

**I-5 Exit 33 (Central Point)**

**Jackson County**

**DRAFT Interchange Area Management Plan**

**Prepared for**

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**TABLE OF CONTENTS**

1. INTRODUCTION ..... 1

    1.1. Interchange Function ..... 1

    1.2. Problem Statement ..... 2

    1.3. IAMP Study Area ..... 3

    1.4. IAMP Goals and Objectives ..... 3

    1.5. Planning Process ..... 5

2. EVALUATION OF BASELINE CONDITIONS ..... 6

    2.1. Overview of the Regulatory Framework ..... 6

    2.2. Existing Land Use Designations and Zoning ..... 9

    2.3. Environmental, Community, and Cultural Resources ..... 12

    2.4. Transportation System Inventory ..... 13

    2.5. Existing Operations and Safety ..... 17

    2.6. Future Baseline Conditions ..... 22

3. CONCEPT DEVELOPMENT AND ANALYSIS ..... 29

    3.1. Preliminary Concepts to Address Operational Deficiencies ..... 29

    3.2. Preferred Alternative ..... 30

4. MANAGEMENT STRATEGIES ..... 39

    4.1. Access Management Plan ..... 39

    4.2. Transportation Demand Management Measures ..... 45

    4.3. Transportation System Management Measures ..... 45

    4.4. Land Use Management Measures ..... 46

5. IMPLEMENTATION ..... 47

    5.1. OHP Policy Statement ..... 47

    5.2. Recommended Local Agency Development Code and Plan Amendments ..... 47

APPENDIX – PROJECT SHEETS ..... 50

**IAMP VOLUME 2: REFERENCE MATERIAL (COMPANION DOCUMENT)**

- Technical Memorandum #1: Definition and Background
- Technical Memorandum #2: Existing Conditions Analysis
- Technical Memorandum #3: Future Baseline Traffic Conditions
- Technical Memorandum #4: Alternatives Analysis
- Technical Memorandum #5: Preferred Alternative
- Technical Memorandum #6: Access Management Plan
- Technical Memorandum #7: Interchange Management Actions
- Technical Memorandum #8: Public Involvement Summary
- Technical Memorandum #9: Recommended Code and Plan Amendments



**LIST OF TABLES**

Table 1. Management Area Performance Measures..... 7

Table 2. Access Spacing Standards ..... 8

Table 3. IAMP 33 Study Area Roadway Inventory ..... 14

Table 4. Existing 2010 PM Peak Hour Traffic Operations Analysis Results..... 18

Table 5. Existing (2010) Freeway Operations ..... 21

Table 6. Traffic Operations – Future Baseline Conditions ..... 24

Table 7. Future Baseline Freeway Operations..... 28

Table 8. Summary of IAMP 33 Concepts..... 30

Table 9. Summary of Recommended IAMP Improvements ..... 33

Table 10. Operations with Recommended Improvements ..... 35

Table 11. Operations with Recommended Improvements but Delayed Tier 2 TSP Projects..... 37

Table 12. Preferred Alternative Preliminary Cost Estimates ..... 38

**LIST OF FIGURES**

Figure 1. Project Vicinity and Study Area ..... 4

Figure 2. Jackson County Comprehensive Plan ..... 10

Figure 3. Jackson County Zoning Designations ..... 11

Figure 4. Existing Access Inventory ..... 15

Figure 5. Year 2010 PM Peak Hour Conditions ..... 19

Figure 6. 2034 RTP Scenario – Traffic Operations & Lane Configurations – Future Baseline Conditions..... 25

Figure 7. ALUS Scenario – Traffic Volumes & Lane Configurations – Future Baseline Conditions ..... 26

Figure 8. Preferred Alternative ..... 32

Figure 9. Access Management Plan Actions ..... 43

## 1. INTRODUCTION

The Oregon Department of Transportation (ODOT) encourages the development of Interchange Area Management Plans (IAMPs) to maintain and improve freeway performance and safety by improving system efficiency and management before adding capacity. The development of this Interchange Area Management Plan is intended to protect the function of the interchange for the foreseeable future.

### 1.1. Interchange Function

I-5 Exit 33 (Central Point) is an urban interchange that currently functions as the main access to the City of Central Point in Jackson County as well as providing intermodal access to the Rogue Valley International-Medford Airport and developing industrial areas. It also connects to North Medford via Hanley Road to the west and Biddle Road to the east.

The interchange ramps connect with East Pine Street, the primary east-west route through Central Point. The type of development and subsequent function of East Pine Street differs significantly east and west of the interchange, as reflected by the different plan classifications and connecting roadway networks.

From the interchange eastward towards the airport, East Pine Street is part of the National Highway System (NHS) and is classified as an intermodal connector<sup>1</sup> from I-5 to OR Highway 62 (OR 62). It serves developing commercial and industrial areas along with the Rogue Valley International-Medford Airport to the east and some residential areas to the north. In general, intersections and other accesses are widely spaced with the emphasis on through traffic and freight movement. However, the first intersection, Penger Road, is located just 500 feet east of the northbound ramp and provides access to the Jackson County Fairgrounds to the north and a truck stop and other commercial facilities to the south.

West of the interchange, East Pine Street serves downtown Central Point before it connects with OR Highway 99 (OR 99) and continues into primarily residential areas. Downtown Central Point is characterized by a traditional grid system layout of streets with the first intersection located just 400 feet from the southbound interchange ramps. The Central Point Transportation System Plan (TSP) classifies East Pine Street as a principal arterial from 10<sup>th</sup> Street eastward across the freeway to Penger Road as reflected in the five-lane cross-section. West of 10<sup>th</sup> Street, as it enters downtown, East Pine Street is classified as a minor arterial and it narrows to four lanes with on-street parking.

The interchange itself has a standard diamond layout with approximately 1,200 feet between the northbound and southbound ramp terminals. The bridge over I-5 is five lanes wide with a

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<sup>1</sup> Intermodal Connectors provide access between major intermodal facilities and the other four subsystems making up the National Highway System. <http://www.fhwa.dot.gov/planning/nhs/>

sidewalk on the north side and bike lanes on both sides. Both the northbound and southbound ramp terminals have multi-lane approaches to East Pine Street.

## 1.2. Problem Statement

The current Central Point population is approximately 16,500 residents. By the year 2030, Central Point's population is estimated to be almost 26,000<sup>2</sup>, making it the second largest city in the Rogue Valley. I-5 Exit 33 will be affected by growing traffic volumes on OR 99, OR 62, and more traffic, including increased freight movements, will be destined for I-5. The potential for additional development, particularly to the north and east, where two urban reserve locations were identified in the *Greater Bear Creek Valley Regional Plan* (GBCVRP) and future fairground expansions, will further exacerbate these issues.

A geometric deficiency assessment, conducted in 2000 for the *I-5 State of the Interstate Report*, reached the following conclusions about the current design of the interchange:

- Designated right-turn lane on eastbound Pine Street at southbound ramp terminal does not have a through bike lane. Higher speeds combined with heavy vehicles create a difficult weave maneuver for slow-moving bicyclists.
- Proximity of I-5 interchanges in Medford promotes local trips on I-5.

In addition to these deficiencies, the spacing of the ramp terminals and other access points along East Pine Street does not meet current access standards. Queue spillback between intersections can already be problematic at certain times of the day and during events at the Jackson County Fairgrounds. High truck volumes near the interchange exacerbate queuing issues since trucks require more storage space than passenger vehicles. As traffic volumes continue to grow, the proximity of these intersections will affect the safe function of the interchange area.

East Pine Street is one of three I-5 crossings in Central Point. The others, Upton Road and Table Rock Road, lie approximately one mile to the north and one and one-half miles to the south, respectively. These are also the only crossings of Bear Creek, which runs parallel to and east of I-5. Penger Road, which serves those land uses between Bear Creek and I-5, connects northward to Upton Road but has no connections across either the freeway or the creek south of East Pine Street. With these limited crossings, demand will continue to grow and focus on East Pine Street.

Although not identified specifically in the current Rogue Valley Metropolitan Planning Organization (RVMPO) Regional Transportation Plan 2009 – 2034 (RTP) or City of Central Point TSP, interchange operational deficiencies were identified. This is a change from previous versions of the plans as well as in the East Pine Street Transportation Plan (2004) where projects were listed specifically for the interchange.

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<sup>2</sup> City of Central Point Transportation System Plan, 2008 to 2030, December 18, 2008, page 14.

### 1.3. IAMP Study Area

The IAMP study area delineates the vicinity in which transportation facilities, land uses, and approaches may affect operations at the interchange. The interchange management study area (IMSA), shown in Figure 1, generally encompasses properties within one-half mile of the interchange and includes the existing interchange, the immediate surrounding area where potential improvements to ramps could occur, developed areas of Central Point west of I-5, and largely undeveloped properties east of I-5.

### 1.4. IAMP Goals and Objectives

The goals of this IAMP are to develop a plan for improvements for I-5 Exit 33 that can be implemented over time to maximize the function of the existing interchange and address the long-term needs of the Central Point and other Rogue Valley communities.

The objectives of the IAMP are to:

- Protect the function of the interchange and East Pine Street as specified in the Oregon Highway Plan (OHP), RVMPO Regional Transportation Plan, and City of Central Point Transportation System Plan.
- Develop concepts to improve safety and maximize operational efficiency of the freeway and interchange to address existing and future needs.
- Evaluate the need for capacity improvements based on the adopted comprehensive land use plans of Central Point and Jackson County.
- Develop an access management plan that provides for safe and acceptable operations on the transportation network, and meets OHP requirements and the access spacing standards in Oregon Administrative Rule (OAR) 734-051.
- Incorporate the Greater Bear Creek Valley Regional Plan into the design and management systems for I-5 Exit 33, including recommended strategies for land use control.
- Incorporate the analysis of the City's Pine Street Four-Lane to Three-Lane Conversion study.

**Figure 1. Project Vicinity and Study Area**

## 1.5. Planning Process

The IAMP for I-5 Exit 33 was developed through a series of technical analyses.

Key elements of the process include:

- Evaluation of baseline conditions, such as existing and future traffic operations, environmental constraints, land use designations, and community facilities (Evaluation of Baseline Conditions)
- Alternatives development and evaluation (Concept Development and Analysis)
- Creation of the IAMP, including access management and local system improvements (Management Strategies)
- Implementation measures (**Error! Reference source not found.**)

This document provides a summary of each of these elements. A second volume provides the detailed analysis and supporting documentation that led to the development of the plan.

Five technical advisory committee (TAC) meetings were held for I-5 Exit 33 that included technical and City staff. ODOT and the City of Central Point provided technical representation. The meetings included graphic presentations and facilitated discussion to solicit input. In addition to technical review and input, a project focus group (PFG), including area citizens, provided input. The meetings occurred on December 2, 2010 (TAC), February 22, 2011 (TAC and PFG), January 25, 2012 (TAC), February 17, 2012 (TAC and PFG) and November 7, 2012 (TAC and PFG).

## 2. EVALUATION OF BASELINE CONDITIONS

This section summarizes baseline conditions in the IAMP study area including an overview of the regulatory framework that guides the process. Land use within the study area is presented and potential land use or environmental constraints are identified. Existing transportation system and traffic conditions in the study area are evaluated to identify deficiencies. Future traffic operations and safety are then assessed to determine how conditions may worsen.

### 2.1. Overview of the Regulatory Framework

State and local regulations, policies, and transportation and land use plans provided the legal framework for preparing the IAMP. (For a complete list of the guiding framework, refer to the summary description of all relevant plans and policies included in *Technical Memorandum #1: Definition and Background* in Volume 2 of this IAMP.) The language contained within these documents provides guidance to the state and local jurisdictions on how to manage transportation facilities and land uses in the study area to protect the interchange function, provide for safe and efficient operations, and minimize the need and expense for making major improvements to the interchange through the 2034 planning horizon.

