OR 66 Green Springs Highway

INTERCHANGE AREA MANAGEMENT PLAN

Klamath Falls, Oregon

October 2012

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Transportation Engineering/Planning

Angelo planning group

OR 66 Green Springs Highway IAMP

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Section 1
Executive Summary

EXECUTIVE SUMMARY

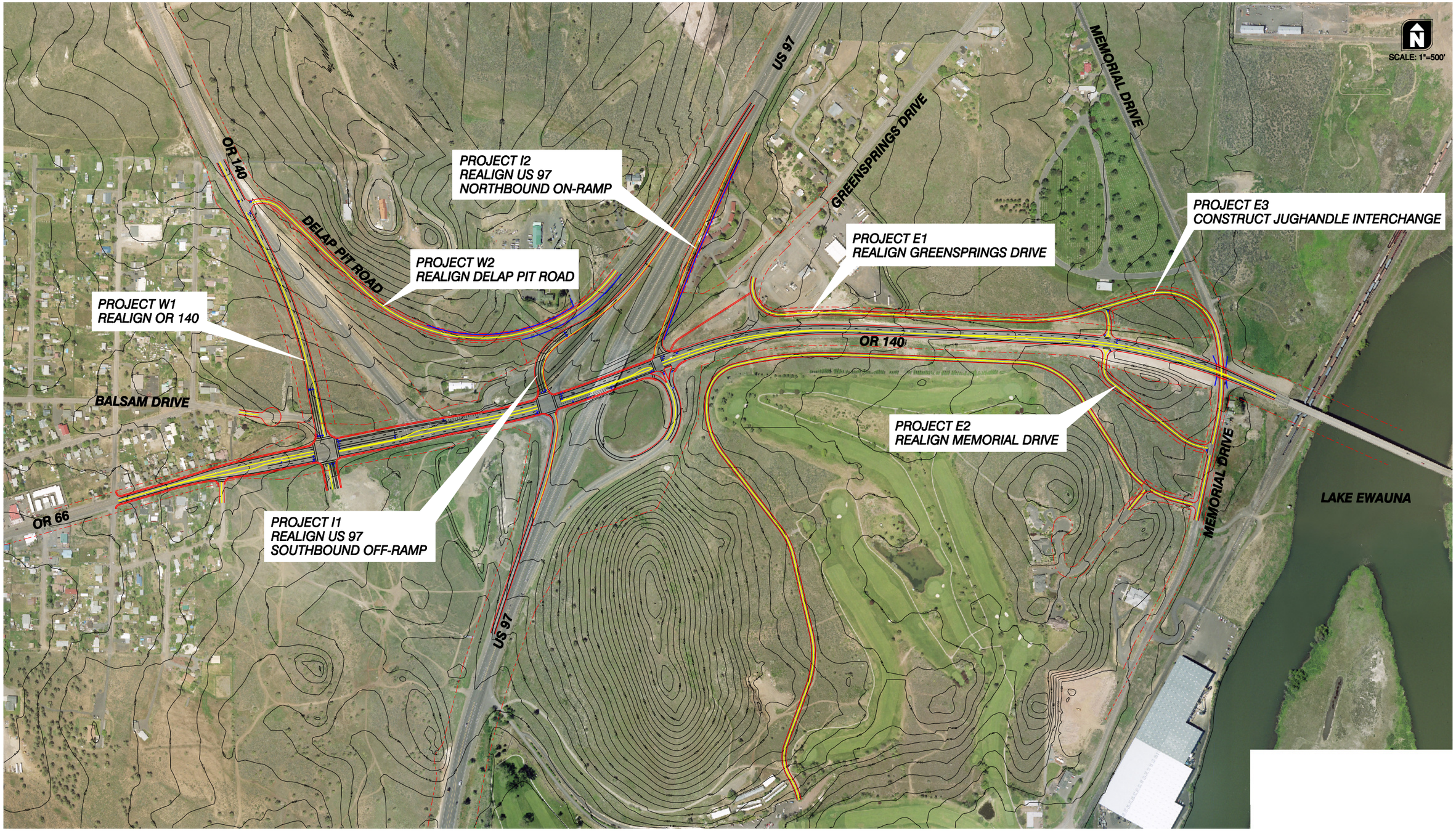
The OR 66 Green Springs Interchange Area Management Plan (IAMP) was prepared for the interchange of The Dalles-California Highway (US 97), Green Springs Highway (OR 66), and Lake of the Woods-South Klamath Falls Highway (OR 140) at the southwest edge of Klamath Falls, Oregon. The executive summary provides an overview of the project elements that were developed through a collaborative effort of the Project Team (PT) that consists of agency representatives (Oregon Department of Transportation [ODOT], Klamath County, and City of Klamath Falls) and local stakeholders.

The IAMP is intended to protect the function of the OR 66 Green Springs Highway Interchange and ensure that it will continue to provide safe and efficient connections between US 97 and all roadways within the vicinity of the interchange. The IAMP identifies near-term, mid-term, and long-term transportation improvements that build on one another in a phased approach that addresses safety deficiencies and operational demand when needed. Table 1-1 summarizes the improvement projects. Figure 1-1 illustrates the transportation improvement map for this IAMP, while Figures 2-3 through 2-9 shown more detailed layouts of the proposed improvements.

The IAMP planning efforts resulted in policies, ordinances, and other provisions that will be adopted into the Klamath Falls Urban Area Transportation System Plan (TSP), Klamath County TSP, the respective Comprehensive Plans, and development review ordinances to support and implement the IAMP. The IAMP will also be adopted by the Oregon Transportation Commission (OTC) as an amendment to the Oregon Highway Plan.

Table 1-1 Interchange Area Improvement Summary

Project #	Project Name	Improvement Type	Description
Interim Improvements			
INT1	Southbound US 97 Off-ramp & Ramp Terminal	Minor low-cost improvements	• Install rumble strips on US 97 Southbound Off-ramp • Install "Steep Grade" warning sign along off-ramp • Re-stripe intersection throat to "square" stopped vehicles (consider limited widening) • Maximize storage length of two approach lanes at intersection (may require design exceptions)
INT2	Southbound US 97 Off-ramp & Ramp Terminal	Intersection improvement	• Install signal accommodating ultimate intersection configuration
West Side Improvements			
W1	Realign OR 140	Highway and intersection improvement	• Realign OR 140 to match future north-south public road and access to future Crossroads Development (approximately ¼ mile west of US 97 Southbound Ramp Terminal) • Provide required turn lanes to meet operational needs • Install traffic signal
W2	Realign Delap Pit Road	Highway and intersection improvement	• Realign Delap Pit Road to connect with realigned OR 140 approximately ¼ mile north of OR 66 • Locate new alignment outside footprint of future US 97 Southbound Off-Ramp alignment
Interchange Form Improvements			
I1	Realign US 97 Southbound Off-Ramp	Highway and intersection improvement	• Improve horizontal alignment to provide a perpendicular approach to OR 140 • Improvement profile to provide a "landing area" along the ramp approach at the intersection • Provide required turn lanes to meet operational needs • Modify the signal installed as part of an interim improvement (INT1) to match intersection configuration
I2	Construct US 97 Northbound Diagonal On-Ramp	Highway and intersection improvement	• Construct new ramp by eliminating westbound left-turn along OR 140 • Install retaining wall to minimize footprint of improvement • Close second US 97 Northbound Off-Ramp to Greensprings Drive that exists north of interchange
East Side Improvements			
E1	Realign Greensprings Drive	Highway and intersection improvement	• Realign Greensprings Drive to approximately ½ mile east of US 97 Northbound Ramp Terminal • Provide required turn lanes to meet operational needs • Install traffic signal when warranted
E2	Realign Memorial Drive	Highway and intersection improvement	• Realign Memorial Drive to match realigned Greensprings Drive approximately ½ mile east of US 97 Northbound Ramp Terminal (match E1 location) • Provide required turn lanes to meet operational needs • Install traffic signal when warranted
E3	Construct Jughandle Interchange	Highway and intersection improvement	• Construct new underpass to separate north-south connection from OR 140 expressway • Provide right-in/right-out connections with OR 140



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TRANSPORTATION IMPROVEMENT MAP
KLAMATH FALLS, OREGON

FIGURE
1-1

Section 2
Interchange Area Management Plan

INTERCHANGE AREA MANAGEMENT PLAN

Introduction

The Green Springs Highway Interchange Area Management Plan (IAMP) identifies specific projects at or near the existing interchange to improve the operations of The Dalles-California Highway (US 97), Green Springs Highway (OR 66), and Lake of the Woods-South Klamath Falls Highway (OR 140). The interchange supports highway-to-highway connectivity, safety, and mobility and provides bicyclists and pedestrians a better way to navigate through a rural, high-speed area. In addition, the plan:

- identifies current accesses to the highways that will need to be relocated, consolidated, or closed;
- provides a design level of sufficient detail for the future interchange and associated street and intersection improvements to allow for efficient local street connectivity;
- prepares for right-of-way purchases and easements during land use approval for any affected properties in the area; and
- provides the necessary code language to implement the elements of the IAMP into local adopted plans.

Background

The content of this IAMP has been informed by a number of technical memorandums created and reviewed throughout the IAMP development process. In lieu of restating the information previously presented in these documents, the memorandums that support this IAMP have been included in the respective appendices listed below.

- Appendix A: Technical Memorandum #1: Review of Adopted Plans
- Appendix B: Technical Memorandum #2: IAMP Goals, Objectives, & Evaluation Criteria
- Appendix C: Technical Memorandum #3: Existing Conditions Analysis
- Appendix D: Technical Memorandum #4: Future Conditions Land Use Assumptions and Operational Analysis
- Appendix E: Technical Memorandum #5: IAMP Preliminary Alternatives Analysis
- Appendix F: Technical Memorandum #6: Proposed Local Amendments for Implementation
- Appendix G: Public Involvement Plan Memorandum

These appendices represent the technical support of the information present herein.

Project Participants

A Project Team (PT) was established to help guide the development of the OR 66 Green Springs IAMP, provide input throughout the project, review draft documents, and provide input at key decisions points. The PT members represent relevant/affected jurisdictions, service providers, community interests, business interests, and geographic diversity. Members are shown in Table 2-1.

Table 2-1 Project Team Participants

Organization	Participant(s)
ODOT Region 4 Planning	Ana Jovanovic
ODOT Technical Services	Dave Warrick
ODOT Region 4 Access Management Engineer	David Boyd
ODOT Region 4 Traffic Operations	Joel McCarroll
ODOT District 11	Mike Stinson, Butch Hansen, & Martin Matejsek
ODOT TPAU	Peter Schuytema
City of Klamath Falls Community Development	Sandra Fox, Joe Slaughter, & Erik Nobel
City of Klamath Falls Public Works	Mark Willrett
City of Klamath Falls Planning Commission	Tyler Tucker
Klamath County Planning Department	Bill Adams
Klamath County Road Department	Stan Strickland & Dennis Nelson
Klamath County Planning Commission	Tim Thompson
Kittelson & Associates, Inc.	Hermanus Steyn & Matt Kittelson
Angelo Planning Group	Darci Rudzinski & Shayna Rehberg

In addition to the individuals listed above, several local property and/or business owners were regular PT participants and provided valuable input to the development of the IAMP.

- Laine Wortman – Reames Country Club
- Terry McDonald – Crossroads Development
- Marc Cross – Representing Crossroads Development
- Larry Redd – Coast Trucking
- Mark Slezak – Columbia Plywood
- Jim and Jill Clough – Ferrell Fuel
- Bryan Koehn – Oregon Department of Forestry
- Dale Wetzel – Bear Cat
- Clark Boswell – Oregon Manufactured Housing Association

Purpose and Intent

The IAMP is intended to protect the function of the US 97/OR 66 Green Springs interchange and provide safe and efficient connections between all roadways within the vicinity of the interchange.

As defined in the scope of the project:

a.) The IAMP must improve highway-to-highway connectivity, safety, mobility, and provide bicyclists and pedestrians a better way to navigate through a rural, high-speed area.

b.) Identify current accesses to the highways that will need to be relocated, consolidated, or closed,

c.) Provide a design level of sufficient detail for the future interchange and associated street and intersection improvements to allow efficient local street connectivity,

d.) Prepare for right of way purchases and easements during land use approval for any affected properties in the area,

e.) Link appropriate land uses in the surrounding area to the capacity of the improved transportation system, and

f.) Identify a funding strategy and cost sharing for needed improvements.

Goals and Objectives

The IAMP process is intended to protect the function of the interchange for the next 20 years while accounting for changes in land use and traffic patterns. The project area has a large amount of developable lands, highlighting the need to document a vision for the transportation system in the vicinity of the interchange. As stated in Policy 3C of the 1999 Oregon Highway Plan, "it is the policy of the State of Oregon to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways." To this end, the goals, objectives, and priorities of the OR 66 Green Springs Highway IAMP—as identified by working collaboratively with the PT and public—are to:

GOAL 1: TRANSPORTATION OPERATIONS

Objectives:

1. Identify a safe, functional design of the future interchange
2. Protect the function and operation of the OR 66 Green Springs Interchange as a local service facility and US 97 as a facility of statewide significance
3. Improve highway-to-highway connectivity (US 97, OR 66, and OR 140), safety, and mobility

GOAL 2: MULTIMODAL ACCESSIBILITY

Objectives:

1. Provide adequate bicyclist and pedestrian facilities and integration with public transportation services
2. Provide for efficient local street connectivity

GOAL 3: LAND USE

Objectives:

1. Manage the allowed land uses within the vicinity of the interchange to provide for future economic growth over the next 20 years
2. Prepare for right-of-way purchases and easements during land use approval for any affected properties in the area
3. Comply with the intent of Statewide Planning Goal 1: Public Involvement, 2: Land Use Planning, 5: Natural Resources, 6: Air, Water and Land Resources Quality, 7: Areas Subject to Natural hazards, 8: Recreation Needs, 9: Economic Development, 12: Transportation, and 14: Urban Growth Boundaries

GOAL 4: ECONOMIC DEVELOPMENT

Objectives:

1. Ensure that the interchange will function to support future local economic development while being respectful of existing developments

GOAL 5: ACCESSIBILITY AND CONNECTIVITY (ACCESS MANAGEMENT)

Objectives:

1. Identify current accesses to the highways that will need to be relocated, consolidated, or closed by defining access locations for developed and undeveloped parcels

GOAL 6: COST AND IMPLEMENTATION

Objectives:

1. Identify a funding strategy and cost sharing for needed improvements
2. Identify a phased implementation approach to construct fundable interim improvements that lead to the ultimate interchange configuration
3. Collaborate throughout the planning process with design professionals, jurisdictional representatives, developers, local property owners, and the general public
4. Develop implementation policies to be adopted into the City and County comprehensive plans, transportation system plans, interchange access standards, and zoning ordinances, as appropriate

Technical Memorandum #2 (see Appendix B) provides more details about the IAMP goals, objectives and evaluation criteria.

