I-5 Exits 40 and 43 (Gold Hill)
Interchange Area Management Plans

Technical Memorandum #2
Goals, Objectives, and Evaluation Criteria

Prepared for

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TABLE OF CONTENTS

2. DEFINITION AND BACKGROUND

The Oregon Department of Transportation (ODOT) encourages the development of Interchange Area Management Plans (IAMP) to maintain and improve highway performance and safety by improving system efficiency and management before adding capacity. Public investments for major interchange improvements are very costly, and it is in the interest of the State, local governments, citizens of Oregon, and the traveling public to ensure that the interchanges function as they are designed for as long as possible.

2.1. Purpose

As described in ODOT's Interchange Area Management Plan Guidelines, the objectives of an IAMP are:

- Protect the state and local investment in major facilities
- Establish the desired function of interchanges
- Protect the function of interchanges by maximizing the capacity of the interchanges for safe movement from the mainline highway facility
- Balance the need for efficient interstate and state travel with local use
- Preserve and improve safety of existing interchanges
- Provide safe and efficient operation between connecting roadways
- Adequately protect interchanges from unintended and unexpected development while accommodating planned community development
- Manage the existing interchange capacity and new capacity provided through interchange improvements
- Establish how future land use and transportation decisions will be coordinated in interchange areas between ODOT and the local governments
- Minimize impacts to farm and forest lands and other resource lands around rural interchanges in accordance with adopted Statewide Planning Goals
- Time development with appropriate improvements to the local system after the interchange improvement is in place

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.

State and local regulations, policies, and transportation and land use plans provide the framework for preparing the IAMP. The language contained within these documents provides guidance to the state and local jurisdictions on how to manage transportation and land uses in the interchange influence area to protect the interchange function, provide for safe and efficient operations, and minimize the need and expense for making major improvement to the

interchange through the planning horizon. Hence, the IAMP documents relevant plans and policies, and identifies how they influence planning for the Interchange 40 and 43 areas. The purpose of the review is to ensure the necessary compatibility, consistency, and compliance required by state law and ODOT policy. A review of plans and policies was prepared in Technical Memorandum #1.

2.2. Interchange Function

This IAMP address two rural interchanges that serve Gold Hill and Jackson County. The function of each is described below.

2.2.1. I-5 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 envisioned to provide employment lands, via Blackwell Road (to the southeast).

The interchange ramps connect with an unnamed road, which will be referred to as Access Road in this report. To the south, Access Road intersects Old Stage Road and serves farm lands including Granger Reservoir, and partially developed suburban and commercial lands. To the north Access Road serves rural and farm lands until it reaches OR 99/2nd Avenue/Blackwell Road near the Rogue River/Urban Growth Boundary (UGB) for the City of Gold Hill.

In general, accesses (i.e., driveways and streets) are well spaced with emphasis on through traffic. However, the first intersection to the south (Old Stage Road) is approximately 300 feet south of the southbound ramp terminal. It serves suburban and commercial lands adjacent to the interchange and provides an alternative route to the freeway for local trips on the south side of I-5 between Exits 40 and 43.

The north side of the interchange has similar concerns with the Lampman Road intersection located approximately 200 feet north of the northbound ramp terminal. Lampman Road serves rural and farm lands adjacent to the interchange. It also provides a local connection for trips on the north side of I-5 between Exits 40 and 43. Outside the interchange management study area, Lampman Road provides access to residential development and Ben Hur Lampman Park.

The interchange layout is a standard diamond with approximately 600 feet between northbound and southbound ramp terminals. The ramp terminals provide STOP-control for traffic exiting I-5. The bridge over I-5 is two lanes with minimal shoulders and no bicycle or pedestrian facilities.

2.2.2. I-5 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).

The interchange ramps connect with Main Street. To the south Main Street serves farm, rural industrial and rural residential lands. To the north Main Street serves interchange commercial, rural residential and farm lands.

