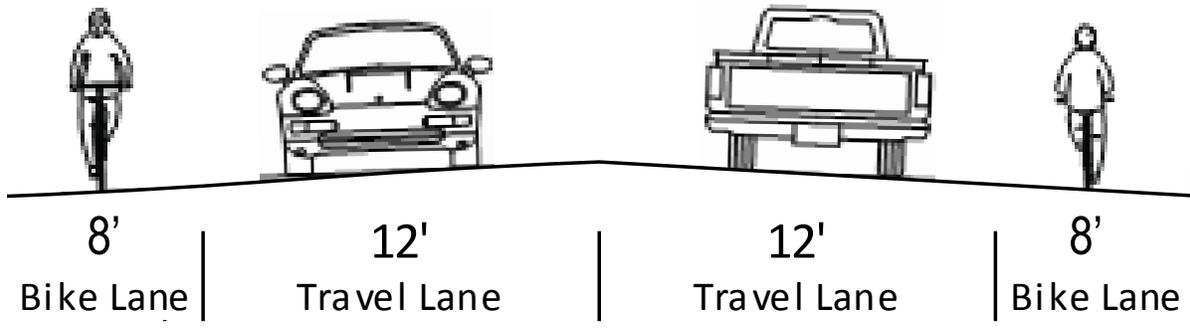
<p>Description</p>	<p>Enhance multimodal access across the Rock Point Bridge:</p> <ul style="list-style-type: none"> Option A: Add signage to the structure Option B: Build a parallel structure directly north of the Main Street/Rogue River Highway intersection and connecting to N. River Road to serve all modes of traffic (two 12' travel lanes and 8' multiuse path on either side) 	
<p>Purpose</p>	<p>Provide facilities for all modes of travel</p>	
<p>Roadway Characteristics</p>	<ul style="list-style-type: none"> Existing travel lanes: 9' Existing shoulder width: none Existing structure width: 19'–20' Rogue River Highway ADT (vpd): Existing – ~1,600; Future (2038) – ~1,900 No documented crash patterns on Rogue River Highway 	
<p>How Improvement Addresses Deficiencies</p>	<p>Existing/Future Deficiency</p> <p>The Rogue River Highway (Rock Point Bridge, 00332A) lacks bicycle & pedestrian facilities</p>	<p>With Improvement</p> <ul style="list-style-type: none"> No change to roadway capacity/operations Provide facilities for all modes of travel <p><u>Option A:</u></p> <ul style="list-style-type: none"> Would increase driver awareness of non-auto travel <p><u>Option B:</u></p> <ul style="list-style-type: none"> Would have significant impacts on circulation (all modes) and operations at Main Street/Rogue River Highway intersection and also the new intersection with River Road Enhanced freight and emergency vehicle access
<p>Additional Considerations</p>	<ul style="list-style-type: none"> Improved pedestrian access generally benefits socioeconomically disadvantaged populations Section 106 Determination of Effect would be required for both options <p><u>Option B:</u></p> <ul style="list-style-type: none"> Environmental concerns include the adjacent fish-bearing stream and wetlands Environmental permitting Would require work over the Rogue River and freshwater emergent wetlands Significant ROW impacts 	



Project 43-3. Rogue River Highway (Rock Point Bridge, 00332A) – I-5 Exits 40 (Kane Creek) & 43 (Rock Point): Enhance Multimodal Access *I-5 Exits 40 (Kane Creek) & 43 (Rock Point): Interchange Area Management Plans*

	<ul style="list-style-type: none"> Rerouting of the Rogue River Highway Progress toward meeting the applicable access spacing standards must be demonstrated or a deviation must be justified and approved by the Region Access Management Engineer
Cost Opinion	<ul style="list-style-type: none"> Option A: \$1,500 Option B: \$16.6 million Cost for either option does not include utility relocation, hazardous materials, or ROW
Implementation	<ul style="list-style-type: none"> Option A: High priority Option B: Low priority Trigger: Crash pattern of bicycle/ pedestrian collisions, area development or funding availability