Evaluation Criteria

Based on the above goals and objectives, as well as the original purpose and intent, the following evaluation criteria were assembled for the evaluation of concepts considered as part of the IAMP to maintain consistency with the overall intent of the community and the project. The eight evaluation criteria are as outlined in Table 2-2.

Table 2-2 Evaluation Criteria

Evaluation Criteria	Description	Purpose & Intent Met
Transportation Operations	• Safety • Local connectivity and mobility • Freight mobility	A, C
Multimodal Accessibility	• Pedestrian mobility • Bicycle mobility • Transit mobility	A, C
Land Use	• Right-of-way impacts • Consistency with adopted land use and economic development plans • Transportation capacity impacts of changes in land use intensity • Impacts to utilities	D, E
Economic Development	• Near-term growth (1-5 years) • Mid-term growth (5-15 years) • Long-term growth (15-25 years)	F
Environmental, Social, and Equity factors	• Environmental impacts • Socio-economic impacts	D
Accessibility and Connectivity	• Access spacing requirements • Future access for undeveloped properties • Local roadway connectivity	A, B, C
Cost	• Cost relative to other alternatives	F
Implementation	• Ability to construct in phases • Local impacts during construction • Impacts to existing and proposed developments	F

Public Involvement

Public involvement and engagement was a major focus of the IAMP throughout the plan development process. The PT was committed to a process that:

- Provides open and transparent decision-making process
- Is open to all members of the public
- Includes equitable and constructive two-way communication between the public and the PT
- Provides early and on-going opportunities for stakeholder (i.e., public, agencies, service providers) input
- Proactively informs and encourages stakeholder participation
- Builds community understanding of opportunities, constraints, findings, and decisions
- Documents possible environmental issues and NEPA requirements

To this end, the following events were held for the purposes of keeping the public informed on the latest project developments and to solicit feedback:

- Six PT meetings open to public
- One visioning workshop
- Two public open house meetings and corresponding virtual open houses on the project website
- Regular updates by city and county staff to City Planning Commission, County Planning Commission, City Council, and County Board of County Commissioner meetings and hearings
- A project website providing information about on-going project activities
- Four separate adoption hearings with the City Planning Commission, County Planning Commission, City Council, and County Board of County Commissioner

Additional details about the public involvement approach are included in Appendix G.

Study Area

The Interchange Management Study Area (IMSA) was developed based on input from the PT and is intended to include the areas most impacted by modifications to the interchange and surrounding area, as well as include land that is most served by the interchange.

To accomplish these goals, two IMSAs were developed: an "Operations and Access" study area and a "Land Use" study area.

OPERATIONS AND ACCESS STUDY AREA

The Operations and Access Study Area includes all access points and intersections within the study area and encompass key intersections that have the potential to affect traffic operations in the interchange area over the planning period. This study boundary identifies the area for which operational analyses were completed and the area that was considered for the Access Management Plan. The proposed study intersections include the locations listed below and shown on Figure 2-1.

1. OR 140/Orindale Road
2. Green Springs Drive/Riverside Drive
3. Green Springs Drive/Memorial Drive
4. Orindale Road/Balsam Drive
5. OR 66/Orindale Road
6. OR 66/Emerald Road
7. OR 66/Balsam Street
8. OR 66/OR 140
9. OR 140/Delap Road
10. OR 140/US 97 Southbound Ramps
11. OR 140/US 97 Northbound Ramps
12. OR 140/Green Springs Drive
13. OR 140/Memorial Drive
14. OR 140/Midland Road/Tingley Lane
15. US 97/Reames Country Club
16. US 97/Columbia Plywood

LAND USE STUDY AREA

Pursuant to the requirements stated in Oregon Administrative Rule 734-051-0155 for the preparation of an IAMP, a land use inventory was prepared for the OR 66 Green Springs Highway IAMP study area. This inventory was completed for the area within the land use IMSA, shown in Figure 2-1.

The Land Use Study Area was delineated to include land in the immediate vicinity of the interchange, as well those properties that have the potential to develop or re-develop over the planning period. The study area includes properties that are expected to use the Green Springs Interchange as a primary connection to US 97, as well as those properties that may be involved or affected by recommended improvements to local traffic circulation in the interchange area.

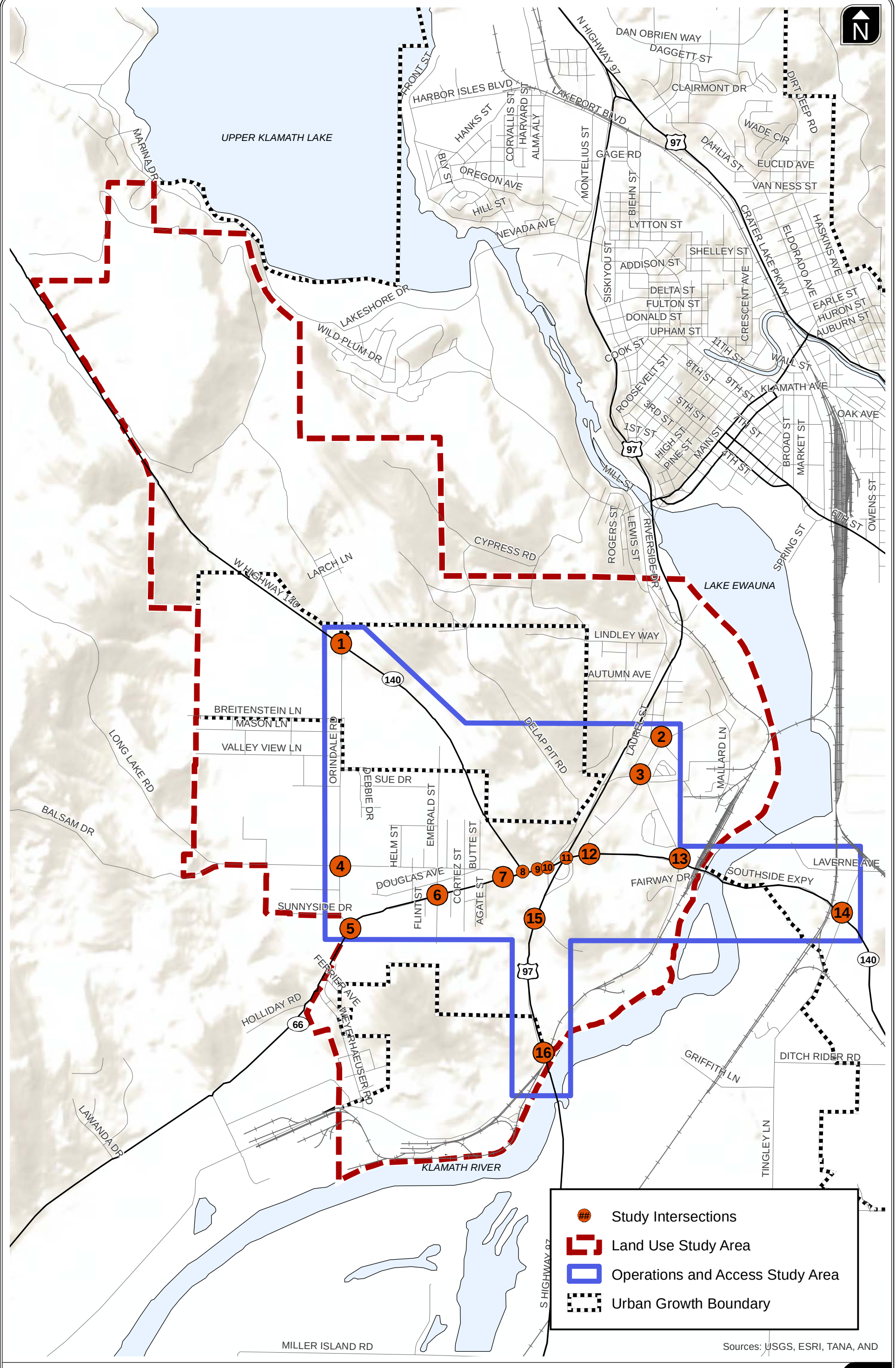
The land use study area is roughly 5,660 acres. Being on the southwest edge of the City of Klamath Falls, the area can generally be described as either undeveloped or developed at low densities. Existing development is predominantly residential with some instances of supporting commercial services, industrial uses, and special uses such as a country club/golf course and cemetery.

The Land Use Study Area includes land both inside and outside of the Klamath Falls urban growth boundary (UGB). The land inside the UGB includes areas both inside and outside the city limits. Land outside the UGB is under Klamath County jurisdiction. An intergovernmental agreement establishes jurisdiction and procedures in the area outside the city limits but inside the UGB. According to the Klamath County Comprehensive Plan[1], this land is subject to the Klamath County Land Development Code and Urban Growth Boundary Management Agreement with the City.

Future Year Land Use Approach

The future year land use was based on a 25-year horizon period for assumed development. This analysis was informed by the land use assumed in the Klamath Falls Urban Area Travel Demand Model. This model and the land use assumptions included within it were updated prior to the development of this IAMP by a process that included input from ODOT, Klamath County representatives, and City of Klamath Falls representatives. As such, the future land use scenario has been previously informed by local representatives. In addition, this scenario was reviewed by the OR 66 Green Springs IAMP Project Team (PT) and confirmed as a reasonable approach. These scenarios are the basis of the future year analysis (see Appendix D For more information on future year analysis).

[1] Klamath County Comprehensive Plan, Goal 2, Land Use Planning, Policy 6, and Goal 14, Urbanization, General Discussion



H:\projfile\11881 - Greensprings IAMP\gis\2-1_Site Vicinity - IAMP Study Areas.mxd

SITE VICINITY / IAMP STUDY AREAS
KLAMATH FALLS, OREGON

FIGURE 2-1

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Area Improvements

The study area was divided into three areas to allow for simplified development of future combinations of solution concepts. A qualitative evaluation of the initial concepts filtered the number of solutions to a refined list of alternatives. The following subsections describe transportation improvements included in this IAMP.

These improvements are the outcome of meeting the project purpose and intent, addressing the goals and objectives, as evaluated through the evaluation criteria in Technical Memorandum #5 (see Appendix E). The PT worked collaboratively refining these improvements to coincide with the vision that was established in the beginning of the IAMP process.

Several figures have been developed to clearly display the future interchange area projects and scenarios. These figures are described below and included at the end of this subsection.

- Figure 2-2 – Overview of Figures
- Figure 2-3 – West Side Improvement Projects (W1 & W2)
- Figure 2-4 – East Side Improvement Projects (E1 & E2)
- Figure 2-5 – East Side Improvement Projects (E3)
- Figure 2-6 – Interchange Form Improvement Projects (I1)
- Figure 2-7 – Interchange Form Improvement Projects (I2)
- Figure 2-8 –Interim Improvement Projects (INT1 & INT2)
- Figure 2-9 – Intersection Form Options

WEST SIDE IMPROVEMENTS

One transportation system has been identified for the west side of the interchange, as illustrated in Figure 2-3. This proposed network has been divided into two projects as described below.

Project W1 – Realign OR 140

- Realign OR 140 to the west to intersect OR 66 across the future north-south public roadway as well as access to the future Crossroads Development, which is approximately ¼ mile from US 97 Southbound Ramp Terminal. Appendix H shows a conceptual profile of the realigned OR 140.
- Widen the east-west OR 66-OR 140 corridor to add travel lanes required to improve mobility.
- Provide bike lanes and sidewalks along both sides from Cortez Street to US 97 Southbound Ramp Terminal.
- Disconnect Balsam Drive from OR 66. Local traffic would be able to access OR 66 via the existing transportation system within the Stewart Lennox neighborhood.
- Create signalized intersection or roundabout at the new OR 140/OR 66/Crossroads Access intersection (see Figure 2-9).

- The conceptual cost estimate for Project W1 is approximately $6.7 million excluding right-of-way costs (see Appendix I for more details). The potential right-of-way cost is approximately $553,200.

Project W2 – Realign Delap Pit Road

- Redirect Delap Pit Road to intersect with the realigned OR 140 approximately ¼ mile north of OR 66. In addition, the new alignment of Delap Pit Road needs to be located outside the future alignment of US 97 Southbound Off-ramp. The topography requires several retaining walls along the Delap Pit Road alignment. Appendix H shows a conceptual profile of Delap Pit Road.
- The conceptual cost estimate for Project W2 is approximately $2.1 million excluding right-of-way costs (see Appendix I for more details). The potential right-of-way cost is approximately $388,000.

EAST SIDE IMPROVEMENTS

There are two transportation improvements on the east side of the interchange that can be implemented in a phased approach based on the operational demand. These two alternatives are illustrated in Figures 2-4 and 2-5 and consist of the following:

Project E1 – Realign Greensprings Drive (Phase 1)

- Realign Greensprings Drive to intersect with OR 140 approximately ½ mile east of the US 97 Northbound Ramp Terminal.
- Provide a multi-use path connection between the US 97 Northbound Ramp Terminal and Greensprings Drive. There will be no sidewalks along OR 140 to the east of the ramp terminal; however, typical shoulders will be provided.
- The new OR 140/Greensprings Drive-Memorial Drive intersection will either be a stop controlled intersection, a signalized intersection if warranted, or a roundabout based on the traffic demand at the time.
- Provide left-turn lanes along OR 140 at the new OR 140/Greensprings Drive-Memorial Drive intersection.
- The conceptual cost estimate for Project E1 is approximately $3.6 million, which includes the left-turn lanes along OR 140 but excludes right-of-way costs (see Appendix I for more details). The potential right-of-way cost is approximately $261,600.