In general, accesses are well spaced with emphasis on through traffic. However, the first intersection to the south (Frontage Road/Profetta Lane) is approximately 150 feet south of the southbound ramp terminal. Frontage Road/Profetta Lane serves rural residential, industrial and farm lands adjacent to the interchange and provides an alternative route to the freeway for local trips on the south side of I-5 between Exits 40 and 43.

The north side of the interchanges has similar concerns with Rogue River Highway (OR 99) located approximately 375 feet north of the northbound ramp terminal. Rogue River Highway serves rural residential, interchange commercial, and farm lands and provides an alternative route to the freeway on the north side of the interchange.

The interchange layout is a standard diamond with approximately 650 feet between northbound and southbound ramp terminals. The ramp terminals provide STOP-control for traffic exiting I-5. The bridge over I-5 is two lanes with minimal shoulders and no bicycle or pedestrian facilities.

2.3. Problem Statement

I-5 Exit 40 primarily provides access to the city 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. While 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 plan.

Geometrically, the interchange overpasses (both Exits 40 and 43) have limited cross-section width and do not provide adequate shoulders for emergency stops or bicycle/pedestrian movements. Both Exits 40 and 43 have a limited deceleration (off-ramp) length. Exit 40 also has limited acceleration (on-ramp) lengths. Both interchanges have nearby frontage roads which intersect the cross street and do not meet current access management spacing standards. Exit 40 is located closer to interchange 43 than desired.

2.4. IAMP Goals and Objectives

The goal of this IAMP is to maintain the function of both I-5 Exits 40 and 43 and maximize their safety and efficiency for all modes of travel.

The objectives of the IAMP are to:

- 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 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 buildout 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.

2.5. IAMP Planning Area

The IAMP planning area delineates the vicinity in which transportation facilities, land uses, and approaches may affect operations at the interchange. The planning area includes the existing interchange, the immediate surrounding area where ramp modifications could be constructed, and parcels adjacent to each interchange. This area is under Jackson County jurisdiction. The boundaries are based on zoning designation boundaries and generally described below.

The IAMP planning area for Exit 40, illustrated in Figure 2-1a, is roughly bound by:

- **East**: approximately 500 feet southeast along I-5and approximately 1,250 feet along OR 99
- **West**: approximately 2,000 feet northwest along I-5
- **North**: the City of Gold Hill Urban Growth Boundary (UGB) and approximately 300 feet north of OR 99
- **South**: approximately 4,000 feet south of the southbound ramp terminal

The IAMP planning area for Exit 43, illustrated in Figure 2-1b, is roughly bound by:

- **East**: approximately 2,000 feet east (south along I-5)
- **West**: approximately 3,000 feet west (north along I-5)
- **North:** approximately 1000 feet north of the northbound ramp terminal (to North River Road)
- **South:** approximately 600 feet south of the southbound ramp terminal