Discussed below are the operational and access management standards. Operational standards and access management standards for study area roadway facilities are designated by ODOT, Jackson County, and the City of Central Point.

#### 2.1.1. Operational Standards

The Oregon Highway Plan (OHP)<sup>3</sup> has established several policies that enforce general objectives and approaches for maintaining highway mobility. Of these policies, the Highway Mobility Standards (Policy 1F) establish maximum volume-to-capacity (v/c) ratio targets (or standards) for peak hour operating conditions for all highways in Oregon based on the location and classification of the highway segment being examined. The OHP policy also specifies that the v/c ratio standards be maintained for ODOT facilities through a 20-year horizon. For the concept evaluation, the mobility standards in the 2012 Highway Design Manual (HDM)<sup>4</sup> were applied.

A v/c ratio of less than 1.00 indicates that the volume is less than capacity. When it is closer to 0.00, traffic conditions are generally good with little congestion and low delays for most intersection movements. As the v/c ratio approaches 1.00, traffic becomes more congested and unstable with longer delays.

<sup>3</sup> Table 6, Volume-to-Capacity Ratio Targets for Peak Hour Operating Conditions, Oregon Highway Plan Policy 1F Revisions: Adopted December 21, 2011, Oregon Department of Transportation.

<sup>4</sup> Table 10-2: 20 Year Design-Mobility Standards (Volume/Capacity [V/C] Ratio), 2012 ODOT Highway Design Manual, Oregon Department of Transportation.

Another standard for measuring traffic capacity and quality of service of roadways at intersections is level of service (LOS). Six standards have been established ranging from LOS A where there is little or no delay, to LOS F, where there is delay of more than 50 seconds at unsignalized intersections, or more than 80 seconds at signalized intersections.

Both Central Point and Jackson County also have established performance standards. Central Point uses performance standards based on LOS while Jackson County standards are based on v/c ratio. The City TSP acknowledges the County's performance standards but includes the note that "all County roads will at some point come under the City's jurisdiction, and as such, the LOS mobility measure is used" in identifying system deficiencies. The County language also states that "where one or more approaches is maintained by a city or ODOT, the more restrictive of the County's or other agency's performance standards will be applied."

The freeway falls under state jurisdiction but jurisdictional responsibility along East Pine Street varies by segment. Central Point maintains jurisdiction west of 10<sup>th</sup> Street and Jackson County maintains jurisdiction east of 10<sup>th</sup> Street except for the section between the southbound ramps and Peninger Road, which falls under ODOT jurisdiction. The resulting operational standards applicable to the freeway and the management area intersections are shown in Table 1.

**Table 1. Management Area Performance Measures**

Location	Applicable Jurisdictional Performance Measures		
	ODOT <sup>1</sup>	Central Point <sup>2</sup>	Jackson County <sup>3</sup>
I-5 Mainline	V/C ≤ 0.85	-	-
7th St. & East Pine St.	-	LOS D or better	-
8th St. & East Pine St.	-	LOS D or better	-
9th St. & East Pine St.	-	LOS D or better	-
10th St./Freeman Rd. & East Pine St. <sup>4</sup>	-	LOS D or better	V/C ≤ 0.95
Jewett School Rd. & East Pine St. <sup>4</sup>		LOS D or better	V/C ≤ 0.95
I-5 SB Ramps & East Pine St.	V/C ≤ 0.85		
I-5 NB Ramps & East Pine St.	V/C ≤ 0.85		
Peninger Rd. & East Pine St. <sup>4</sup>	V/C ≤ 0.95		V/C ≤ 0.95
Hamrick Rd. & East Pine St.			V/C ≤ 0.95

Notes:

1. OHP, Policy 1F, Action 1F.1, sixth bullet establishes a "maximum volume to capacity ratio for the ramp terminals of interchange ramps that is the more restrictive volume to capacity ratio for the crossroad, or 0.85" and Table 6, Volume-to-Capacity Ratio Targets for Peak Hour Operating Conditions.
2. City of Central Point Transportation System Plan, 2008-2030, p. 26.
3. Jackson County Transportation System Plan, Ordinance 2005-3, p. 61.
4. Operations at these locations will be compared with multiple agency performance standards since these intersections involve roadways under one or more jurisdictions.

## 2.1.2. Applicable Access Management Standards

The OHP also addresses access management with the most recent revisions adopted in March 2012<sup>5</sup>. More detailed requirements, action definitions, and the access spacing standards for state highways are specified in Oregon Administrative Rule (OAR) 734-051 (Division 51): Highway Approaches, Access Control, Spacing Standards, and Medians<sup>6</sup>.

Although E Pine Street is not a state highway, ODOT does have jurisdiction of the section of roadway between the southbound ramp terminal and Peninger Road. The jurisdiction of the roadway in the remainder of the study area is split. The City of Central Point has jurisdiction west of 10<sup>th</sup> Street. The County has jurisdiction between 10<sup>th</sup> Street and the southbound ramp terminal as well as east of Peninger Road.

The access management standards applicable to this project are summarized in Table 2.

**Table 2. Access Spacing Standards**

Segment Characteristic	Access Spacing Standard
<b>ODOT – Interchange Ramp Terminals - Fully Developed Urban<sup>1</sup></b>	
Distance from off-ramp to first approach on the right, right-turn movements only	750 feet <sup>2</sup>
Distance from off-ramp to first intersection where left turns are allowed	1320 feet <sup>2</sup>
Distance from last approach road to the start of the taper for the on-ramp	1320 feet <sup>2</sup>
Distance from last right in/right out approach road to the start of the taper for the on-ramp	990 feet <sup>2</sup>
<b>Other Public/Private Access Points</b>	
Central Point - Urban Business District (Speed: 25-35 mph)	350 feet <sup>3</sup>
Jackson County - Arterial (Minor and Major)	300 feet <sup>4</sup>

Notes:

1. Fully Developed Urban Interchange Management Area: Occurs when 85% or more of the parcels along the developable frontage area are developed at urban densities and many have driveways connecting to the crossroad. See definition in the Oregon Highway Plan.
2. Table 18 in the revised OHP-Effective January 1, 2012 Amended May 3, 2012 : Access Management Spacing Standards for Freeway Interchanges with Multi-Lane Crossroads
3. City of Central Point Transportation System Plan.
4. Jackson County Transportation System Plan.

Ideally, a project includes provisions by which access can be made fully compliant with the spacing standards in Table 2). In many instances, access needed for existing development will not allow these standards to be met. When the requirements and standards cannot be met, progress toward meeting the applicable standards must be demonstrated or a deviation must be justified and approved by the Region Access Management Engineer.

<sup>5</sup> 1999 Oregon Highway Plan Revisions to Address Senate Bill 264 (2011) Policy 3A, website:

[http://www.oregon.gov/ODOT/TD/TP/docs/ohp\\_am/accesssm.pdf](http://www.oregon.gov/ODOT/TD/TP/docs/ohp_am/accesssm.pdf)

<sup>6</sup> Oregon Administrative Rules Chapter 734, Division 51, Highway Approaches, Access Control, Spacing Standards, and Medians, Temporary Rules Effective January 1, 2012, Amended May 3, 2012, website:

<http://www.oregon.gov/ODOT/HWY/ACCESSMGT/docs/pdf/734-051.pdf>

## 2.2. Existing Land Use Designations and Zoning

This section summarizes existing land use conditions and potential design constraints found within the management area. Figure 2 shows the Comprehensive Plan designations for the management area, and Figure 3 shows the zoning designations. The information in this section is taken primarily from published documents, maps, GIS data, the Jackson County website, and other Internet websites.

### 2.2.1. East of Interstate 5

In general, the area east of I-5 in the management area has tracts of undeveloped and less densely developed land, with pockets of denser development closer to Table Rock Road and a small area adjacent and south of the Interchange. The Jackson County Exposition Park (fairgrounds) occupies the large parcel of land immediately east of I-5 and north of East Pine Street. The fairgrounds are outside of Central Point city limits and thus are under Jackson County jurisdiction. The underlying zoning for the fairgrounds is Rural Residential. The Bear Creek Greenway borders the fairgrounds to the east adjacent to lower-density residential properties and pockets of denser residential areas past the rural residential areas. The eastern edge of the management area north of East Pine Street and adjacent to the City of Medford boundaries is designated industrial. Directly adjacent and along East Pine Street, the zoning is designated commercial and Central Point Tourist and Office (C4). The C4 district purpose is to provide tourist and entertainment facilities to serve residents and tourists passing through the area. Adjacent to the Interchange south of East Pine Street are commercial uses that support the traveling public, such as a truck stop, gas stations and hotels with a few undeveloped parcels intermixed. The Bear Creek Greenway also passes through this area, with lands to the east designated industrial.

### 2.2.2. West of Interstate 5

The area west of I-5 includes most of Central Point's historical downtown, which has a tighter street grid network and denser development than the west side of I-5. However, there still are pockets of small parcels of undeveloped lots south of East Pine Street between Freeman Road and I-5. East Pine Street itself is a commercial strip with mixed uses a block behind it, followed by residential development that gets less dense as one moves away from the downtown core. Jewett Elementary School is adjacent to I-5 and the southbound off-ramp of the interchange north of East Pine Street. Areas zoned Central Point Tourist (C4) are located adjacent to the southwest and southeast quadrants of I-5 Exit 33, with a smaller area designated at the northwest quadrant adjacent to the elementary school.

**Figure 2. Jackson County Comprehensive Plan**

**Figure 3. Jackson County Zoning Designations**

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### 2.2.3. Potential Design Constraints

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Within the City of Central Point, transportation improvements within existing right-of-way are permitted outright in any district. Additional standards may apply in the base district if projects include parcels outside of existing right-of-way. Furthermore, transportation projects may need to meet additional permitting requirements other than those associated with the base district zoning such as the Bear Creek Greenway overlay and Historic Preservation overlay. Within the jurisdiction of Jackson County, permitting and design requirements for transportation improvements vary depending on the type of improvement and zoning designation. Overlays with their own criteria and potential constraints in Jackson County include the Bear Creek Greenway, Historic Resources, Archaeological Sites, Floodplain, and Airport Approach (AA) and Airport Concern (AC) Overlays.

## 2.3. Environmental, Community, and Cultural Resources

Research and mapping of environmental features and community resources in the I-5 Exit 33 IMSA was used to identify known issues and those that may pose potential challenges or barriers to transportation improvements. The information gathered was taken primarily from published documents and maps, GIS data, and conversations with appropriate professional contacts. The analysis is limited to “visual windshield validation.” Further resources may exist in the study area that are not yet documented or are not visually apparent. For more detailed information regarding this research, refer to *Technical Memorandum #2: Existing Conditions Analysis* in Volume 2 of this IAMP.

Environmental features researched in the IMSA include:

- Goal 5 – Natural Resources
- FEMA Floodplain/Floodway
- Wetlands and Waters
- Threatened and Endangered Species
- Air Quality
- Hazardous Materials

Community and cultural resources identified in the IMSA include:

- Historic and Archaeological Resources
- Sections 4(f) Resources

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### 2.3.1. Potential Design Constraints

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Depending on the location of the preferred project, final design and construction details, there will be specific permits, regulatory requirements, or authorizations required prior to construction of the project. Potential topographical and regulatory design restraints are

associated with the Bear Creek and Mingus Creek floodplains and wetlands and any other jurisdictional waters in the management area. Additional design constraints not covered in this plan could include the location of Hazardous Material sites, fish passage requirements at stream crossings, and storm water treatment requirements.