Project E2 – Realign Memorial Drive (Phase 1)

- Realign Memorial Drive to intersect with OR 140 approximately ½ mile east of the US 97 Northbound Ramp Terminal opposite realigned Greensprings Drive (Project E1).
- If the realignment of Memorial Drive is constructed prior to the realignment of Greensprings Drive, OR 140 will be widened to provide left-turn lanes with Project E2.
- The new OR 140/Greensprings Drive-Memorial Drive intersection will either be a stop controlled intersection, a signalized intersection if warranted, or a roundabout based on the traffic demand at the time.

- The conceptual cost estimate for Project E2 is approximately $0.7 million excluding right-of-way costs (see Appendix I for more details). The potential right-of-way cost is approximately $198,000. If Project E2 is built prior to Project E1, the widening of OR 140 will add approximately $2.0 million to the cost of E2.

Project E3 – Construct Jughandle Interchange (Phase 2)

- Connect Greensprings Drive and Memorial Drive with a grade-separated underpass in the vicinity of the existing OR 140/Memorial Drive intersection. Appendix H shows a conceptual profile of the Greensprings Drive-Memorial Drive alignment along the underpass.
- Convert the at-grade OR 140/Greensprings Drive-Memorial Drive intersection (Projects E1 and E2) to right-in/right-out movements only.
- The conceptual cost estimate for Project E3 is approximately $2.3 million excluding right-of-way costs (see Appendix I for more details). This estimate assumes that Projects E1 and E2 were completed. The potential right-of-way cost is approximately $137,600.

INTERCHANGE IMPROVEMENTS

There are two transportation improvements for the interchange that can be implemented in phases based on the operational demand. These two alternatives are illustrated in Figures 2-6 and 2-7. A long-term, high capacity alternative for the interchange form is included in Appendix K, but is not a part of the 20-year IAMP.

Project I1 – Realign US 97 Southbound Off-Ramp (Phase 1)

- Improve horizontal alignment to provide a perpendicular approach to OR 140. Improvement profile to provide a "landing area" along the ramp approach at the intersection. This alignment will require a retaining wall between the realigned Delap Pit Road and the ramp. Appendix H shows a conceptual profile of the US 97 Southbound Off-ramp.
- The US 97 Southbound Ramp Terminal intersection will either be a signalized intersection or a roundabout (see Figure 2-9).
- The conceptual cost estimate for Project I1 is approximately $3.5 million excluding right-of-way costs (see Appendix I for more details). The potential right-of-way cost is approximately $83,600.

Project I2 – Construct US 97 Northbound Diagonal On-Ramp(Phase 2)

- Construct new US 97 Northbound On-ramp in the northeast quadrant of the interchange to accommodate the westbound to northbound movement (i.e., eliminating westbound left-turn along OR 140).
- Install retaining wall to minimize footprint of improvement.
- Close second US 97 Northbound Off-Ramp that exists north of interchange.
- The conceptual cost estimate for Project I2 is approximately $1.7 million excluding right-of-way costs (see Appendix I for more details). The potential right-of-way cost is approximately $132,000.

INTERIM IMPROVEMENTS

The US 97 Southbound Off-ramp of the existing interchange was identified as having geometric challenges that could result in potential safety issues for roadway users. Specifically, the vertical grade of the ramp, lack of landing area near OR 140, and intersection skew at the ramp terminal negatively affect users of the ramp. These issues have been addressed by the ultimate IAMP proposed. However, a less expensive near-term improvement option has been included in this IAMP to partially address some of the deficiencies identified during the evaluation process. Figure 2-8 shows the proposed interim improvement and consists of the following:

Project INT1 – Southbound US 97 Off-Ramp

- Install rumble strips on US 97 Southbound Off-ramp
- Install "Steep Grade" warning sign along off-ramp
- Re-stripe intersection throat to "square" stopped vehicles (consider limited widening)
- Maximize storage length of two approach lanes at intersection (may require design exceptions)

Project INT2 – Southbound US 97 Off-Ramp Ramp Terminal

- Install signal accommodating ultimate intersection configuration

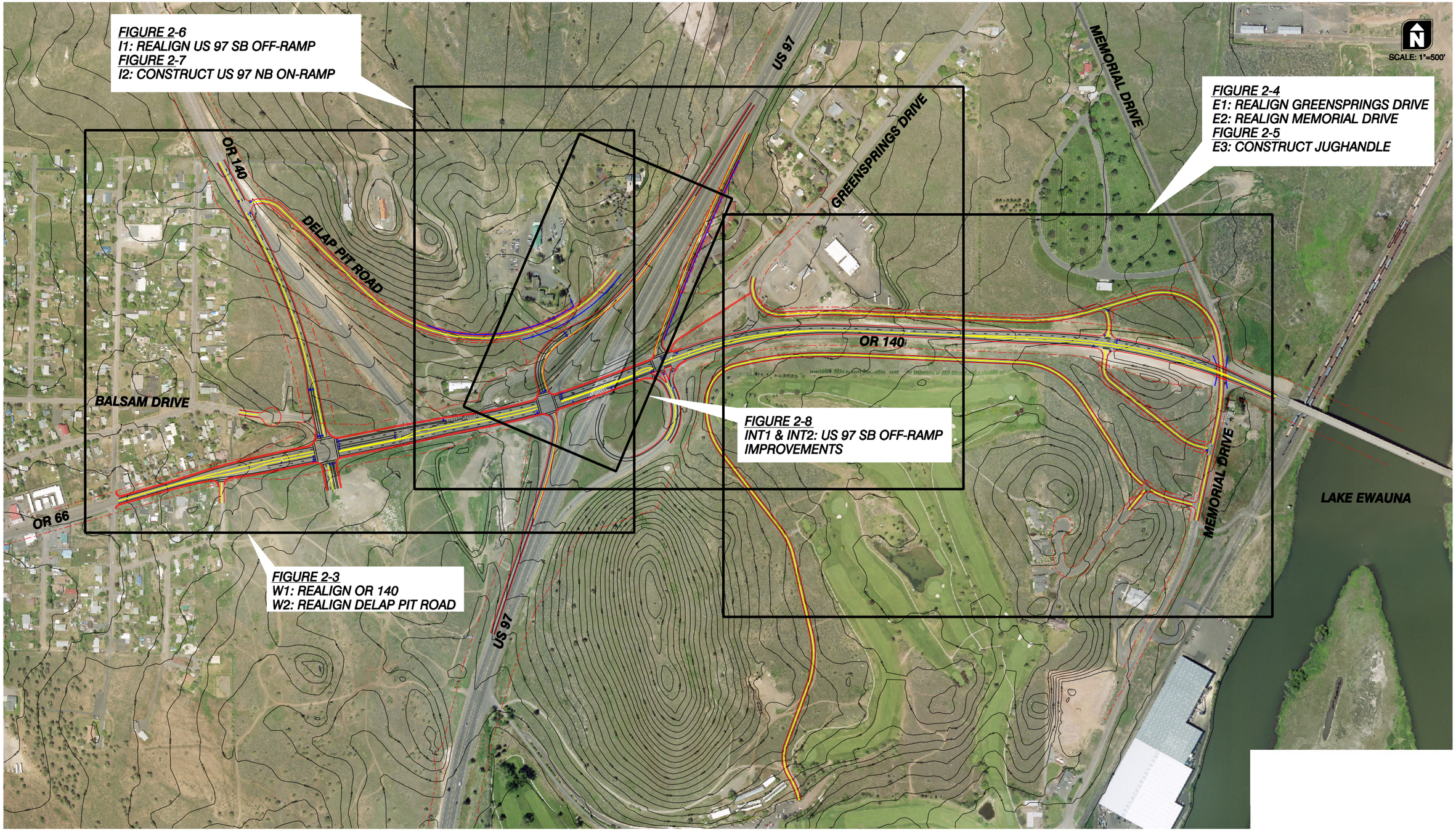
INTERSECTION CONTROL

The proposed improvements are compatible with different types of intersection control. The installations of traffic signals or construction of roundabouts were evaluated and both intersection control types would address safety issues, operational demand, and system needs. Figure 2-9 illustrates the OR 66-OR 140 corridor as a traditional facility with signalized and unsignalized intersections, as well as the corridor with roundabouts at higher volumes intersections.

Roundabouts would be a relatively new intersection treatment within the Klamath Falls area, as well as on state highways. Roundabouts have been demonstrated both in research and in practice to be proven options for intersection design, and their safety and operational performance in many cases is superior to other alternatives. ODOT is in the process of refining design guidelines for roundabouts on state facilities. The sketched roundabout layouts in Figure 2-8 represent the following design parameters:

- Roundabouts are designed to slow traffic to 20–25 miles-per-hour (mph) when entering a roundabout.
- Single-lane roundabouts typically have an inscribed circle diameter (ICD) of 130–150 feet to accommodate typical larger WB-67 tractor-trailer combination truck (wheelbase dimension of 67 feet). The sketched single-lane roundabouts have an ICD of approximately 140 feet.
- Multilane roundabouts typically have an ICD of 160–200 feet. The sketched two-lane roundabouts have an ICD of approximately 180 feet.
- Roundabout geometry can be adjusted to accommodate special sized trucks.
- Roundabouts are designed to accommodate pedestrians and bicycles.

In summary, this IAMP assumes that either signalized or roundabouts can be implemented as part of the proposed improvements and does not preclude either form of intersection control.



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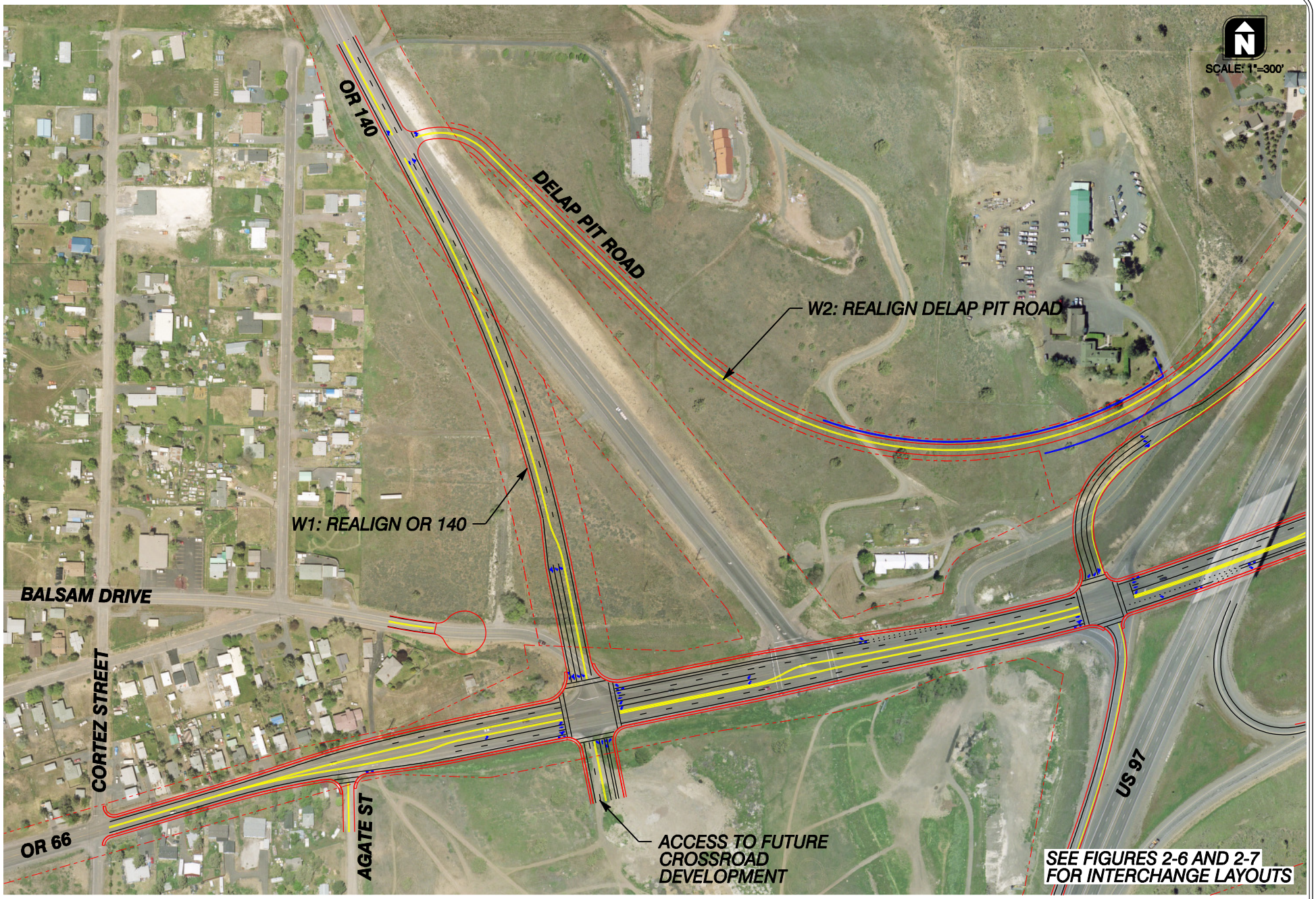
TRANSPORTATION IMPROVEMENT MAP OVERVIEW OF FIGURES
KLAMATH FALLS, OREGON