2.6. IAMP Evaluation Criteria

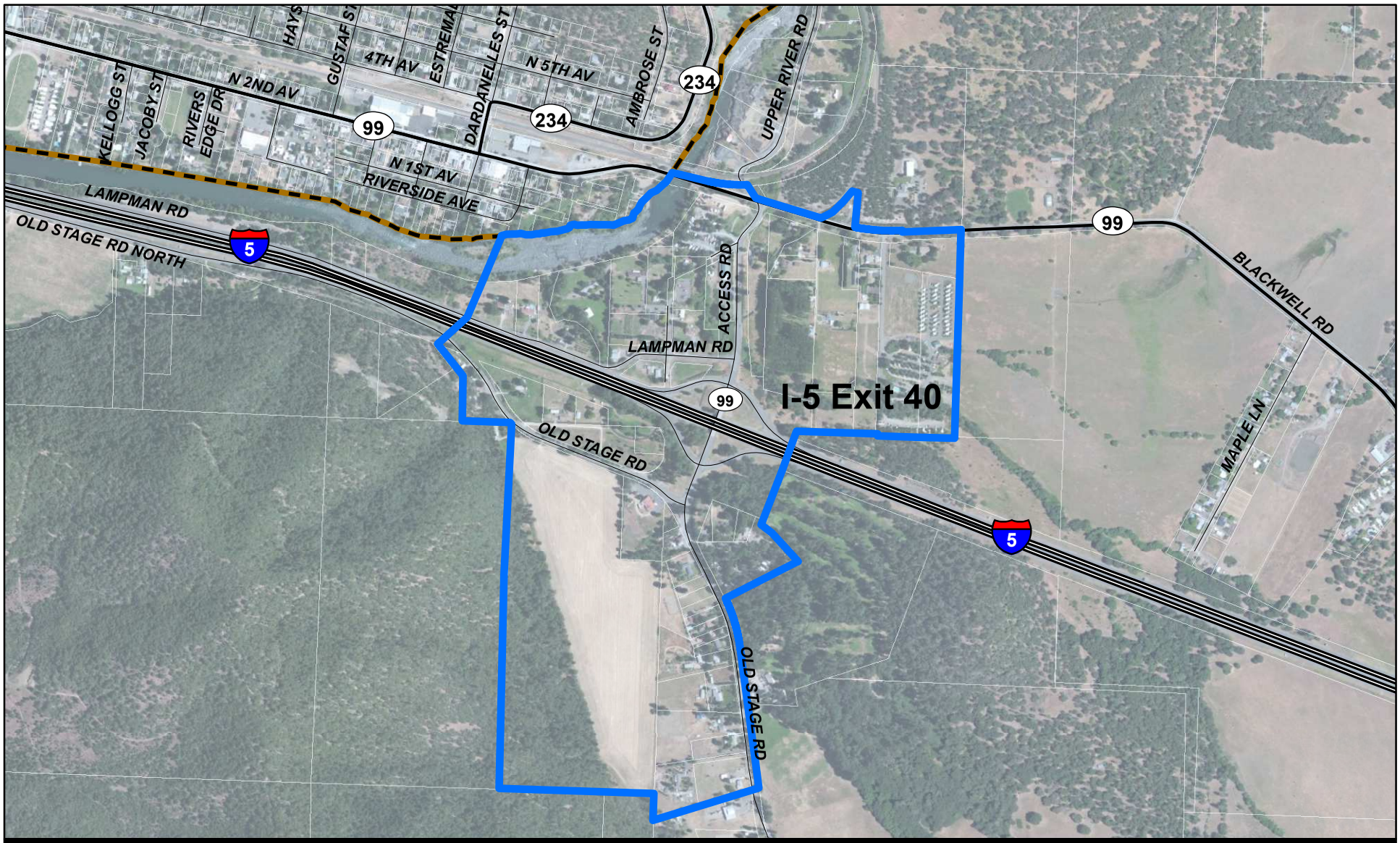
The evaluation of the goals and objectives will focus on quantitative and qualitative measures to assess potential future impacts to the roadway system such as:

1. Operations: such as v/c ratio and queuing
2. Safety: such as existing crash patterns, crash potential of concepts, multimodal assessment
3. Right-of-way/roadway geometry
4. Environmental, and land use impacts (as applicable)
5. Access spacing: move in the direction of the spacing standards
6. Project cost opinion

A sample of the evaluation matrix is shown in Table 2-1.