## 2.4. Transportation System Inventory

The transportation system inventory examines the roadways, access points, and bicycle and pedestrian facilities in the study area. (For more detailed system inventory information, refer to *Technical Memorandum #2: Existing Conditions Analysis* in Volume 2.)

### 2.4.1. Roadway Inventory

I-5 Exit 33 is an urban interchange that currently functions as the main access to the City of Central Point in Jackson County as well as providing intermodal access to the Rogue Valley International-Medford Airport and developing industrial areas. The interchange ramps connect with East Pine Street, the primary east-west route through Central Point. Table 3 presents an inventory of study area roadways and their general characteristics.

The freeway, the interchange ramps, and the portion of East Pine Street east of the interchange are all part of the National Highway System (NHS). The freeway and its ramps are part of the interstate system while East Pine Street is classified as an intermodal connector<sup>7</sup> from I-5 eastward and southward to OR Highway 62 (OR 62).

As noted earlier, jurisdictional responsibility along East Pine Street varies by segment. Central Point maintains jurisdiction west of 10<sup>th</sup> Street. Jackson County maintains jurisdiction east of 10<sup>th</sup> Street except for the section between the southbound ramps and Peninger Road, which falls under ODOT jurisdiction.

The interchange itself has a standard diamond layout with approximately 1,200 feet between the northbound and southbound ramp terminals. The bridge over I-5 is five lanes wide with a sidewalk on the north side and bike lanes on both sides. Both the northbound and southbound ramp terminals have multi-lane approaches to East Pine Street.

The other roadways within the management area are largely urban in nature, with sidewalks but no marked bike lanes west of I-5. East of I-5, sidewalks are sparse, and if present, are located on the south side of East Pine Street.

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<sup>7</sup> Intermodal Connectors provide access between major intermodal facilities and the other four subsystems making up the National Highway System. <http://www.fhwa.dot.gov/planning/nhs/>

**Table 3. IAMP 33 Study Area Roadway Inventory**

Roadway/ Highway Name	Jurisdiction	ODOT/Federal Functional Classification	City/County Functional Classification	Posted Speed (mph)	No. of Lanes
<b>Interstate 5</b>					
Mainline	ODOT	Interstate, NHS, FR, TR	-	65	4
I-5 Exit 33 Ramps	ODOT	Interstate, NHS, FR, TR	-	-	1-2
<b>East Pine St.<sup>1</sup></b>					
West of 10 <sup>th</sup> St.	Central Point	Minor Arterial	Minor Arterial	25-35	4-5
10 <sup>th</sup> St. - SB Ramps	Jackson County	Minor Arterial	Principal Arterial	35	5
SB Ramps - Peninger Rd.	ODOT	Minor Arterial, NHS Intermodal Connector	Principal Arterial	35	5
Peninger Rd. to East	Jackson County	Minor Arterial, NHS Intermodal Connector	Intermodal Connector	35-45	5
<b>Intersecting Roadway</b>					
7 <sup>th</sup> St.	Central Point	Local	Local	25 <sup>2</sup>	2
8 <sup>th</sup> St.	Central Point	Local	Local	25 <sup>2</sup>	2
9 <sup>th</sup> St.	Central Point	Local	Local	25 <sup>2</sup>	2
10 <sup>th</sup> St.	Central Point	Minor Arterial	Minor Arterial	25 <sup>2</sup>	2
Freeman Rd.	Central Point	Minor Arterial	Minor Arterial	35	2
Jewett School Rd.	Central Point	Local	Local	25 <sup>2</sup>	2
Peninger Rd to north	Jackson County	Urban Collector/ Rural Major Collector	Urban Collector/ Rural Major Collector	45	2
Peninger Rd to south	Central Point	Local	Local	25 <sup>2</sup>	2
Hamrick Rd to north	Jackson County	Minor Arterial	Minor Arterial	40	2
Hamrick Rd to south	Jackson County	Local	Collector	25 <sup>2</sup>	2

Acronyms: NHS: National Highway System; FR: State Freight Route; TR: Federally Designated Truck Route

Notes:

1. The state functional classification maps denote East Pine Street as under state jurisdiction between Peninger Road and the southbound ramp terminal, and under county jurisdiction outside of the ramp terminals.
2. No speed posted on these roadway sections; speed in table reflects default speeds based on functional classification.

## 2.4.2. Existing Access Inventory

Access inventory data was obtained from aerial photography and a site visit for E Pine Street from 7<sup>th</sup> Street to Table Rock Road. This data includes public street intersections and public/private approaches to E Pine Street. Aerial mapping depicting access locations is shown in Figure 4.

E Pine Street has 30 access points that intersect on the north side and 40 that intersect on the south side. When compared to the applicable spacing standards, few of the driveway accesses meet current spacing standards based on existing average annual daily traffic (AADT) volumes, roadway jurisdiction, and speeds. There are 30 access points within a quarter mile of the northbound and southbound ramp terminals. None of these access points meet the 1,320 feet spacing standard set forth by ODOT.

**Figure 4. Existing Access Inventory**

Outside the ¼ mile influence area of the ramp terminals the west side of the study area uses the 350 feet spacing standards identified in the City of Central Point TSP. None of the accesses within this segment meet the City standards currently. An Access Management Plan is in place (2003 and 2005) for the short section of E Pine Street between 1<sup>st</sup> Street and Front Street. On the east side of the interchange (outside the ¼ mile influence area) a County spacing standard of 300 feet applies. This is the least restrictive standard within the study area. There are six access points that meet this standard, 3 on the north and 3 on the south. They are primarily located near Hamrick Road.

While ODOT requires approach permits for approaches to highways under its jurisdiction, many counties and cities do not. E Pine Street is not a highway and does not have specific approach permit requirements. Within the last decade, during construction of improvements on E Pine Street/Biddle Road, ODOT and Jackson County discussed implementing complete access control between Freeman Road and Table Rock Road; however, no permits were issued at that time. E Pine Street west of Freeman Road is a city street and does not require permits for approaches taken from their roadway.

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### 2.4.3. Pedestrian Facilities Inventory

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The pedestrian network is fully developed in the areas west of the interchange and sidewalks are also present on some of the roadways east of the interchange. The sidewalks are generally 5 feet wide and include ramps on the corners.

Along E Pine Street, sidewalks are located on both sides through most of the study area with a few exceptions:

- Between I-5 Ramp Terminals (Freeway Overpass) – Sidewalk on north side only
- Peninger Road to west of Bear Creek Bridge – Sidewalks on south side only
- East of Bear Creek Bridge to Hamrick Road – No sidewalks on either side

Generally, the sections of E Pine Street without sidewalks are undeveloped. However, the Bear Creek Plaza development south of E Pine Street and east of Bear Creek does not include curbs and sidewalks.

As noted above, the freeway overpass does not include sidewalks on the south side of the roadway. When the bridge over the freeway was widened from two lanes to five lanes, a sidewalk was constructed on the north side of the expanded structure but no sidewalk was added on the south side.

Crosswalks are striped at most of the downtown intersections and at all of the signalized intersections, although not always across all of the intersection approaches. The crosswalk inventory for the E Pine Street intersections includes:

- 7<sup>th</sup> Street: North, South, East Approaches
- 8<sup>th</sup> Street: North, South, East Approaches

- 9<sup>th</sup> Street: North, South, West Approaches
- 10<sup>th</sup> Street: All Approaches (Signalized)
- I-5 Southbound Ramp Terminal: North, West (Signalized)
- I-5 Northbound Ramp Terminal: North, East (Signalized)
- Peninger Road: All Approaches (Signalized)
- Hamrick Road: All Approaches (Signalized)

The Bear Creek Greenway Trail crosses under E Pine Street just west of the Bear Creek Bridge. Connections from the trail to E Pine Street are located on both the north and south sides of the roadway. The north trail connection joins E Pine Street where there are currently no existing sidewalks. The south trail connection joins an existing sidewalk on the south side of the roadway.

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#### 2.4.4. Bicycle Facilities Inventory

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Bike lanes are present on E Pine Street from east of 8<sup>th</sup> Street through Hamrick Road. In downtown Central Point and across the freeway overpass to Peninger Road, the bike lanes are striped but do not have bike lane stencils (either the bicycle or diamond symbol). East of Peninger Road, bike lanes are striped with stencils, even on sections where no curbs are present.

The bike lanes connect to the Bear Creek Greenway Trail just west of the Bear Creek Bridge. A curb cut allows bicycle access across the sidewalk to connect to the trail on the south side of E Pine Street. There is no curb or sidewalk on the north side, so the trail currently connects directly to the bike lane.

One existing safety concern focuses on the block between Freeman Road and the I-5 southbound on-ramp. The eastbound bike lane on E Pine Street is located on the outside of the vehicular travel lanes and adjacent to the curb, as is typical for most bike lanes. However, east of Freeman Road, the outermost travel lane becomes a right-turn lane and all traffic must turn right onto the I-5 southbound on-ramp. Bicyclists trying to travel eastbound along E Pine Street become trapped by the right-turn lane and must cross a stream of right-turning vehicles to continue through the intersection.

### 2.5. Existing Operations and Safety

The assessment of existing traffic conditions includes development of existing traffic volumes, traffic operations evaluation, and a review of historical crash patterns. For more detailed data and evaluation results, refer to *Technical Memorandum #2: Existing Conditions Analysis* in Volume 2 of this IAMP.

## 2.5.1. Volume Development

Traffic counts were collected in 2010 and seasonally adjusted to correspond to traffic volumes that are seen in the peak months of the year (July/August), also known as the Design Hourly Volume (DHV). The ODOT Transportation Planning Analysis Unit (TPAU) procedures were followed. After peak hour count data was seasonally adjusted, volumes were balanced to achieve a uniform dataset for analysis.

In addition to examining the DHVs which correspond to the PM peak hour for the entire network, the AM peak hour is examined at the two I-5 ramp terminal intersections.

These traffic volumes and peak hour operations are illustrated in Figure 5.

## 2.5.2. Existing Intersection Operations

Table 4 summarizes the analysis results for all study area intersections and Figure 5 shows volumes and lane configurations.

**Table 4. Existing 2010 PM Peak Hour Traffic Operations Analysis Results**

Intersection	Critical Movement <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Mobility Standard <sup>3</sup>
<b>AM PEAK HOUR</b>				
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.69	B	0.85
I-5 NB Ramps & East Pine St (Signalized)	Overall	0.41	A	0.85
<b>PM PEAK HOUR</b>				
7th St. & East Pine St.	SB L/T/R	0.48	E	LOS D
8th St. & East Pine St.	SB L/T/R	0.09	D	LOS D
9th St. & East Pine St.	NB L/T/R	0.12	B	LOS D
10th St/Freeman Rd & East Pine St (Signalized)	Overall	0.77	C	0.95/LOS D
Jewett School Rd & East Pine St	SB L/T/R	0.12	C	0.95/LOS D
I-5 SB Ramps & East Pine St	Overall	0.51	A	0.85
I-5 NB Ramps & East Pine St	Overall	0.53	B	0.85
Peninger Rd & East Pine St (Signalized)	Overall	0.71	B	0.95
Hamrick Rd & East Pine St (Signalized)	Overall	0.75	C	0.95

Acronyms: NB = northbound, SB = southbound, EB = eastbound, WB = westbound, L = left-turn movement, T = through movement, R = right-turn movement. Two or more travel movements permitted in one lane group are indicated with a slash.