FIGURE **2-2**



WEST SIDE IMPROVEMENT PROJECTS: W1 & W2
KLAMATH FALLS, OREGON

FIGURE **2-3**

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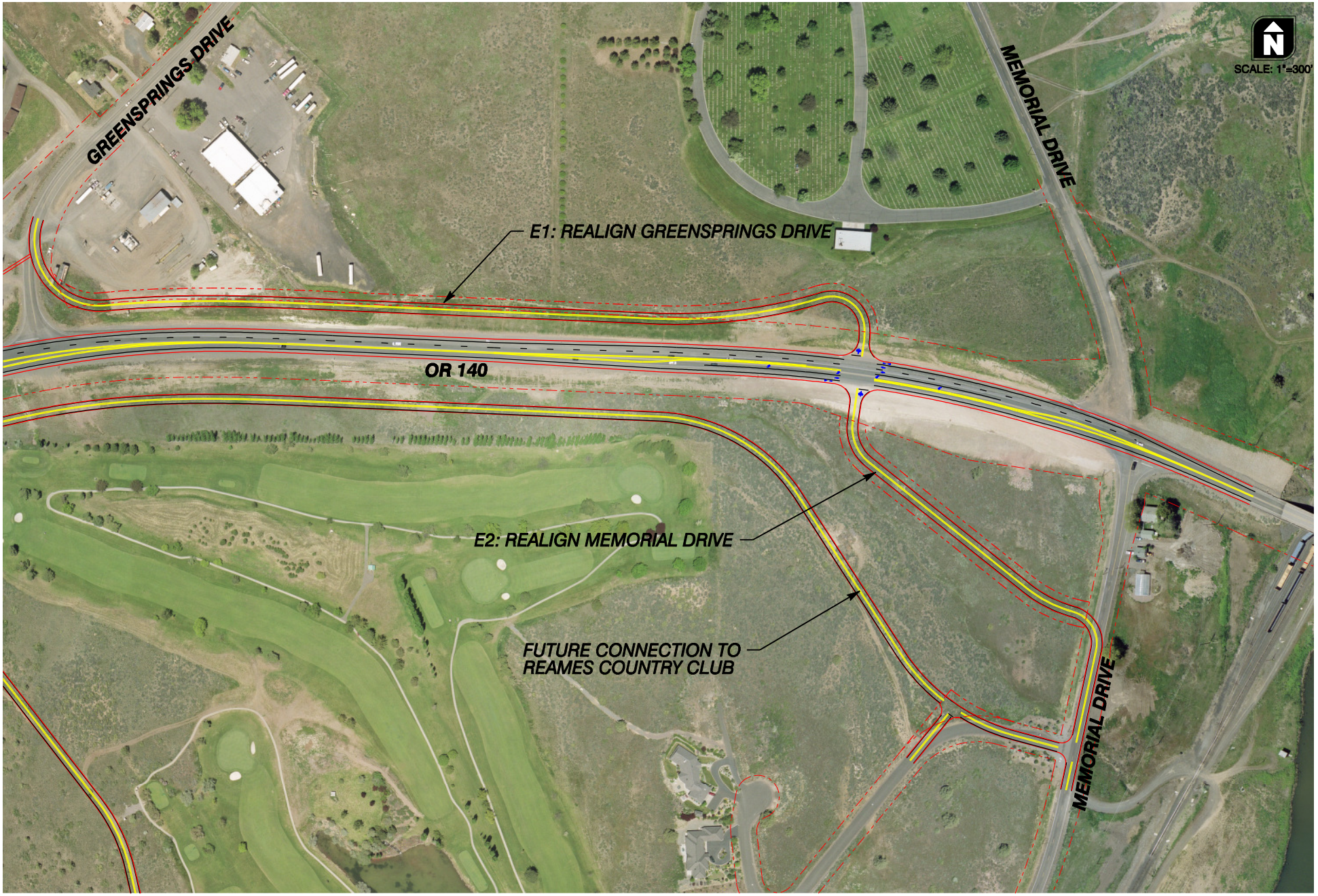

EAST SIDE IMPROVEMENT PROJECTS: E1 & E2
KLAMATH FALLS, OREGON

FIGURE **2-4**

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EAST SIDE IMPROVEMENT PROJECTS: E3
KLAMATH FALLS, OREGON

FIGURE **2-5**

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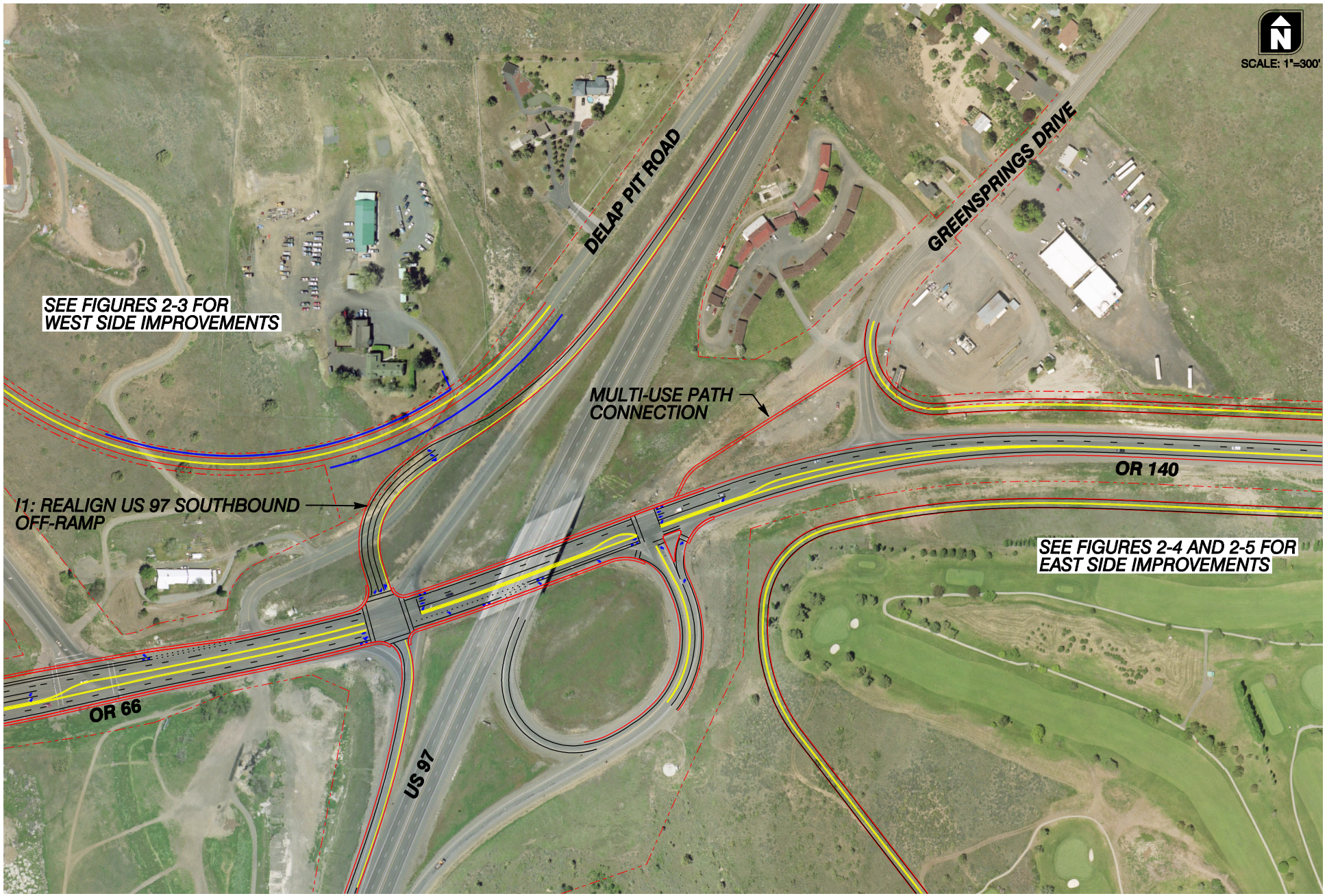

INTERCHANGE FORM IMPROVEMENT PROJECT: I1
KLAMATH FALLS, OREGON

FIGURE **2-6**

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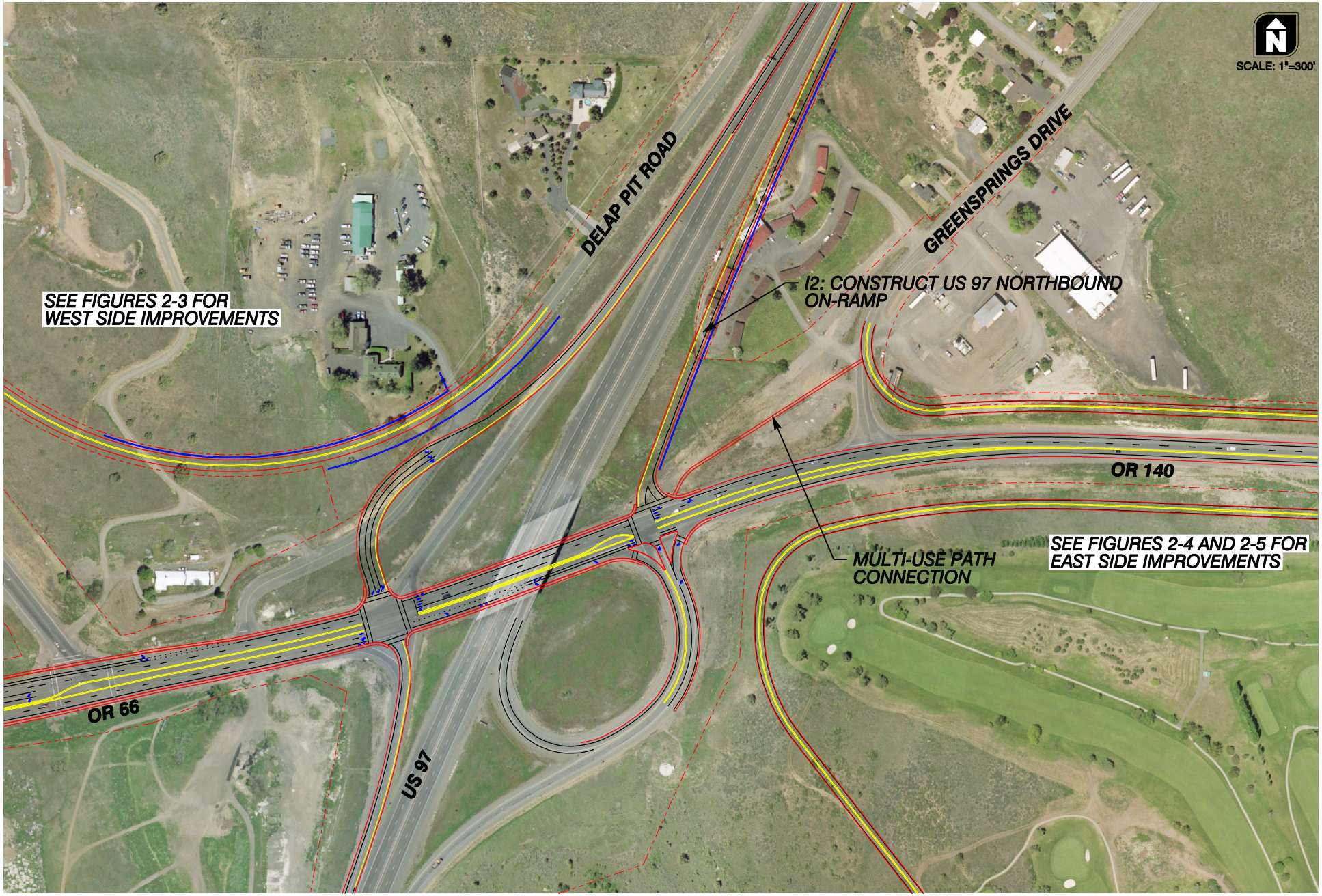

INTERCHANGE FORM IMPROVEMENT PROJECTS: I2
KLAMATH FALLS, OREGON

FIGURE 2-7

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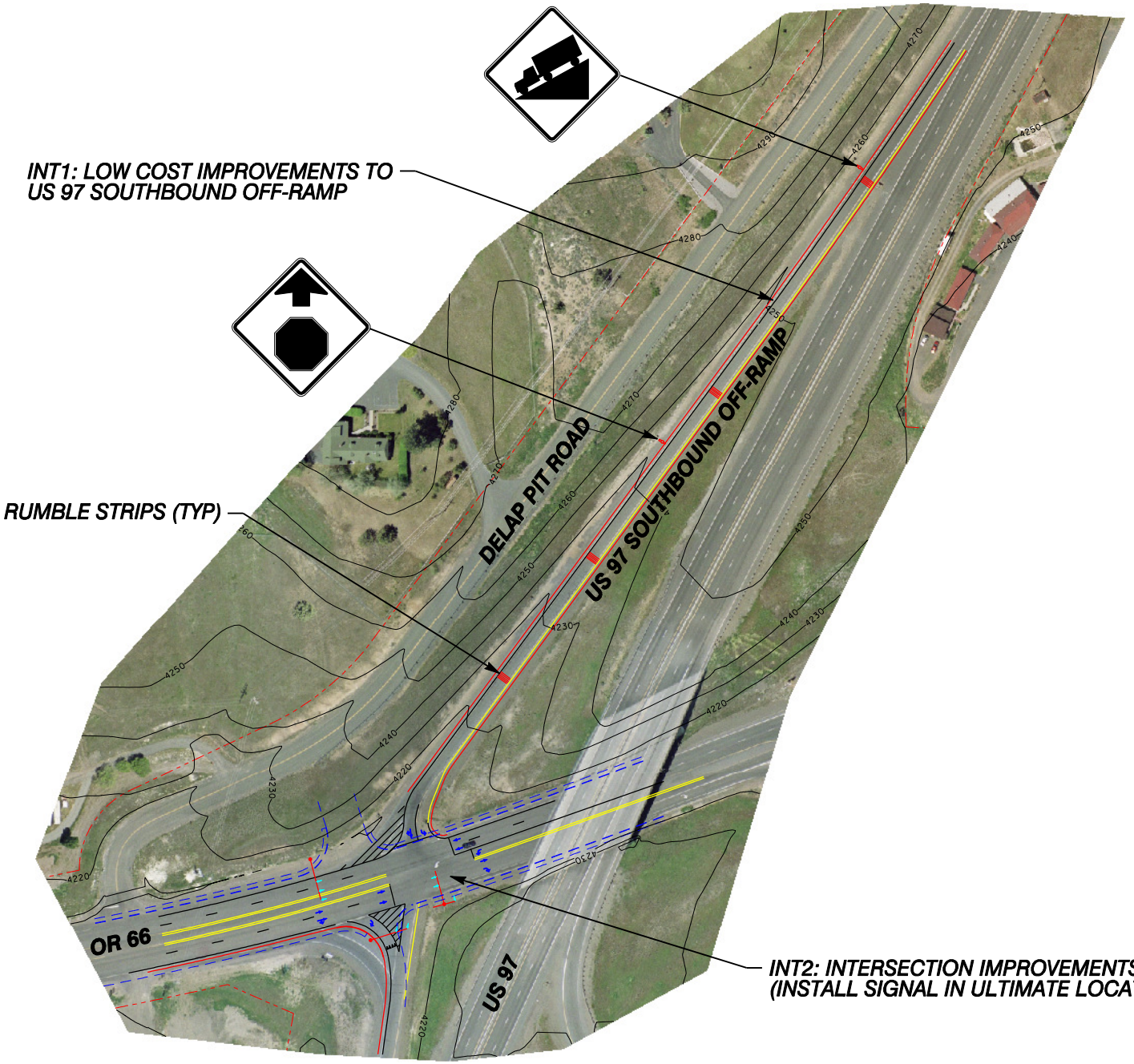