Attachments:

Figure 2-1. Project Vicinity and Study Area
Table 2-1. Draft Evaluation Matrix



I-5 Exits 40 and 43 Interchange Area Management Plans

N

1,000 500 0 1,000

Feet

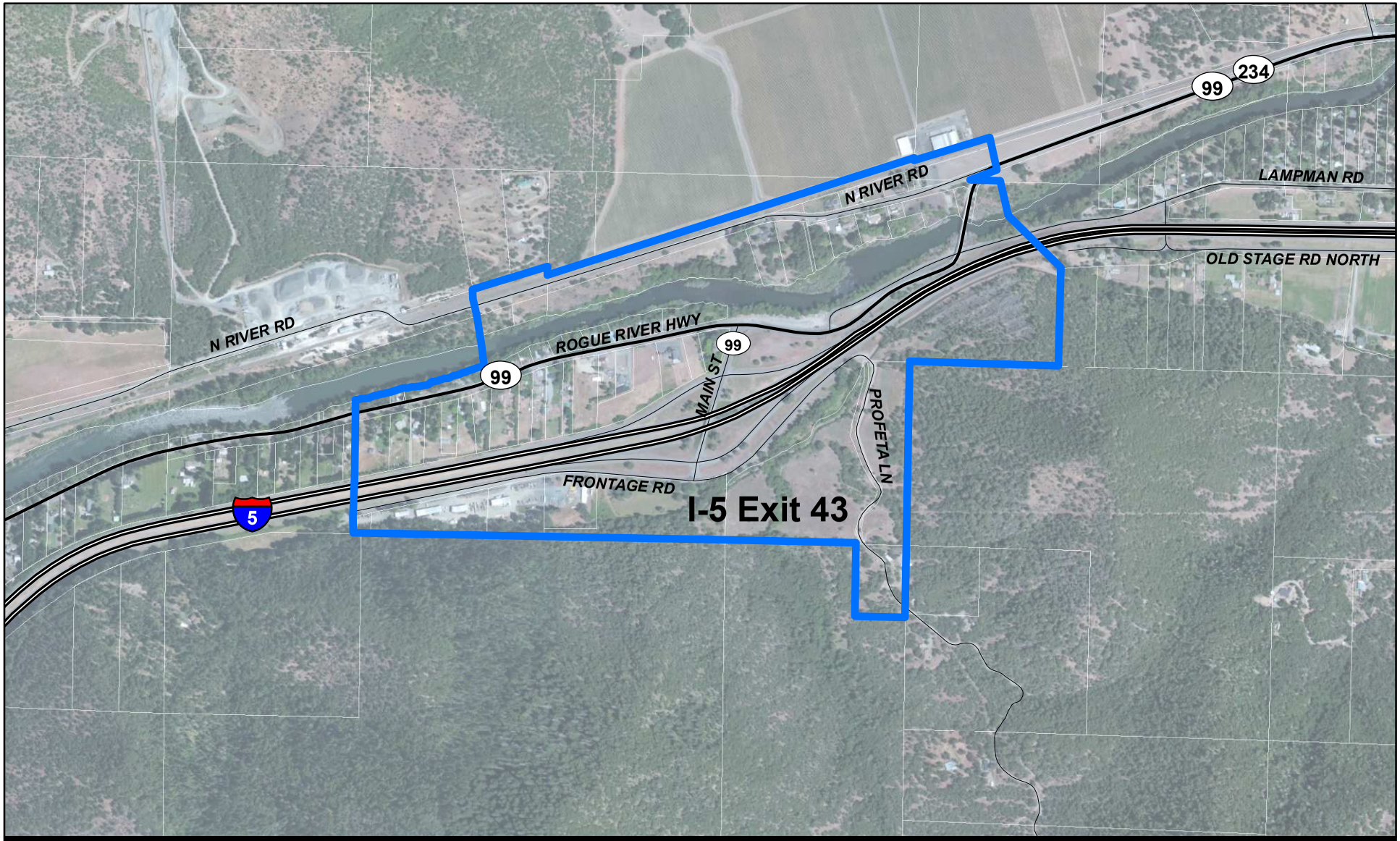
Source Data: ESRI, Jackson County, NAIP 2009