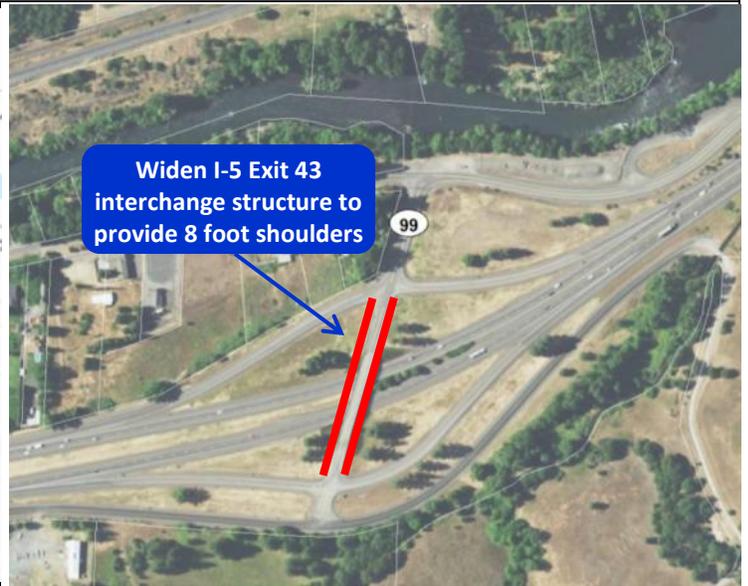
Preliminary Alignment Concept





Project 43-4. Widening of I-5 Overcrossing – Multimodal Enhancement

I-5 Exits 40 (Kane Creek) & 43 (Rock Point): Interchange Area Management Plans



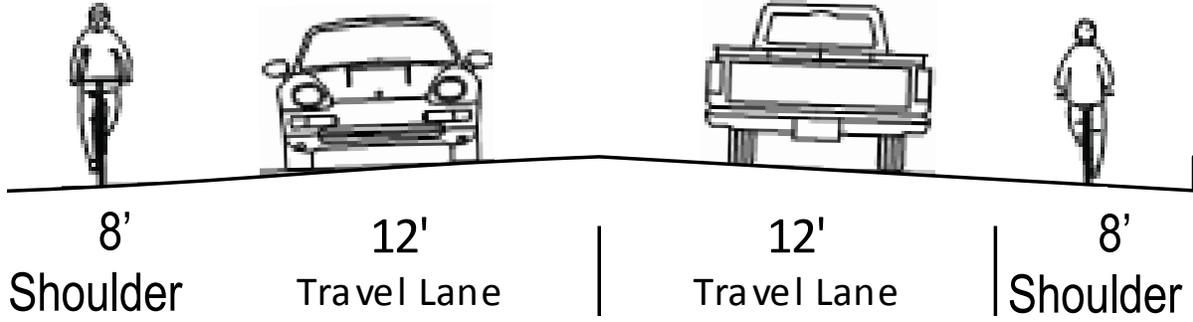
Description	Provide multimodal crossing of I-5 by widening I-5 Exit 43 interchange structure to provide a cross-section of two 12' travel lanes and 8' shoulders	
Purpose	<ul style="list-style-type: none"> ▪ Provide multimodal crossing of I-5 within the IMSA 	
Roadway Characteristics	<ul style="list-style-type: none"> ▪ Existing travel lanes: 12' (Main Street) ▪ Existing shoulder: 1'–2' (Main Street) ▪ Main Street ADT (vpd): Existing – 200 to 1,300; Future (2038) – 200 to 1,500 ▪ Main Street speed is not posted ▪ There were no crashes reported during the five-year analysis period on Main Street 	
How Improvement Addresses Deficiencies	Existing/Future Deficiency	With Improvement
	Currently, there is not a safe alternative for bicycle & pedestrians to cross I-5 within the Interchange Management Study Area (IMSA)	<ul style="list-style-type: none"> ▪ No change to roadway capacity/operations ▪ Provides facilities across I-5 for all modes of travel ▪ Enhanced freight and emergency vehicle access
Additional Considerations	<ul style="list-style-type: none"> ▪ Potential land use impacts; determination of whether Statewide Planning Goal Exception is needed ▪ Additional stormwater treatment may be needed with increased impervious surface ▪ Any new work in areas of undisturbed soil have a high potential for archeological resource impacts ▪ There is no access management needed for this concept 	
Cost Opinion	<ul style="list-style-type: none"> ▪ \$3.6 million ▪ Does not include E&C, roadway or TP&D costs 	
Implementation	<p>Medium priority</p> <ul style="list-style-type: none"> ▪ Triggers: Crash pattern of bicycle/ pedestrian collisions, area development or funding availability 	



Project 43-4. Widening of I-5 Overcrossing – Multimodal Enhancement

*I-5 Exits 40 (Kane Creek) & 43 (Rock Point):
Interchange Area Management Plans*

Preliminary Alignment Concept





4.4. I-5 Exit 43 Implementation

Implementation of the I-5 Exit 43 IAMP will need to occur at the local and state level. The plan will be adopted as an amendment to the OHP as a facility plan by the Oregon Transportation Commission. The plan will also be adopted as an amendment to the Jackson County TSP.

the STIP to be constructed may have to be altered or cancelled at a later time to meet changing budgets or unanticipated conditions such as environmental constraints.

4.4.1. State Actions

Adoption of the IAMP is a state responsibility. The OTC will adopt the I-5 Exit 43 IAMP as a transportation facility plan—an amendment to the OHP, per PLA 01, ODOT Transportation Facility Plan Adoption Process, effective October 12, 2006.