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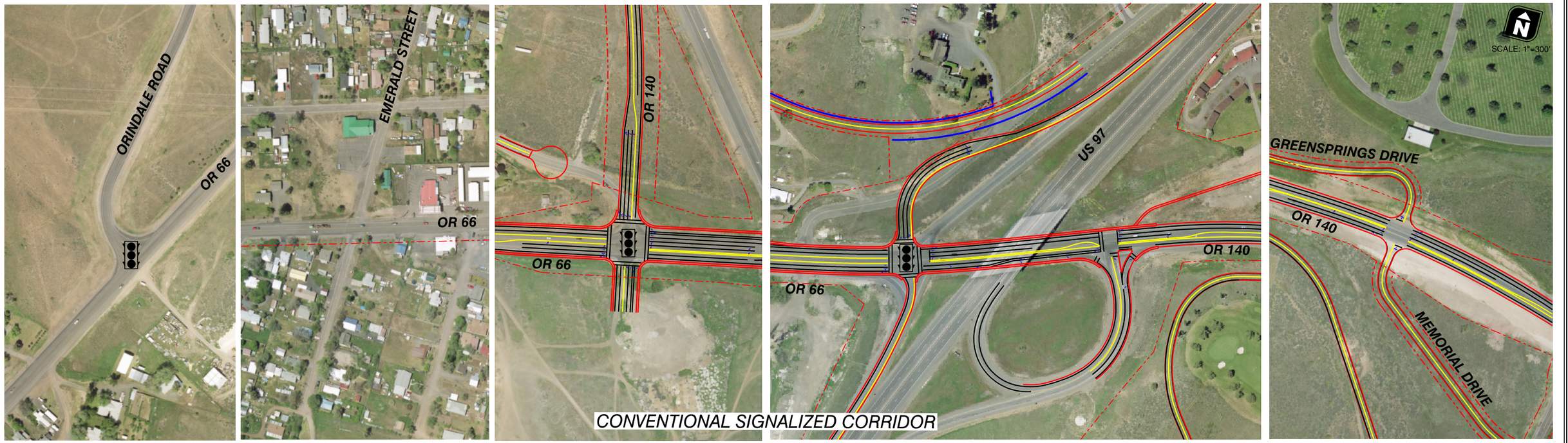
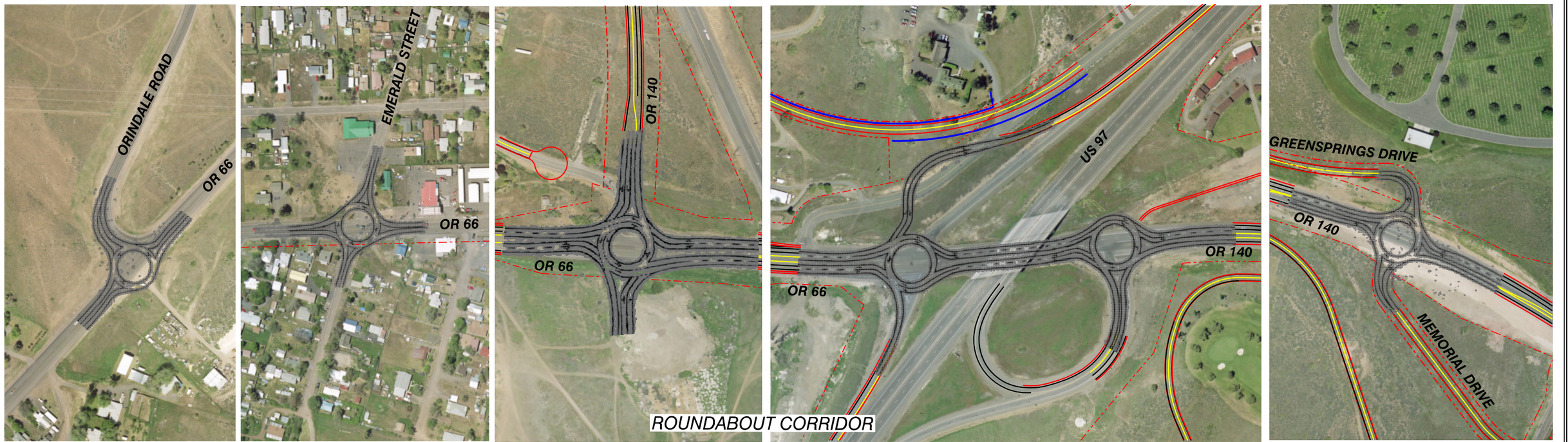
INTERIM IMPROVEMENT PROJECTS: INT1 & INT2
KLAMATH FALLS, OREGON

FIGURE **2-8**





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Intersection Form Options
KLAMATH FALLS, OREGON

FIGURE **2-9**

Phasing Plan

The improvement plan included in this IAMP does not need to be constructed as one large project. Rather, the plan provides the opportunity to construct the ultimate IAMP in smaller, phased projects that will limit the need to acquire funding to construct the entire plan at one time. To this end, a potential phased approach is included in Table 2-3.

- This approach shows potential projects in sequential order based on current planned development being discussed.
- In some cases, the order of construction could be modified, particularly between improvements focused on the east side of the interchange (Phases 5 and 6). For example, if there is redevelopment in the southeast quadrant of the interchange, then the realignment of Memorial Drive on the south side of OR 140 (Phase 6) will likely happen prior to the realignment of Greensprings Drive on the north side of OR 140 (Phase 5).
- The phases on the east and west sides can be implemented at the same time if driven by development.
- It should be noted that there were previous discussions regarding the Delap Pit Road being disconnected within the study area and being connected with Riverside Drive to the north. If this becomes a viable option and is being built, then Phase 3 would be skipped and not needed.

Table 2-3 Interchange Area Improvements Project Phasing

Project #	Description	Implementation Need/Trigger
Phase 1A – Interim Improvement		
INT1: Southbound US 97 Off-ramp & Ramp Terminal Cost Estimate: $50,000	• Install rumble strips on US 97 Southbound Off-ramp • Install "Steep Grade" warning sign along off-ramp • Re-stripe intersection throat to "square" stopped vehicles (consider limited widening) • Maximize storage length of two approach lanes at intersection (may require design exceptions)	Safety: • The existing safety issue (i.e., ramp grade and alignment) needs to be addressed with any associated development Operational: • Provide warning treatments and attempt to align stop location perpendicular with OR 140
Phase 1B – Interim Improvement		
INT2: Southbound US 97 Off-ramp & Ramp Terminal Cost Estimate: $300,000	• Install signal accommodating ultimate intersection configuration	Safety: • A signal will eliminate the need for motorists to take unacceptable gaps Operational: • Signalization is required to accommodate additional trips. Future developments need to conduct a signal warrant analysis to determine the need of a signal

Project #	Description	Implementation Need/Trigger
Phase 2 - West Side Improvement: OR 140		
W1: Realign OR 140 Cost Estimate: $6.7 M (excl. Right-of-way Costs of approximately $553,200)	• Realign OR 140 to match reserved access to future Crossroads Development (approximately ¼ mile from US 97 Southbound Ramp Terminal) • Provide required turn lanes to meet operational needs • Install signal accommodating ultimate intersection configuration	Safety: • Improve intersection spacing between new intersection location and Southbound Ramp Terminal Operational: • Signalization of OR 140/OR 66 is required to accommodate additional trips
Phase 3 - West Side Improvement: Delap Pit Road		
W2: Realign Delap Pit Road Cost Estimate: $2.1 M (excl. Right-of-way Costs of approximately $388,000)	• Realign Delap Pit Road to connect with realigned OR 140 approximately ¼ mile from OR 66 • Locate new alignment outside footprint of future US 97 Southbound Off-Ramp alignment	Safety: • Improve intersection spacing to nearest major intersection Operational: • Separation from major intersections would improve operations for motorists considering gaps in oncoming traffic
Phase 4 - Interchange Improvement: US 97 Southbound Off-Ramp		
I1: Realign US 97 Southbound Off-Ramp Cost Estimate: $3.5 M (excl. Right-of-way Costs of approximately $83,600)	• Improve horizontal alignment to provide a perpendicular approach to OR 140 • Improve profile to provide a "landing area" along the ramp approach at the intersection • Provide required turn lanes to meet operational needs • Modify the signal installed as part of an interim improvement (INT1) to match ultimate intersection configuration	Safety: • The existing horizontal and vertical alignments need to be addressed beyond the interim improvement (INT1) Operational: • Signalization and associated turn lanes are required to accommodate additional trips
Phase 5 - East Side Improvement: Greensprings Drive		
E1: Realign Greensprings Drive Cost Estimate: $3.6 M (excl. Right-of-way Costs of approximately $261,600)	• Realign Greensprings Drive to approximately ½ mile from US 97 Northbound Ramp Terminal • Provide required turn lanes to meet operational needs • Install signal accommodating ultimate intersection configuration (when warranted)	Safety: • Improve intersection spacing between new intersection location and US 97 Northbound Ramp Terminal Operational: • Signalization is required to accommodate additional trips. Future developments need to conduct a signal warrant analysis to determine the need of a signal

Project #	Description	Implementation Need/Trigger
Phase 6 - East Side Improvement: Memorial Drive		
E2: Realign Memorial Drive Cost Estimate: $0.7 M (excl. Right-of-way Costs of approximately $198,000)	• Realign Memorial Drive to match realigned Greensprings Drive approximately ½ mile from US 97 Northbound Ramp Terminal • Provide required turn lanes to meet operational needs • Install signal accommodating ultimate intersection configuration (when warranted)	Safety: • Improve intersection spacing between new intersection location and US 97 Northbound Ramp Terminal Operational: • Signalization is required to accommodate additional trips. Future developments need to conduct a signal warrant analysis to determine the need of a signal
Phase 7 - Interchange Improvement: US 97 Northbound Diagonal On-Ramp		
I2: Construct US 97 Northbound Diagonal On-Ramp Cost Estimate: $1.7 M (excl. Right-of-way Costs of approximately $132,000)	• Construct new ramp by eliminating westbound left-turn along OR 140 • Install retaining wall to minimize footprint of improvement • Close second US 97 Northbound Off-Ramp that exists north of interchange	Safety: • Eliminate unsignalized major-street left-turn Operational: • Reduce the number of conflicts at the US 97 Northbound Ramp Terminal
Phase 8 – East Side Improvement: OR 140 Expressway to the East of Interchange		
E3: Construct Jughandle Interchange Cost Estimate: $2.3 M (excl. Right-of-way Costs of approximately $137,600)	• Construct new underpass to separate north-south connection from OR 140 expressway • Provide right-in/right-out connections with OR 140	Safety: • Reduce potential angle and turning type crashes due to limited access to OR 140 and would remove a potential signalized intersection on an expressway (E1/E2) Operational: • Provide significant additional capacity by providing free-flow conditions along the highway

Note: Cost estimates do not include right-of-way acquisition costs and is shown separately. More detail is included in Appendix I.

Access Management Plan

Future access locations and public street connections were evaluated for properties and streets located in the Interchange Management Study Area. Access locations were evaluated based on ODOT's Division 51 Access Management standards and an assessment of traffic operations and safety as described in Action 3C.3 of the 1999 Oregon Highway Plan. The Access Management Plan was developed to minimize impacts and preserve the operational integrity and safety of primary facilities (i.e., OR 140, OR 66 and US 97) serving the interchange area, while maintaining viable access in the IMSA. The Access Management Plan was informed by the projects included in the Transportation Improvement Plans and the Goals & Objectives based evaluation that selected those projects.