Legend

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

Figure 2-1a

Project Vicinity and Study Area
I-5 Exit 40



I-5 Exits 40 and 43 Interchange Area Management Plans

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Feet

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

Figure 2-1b

Project Vicinity and Study Area
I-5 Exit 43

Table 2-1. IAMPs 40 & 43 Improvement Concepts – Summary Evaluation Matrix

ID	Location	General Description	Milepoints	Purpose	Traffic Operations and Safety[1,2,3]	Basic Roadway Geometry and Right of Way[4]	Environmental and Land Use[5]	Cost Opinion[6]	Related Concepts
ROADWAY SEGMENT IMPROVEMENTS									
RS-1	X Road	Proposed Concept description (widen, add X, modify Y) ▪ Number of lanes, type of facility (rural, urban)	X to Y	Mobility, Safety, Freight, Multimodal, Economic	▪ Current ADT ▪ Forecast ADT ▪ Description of how project impacts operations ▪ Description of how project impacts safety ▪ Address all related travel modes	▪ Existing roadway width (ROW) ▪ Number of travel lanes, median, shoulder, total ROW	▪ Identify nearby structures, environmental and/or natural elements, water bodies/flood zone, etc. ▪ Check for consistency between plans	▪ Cost Opinion ▪ No ROW costs included ▪ Applicable notes	Identify nearby concepts, if any
INTERSECTION IMPROVEMENTS									
I-1	Roadway X & Roadway Y	Proposed Concept description (ex. install traffic signal or change traffic control when warranted, add turn lane, channelize turn lane)	MP	Mobility, Safety, Freight, Multimodal, Economic	▪ Current intersection control ▪ Current and proposed project v/c ▪ Forecast and proposed project v/c ▪ Identify if warrants are met ▪ Safety concerns (ex. Potential change to crash frequently including type and severity) ▪ Potential Trigger ▪ Address all related travel modes	▪ Will geometric improvements be needed ▪ Can it be installed within ROW ▪ Additional considerations (e.g., restriping) ▪ Applicable implementation notes (identified guidelines to follow)	▪ Identify nearby structures, environmental and/or natural elements, water bodies/flood zone, etc. ▪ Nearby access points within influence of queues ▪ Check for consistency between plans	▪ Cost Opinion ▪ No ROW costs included ▪ Applicable notes	Identify nearby concepts, if any

Notes:

1. Traffic operations were evaluated for concepts that were identified to address operational deficiencies. The operational assessment focuses on the volume-to-capacity (v/c) ratio and level of service (LOS) for the X existing and X future condition.
2. At intersections where potential changes in traffic control or turn lanes were considered, the procedures in the ODOT Analysis Procedures Manual (APM) were followed. For traffic signal concepts, the ODOT preliminary traffic signal warrants[a] were evaluated. For potential turn lanes on the rural sections of the highway, the APM turn lane criteria[b] were evaluated. Existing traffic volumes were applied to determine if warrants for traffic signals or criteria for turn lanes might be met today. Year X traffic volumes were also evaluated to determine potential need in the future.
3. Some improvements are focused on addressing safety concerns or may address safety as well as traffic operations deficiencies. Crash patterns from the five-year analysis period (X through Y) are discussed for those improvements that address safety.
4. Illustrations of basic roadway geometry and right-of-way needs were developed for concepts that involve infrastructure improvements. The drawings approximate roadway centerlines, edge of roadway and right of way using available base mapping.
5. Impacts to resources were qualitatively assessed based on the data assembled for the environmental and land use reconnaissance. The level of analysis of the study area is designed to identify those areas judged to have considerable potential for conflict.
6. Rough order of magnitude cost opinions were developed using present day dollars and are consistent with standard estimating methods. The estimates include a contingency factor but do not include right-of-way costs. The cost opinions are intended to help differentiate alternatives by approximating the relative costs of each project.

[a] Section 7.4 Traffic Signal Warrants, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf

[b] Section 7.2 Turn Lane Criteria, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf. Note: These criteria are also consistent with the criteria in Appendix F of the Highway Design Manual.