Notes:

1. At signalized intersections, the critical movement is represented by the overall intersection operations. At unsignalized intersections, the critical movement was identified as the stopped movement with the worst v/c ratio.
2. The v/c ratios and levels of service (LOS) are calculated from the Synchro macrosimulation analysis, which cannot account for the influence of signalized intersections on unsignalized intersection operations or reflect the effects of queue spillover.
3. Mobility standards are based on the Oregon Highway Plan and the Jackson County and Central Point Transportation System Plans.

**Shaded** results indicate where mobility standards are not met.

Source: Synchro HCM Intersection Analysis Report and SimTraffic microsimulation

**Figure 5. Year 2010 PM Peak Hour Conditions**

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Only one intersection, 7<sup>th</sup> Street at East Pine Street, has a critical movement that does not meet the applicable mobility standard. The critical southbound approach operates at LOS E during the peak hour because of the relatively high volume of left turns from southbound 7<sup>th</sup> Street to eastbound East Pine Street. The v/c ratio of 0.48 indicates that demand uses less than half the estimated capacity of the approach. Furthermore, a review of the traffic simulation indicates that delays at this intersection may be less severe than the LOS indicates because of gaps in traffic resulting from upstream and downstream traffic signals. Preliminary signal warrants were not evaluated at the unsignalized locations because existing operational deficiencies at these locations are minimal.

### 2.5.3. Merge and Diverge Operations

It is also important to evaluate how the interchange ramps interact with the mainline highway traffic on I-5 through an analysis of the points where traffic enters or merges onto the highway and where it exits or diverges from the highway. These analyses were conducted in accordance with ODOT procedures to determine v/c ratio performance. The results of the analysis are summarized in Table 5.

The merge and diverge analyses show that the freeway and the merge and diverge points associated with the I-5 Exit 33 ramps are currently operating well below the mobility standard of 0.85 during both the AM and PM peak hours.

**Table 5. Existing (2010) Freeway Operations**

Direction/Location	V/C Ratio <sup>1</sup>	
	AM Peak Hour	PM Peak Hour
<b>I-5 Northbound</b>		
Mainline South of IC 33	0.19	0.45
Diverge: IC 33 Northbound Off-Ramp	0.15	0.33
Mainline between Off and On-Ramps	0.13	0.31
Merge: IC 33 Northbound On-Ramp	0.30	0.41
Mainline North of IC 33	0.30	0.41
<b>I-5 Southbound</b>		
Mainline North of IC 33	0.33	0.26
Diverge: IC 33 Southbound Off-Ramp	0.17	0.14
Mainline between Off and On-Ramps	0.25	0.19
Merge: IC 33 Southbound On-Ramp	0.42	0.30
Mainline South of IC 33	0.41	0.30

Acronyms: IC = Interchange

Notes:

1. The v/c ratios for the merge/diverge analysis are calculated based on the methodologies outlined in ODOT's Analysis Procedures Manual.

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## 2.5.4. Crash History Analysis

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A crash history analysis was conducted to determine whether any significant, documented safety issues exist within the study area. The ODOT database (years 2006 through 2008) has 127 crashes in the management area including 22 crashes on mainline I-5. Of these crashes, almost half resulted in an injury although there were no fatal collisions.

Two intersections had crash rates approaching the 1.0 threshold. The 10<sup>th</sup> Street/Freeman Road intersection with East Pine Street had an intersection crash rate estimated at 0.96. Most of the reported crashes were rear end collisions associated with the northbound approach of Freeman Road at East Pine Street and may be associated with the sharp roadway curvature that begins just 100 feet southeast of E Pine Street. The I-5 northbound ramps had an intersection crash rate of 0.91. About half of the collisions involved vehicles turning to or from the freeway ramps but the other half involved two vehicles traveling straight on East Pine Street.

There were no segments in the study area identified in the top 10 percent of the state's 2012 Safety Priority Index System (SPIS)<sup>8</sup> database.

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## 2.6. Future Baseline Conditions

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The analysis of future baseline conditions examines long-term operational and safety concerns of the transportation system for two land use scenarios. (Detailed discussions of existing conditions can be found in *Technical Memorandum #3: Future Baseline Traffic Conditions* in Volume 2 of this IAMP.)

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### 2.6.1. Land Use Scenarios

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The future baseline analysis is based on two land use scenarios. One scenario is consistent with the Rogue Valley Metropolitan Planning Organization (RVMPO) Regional Transportation Plan (RTP) forecasts through the year 2034. The second scenario examines the long-term impact of potential development in the area based on an alternative land use scenario (ALUS).

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### Regional Transportation Plan Model

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The travel demand model for the RTP was developed for a base year of 2006 and a forecast year of 2034. Population forecasts were developed from Jackson County's comprehensive plan and are consistent with the official forecasts produced by the Office of Economic Analysis

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<sup>8</sup> The SPIS is a method used in Oregon to identify safety problem areas along state highways. Highways are evaluated in approximately one-tenth mile increments (often grouped into larger segments). Each year these segments are ranked by assigning a SPIS score based on the frequency and severity crashes observed, while taking traffic volume into account. When a segment is ranked in the top 10% of the index, a crash analysis is typically warranted and corrective actions are considered.

(OEA). The employment forecasts were developed from a number of different sources including the Economic Opportunities Analysis conducted in the RVMPO planning area in 2007, U.S. Commerce Department data, shorter term economic forecasts by the state OEA, Oregon Employment Department data and outlook, and consultation with local jurisdictions.

The network used in the forecasts for the I-5 Exit 33 IAMP is the financially-constrained RTP network. Traffic volumes and analysis based on RVMPO model data is referred to as the 2034 RTP scenario.

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## Alternative Land Use Scenario

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In addition to the RTP baseline land development/traffic volume scenario, an Alternative Land Use Scenario (ALUS) was developed to understand how sensitive the area may be to more intense or accelerated rates of growth than assumed in the RVMPO model. The ALUS also addresses the two urban reserve areas identified in the *Greater Bear Creek Valley Regional Plan* (GBCVRP) and future fairgrounds expansion not currently included in the RVMPO model.

The ALUS was developed assuming that available buildable land within the study area is fully built to the maximum allowable density designated in the Central Point and Jackson County Comprehensive Plans. For the purposes of this study, the build out analysis focused on the lands east of I-5 that have the majority of the buildable acreage. The boundary extends beyond the study area boundaries to include most of Urban Reserve Area CP-2B and all of CP-3<sup>9</sup> to conform to traffic analysis zones in the RVMPO model.

The East Pine Street Corridor Refinement Plan also included an Aggressive Redevelopment Scenario. The redevelopment scenario was developed to “assess the impact of an aggressive downtown redevelopment scenario on future traffic conditions” and assumes “accelerated population and employment growth within the downtown area, and correspondingly less growth in outlying areas of Central Point.” The ALUS builds on this scenario.

The combined land use changes were input into the RVMPO model to create the ALUS forecasts. The land use forecasts were applied to the same transportation network used for the 2034 RTP Scenario. No specific year is associated with these forecasts; rather, they represent a condition that could occur sometime in the future as the area builds out.

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### 2.6.2. Future Baseline Peak Hour Traffic Volumes

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Future traffic forecasts are shown in Figure 6 for the 2034 RTP Scenario and Figure 7 for the ALUS Scenario. Note that the ALUS scenario does not have a specific forecast year but is assumed to occur sometime beyond the 2034 forecast year for the RTP Scenario.

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<sup>9</sup> Greater Bear Creek Valley Regional Plan, Jackson County, Oregon, 2011

### 2.6.3. Future Intersection Operations

The future baseline traffic analysis results are summarized in Table 6 for all major study area intersections. Figure 6 shows the results for intersection movements for the 2034 RTP Scenario and Figure 7 shows the same for the ALUS Scenario.

**Table 6. Traffic Operations – Future Baseline Conditions**

Intersection	Critical Movement <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queuing Issues <sup>3</sup>	Mobility Standard <sup>4</sup>
<b>Operations With 2034 RTP Forecasts - AM Peak Hour</b>					
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.94	C	SB L/T	0.85
I-5 NB Ramps & East Pine St (Signalized)	Overall	0.60	A	None	0.85
<b>Operations With 2034 RTP Forecasts - PM Peak Hour</b>					
7th St & East Pine St	SB L/T/R	0.90	F	None	LOS D
8th St & East Pine St	SB L/T/R	0.17	E	None	LOS D
9th St & East Pine St	NB L/T/R	0.17	C	None	LOS D
10th St/Freeman Rd & East Pine St (Signalized)	Overall	0.88	D	All Approaches	0.95/LOS D
Jewett School Rd & East Pine St	SB L/T/R	0.22	C	EB L, WB	0.95/LOS D
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.75	A	WB L	0.85
I-5 NB Ramps & East Pine S (Signalized)	Overall	0.83	B	EB L, WB T, NB R	0.85
Peninger Rd & East Pine S (Signalized)	Overall	0.94	C	EB, WB, NB	0.95
Hamrick Rd & East Pine S (Signalized)	Overall	1.02	D	EB, SB	0.95
<b>Operations With ALUS Forecasts - AM Peak Hour</b>					
I-5 SB Ramps & East Pine St (Signalized)	Overall	1.00	D	EB, WB, SB	0.85
I-5 NB Ramps & East Pine St (Signalized)	Overall	0.72	B	None	0.85
<b>Operations With ALUS Forecasts - PM Peak Hour</b>					
7th St & East Pine St	SB L/T/R	1.04	F	SB L/T/R	LOS D
8th St & East Pine St	SB L/T/R	0.21	F	SB L/T/R	LOS D
9th St & East Pine St	NB L/T/R	0.22	C	None	LOS D
10th St/Freeman Rd & East Pine St (Signalized)	Overall	0.93	D	All Approaches	0.95/LOS D
Jewett School Rd & East Pine St	SB L/T/R	0.29	D	EB L, WB	0.95/LOS D
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.88	C	WB L, SB	0.85
I-5 NB Ramps & East Pine S (Signalized)	Overall	1.06	C	All approaches	0.85
Peninger Rd & East Pine S (Signalized)	Overall	1.12	E	All approaches	0.95
Hamrick Rd & East Pine S (Signalized)	Overall	1.22	E	All approaches	0.95

Acronyms: NB = northbound, SB = southbound, EB = eastbound, WB = westbound, L = left-turn movement, T = through movement, R = right-turn movement. Two or more travel movements permitted in one lane group are indicated with a slash.

Notes:

1. At signalized intersections, the critical movement is represented by the overall intersection operations. At unsignalized intersections, the critical movement was identified as the stopped movement with the worst v/c ratio.
2. The v/c ratios and levels of service (LOS) are calculated from the Synchro macrosimulation analysis, which cannot account for the influence of signalized intersections on unsignalized intersection operations or reflect the effects of queue spillover.
3. Queuing issues were identified through the SimTraffic microsimulation analysis.
4. Mobility standards are based on the Oregon Highway Plan and the Jackson County and Central Point Transportation System Plans.

**Shaded** results indicate where mobility standards are not met.

Source: Synchro HCM Intersection Analysis Report and SimTraffic microsimulation

**Figure 6. 2034 RTP Scenario – Traffic Operations & Lane Configurations – Future Baseline  
Conditions**

**Figure 7. ALUS Scenario – Traffic Volumes & Lane Configurations – Future Baseline Conditions**

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## Future Intersection Operations – 2034 RTP Scenario

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The analysis results show that, under 2034 future baseline conditions, four of the study area intersections would not meet operational standards: three during the PM peak hour and one during the AM peak hour. Although the intersections of E Pine Street with 7<sup>th</sup> Street and 8<sup>th</sup> Street both show southbound approaches that would not meet the city mobility standard, more detailed traffic simulations show minor delays and short queues. The I-5 Southbound Ramps would exceed the mobility standards in the AM peak hour with queuing expected on several approaches. The Hamrick Road intersection would have the worst operations with demand greater than capacity and long queuing on several approaches.