The intent of the Access Management Plan is to guide the location of site-access driveways and internal circulation routes for properties located within the IMSA. OR 66 Green Springs IAMP Access Management Plan:

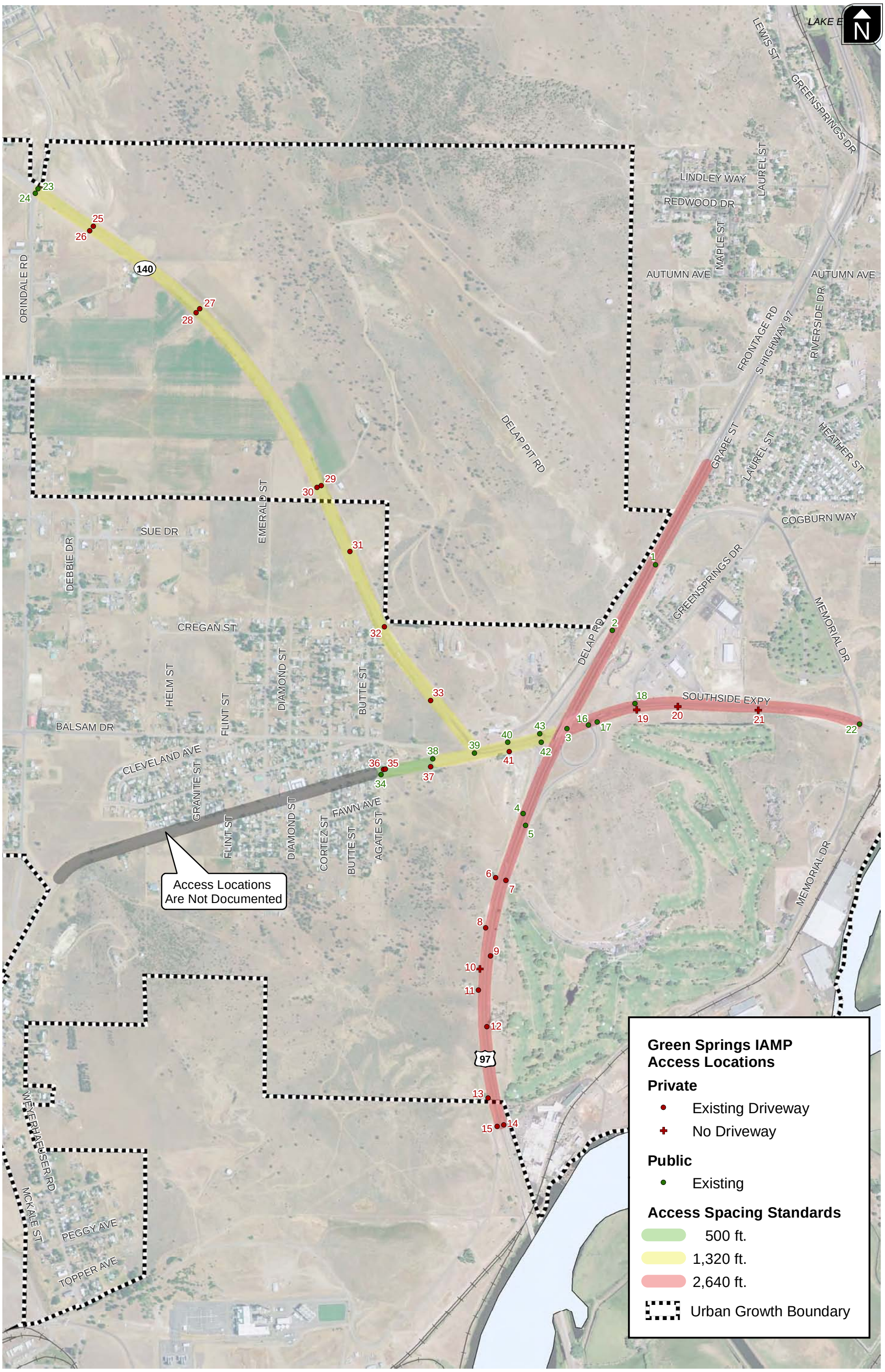
- identifies future access locations for properties in the IMSA, and
- documents the justification for the necessary deviations to ODOT's access management standards.

The plan, described in the following paragraphs, will be implemented as part of future land use changes—or ODOT, County, and City project development and delivery processes—involving the properties located within the IMSA. This approach is consistent with the IAMP goals and objectives to provide a safe transportation system while preserving access and connectivity for different transportation modes.

An access evaluation will be required, but is not limited to, when any of the following land use actions occur within the IMSA to continue meeting the IAMP goal and objectives:

- Modifications to existing land use or zoning
- Changes to plan amendment designations
- Construction of new buildings
- Increases in floor space of existing buildings
- Division or consolidation of property boundaries
- Changes in the character of traffic using the driveway/approach
- Safety or operational improvements
- Changes to internal site circulation design or inter-parcel circulation
- Capital improvement projects

The existing access locations are shown in Figure 2-10 and described in Table 2-4.



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ACCESS INVENTORY
KLAMATH FALLS, OREGON

FIGURE 2-10

Table 2-4 Approach Inventory

Access Number	Mile Point	RoA Station	Permit #, Year	Highway Side	Use	Note
US 97 (The Dalles-California Highway No. 004)						
1	276.74	-		E	Public Road	Northbound off-ramp, ODOT
2	276.88	-		W	Public Road	Southbound off-ramp, ODOT
3	277.07	-		E	Public Road	Northbound on-ramp, ODOT
4	277.33	-		W	Public Road	Southbound on-ramp, ODOT
5	277.36	-		E	Public Road	Northbound off-ramp, ODOT
6	277.47	255+00	35159, '92	W	Vacant	McDonald Property, Permitted Agricultural Use
7	277.47	30+85	16938, '68	E	Reames Golf & Country Club	Frontage Road Language
8	277.59	261+75		W	Vacant	Frontage Road Language
9	278.06	39+50		E	Vacant	Frontage Road Language
*10**	*278.10*	*266+25*		*W*	*Vacant*	*Frontage Road Language*
11	278.13	267+68		W	Vacant	Frontage Road Language
12	278.21	271+75		E	Residential	Frontage Road Language
13	278.36	279+55	29875, '87	W	Vacant	Frontage Road Language, Permitted Residence/Auto Shop
14	278.42	283+10	30126, '87	E	Columbia Plywood	Frontage Road Language
15	278.42	285+00	35481, '99	W	CoGen	Frontage Road Language, Approach & Permit not at RoA station
OR 140 (South Klamath Falls Highway No. 424)						
16	0.04	-		S	Public Road	Northbound on-ramp, ODOT
17	0.08	-		S	Public Road	Northbound off-ramp, ODOT
18	0.16	-		N	Public Road	Greensprings Drive, CKFO
*19**	*0.16*	*95+32*		*S*	*Serves only 400*	*Owned by Sarah Drier*
*20**	*0.25*	*100+00*		*S*	*Serves only 1100*	*Owned by High Desert LLC*
*21**	*0.42*	*109+00*		*S*	*Serves 12 & 1500*	*Owned by Reames Golf & Country*
22	0.64	-		S	Public Road	Memorial Drive, CKFO
OR 140 (Lake of the Woods Highway No. 270)						
23	67.23	369+05	51867, *	N	Public Road	West Ridge Drive, Southview Access
24	67.23	369+00		S	Public Road	Orindale Road, K. Co.
25	67.37	377+00		N	Emergency Access only	Frontage Road Language, Emergency access for Southview
26	67.37	377+00		S	Agricultural	Frontage Road Language
27	67.66	392+00		N	Agricultural	Frontage Road Language
28	67.66	392+00		S	Agricultural	Frontage Road Language
29	68.11	416+00		N	Agricultural	Frontage Road Language
30	68.11	416+00		S	Agricultural	Frontage Road Language
31	68.26	424+00	C#3337, *	N	Residential	Frontage Road Language Castle Ridge PUD
32	68.43	433+30		N	Residential	Frontage Road Language

Access Number	Mile Point	RoA Station	Permit #, Year	Highway Side	Use	Note
33	68.61	443+00		S	Vacant	ODOT owns TL 701 & 800, on the west side, at the intersection
OR 66 (Green Springs Highway No. 021)						
34	58.67	-		S	Public Road	Agate Street, CKFO
35	58.66	13+68		N	Residential	Frontage Road Language
36	58.68	14+50		N	Residential	Frontage Road Language
37	58.77	19+25	35160, '92	S	Private Property	Frontage Road Language Permitted Use: Field Use
38	58.79			N	Public Road	Balsam Drive, CKFO
39	58.86			N	Public Road	OR 140, ODOT
40	58.94	80+58		N	Public Road	Delap Pit Road, CKFO
41	58.94			S	Material Site, ODOT	Gravel Road
42	58.97	-		S	Public Road	Leg to southbound on-ramp, ODOT
43	58.99	-		N	Public Road	Leg from southbound off-ramp, ODOT

*Note: Italicized text indicates that the location is a reservation.

OR 140 BETWEEN US 97 SOUTHBOUND RAMP TERMINAL AND REALIGNMENT OF OR 140

Under ODOT's current access management policy, the 1999 Oregon Highway Plan stipulates that the desired distance between an interchange ramp terminal and the first major approach (public or private) on the crossroad classified as a statewide highway should be 1,320 feet (¼ mile). Currently there are three public street and two private connections within 1,320 feet.

- OR 140 (#38)
- Planned Crossroads Development (private) (#37)
- Delap Pit Road (#40)
- ODOT Material Site Access (private) (#41)
- Discussions indicate that this access was vacated, but it is not yet reflected in the access data base
- Balsam Drive (#38)

Project W1 on the west side of the interchange realigns OR 140 to approximately 1,230 feet to the west of the existing US 97 Southbound Ramp Terminal to align with the established Crossroads Development Access (#37). Based on the IAMP goals and objectives, options were explored to move the intersection further to the west, but the vertical crest curve and impact to the single-family properties to the west for tapering purposes would result in greater impacts. The exact location of the improved US 97 Southbound Ramp Terminal, which will be refined during a future preliminary design phase, will be chosen to optimize the right-of-way and topographical impacts. Therefore, the location of the OR 140/OR 66 intersection location will require a deviation to the Division 51 Access Management Standards. Additional information that would support this deviation is included in Appendix J. Balsam Drive (#38) will be disconnected from OR 66. As part of Project W2, Delap Pit Road will be disconnected from OR 140 along this section and realigned to OR 140 to the north.

OR 140 BETWEEN US 97 NORTHBOUND RAMP TERMINAL AND REALIGNMENT OF GREENSPRINGS DRIVE-MEMORIAL DRIVE

Under ODOT's current access management policy, the 1999 Oregon Highway Plan stipulates that the desired distance between an interchange ramp terminal and the first major approach (public or private) on the crossroad classified as a statewide highway (expressway) should be 2,640 feet (½ mile). Currently there are one public street connection and three private reservations within 2,640 feet.

- Greensprings Drive (#18)
- Sarah Drier's property (private reservation) (#19)
- High Desert LLC's property (private reservation) (#20)
- Reames Golf & Country's property (private reservation) (#21)
- Memorial Drive (outside ½ mile) (#22)

The proposed plan on the east side of the interchange realigns both Greensprings Drive (Project E1) and Memorial Drive (Project E2) to approximately 2,420 feet to the east of the US 97 Northbound Ramp Terminal. This location is based on the development of a westbound left-turn lane beyond the existing bridge over Lake Ewauna. Based on the IAMP goals and objectives, options were explored to move the intersection to the east, but it would require design exceptions (i.e., design speed) and result in steeper longitudinal grades for the road connections associated with the jughandle configuration (Project E3). Therefore, the intersection location for Greensprings Drive and Memorial Drive on OR 140 will require a deviation to the Division 51 Access Management Standards. Additional information that would support this deviation is included in Appendix J. The private accesses (#19, #20, and #21) will remain valid accesses as long as the existing uses remain on property/site; however, any future redevelopment would require a land use action with the consideration of provide access to Realigned Memorial Drive (Project E2).

REALIGNED OR 140 BETWEEN OR 66 AND REALIGNED DELAP PIT ROAD

Under ODOT's current access management policy, the 1999 Oregon Highway Plan stipulates that the desired distance between two major approaches (public or private) on a facility classified as a statewide highway should be 1,320 feet (¼ mile). Currently there are two private connections within 1,320 feet.

- Castle Ridge, Frontage Road's property (private, outside ¼ mile) (#31)
- Frontage Road's property (private) (#32)
- ODOT Tax Lots 701 & 800 (#33)

The proposed Project W2 realigns Delap Pit Road to approximately 1,390 feet to the north of the OR 66. The private accesses along OR 140 will remain valid accesses as long as the existing uses remain on property/site; however, any future redevelopment would require a land use action with the consideration to provide access to either realigned Delap Pit Road (#31 and #32) or roadways serving the Stewart Lennox neighborhood (#33). Properties currently served via Delap Pit Road will continue to be served by the realigned Delap Pit Road.

OR 66 WEST OF REALIGNED OR 140

There are numerous undocumented accesses along OR 66 to the west of the Realigned OR 140 intersection. The majority of these accesses are single-family accesses. As traffic volumes increases along OR 66, access management can help maintain the operational integrity and safety of the primary roadway. In general, the types of improvements identified include:

- Modifying, mitigating, or removing existing approaches pursuant to an access management strategy as part of the highway project development and delivery process. This may include restricting left-turning egress movements along OR 66 by constructing a raised median. *If roundabouts are implemented as part of an OR 66 corridor solution, then restricted left-turn movements would be able to make U-turns are the roundabouts.*
- Improving traffic safety and operations by improving the local street network to provide alternate access, better local street connections to the highway, and reducing conflict points. This may include consolidating access on OR 66 from private approaches and minor public streets where traffic can be rerouted to a major public approach.
- Restricting highway access but improving arterial access by introducing shared access, cross-over easements, consolidated access when separate parcels are assembled for redevelopment, and access via collector or local streets. This may include providing crossover easements between adjacent parcels along OR 66.

The time period over which the measures may be implemented will depend on the rate of development within the IMSA. As each parcel redevelops, or upon capital improvement, their access will be evaluated to determine how access will be modified. The objective is to move in the direction of meeting the access spacing standards and long-term vision of driveway consolidation while still providing access.

Currently there are two private connections and one public road immediately to the west of the realigned OR 140 intersection on OR 66.

- Agate Street (#34)
- Frontage Road property (private) (#35)
- Frontage Road property (private) (#36)

With the implementation of Project W1, these access points (#34, #35, and #36) will be limited to right-in/right-out accesses only.

US 97 NEAR THE INTERCHANGE

Under ODOT's current access management policy, the 1999 Oregon Highway Plan stipulates that the desired distance between an interchange ramp gore-point and the first major approach (public or private) on the facility classified as a statewide highway (expressway) should be 2,640 feet (½ mile). Eight access points along US 97 near the interchange have been identified for modification in the future. These include:

- Second US 97 Northbound Off-ramp north of the interchange to Greensprings Drive (#1)
- Frontage Road property (private) (#6)
- Reames Country Club access south of the interchange (private) (#7)
- Frontage Road property (private) (#8)
- Frontage Road property (private) (#9)
- Frontage Road property (private) (#10)
- Frontage Road property (private) (#11)
- Frontage Road property (private) (#12)

Each of these access points has been discussed previously within this IAMP. In the case of the second northbound off-ramp, this access should be closed at or before the construction of Project I2 (northbound diagonal on-ramp). In the case of the Reames Country Club access (#7), this access point should be modified based on any forthcoming development application associated with the existing PUD that exists on the Reames Country Club property. Regarding the Reams Country Club Access, the objective is to provide access to Memorial Drive (south of OR 140).