ODOT will continue to coordinate with the City of Gold Hill and Jackson County as planning documents get updated and amended, and during the development review process to ensure the interchange is protected.

4.4.2. Jackson County Actions

The County will consider the IAMPs during the update of the Jackson County TSP.

4.4.3. City of Gold Hill Actions

No action required.

4.4.4. Project Funding Disclosure

The inclusion of an improvement concept in the I-5 Exit 43 IAMP does not represent a commitment by ODOT to fund, allow, or construct the project. Projects on the state facilities are not considered “planned” projects until they are programmed into the STIP. As such, local governments and/or private developers cannot rely upon the projects proposed in the IAMP to mitigate significant traffic effects unless they are programmed into the STIP, or into a local CIP, or funded privately through a Cooperative Improvement Agreement (CIA) with ODOT. Highway projects that are programmed in



5. MANAGEMENT STRATEGIES

An integral part of the IAMP process is providing an action plan to protect the function of the interchange and its influence area. This discussion explores a set of measures under the heading “management actions” that could be employed at or near I-5 Exits 40 and 43. Management actions can extend the life of the interchange and provide for incremental implementation of IAMP improvements, allowing individual components to be funded and built when needed. Given the funding constraints and statewide demand for interchange improvements, it will likely require several years for ODOT and Jackson County to develop a funding package and construct all of the improvements identified in the IAMPs.

The analysis found no capacity or operational issues within the IMSAs. As such, the Preferred Concept presented within the IAMPs does not require assessment of management actions (which would have been represented in *Technical Memorandum #7* of Volume 2). Similarly, the IAMPs do not require an assessment of policy and code amendments (which would have been represented in *Technical Memorandum #8* of Volume 2).

5.1. Access Management

Access management is an essential tool for protecting the function of an interchange. In the vicinity of the interchange, it includes consideration of access to and from the interchange, maintaining capacity for traffic flow and operations, and safety.

Implementation of access management measures protects the public investment in an interchange, and enables the interchange to accommodate traffic volumes safely and efficiently into the future while ensuring the circulation necessary for good

access to the freeway. IAMPs acknowledge the vital need of adjacent property owners to maintain roadway access to their businesses and residences. However, a proliferation of driveways and minor street intersections near an interchange multiplies the number of conflicts along a roadway segment, thus reducing the capacity of intersections, increasing the probability of crashes, and generally degrading service for all system users. Hence, the access management plan must balance the competing needs of compatible land uses, private access, and the function of the transportation system.

5.1.1. Access Management Standards

ODOT and Jackson County have access management standards that apply to the IMSAs. The access management standards applicable to this project are summarized Table 5-1. These standards are based on the OHP for the interchange.

5.1.2. Access Management Rules

The OHP also addresses access management with the most recent revisions adopted in March 2012. More detailed requirements, definitions of access-related actions, 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.

5.1.3. Access Management Actions

Currently, this IAMP does not include projects that will relocate or close any roadways. However, opportunities to reduce access frequency and/or conflicts on IMSA roadways could be pursued by ODOT or Jackson County whenever a public infrastructure or private development project is constructed.



When the requirements and standards cannot be met for state highways, progress toward meeting the applicable standards must be demonstrated or

a deviation must be justified and approved by the Region Access Management Engineer.

Table 5-1. Access Spacing Standards

Segment Characteristic	Access Spacing Standard
ODOT – Interchange Ramp Terminals¹	
Distance from off-ramp to first approach on the right, right-turn movements only	750 feet ²
Distance from off-ramp to first intersection where left turns are allowed	1320 feet ²
Distance from last approach road to the start of the taper for the on-ramp	1320 feet ²
Distance from last right in/right out approach road to the start of the taper for the on-ramp	990 feet ²
Jackson County³	
Minor Collectors	150 feet
Major Collectors	225 feet
Arterials	300 feet

- Notes:
1. Fully Developed Urban Interchange Management Area: Occurs when 85% or more of the parcels along the developable frontage area are developed at urban densities and many have driveways connecting to the crossroad. See definition in the Oregon Highway Plan.
 2. Table 8: Minimum Spacing Standards Applicable to Freeway Interchanges with Multi-Lane Crossroads, OAR 734-51 Effective June 30, 2014 (Table 17 in the revised OHP.)
 3. Jackson County TSP, Table 5-2, 2005.

Jackson County defers to city standards within a UGB if the standard is more restrictive—this is not applicable for either interchange.

5.2. Transportation Demand Management

Transportation Demand Management (TDM) measures are designed to reduce vehicle demand, especially for commuter trips in the peak periods. These IAMPs support TDM efforts through expansion of existing bicycle and pedestrian facilities.

5.3. Transportation System Management

Transportation System Management (TSM) measures are designed to make maximum use of existing transportation facilities. None of the planned improvements support TSM or require monitoring actions for long-term management.