While queuing issues would be present at many of the study area intersections, queuing is a particular concern on the southbound (AM peak) and northbound (PM peak) off-ramps. This is a significant safety concern as traffic exiting the freeway would have insufficient distance to slow and come to a stop on the ramp itself. The queues could cause some additional turbulence on the freeway as drivers have to slow in the mainline travel lanes in anticipation of stopping on the ramp.

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## Future Intersection Operations - ALUS Scenario

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The analysis results show that, with the ALUS, two additional intersections (six total) would not meet operational mobility standards compared to the 2034 RTP scenario. Conditions would worsen at both the 7<sup>th</sup> Street and 8<sup>th</sup> Street intersections with some delays and queuing expected on 7<sup>th</sup> Street. The I-5 Southbound Ramps would exceed mobility standards for both peak hours with queuing expected on all approaches. The I-5 Northbound Ramps would be over capacity for the PM peak hour with queuing on all approaches. Both the Peninger Road and Hamrick Road intersections would also be over capacity.

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### 2.6.4. Merge/Diverge Analysis

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The future baseline operations of the interchange ramp interaction with the mainline highway traffic were also evaluated. The results of the analyses are summarized in Table 7.

**Table 7. Future Baseline Freeway Operations**

Direction/Location	2034 RTP Scenario		ALUS Scenario	
	V/C Ratio <sup>1</sup>		V/C Ratio <sup>1</sup>	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
<b>I-5 Northbound</b>				
Mainline South of IC 33	0.30	0.67	0.31	0.69
Diverge: IC 33 Northbound Off-Ramp	0.21	0.48	0.26	0.54
Mainline between Off and On-Ramps	0.21	0.47	0.20	0.46
Merge: IC 33 Northbound On-Ramp	0.47	0.61	0.49	0.61
Mainline North of IC 33	0.46	0.59	0.48	0.59
<b>I-5 Southbound</b>				
Mainline North of IC 33	0.49	0.39	0.48	0.39
Diverge: IC 33 Southbound Off-Ramp	0.21	0.17	0.23	0.18
Mainline between Off and On-Ramps	0.39	0.32	0.38	0.31
Merge: IC 33 Southbound On-Ramp	0.63	0.47	0.65	0.49
Mainline South of IC 33	0.62	0.46	0.63	0.48

Acronyms: IC = Interchange

Notes:

1. The v/c ratios for the merge/diverge analysis are calculated based on the methodologies outlined in ODOT’s Analysis Procedures Manual.

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### Future Intersection Operations – 2034 RTP Scenario

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The merge and diverge analyses for both the future design hour (PM peak hour) and the AM peak hour show that the freeway and the merge and diverge points associated with the I-5 Exit 33 ramps would operate below the mobility standard of 0.85 for the 2034 RTP scenario.

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### Future Intersection Operations - ALUS Scenario

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The merge and diverge analyses for both the future design hour (PM peak hour) and the AM peak hour show that the freeway and the merge and diverge points associated with the I-5 Exit 33 ramps would operate below the mobility standard of 0.85 for the ALUS.

### 3. CONCEPT DEVELOPMENT AND ANALYSIS

This section presents the conceptual development of improvements to address deficiencies within the I-5 Exit 33 Area Management Plan influence area as identified through existing and future baseline analysis. The improvements were developed to meet the identified goals and objectives of this plan, and specifically address issues identified in the problem statement. (Detailed discussions of concept development can be found in *Technical Memorandum #4: Alternatives Analysis* and *Technical Memorandum #5: Preferred Alternative* in Volume 2 of this IAMP.)

#### 3.1. Preliminary Concepts to Address Operational Deficiencies

After evaluating existing and future baseline conditions, a list of potential solutions was created to address operational deficiencies. These solution concepts were to provide an understanding of the diverse range of actions that could be implemented. Concepts initially targeted improvements unique to individual intersections knowing that different combinations of improvements could be paired together.

The alternatives analysis focused on five areas for consideration within the I-5 Exit 33 influence area:

- **Enhanced Network** – This network incorporates most of the Tier 2 improvements identified in the City of Central Point which are not currently included in the financially-constrained list of projects in the 2009-2034 Regional Transportation Plan (RTP).
- **Interchange Improvements** – These concepts identified potential improvements that address deficiencies at the interchange ramps that would still remain with the Enhanced Network.
- **West Side Improvements** – These concepts focused on the 10<sup>th</sup> Street/Freeman Road intersection and identify potential improvements to address deficiencies remaining with the Enhanced Network. The concepts build on the downtown 4-lane to 3-lane conversion work that has been done to-date and focus on the area between the southbound ramp terminal and the 10<sup>th</sup> Street/Freeman Road intersection.
- **East Side Improvements** – These concepts identified potential improvements east of the interchange ramp terminals that would still remain with the Enhanced Network.
- **Additional Improvements** – These concepts focused on addressing gaps or issues in the bicycle and pedestrian system.

Operational analyses were performed at key intersections for some of the concepts to help determine how well each would address deficiencies. In addition, right-of-way needs, concept resource impacts, and preliminary-level cost opinions were prepared to compare the concepts to each other.

The results of the concept evaluation were discussed at committee meetings and with staff; the resulting recommendations for implementation are summarized in Table 8.

**Table 8. Summary of IAMP 33 Concepts**

Concept	Recommendation
<b>Enhanced Network</b>	
<b>Enhanced Network</b>	<b>Recommended</b>
<b>Interchange Improvements</b>	
<b>Concept I-1 – I-5 Northbound Ramp Terminal – Dual Right-Turn Lanes</b>	<b>Recommended</b>
Concept I-2 – I-5 Northbound Ramp Terminal – New Loop Off-Ramp	Not Recommended
<b>Concept I-3 – I-5 Southbound Ramp Terminal – Dual Westbound Left-Turn Lanes</b>	<b>Recommended</b>
Concept I-4 – I-5 Southbound Ramp Terminal – New Loop On-Ramp	Not Recommended
Concept I-5 – Diverging Diamond Interchange with No Bridge Widening	Not Recommended
Concept I-6 – Diverging Diamond with Bridge Widening	Not Recommended
Concept I-7 – Bridge (Overpass) Widening or Replacement	See Additional Improvements
<b>West Side Improvements</b>	
<b>Concept W-1 – 10th Street/Freeman Road Improvements – Option 1</b>	<b>Recommended</b>
Concept W-2 – 10th Street/Freeman Road Improvements – Option 2	Not Recommended
Concept W-3 – 10th Street/Freeman Road Turn Restrictions – Option 1	Not Recommended
Concept W-4 – 10th Street/Freeman Road Turn Restrictions – Option 2	Not Recommended
<b>East Side Improvements</b>	
Concept E-1 – Hamrick Road – Dual Eastbound Left-Turn Lanes	Defer to Local TSP
Concept E-2 – Table Rock Road Improvements	Defer to Local TSP
Concept E-3 – Hamrick Road to Table Rock Road Traffic Shifts	Defer to Local TSP
<b>Additional Improvements</b>	
<b>Concept A-1 – South Sidewalk</b>	<b>Recommended</b>
<b>Concept A-2 – Bike Lane Improvements</b>	<b>Recommended</b>

Notes: Concepts in **bold** are recommended.

Finally, the preferred alternative was developed by combining the recommended concepts into a unified plan for the interchange area.

## 3.2. Preferred Alternative

This section summarizes the recommendations for the improvements that would constitute the preferred alternative for the I-5 Exit 33 IAMP. These recommendations are based on feedback from the Technical Advisory Committee and Project Focus Group, comments received at the Public Open House, and input from ODOT, City, and County staff.

### 3.2.1. Preferred Alternative Improvements

The preferred alternative consists of five new projects, transportation system management measures (TSM), and several of the Central Point TSP projects in the interchange study area.

illustrates the locations of the recommended improvement projects and Table 9 provides descriptions along with benefits and considerations as well as recommendation for general timing and triggers for implementation.

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### Bicycle and Pedestrian Projects to Address Existing Deficiencies

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Two specific improvements to the bicycle and pedestrian system are also recommended at the interchange to address existing facility deficiencies.

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### Roadway Projects Needed To Meet 2034 RTP Forecast Demand

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Improvements are recommended at both the northbound and southbound ramp terminals. The recommendations are not consistent with the Tier 2 projects currently included in the City of Central Point TSP and the TSP will need to be amended to reflect the changes.

In addition to the interchange projects, improvements are recommended at three local system intersections. A project, not currently in the TSP, is recommended for the intersection of E Pine Street/10<sup>th</sup> Street/Freeman Road. The intersection of E Pine Street/Peninger Road has recommended TSM measures to improve operations. A Central Point TSP Tier 1 project is necessary to address deficiencies at the E Pine Street/Hamrick Road intersection.

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### Roadway Projects Needed to Meet the ALUS Forecast Demand

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The Tier 2 TSP projects are not required to meet the 2034 RTP traffic forecasts but four projects would be necessary if the more intense growth assumed in the ALUS forecast, were to occur. The Tier 2 projects needed to meet mobility standards with the ALUS forecasts include:

- Project #236: Widen E Pine St to provide a third westbound through lane (Bear Creek Bridge to Peninger Road)
- Project #240: Extend Peninger Road south and construct a bridge across Bear Creek to connect to Hamrick Road
- Project # 245: Extend Peninger Road eastward and construct a bridge across Bear Creek to connect to Beebe Road
- Project #233: Widen E Pine Street to provide a third westbound through lane from east of Hamrick Road through the intersection of Bear Creek Bridge

**Figure 8. Preferred Alternative**

**Table 9. Summary of Recommended IAMP Improvements**

**Page 2 of Table 9. Summary of Recommended IAMP Improvements**

### 3.2.2. Future Operations with Preferred Alternatives

The preferred alternative consists of a combination of new projects and Central Point TSP projects. The new projects, along with one Central Point Tier 1 (financially-constrained) TSP project can meet the forecast demand based on the 2034 RTP scenario; however, the more intense land use associated with the ALUS would require construction of several Central Point Tier 2 (unfunded) TSP projects in the study area.

#### Operations with Recommended Improvements

Operations at relevant intersections for the preferred alternative network (all capital improvements) were evaluated for both the 2034 RTP and the ALUS with results summarized in Table 10. (Note: The Peninger Road intersection would ultimately be unsignalized with turn restrictions; thus operational results are not shown.)

**Table 10. Operations with Recommended Improvements**

Intersection	Critical Movement	V/C Ratio <sup>1</sup>	LOS <sup>1</sup>	Queuing Issues <sup>2</sup>	Mobility Standard <sup>3</sup>
<b>Operations With 2034 RTP Forecasts - AM Peak Hour</b>					
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.65	C	None	0.80
I-5 NB Ramps & East Pine St (Signalized)	Overall	0.55	A	None	0.80
<b>Operations With 2034 RTP Forecasts - PM Peak Hour</b>					
10th St/Freeman Rd & East Pine St (Signalized)	Overall	0.83	D	SB Left	0.95/LOS D
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.65	A	None	0.80
I-5 NB Ramps & East Pine S (Signalized)	Overall	0.72	B	None	0.80
Hamrick Rd & East Pine S (Signalized)	Overall	0.91	B	None	0.95
<b>Operations With ALUS Forecasts - AM Peak Hour</b>					
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.72	D	None	0.80
I-5 NB Ramps & East Pine St (Signalized)	Overall	0.62	B	None	0.80
<b>Operations With ALUS Forecasts - PM Peak Hour</b>					
10th St/Freeman Rd & East Pine St (Signalized)	Overall	0.96	D	SB Left	0.95/LOS D
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.73	B	None	0.80
I-5 NB Ramps & East Pine S (Signalized)	Overall	0.81	B	None	0.80
Hamrick Rd & East Pine S (Signalized)	Overall	0.95	B	None	0.95

Notes:

1. The v/c ratios and levels of service (LOS) are calculated from the Synchro macrosimulation analysis, which cannot account for the influence of signalized intersections on unsignalized intersection operations or reflect the effects of queue spillover.
2. Queuing issues were identified through the SimTraffic microsimulation analysis.
3. Mobility standards are based on the 2012 Highway Design Manual and the Jackson County and Central Point Transportation System Plans.