Future redevelopment of properties to the west of US 97 that are served by accesses #6, #8, #10, and #11 would require land use actions with the consideration to provide access to the planned north-south public facility through the Crossroad Development that connects with Emerald Street. In addition, the redevelopment of properties served by accesses #9 and #12 should explore opportunities to share and/or consolidate accesses with adjacent properties.

Summary

The transportation improvement projects in this IAMP protect the function of the US 97/OR 66 Green Springs interchange and provide safe and efficient connections between all roadways within the vicinity of the interchange. The goals and objectives developed in collaboration with the PT and stakeholders are addressed as follows:

GOAL 1: TRANSPORTATION OPERATIONS

Objectives:

1. Identify a safe, functional design of the future interchange
    a. The phased implementation of the projects provides an approach to continue to provide a safe functional interchange system.

2. Protect the function and operation of the OR 66 Green Springs Interchange as a local service facility and US 97 as a facility of statewide significance
    a. The sequence of the projects continues to maintain the function and operation of the interchange.
3. Improve highway-to-highway connectivity (US 97, OR 66, and OR 140), safety, and mobility
    a. The projects improve the transportation system by addressing the highway-to-highway connectivity and relocating min or streets and accesses to lower order facilities.

GOAL 2: MULTIMODAL ACCESSIBILITY

Objectives:

1. Provide adequate bicyclist and pedestrian facilities and integration with public transportation services
    a. All projects based on their functional classification provide bike lanes, shoulders, and/or shared facilities to accommodate bicyclists. Pedestrian facilities are provided along the east-west OR 66-OR 140 corridor to connect the neighborhoods on both sides of US 97.
2. Provide for efficient local street connectivity
    a. The realignments of OR 140 (Project W1), Greensprings Drive (Project E1), and Memorial Drive (Project E2), as well as the Jughandle interchange (Project E3) provide the connectivity by moving local trips off the highway system.

GOAL 3: LAND USE

Objectives:

1. Manage the allowed land uses within the vicinity of the interchange to provide for future economic growth over the next 20 years
    a. This IAMP provides the flexibility to accommodate growth beyond the 20-year horizon.
2. Prepare for right-of-way purchases and easements during land use approval for any affected properties in the area
    a. Right-of-way impacts have been identified in this IAMP
3. Comply with the intent of Statewide Planning Goal 1: Public Involvement, 2: Land Use Planning, 5: Natural Resources, 6: Air, Water and Land Resources Quality, 7: Areas Subject to Natural hazards, 8: Recreation Needs, 9: Economic Development, 12: Transportation, and 14: Urban Growth Boundaries
    a. This IAMP complies with the statewide planning goals.

GOAL 4: ECONOMIC DEVELOPMENT

Objectives:

1. Ensure that the interchange will function to support future local economic development while being respectful of existing developments

a. In collaboration with property owners on the PT, the IAMP accommodates the anticipated economic development.

GOAL 5: ACCESSIBILITY AND CONNECTIVITY (ACCESS MANAGEMENT)

Objectives:

1. Identify current accesses to the highways that will need to be relocated, consolidated, or closed by defining access locations for developed and undeveloped parcels

   a. In collaboration with property owners on the PT, the IAMP provides an approach and guidance addressing accesses.

GOAL 6: COST AND IMPLEMENTATION

Objectives:

1. Identify a funding strategy and cost sharing for needed improvements

   a. The IAMP identifies a phased approach of seven projects ranging from $1.0 - $7.2 million based on funding strategies, such as the IAMP Overlay Zone.

2. Identify a phased implementation approach to construct fundable interim improvements that lead to the ultimate interchange configuration

   a. The IAMP identifies a phased approach of seven projects ranging from $1.0 - $7.2 million that leads to the ultimate interchange configuration.

3. Collaborate throughout the planning process with design professionals, jurisdictional representatives, developers, local property owners, and the general public

   a. The IAMP is an outcome of a collaborative community-based approach that sets clear expectations through a phased approach for all levels of involvement.

4. Develop implementation policies to be adopted into the City and County comprehensive plans, transportation system plans, interchange access standards, and zoning ordinances, as appropriate

   a. This IAMP outlines an implementation plan (See Section 3) for changes to the adopted land use and transportation plans.

Section 3
Implementation Plan

IMPLEMENTATION PLAN

Introduction

This section describes the Interchange Area Management Plan (IAMP) implementation strategy, which includes an OR 66 Green Springs Interchange Function and Policy Definition and Overlay Zone. The Implementation Plan also includes adoption and monitoring procedures that will ensure transportation improvements are constructed and funded as development occurs and that the improvement plan is updated as needed over time. To ensure that the IAMP remains dynamic and responsive to changes to the adopted land use and transportation plans, the City of Klamath Falls, Klamath County, and Oregon Department of Transportation (ODOT) should, at a minimum:

- Amend their respective Transportation System Plans (TSPs) and Comprehensive Plans;
- Amend the Oregon Highway Plan (OHP);
- Codify and map an IAMP Management Area that defines the area wherein regulations and requirements associated with protecting the interchange apply;
- Coordinate planning activities pursuant to the Transportation Planning Rule (OAR 660-012); and
- Review the IAMP and mobility standards for the interchange prior to adopting local plan amendments.

Plan Elements

Comprehensive plan-level amendments necessary to implement the OR 66 Green Springs IAMP include adoption of:

- an interchange function and policy definition, and
- an IAMP management area.

INTERCHANGE FUNCTION AND POLICY DEFINITION

The City of Klamath Falls and Klamath County should adopt a clear definition of the OR 66 Green Springs Interchange function into their respective comprehensive plans, through amendments to the Urban Area TSP, as a policy to provide direction for management of the interchange area and achieve the objectives and goals of this IAMP. This will help to ensure consistency between future policy decisions with the interchange's intended function.

The interchange is located near the southwestern edge of the Klamath Falls area urban growth boundary (UGB). The interchange function and policy definition should reflect the surrounding planned land uses and the various users expected to rely on the interchange for business and personal trips. The following function and policy definition was developed for the OR 66 Green Springs Interchange:

The function of the OR 66 Green Springs Interchange, located near the southwestern edge of the Klamath Falls area urban growth boundary (UGB), is to: serve local and long distance freight movements by providing a connection between US 97 and the shared alignment of OR 66 and OR 140; provide access to existing local

businesses as well as a large amount of developable lands near the interchange; and provide a connection to greater Klamath Falls for residents living near the interchange.

IAMP OVERLAY ZONE

Both the City of Klamath Falls and Klamath County have land use regulatory authority within the IAMP Land Use Study Area. To ensure the continued operational integrity and safety of the interchange, both the City of Klamath Falls and Klamath County should adopt an IAMP Overlay Zone to manage and monitor the impacts of future growth in the vicinity of the interchange. Figure 3-1 shows a map of an overlay zone associated with this IAMP. This can be accomplished by amending local development ordinances to ensure mobility and operational standards are monitored and that transportation impacts are mitigated within the Overlay Zone.

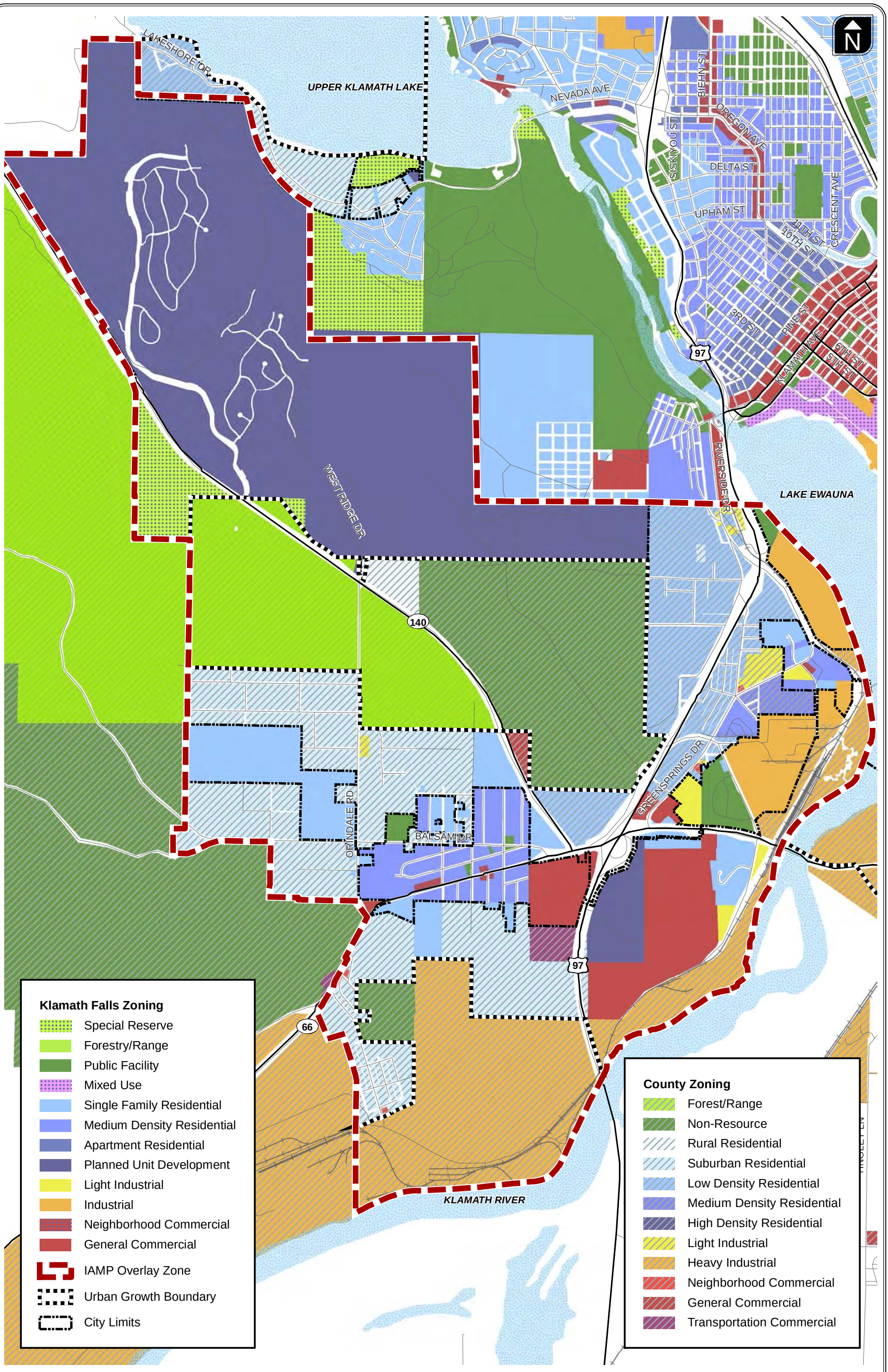
Adoption Elements

Implementation of the OR 66 Green Springs IAMP will occur at several levels of government. As required by OAR 734-051, the City of Klamath Falls and Klamath County will be required to legislatively amend their TSPs and Comprehensive Plans to incorporate elements of the OR 66 Green Springs IAMP. In addition, new ordinances or amendments to existing ordinances, resolutions, and Inter-Governmental Agreements (IGAs) will be required to ensure that the access management, land use management, and coordination elements of the IAMP are achieved. This adoption process will include Planning Commission/City Council hearings at the City level and Planning Commission/County Board of Commissioners hearings at the County level. Following successful adoption at the City and County levels, the OR 66 Green Springs IAMP will be presented to the Oregon Transportation Commission (OTC) for its review and adoption. This shall occur prior to construction of transportation improvements as described in this IAMP.

To implement the OR 66 Green Springs IAMP, the following actions must occur:

1. The City of Klamath Falls and Klamath County shall each adopt the OR 66 Green Springs IAMP as part of the Klamath Falls Urban Area Transportation System Plan, thereby amending the Klamath Falls and Klamath County Comprehensive Plans. The IAMP, and more specifically the transportation improvements identified in Table 2-2 of Section 2, shall serve as the long range comprehensive management plan for providing the transportation facilities that are specifically addressed in this plan, as well as the Access Management Plan and the planned local street network for the area.

2. The City of Klamath Falls and Klamath County shall each amend their Zoning Maps to include the IAMP Overlay Zone boundary. In addition, the City shall amend the Community Development Ordinance and the County shall amend the Land Development Code to include development and land use application requirements pertaining to transportation impact analysis, access management, and agency coordination.



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IAMP OVERLAY ZONE
KLAMATH FALLS, OREGON

FIGURE 3-1

3. ODOT's Regional Access Management Engineer will review and approve the access deviations described in the IAMP.

4. The Oregon Transportation Commission shall amend the Oregon Highway Plan to include the OR 66 Green Springs IAMP.

5. The City of Klamath Falls, Klamath County, and ODOT shall develop a Memorandum of Understanding (MOU) that specifies how the improvements identified in Table 2-2 of Section 2 will be addressed.

TSP AMENDMENTS

The following outline discusses the major TSP amendments that will need to occur at the City, County, and State levels to support adoption of the OR 66 Green Springs IAMP.

City of Klamath Falls and Klamath County shall each:

- Amend the Zoning Map to include an OR 66 Green Springs IAMP Overlay Zone to identify where compliance with the IAMP will be a condition of future development approval.
- Adopt the OR 66 Green Springs IAMP by reference as an element of the Urban Area TSP. The IAMP, including the access management and phasing plans therein, will serve as the transportation policy document for the identified IAMP Overlay Zone area and will guide future improvements that are specifically addressed in the Plan.
- Amend the Urban Area TSP to incorporate the interchange function and policy definition.
- Include the IAMP Interchange Area Improvements Project Phasing Plan as listed in Table 2-2 of the IAMP in the recommended transportation improvements project list of the TSP.

The OTC shall:

- Amend the OHP to include the OR 66 Green Springs IAMP.

LOCAL CODE AMENDMENTS

Modifications to the Klamath Falls Community Development Ordinance (CDO) and Klamath County Land Development Code (LDC) are recommended to ensure that future development in the vicinity of the interchange is consistent with the assumptions and recommended improvements in the IAMP. Requirements related to developing within the IAMP Overlay Zone are contained in a new overlay chapter. Recommended code language for both the City and the County is contained in Appendix F. The proposed language clarifies transportation impact study, access management, and agency coordination requirements, as well as codifies triggers for review and update of the IAMP.

Monitoring Elements

The purpose of the IAMP is to ensure that the interchange continues to perform consistent with its intended function. While the IAMP is a long-range plan, it needs to remain dynamic and responsive to development and changes to the adopted local land use and transportation plans and may need to be periodically

reviewed and updated. To accomplish this goal, a monitoring program should be agreed upon by the City of Klamath Falls, Klamath County, and ODOT in a MOU that identifies triggers for reviewing the IAMP and assessing how development approval within the IAMP Overlay Zone will be reviewed and coordinated.

IAMP REVIEW TRIGGERS

Periodically, the implementation program shall be evaluated by the City, County, and ODOT to ensure it is accomplishing the goals and objectives of the IAMP. Events that will trigger an IAMP review include:

- Five (5) years has elapsed since the date of IAMP adoption or since the last update occurred.
- Comprehensive Land Use Plan Map or Zoning Map amendments have been passed that have a "significant effect" pursuant to the Transportation Planning Rule and are proposed for land within the IAMP Overlay Zone or for land outside the overlay zone that significantly affect the OR 66 Green Springs Interchange.

MEMORANDUM OF UNDERSTANDING

To ensure that the OR 66 Green Springs IAMP continues to preserve the operational integrity and safety of the OR 66 Green Springs Interchange, the City of Klamath Falls, Klamath County, and ODOT will develop a MOU stipulating each agency's funding obligations to the transportation improvements in the Plan and to the following monitoring and update program:

- The agencies will review the IAMP pursuant to the "triggers" described above to ensure that the original assumptions and recommendations regarding the interchange, local circulation system, funding obligations, access management, land use management, and coordination efforts are still appropriate and effective given the current and projected future conditions inside the interchange management area. This review should be conducted through a meeting initiated by the City of Klamath Falls, Klamath County, or ODOT and should include all affected agencies.
- In addition to the established triggers for IAMP review, the agencies can request a review of the IAMP at any time if, in their determination, specific land use or transportation changes warrant a review of the underlying assumptions and/or recommendations within the IAMP.
- If the participants in the IAMP review meeting agree that, once the impacts of the "trigger" that necessitated the review are examined, an IAMP amendment is not warranted, a recommendation of "no action" may be documented and submitted in the form of a letter to the City of Klamath Falls City Council, Klamath County Board of Commissioners, and the OTC.
- If the findings and conclusions from the IAMP review meeting demonstrate the need for an update to the plan, review participants will initiate an IAMP update process. Initial steps in updating the IAMP will include scoping the planning process, identifying funding, and outlining a schedule for plan completion. Once completed, IAMP updates will be required to be legislatively adopted as an amendment to the Urban Area Transportation System Plan, requiring public hearings before the City Council and Board of Commissioners. An IAMP update will also need to be presented as public hearing before the OTC as an update to the OHP.

Development Review within the Overlay District

The following outlines the transportation requirements for development and zone change applications within the OR 66 Green Springs IAMP Overlay Zone and describes how the City of Klamath Falls and Klamath County should coordinate with ODOT.

TRAFFIC IMPACT ANALYSIS

Pursuant to development requirements currently in City and County code, all development applications that meet the following conditions are required to prepare and submit a Transportation Impact Study (TIS):

- The proposed development generates 50 or more peak-hour trips or 500 or more daily trips.
- An access spacing exception is required for the site access driveway(s) and the development generates 25 or more peak-hour trips or 250 or more daily trips.
- The proposed development is expected to impact intersections that are currently operating at the upper limits of the acceptable range of level of service during the peak operating hour.
- The proposed development is expected to significantly impact adjacent roadways and intersections that have previously been identified as high crash locations or areas that contain a high concentration of pedestrians or bicyclists such as school zones.

In addition, the County's Land Development Code requires a TIS when a proposal will result in a major construction project that is anticipated to "have temporary traffic impacts or cause disproportionate damage on existing infrastructure (71.200.A.5)."

To ensure that planned improvements are able to support proposed changes to land use in the vicinity of the interchange, the following additional condition will necessitate the development and submittal of a TIS for development applications located within IAMP Overlay Zone:

- A TIS will be required for all applications for zone change and/or comprehensive plan amendments located within the IAMP Overlay Zone that result in an increase in trips as compared to the existing land use designation.

Oregon Department of Transportation Coordination

- The City/County shall invite ODOT to participate in pre-application conferences for applications within the IAMP Overlay Zone.
- The jurisdiction with land use authority for an application within the IAMP Overlay Zone shall consult with ODOT on TIA requirements when the site of the proposal is adjacent to or otherwise affects a State roadway.
- The City/County shall provide written notification to ODOT once the application is deemed complete.
- ODOT shall have at least 20 days, measured from the date notice to agencies was mailed, to provide written comments to the City/County. If ODOT does not provide written comments during this 20-day period, the City/County staff report will be issued without consideration of ODOT comments.

Section 4
OAR & OHP Compliance

OAR & OHP COMPLIANCE

The following section discusses the Oregon Administrative Rule (OAR) and 1999 Oregon Highway Plan (OHP) policy based compliance issues that pertain to the development of the OR 66 Green Spring Interchange Area Management Plan (IAMP).

OAR Compliance

The OR 66 Green Spring Highway IAMP was developed in collaboration with the City of Klamath Falls, Klamath County, and ODOT and was developed in accordance with the guidelines set forth in the State of Oregon's OARs for Interchange Access Management Planning and Interchange Area Management Planning. Table 4-1 identifies the required planning elements from OAR 734-051 and documents how the OR 66 Green Springs Highway IAMP satisfies the requirements.

Table 4-1 OAR 734-051 Issues Addressed

OAR 734-0051-7010 Requirement	How Addressed	Report Reference
Should be developed no later than the time the interchange is being developed or redeveloped -7010(7)(a)	This plan was developed to effectively plan for future development and traffic growth that could occur within the interchange area. No improvements have been made to the interchange in quite some time, but future improvements will likely be needed to safely accommodate expected increases in demand.	Appendix A
Should identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt strategies and development standards to capture those opportunities -7010(7)(b)	The access management, transportation improvement plan, and Interchange Management Area elements identified in this plan will result in operational, safety, and capacity improvements.	Section 2
Should include short, medium, and long-term actions to improve operations and safety in the interchange area -7010(7)(c)	The IAMP includes a phasing plan for the transportation system improvements presented within the plan. These improvements address the near term needs identified by the existing conditions analysis as well as long-term demand needs that are expected to occur beyond the 20-year horizon period. In addition, interim improvement projects are included in the plan that present relatively inexpensive projects to address safety concerns on the US 97 southbound off-ramp ramp terminal intersection.	Section 2
Should consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches -7010(7)(d)	A full analysis of existing and forecast operational and geometric conditions was conducted for this planning effort. The future volumes were developed based on current zoning and comprehensive plan designations. All approaches, existing and planned, were examined.	Appendix A Appendix C Appendix D
Should provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years -7010(7)(e)	Specific improvements are included in the plan to address safety concerns through improved geometric alignment and access spacing.	Section 2

OAR 734-0051-7010 Requirement	How Addressed	Report Reference
Should consider existing and proposed uses of all property in the interchange area consistent with its comprehensive plan designations and zoning -7010(7)(f)	A thorough analysis of surrounding land uses and land use potential was performed based on the current comprehensive plan designations and zoning.	Appendix C Appendix D
Is consistent with any applicable Access Management Plan, corridor plan or other facility plan adopted by the Oregon Transportation Commission -7010(7)(g)	The access management plan included in the IAMP is consistent with the 1999 OHP (see following subsection), including recent modification to Division 51, or identifies where deviations are needed. No other applicable plans adopted by the OTC were identified.	Section 2
Includes polices, provisions and standards from local comprehensive plans, transportation system plans, and land use and subdivision codes that are relied upon for consistency and that are relied upon to implement the Interchange Area Management Plan. -7010(7)(h)	The implementation plan included in this IAMP documents the required amendments to local plans needed to adopt the IAMP. In addition, the implementation section outlines monitoring elements for the purpose of directing future land use action within the IAMP study area.	Section 3

Oregon Highway Plan Compliance

The OR 66 Green Springs Highway IAMP was developed in accordance with the policies set forth in the OHP. The following identifies the OHP policies that pertain to the OR 66 Green Springs Highway IAMP and how the IAMP satisfies the requirements.

Policy 1A: State Highway Classification System

The state highway classification system includes five classifications: Interstate, Statewide, Regional, District, and Local Interest Roads. In addition, there are four special purpose categories that overlay the basic classifications: special land use areas, statewide freight route, scenic byways, and lifeline routes.

Within the Interchange Management Study Area (IMSA), there are three ODOT highways. US 97 is Statewide Highway designated as an Expressway. OR 140 is a Statewide Highway west of US 97 and a Statewide Highway designated as an Expressway east of US 97. OR 66 is a District Highway.

How Addressed: The OR 66 Green Springs Highway IAMP recognized the respective functions of each highway. Access standards, traffic control, and geometric considerations were informed by the applicable highway designation.

Policy 1B: Land Use and Transportation

This policy recognizes the role of both the State and local governments related to the state highway system and calls for a coordinated approach to land use and transportation planning.

How Addressed: The IAMP was developed through a cooperative planning effort between the City of Klamath Falls, Klamath County, and ODOT. The IAMP will be implemented by City and County and will dictate future land use action procedures within the study area.

Policy 1C: State Highway Freight System

This policy recognizes the need for the efficient movement of freight through the state. The entire highway system within the study area is classified as a truck route.

How Addressed: The transportation projects included in the plan were developed considering freight mobility needs, particularly at the US 97 Northbound and Southbound Ramp Terminals, as well as the OR 140/OR 66 intersection.

Policy 1F: Highway Mobility Standards Access Management Policy

This policy addresses state highway performance expectations, providing guidance for managing access and traffic control systems related to interchanges.

How Addressed: The OR 66 Green Springs Highway IAMP demonstrates that the interchange and surrounding transportation system will be able to meet ODOT mobility standards through the 20-year horizon.

Policy 1G: Major Improvements

This policy requires maintaining performance and improving safety by improving efficiency and management before adding capacity.

How Addressed: The OR 66 Green Springs Highway IAMP focuses on improving the geometry of the existing transportation system to improve efficiency and safety, adding capacity only where needed.

Policy 2B: Off-System Improvements

This policy recognizes that the state may provide financial assistance to local jurisdictions to make improvements to local transportation systems if the improvements would provide a cost-effective means of improving the operations of the state highway system.

How Addressed: The transportation system was considered as a whole with improvements to the state and local system equally considered.

Policy 2F: Traffic Safety

This policy emphasizes the state's efforts to improve safety of all uses of the highway system. Action 2F.4 addresses the development and implementation of the Safety Management System to target resources to sites with the most significant safety issues.

How Addressed: The OR 140/US 97 Southbound Ramp Terminal intersection will be improved to eliminate existing geometric deficiencies. In addition, the access management plan was developed to ensure the long-term safety of the interchange area.

Policy 3A: Classification and Spacing Standards

This policy addresses the location, spacing, and type of road and street intersections and approach roads on state highways. The adopted standards can be found in Appendix C of the Oregon Highway Plan.

How Addressed: The OR 66 Green Springs Highway IAMP provides an access management element that improves access management within the IMSA. Also, please refer to the response for Policy 3C below.

Policy 3C: Interchange Access Management Areas

This policy addresses management of grade-separated interchange areas to ensure safe and efficient operation between connecting roadways. Action items include developing interchange area management plans to protect the function of the interchange to provide safe and efficient operations between connecting roadways and to minimize the need for major improvements of existing interchanges. The local jurisdiction's role in access management is stated in Policy 3C as follows: "necessary supporting improvements, such as road networks, channelization, medians and access control in the interchange management area must be identified in the local comprehensive plan and committed with an identified funding source, or must be in place (Action 3C.2)."

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

How Addressed: The OR 66 Green Springs Highway IAMP includes an access management plan that consolidates access points and improves access spacing over the existing conditions, though future deviations to the requirements of Division 51 may be necessary. Appendix J outlines these potential needs.

Policy 3D: Deviations

This policy establishes general policies and procedures for deviations from adopted access management standards and policies.

How Addressed: Deviations to the OHP access spacing standards are required, as described in Section 2 of the OR 66 Green Springs Highway IAMP. The access management element describes the need for future deviations at the time of construction.

Policy 4A: Efficiency of Freight Movement

This policy emphasizes the need to maintain and improve the efficiency of freight movement on the state highway system. All highways within the study area are designated truck routes.

How Addressed: The transportation improvements included in the IAMP plan improves traffic operations and safety for all vehicles, including freight vehicles.

Policy 4B: Alternative Passenger Modes

This policy supports the development of alternative passenger services and systems as part of broader corridor strategies and promotes the development of alternative passenger transportation services located off the highway system to help preserve the performance and function of the state highway system.

How Addressed: Basin Transit provides public transportation service in the interchange area (the Stewart Lennox route). The transportation improvements presented in the IAMP include sidewalks and bicycle lanes to improve safety, access, and mobility for pedestrians and bicyclists in the interchange area.

Policy 5B: Scenic Resources

This policy applies to all state highways and commits the State to using best management practices to protect and enhance scenic resources in all phases of highway project planning, development, construction, and maintenance.

How Addressed: This policy was considered as part of the plan development.