**Shaded** results indicate where mobility standards are not met.

Source: Synchro HCM Intersection Analysis Report and SimTraffic microsimulation

All improved intersections would meet mobility standards with the 2034 RTP forecasts but two intersections would just exceed mobility standards with the ALUS forecasts. The intersection of the I-5 northbound ramps at E Pine Street would meet the Highway Design Manual standard under the 2034 RTP scenario but would just exceed the mobility standard with the ALUS forecasts. Furthermore, the intersection would meet the Oregon Highway Plan standard even with the more intense land use scenario. The intersection of 10<sup>th</sup> Street/Freeman Road at E Pine Street would just exceed the County mobility standard.

As noted earlier no specific timeframe is associated with the ALUS forecasts; rather, they represent a condition that could occur sometime in the future as the area builds out. Full build-out of vacant lands in the study area is not expected to occur within the 20-year planning horizon. Furthermore, maximum allowable densities may be achieved on some parcels but do not generally occur with all development. Therefore, the full build out of the ALUS represents a worst-case scenario that may never be fully attained.

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### Operations with Recommended Improvements but Delayed Tier 2 TSP Projects

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Only one of the projects in the enhanced network concept is included in the financially constrained list of projects in the Central Point TSP. According to the financing program in the TSP, Tier 2 projects have no specifically identified funding sources. Thus, while some of these projects may be constructed during the 20-year planning horizon, there is a possibility that many will not.

To understand how slower implementation of the Tier 2 TSP projects would affect operations in the study area, analysis of the recommended improvements without the Tier 2 TSP projects was performed. For this analysis, the recommended interchange improvements from the preferred alternative and those at E Pine Street/10<sup>th</sup> Street/Freeman were added to the network along with the Tier 1 improvement at the E Pine Street/Hamrick Road intersection. The results are summarized in Table 11.

Even with a delay in the construction of City Tier 2 TSP projects, intersections with the recommended capacity improvements would meet mobility standards with the 2034 RTP forecasts. The Penger Road intersection would remain signalized with full turning movements and would meet the mobility standard but would have some longer queues building on some approaches but these queues would not impact interchange operations.

Four intersections would exceed mobility standards with the ALUS forecasts and a delay in the construction of City Tier 2 TSP projects. Although the ALUS forecasts are only intended to provide a sensitivity analysis, these results indicate that implementation of the City TSP projects is critical to supporting more rapid development in the study area, particularly on the vacant lands to the east of the interchange.

**Table 11. Operations with Recommended Improvements but Delayed Tier 2 TSP Projects**

Intersection	Critical Movement	V/C Ratio <sup>1</sup>	LOS <sup>1</sup>	Queuing Issues <sup>2</sup>	Mobility Standard <sup>3</sup>
<b>Operations With 2034 RTP Forecasts - AM Peak Hour</b>					
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.70	C	None	0.80
I-5 NB Ramps & East Pine St (Signalized)	Overall	0.54	A	None	0.80
<b>Operations With 2034 RTP Forecasts - PM Peak Hour</b>					
10th St/Freeman Rd & East Pine St (Signalized)	Overall	0.84	D	SB Left	0.95/LOS D
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.64	A	None	0.80
I-5 NB Ramps & East Pine S (Signalized)	Overall	0.72	B	None	0.85
Peninger Rd & East Pine S (Signalized)	Overall	0.85	C	NB Left, WB	0.95
Hamrick Rd & East Pine S (Signalized)	Overall	0.89	C	EB Left, SB	0.95
<b>Operations With ALUS Forecasts - AM Peak Hour</b>					
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.72	D	EB, WB, SB	0.80
I-5 NB Ramps & East Pine St (Signalized)	Overall	0.62	B	None	0.80
<b>Operations With ALUS Forecasts - PM Peak Hour</b>					
10th St/Freeman Rd & East Pine St (Signalized)	Overall	0.93	E	All Approaches	0.95/LOS D
I-5 SB Ramps & East Pine St (Signalized)	Overall	0.69	B	None	0.80
I-5 NB Ramps & East Pine S (Signalized)	Overall	0.86	B	None	0.80
Peninger Rd & East Pine S (Signalized)	Overall	1.02	F	All approaches	0.95
Hamrick Rd & East Pine S (Signalized)	Overall	1.05	D	EB, SB	0.95

## Notes:

1. The v/c ratios and levels of service (LOS) are calculated from the Synchro macrosimulation analysis, which cannot account for the influence of signalized intersections on unsignalized intersection operations or reflect the effects of queue spillover.
2. Queuing issues were identified through the SimTraffic microsimulation analysis.
3. Mobility standards are based on the 2012 Highway Design Manual and the Jackson County and Central Point Transportation System Plans.

**Shaded** results indicate where mobility standards are not met.

Source: Synchro HCM Intersection Analysis Report and SimTraffic microsimulation

### 3.2.3. Cost Estimates

Cost estimates for the capital improvements associates with the preferred alternative are summarized in Table 12. The estimates for five new projects were developed as part of this IAMP. These estimates are preliminary and include engineering and construction (with a contingency factor) but do not include right-of-way costs, and may change as the design is refined. In addition, the estimates do not account for utility costs or the potential costs of environmental analyses or mitigation. The costs for the Central Point TSP projects are taken from Table 12.4 (Tier 1 – Medium Term Projects) and Table 12.6 (Tier 2 Projects) and increased by approximately 20 percent to account for inflation since the TSP was prepared.

**Table 12. Preferred Alternative Preliminary Cost Estimates**

Concept	Estimated Cost <sup>1</sup>
<b>BICYCLE AND PEDESTRIAN PROJECTS TO ADDRESS EXISTING DEFICIENCIES</b>	
South Sidewalk between Ramp Terminals	\$1,200,000
Bicycle Signal at I-5 Southbound Ramp Terminal	\$25,000
<b>Subtotal</b>	<b>\$1,225,000</b>
<b>ROADWAY PROJECTS NEEDED TO MEET 2034 REGIONAL TRANSPORTATION PLAN FORECAST DEMAND</b>	
I-5 Southbound Ramp Terminal at E Pine Street Intersection Improvements	\$1,300,000
I-5 Northbound Ramp Terminal at E Pine Street Intersection Improvements	\$1,700,000
E Pine Street at 10 <sup>th</sup> Street/Freeman Road Improvements	\$2,200,000
E Pine Street at Peninger Road Intersection Improvements	\$50,000
E Pine Street at Hamrick Road Improvements (TSP Tier 1 Project #216)	\$600,000
<b>Subtotal</b>	<b>\$5,800,000</b>
<b>ROADWAY PROJECTS NEEDED TO MEET FORECAST DEMAND UNDER THE ALTERNATIVE LAND USE SCENARIO</b>	
Central Point Tier 2 TSP Project #236	\$150,000
Central Point Tier 2 TSP Project #240 & 245 Combined <sup>2</sup>	\$14,400,000
Central Point Tier 2 TSP Project #233	\$1,000,000
<b>Subtotal</b>	<b>\$15,550,000</b>
<b>TOTAL</b>	<b>\$22,575,000</b>

Notes:

1. Cost estimates were prepared in year 2012 using present day dollars and are consistent with standard estimating methods.
2. The costs of these TSP projects were combined because the cost of constructing both bridges appeared to be included in Project #245 while Project #240 did not include any bridge construction costs.

## 4. MANAGEMENT STRATEGIES

An integral part of the IAMP process is providing an action plan to protect the function of the interchange and its influence area. This report explores a set of measures under the heading “management actions” that could be employed at or near I-5 Exit 33. Management actions can extend the life of the interchange and provide for incremental implementation of I-5 Exit 33 area improvements, allowing individual components to be funded and built when needed. Given the funding constraints and statewide demand for interchange improvements, it will likely require several years for ODOT, Jackson County, and the City of Central Point to develop a funding package and construct all the improvements recommended in the IAMP.

### 4.1. Access Management Plan

Access management is an essential tool for protecting the function of an interchange and included in the Interchange Area Management Plan (IAMP) process. In the vicinity of the interchange it includes consideration of access to and from the interchange, maintaining capacity for traffic flow and operations, and safety.

Implementation of access management measures has the effect of protecting the public investment in an interchange and enabling it to accommodate traffic volumes safely and efficiently into the future while ensuring circulation necessary for good access to the freeway. The IAMP acknowledges the vital need of adjacent property owners to maintain roadway access to their businesses and residences. However, a proliferation of driveways and minor street intersections near an interchange multiplies the number of conflicts along a roadway segment, thus reducing the capacity of intersections, increasing the probability of crashes, and generally degrading service for all system users. Hence, the access management plan must balance the competing needs of compatible land uses, private access, and the function of the transportation system.

Although access management imposes some restrictions and a reduction of access for properties along E Pine Street, access management actions in this plan do not prevent the properties from being used and developed in a manner consistent with their adopted comprehensive planning designations. Access management instead will help to ensure that property owners continue to be able to utilize site advantages of the properties by improving traffic circulation and mobility.

The access management measures identified in this plan represent medium- and long-term actions that may be triggered as land use changes occur (new development or redevelopment), future improvement projects are implemented, or as safety and operational issues arise.

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### 4.1.1. Access Management and Implementation

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The access management plan for E Pine Street includes a variety of techniques that can be applied as appropriate to the roadways and adjacent land use characteristics. Access management techniques shall be applied with a desire to move towards achieving applicable access spacing standards over time.

Access management techniques would be implemented when one or more of the following triggers occur:

- Applications for land use changes or development are submitted
- Future roadway improvements move into design and construction
- Safety and/or operational problems arise

However, approval or delay of implementation may be determined by the Region Access Management Engineer.

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### 4.1.2. Access Management Actions

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Access management is a set of techniques that the state can use to control access to a highway that extend the operational life of the facility by reducing congestion, improving traffic flow, reducing crashes, and reducing conflicting vehicle movements. Access management techniques applicable to E Pine Street are listed in the following section. Figure 9 illustrates the recommended access management actions.

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#### E Pine Street in the City of Central Point

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Two locations should continue to be managed by the City of Central Point to serve the needs of downtown businesses and residents. The City should consider consolidation or closure of driveways when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street at the following locations:

**E Pine Street from Front Street to 7<sup>th</sup> Street** – This section of roadway is beyond the ¼-mile (1,320-foot) influence area of the interchange.

**E Pine Street from 7<sup>th</sup> Street to 10<sup>th</sup> Street** – This section of roadway lies within the ¼-mile (1,320-foot) influence area of the interchange but is part of the existing downtown grid network.

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## E Pine Street from 10<sup>th</sup> Street to I-5 Southbound Ramp Terminal

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Recommended access management actions are illustrated in Figure 9 and summarized below:

1. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
  - *Consolidation or closure of driveways should be considered when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
  - *Consolidation or closure of driveways should be considered when 10th Street/Freeman Road improvements are constructed to reduce turning conflicts along the north side of the roadway between 10<sup>th</sup> Street and the northbound ramp terminal, including Jewett Road.*
  - *Consolidation or closure of driveways should be considered when the annual accident rate is greater than the statewide annual average accident rate for similar roadways.*
2. Expand the local street network.
  - *Local network improvements should be considered when 10th Street/Freeman Road improvements are constructed to provide an alternative, especially if turn restrictions are put in place.*

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## E Pine Street from I-5 Northbound Ramp Terminal to Peninger Road

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Recommended access management actions are illustrated in Figure 9 and summarized below:

3. Consolidate/close driveways and/or restrict access in an effort to move towards achieving applicable access spacing standards.
  - *Consolidation or closure of driveways and/or turn movement restrictions should be considered when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
  - *Consolidation or closure of driveways and/or turn movement restrictions should be considered at Peninger Road when alternative access becomes available, including new route connections to nearby roadway facilities or a new connection between Peninger Road and Hamrick Road. (local TSP projects)*
  - *Consolidation or closure of driveways and/or turn movement restrictions should be considered when the annual accident rate is greater than the statewide annual average accident rate for similar roadways or the section has an ODOT Safety Priority Index System (SPIS) rating in the top 10 percent.*
4. Expand the local street network.
  - *Network improvements both north and south of E Pine Street identified in the Central Point TSP should be implemented with adjacent development and as funding for the improvements becomes available.*

- *Other local connections should be considered with adjacent development to expand access options for both future and existing parcels.*
5. Evaluate traffic control, potential turn limitations, left-turn lane, and right-turn lane needs for the Peninger Road intersection.
- *Analysis should be completed when planning and design begins for the expanded local road network to the north and south of E Pine Street.*

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### E Pine Street from Peninger Road to Hamrick Road

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Recommended access management actions are illustrated in Figure 9 and summarized below:

6. Consolidate/close driveways and/or restrict access in an effort to move towards achieving applicable access spacing standards.
- *Consolidation or closure of driveways and/or turn movement restrictions should be considered when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
  - *Consolidation or closure of driveways and/or turn movement restrictions should be considered when the annual accident rate is greater than the statewide annual average accident rate for similar roadways.*
7. Expand the local street network.
- *Network improvements both north and south of E Pine Street identified in the Central Point TSP should be implemented with adjacent development and as funding for the improvements becomes available.*
  - *Other local connections should be considered with adjacent development to expand access options for both future and existing parcels.*

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### E Pine Street/Biddle Road from Hamrick Road to Table Rock Road

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This section of roadway lies beyond the ¼-mile (1,320-foot) influence area of the interchange. It should continue to be managed by Jackson County to serve the needs of adjacent businesses while maintaining safe and efficient operations of the arterial. Few existing accesses are located along this section of roadway and the County (together with the City of Central Point) has the opportunity to manage future accesses in the corridor.

**Figure 9. Access Management Plan Actions**

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## 4.2. Transportation Demand Management Measures

Transportation Demand Management (TDM) measures are designed to reduce vehicle demand, especially for commuter trips in the peak periods. Goals and policies of the State of Oregon, the Rogue Valley Metropolitan Planning Organization (RVMPO), Jackson County, and the City of Central Point contain provisions that embrace TDM measures.

TDM measures include strategies that shift modes away from the single-occupancy vehicle like carpooling, vanpooling, transit, bicycling, and walking programs; strategies that shift trips to non-peak periods, such as flexible work schedules and off peak shifts; and telecommuting, which eliminates trips. TDM strategies are most effective in areas with high concentrations of employment and where a robust transit system exists. Generally, the strategies are easiest to implement where there are large employers or where a transportation management association (TMA) has been established to pool the efforts of many smaller employers. The Rogue Valley TMA, encompassing the Medford metropolitan area (including the City of Central Point) was established in 2002 but has been inactive in recent years. Funds for the program are identified in the RTP and are programmed in the current Metropolitan Transportation Improvement Program (MTIP). The funding would come from a Congestion Mitigation and Air Quality grant.

## 4.3. Transportation System Management Measures

Transportation System Management (TSM) measures are designed to make maximum use of existing transportation facilities. A number of TSM measures have been included in the preferred alternative including traffic control, turn restrictions, restriping, bicycle and pedestrian connections between the ramp terminals and adjacent roadways, and additional turn lanes needed to address future operational deficiencies at the interchange. Traffic signal optimization and coordination between signals were assumed for the future analysis of the interchange study area.

Facility management measures, such as ramp meters, preferential lanes, and signal priority, will not likely be considered at I-5 Exit 33 in the short term since freeway congestion is not expected to be a concern in 2034. If I-5 should become congested in the future, metering of interchange ramp terminals throughout the Rogue Valley region may become necessary.

In addition to these TSM measures, coordination with the Rogue Valley Intelligent Transportation Systems (RVITS) plan is recommended. Completed in 2004, the RVITS plan is a 20-year plan that identifies advanced technologies and management techniques that can relieve traffic congestion, enhance safety, provide services to travelers, and assist transportation system operators in implementing suitable traffic management measures.

#### 4.4. Land Use Management Measures

Transportation modeling draws guidance from comprehensive plans, but requires making assumptions about the type, intensity and location of development that can occur within each zone. Changes to the current land use zoning could dramatically affect the number of trips generated, trip patterns, and traffic volumes at intersections and the interchange. As a result, traffic operations at the interchange may approach capacity more rapidly than anticipated, shortening the life of the updated interchange and hastening the need for costly investments for additional interchange improvements.

Vehicle trip generation associated with potential future growth in the region could cause traffic operations at I-5 Exit 33 to exceed ODOT mobility standards within the 20-year planning horizon. The intensity, timing and location of actual development may result in more congestion than is estimated by the model.

ODOT is relying on the currently adopted plans, policies, designations and codes to ensure that the land uses remain supportive of the function of the interchange. This management strategy is essentially a reaffirmation by the City of Central Point and Jackson County that their Comprehensive Plans and TSPs remain valid or, if changes are needed, the TPR requirements will be met and the City or County will notify ODOT and jointly undertake an evaluation of impacts to the interchange. The Transportation Planning Rule (TPR) provides specifications on what must be addressed by agencies when seeking a comprehensive plan amendment or rezoning. *Technical Memorandum #1: Definition and Background, Appendix A – Review of Plans and Policies* and *Technical Memorandum #2: Existing Conditions Analysis* cite the standards that the IAMP relies on for consistency and implementation and associates them with the applicable IAMP sections. Specifically, these are:

- City of Central Point Comprehensive Plan: Comprehensive Plan Map (2008).
- City of Central Point Transportation System Plan, 3.6 Land Use Goals and Policies.
- City of Central Point Development Ordinance: Chapter 17.10 Zoning Map and Text Amendments, Section 17.10.600 Transportation planning rule compliance.
- Jackson County Comprehensive Plan: Map Designations, Establishment of Map Designations and Corresponding Zoning Districts, Policy 1: Minor Map Amendment Requests Process, and policies in the Agricultural Lands Element, Economy Element, Environmental Quality Element, Rural and Suburban Lands Element, and Urban Land Goals and Policies.
- Jackson County Transportation System Plan: Section 4, Goals and Policies
- Land Development Ordinance of Jackson County, Oregon: Chapter 3. Application Review and Decision, 3.7 Amendments to the Comprehensive Plan or Zoning Maps, 3.10 Creation Of New Roads Without Land Division, 5.1 General Provisions, and 9.5 Access Design.

## 5. IMPLEMENTATION

Implementation of the I-5 Exit 33 (Central Point) IAMP will need to occur at the local and state level. The plan will be adopted as an amendment to the Oregon Highway Plan by the Oregon Transportation Commission. It will also be adopted as part of the City of Central Point Transportation System Plan.

The elements recommended for formal adoption as part of this IAMP are specified below. Some actions are to be adopted by the OTC as a “facility plan” that implements the OHP. Other actions are adopted by the City of Central Point or Jackson County.

### 5.1. OHP Policy Statement

Adoption of the OHP is a state responsibility. Adopting a new policy statement describing the priorities associated with potential interchange improvements is a state responsibility. The following policy statements are added to the Investment Policies and Scenarios section of the OHP:

- Future investments by the State to increase capacity within the I-5 Exit 33 IAMP management area shall require the City of Central Point to adopt the I-5 Exit 33 IAMP.

### 5.2. Recommended Local Agency Development Code and Plan Amendments

Changes to the City of Central Point Land Development Code (LDO) and Transportation System Plan and the Jackson County Land Development Ordinance will be required in order to comply with the provisions of the Oregon Transportation Planning Rule (TPR) as codified in OAR 660-012-045, Division 51 and to implement and accompany the Interchange Area Management Plan (IAMP) for I-5 Exit 33 (Central Point).

In summary, the revisions provide additional standards to:

- Protect the safety and capacity of the roadway;
- Provide notification to ODOT regarding any potential affects to the state transportation system throughout the development review cycle;
- Provide additional access management standards;
- Protect the function of the interchange and East Pine Street as specified in the Oregon Highway Plan (OHP), RVMPO Regional Transportation Plan, and City of Central Point Transportation System Plan; and
- Improve safety and maximize operational efficiency of the freeway and interchange to address existing and future needs.

General recommendations for changes to Central Point Zoning Code and TSP and the Jackson County Land Use and Development Ordinance are listed below. Specific code and plan

recommendations are presented in *Technical Memorandum #9: Recommended Code and Plan Amendments*.

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### 5.2.1. City of Central Point Zoning Code

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To implement the IAMP and its associated Access Management Plan, changes to Chapter 17 of the zoning code are recommended. These changes would require that the IAMP be used to evaluate development proposal and determine mitigation for development proposals.

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### 5.2.2. City of Central Point Transportation System Plan

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To implement the IAMP and its associated Access Management Plan, changes to several chapters of the TSP are recommended:

- Chapter 5 - Transportation Management
  - Section 5.4. Access Management – The recommendations of the Access Management Plan for IAMP 33 will need to be incorporated into the TSP by reference.
  - Section 5.6 Transportation Management Goals, Objectives, and Policies – Goals associated with the recommendations of the Access Management Plan and Transportation System Management Measures will need to be incorporated in the TSP.
- Chapter 7 - Street System Plan
  - Table 7.4 Transportation Project, 2008-2030 will need to be updated to reflect changes in the descriptions of TSP Projects #233 and #236 and the addition of a new project related to improvements at the E Pine Street/10th Street/Freeman Road intersection.
  - Table 7.6 City of Central Point Transportation Projects, 2008-2030 will need to be updated to reflect changes in the descriptions of TSP Projects #916 and #918 and the deletion of Project #917 as well as the addition of two new projects related to sidewalk improvements between the ramp terminals and a bicycle signal at the E Pine Street/I-5 Southbound Ramps intersection.
- Chapter 12 - Transportation System Financing Program
  - Table 12.6 Tier 2 Projects – Add a new project related to improvements at the E Pine Street/10<sup>th</sup> Street/Freeman Road intersection.

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### 5.2.3. Jackson County Land Development Ordinance

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To implement the IAMP and its associated Access Management Plan, changes to several chapters of the Land Development Ordinance are recommended:

- Chapter 2. Review and Decision-Making – Amend notice of application requirements to include ODOT where a land use action or development proposals may affect a state transportation facility or facility plan.
- Chapter 9. General Development Regulations –
  - Section 9.5 Access Design Standards – Add language that would require that the IAMP be used to evaluate development proposal and determine mitigation for development proposals.
  - Add a new Section 9.7 related to Dedication and Improvement Requirement to ensure that an appropriate portion of right-of-way and improvement costs are provided for by abutting properties without general public cost when the development of the abutting property, due to the size or type of use, necessitates the need for additional expansion or construction of existing or planned transportation facilities if the necessary improvements have not been identified in the STIP or CIP.

## APPENDIX – PROJECT SHEETS

Project sheets have been prepared for each Corridor Plan improvements identifying:

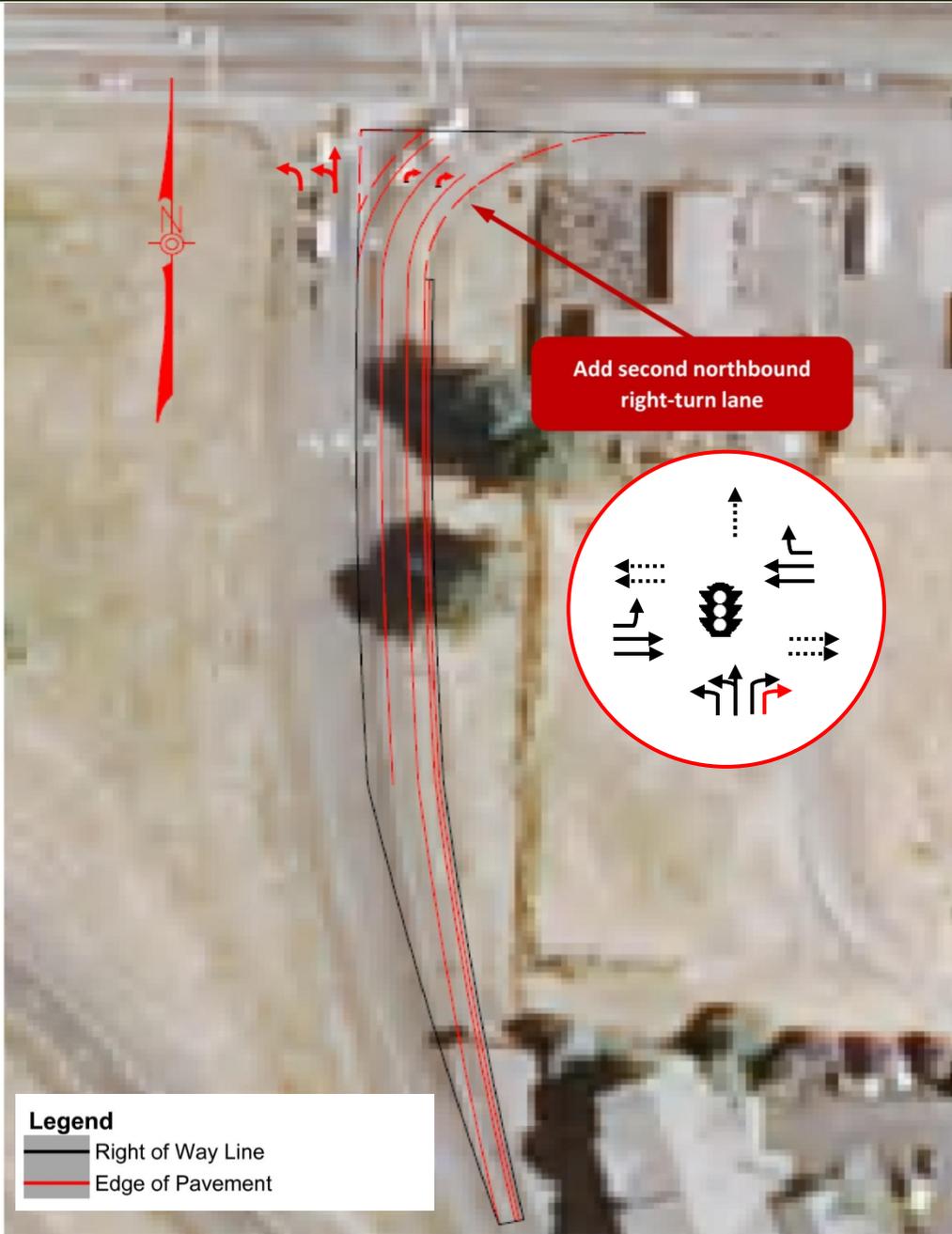
- Name
- Location
- Recommended Improvement
- Project purpose
- Existing/Future Deficiencies without project
- Result of improvements (i.e., how it addresses deficiencies)
- Considerations/potential impacts
- Cost opinion
- Implementation (priority, phasing, triggers)
- Illustration

Five projects sheets were prepared for the new capital projects recommended in this IAMP. No project sheets have been prepared for the TSM measures discussed.



<b>Description</b>	Widen the I-5 northbound off-ramp to add a second right-turn lane at the northbound approach to E Pine Street.	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ Plan for long-term capacity needs</li> <li>▪ Address safety concerns associated with queuing on the off-ramp</li> </ul>	
<b>Roadway Characteristics</b>	<ul style="list-style-type: none"> <li>▪ Existing roadway width is 36 feet</li> <li>▪ Posted speed on the northbound off-ramp is 30 mph</li> <li>▪ Current (2010) ADT = 6,100 to 6,500 vehicles per day</li> <li>▪ Forecast (2034 RTP) ADT = 9,000 vehicles per day</li> <li>▪ Forecast (ALUS) ADT = 10,200 vehicles per day</li> <li>▪ 30 intersection related crashes including 17 that resulted in other injuries (2006-2008)</li> </ul>	
<b>How Improvement Addresses Deficiencies</b>	<b>Existing/Future Deficiency</b>	<b>With Improvement</b>
	<ul style="list-style-type: none"> <li>▪ Existing 1-lane right-turn capacity is not sufficient for forecast demand</li> </ul>	<ul style="list-style-type: none"> <li>▪ Additional storage lane of 350'</li> <li>▪ Addition of northbound right-turn lane would remove queuing issues</li> <li>▪ ALUS scenario would still exceed mobility standard in the PM</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Majority of crashes were rear-end</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improved operations could mean fewer stops at the intersection thus reducing rear end collision potential</li> </ul>
<b>Additional Considerations</b>	<ul style="list-style-type: none"> <li>▪ Additional ROW needed</li> <li>▪ The additional lane will not address safety conditions for pedestrians unless no turn on red is implemented for the northbound right-turn movement</li> </ul>	
<b>Cost Option</b>	<ul style="list-style-type: none"> <li>▪ \$1.3 million (excluding ROW, utility relocation, or costs to address potential hazardous waste)</li> </ul>	
<b>Implementation</b>	<ul style="list-style-type: none"> <li>▪ Medium to low priority</li> <li>▪ Short term: traffic signal timing may be used to manage queues on ramps</li> <li>▪ Long term: additional storage and capacity or the right-turn movement will be needed</li> </ul>	

Preliminary Alignment Concept



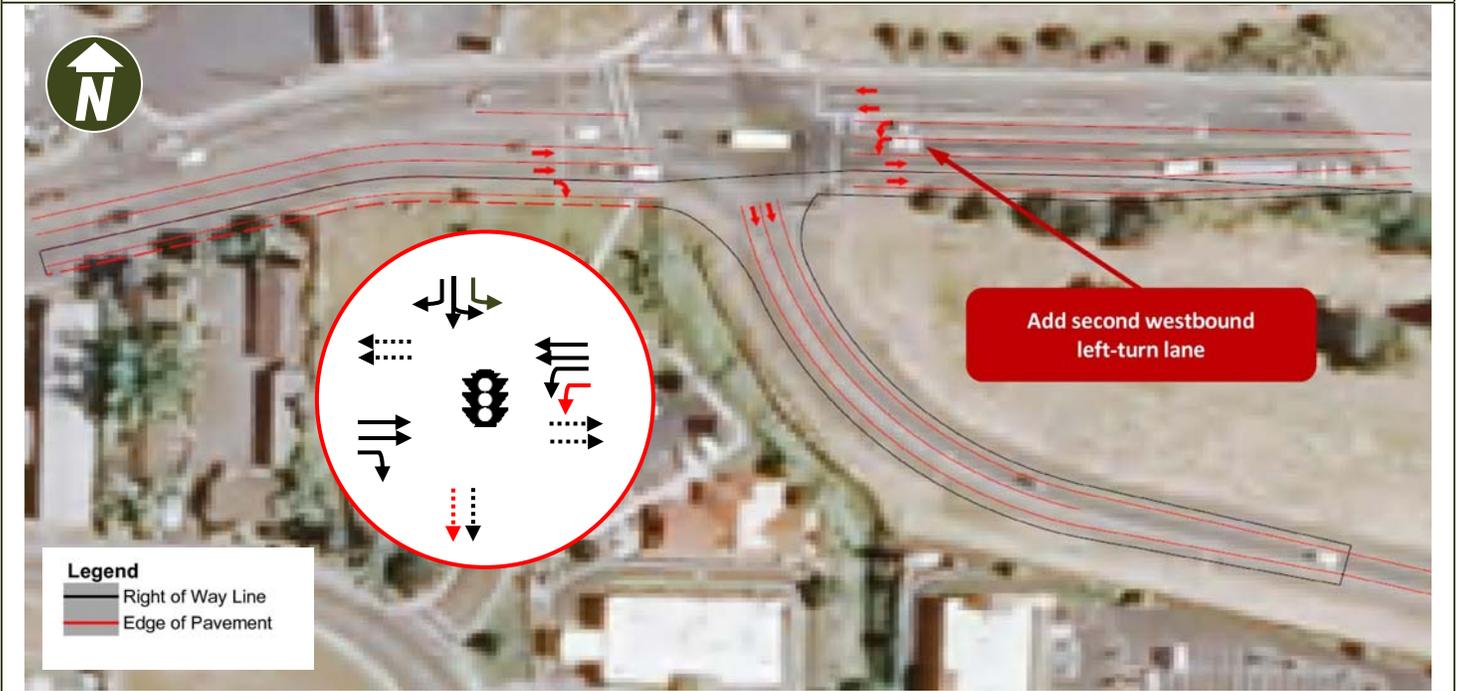
**I-5 Southbound On-Ramp – Dual Westbound Left-Turn Lanes**

**I-5 Exit 33 (Central Point):  
Interchange Area Management Plan**



<b>Description</b>	Add dual westbound left-turn lanes on East Pine Street onto the I-5 southbound on-ramp	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ Address queuing problems on off-ramp</li> <li>▪ Reduce future safety hazards at this intersection</li> </ul>	
<b>Roadway Characteristics</b>	<ul style="list-style-type: none"> <li>▪ Existing roadway width of East Pine St is 59 feet in 80-foot right of way (ROW)</li> <li>▪ Posted speed on East Pine Street is 35 mph</li> <li>▪ Current (2010) ADT = 22,575 vehicles per day on East Pine Street between the ramps</li> <li>▪ Forecast (2034 RTP) ADT = 29,650 vehicles per day on East Pine Street between the ramps</li> <li>▪ Forecast (ALUS) ADT = 30,400 vehicles per day on East Pine Street between the ramps</li> <li>▪ 19 intersection related crashes in analysis period (2006-2008)</li> </ul>	
<b>How Improvement Addresses Deficiencies</b>	<b>Existing/Future Deficiency</b>	<b>With Improvement</b>
	<ul style="list-style-type: none"> <li>▪ Overall intersection capacity contributes to queuing on southbound off-ramp</li> </ul>	<ul style="list-style-type: none"> <li>▪ Additional storage lane of 350'</li> <li>▪ Safety issues associated with long queue would not be a concern</li> </ul>
<b>Additional Considerations</b>	<ul style="list-style-type: none"> <li>▪ Modification would require a design exception or have ROW impacts in the northwest quadrant</li> <li>▪ There are several hazardous material sites located within the southwest quadrant of the intersection</li> </ul>	
<b>Cost Option</b>	<ul style="list-style-type: none"> <li>▪ \$1.7 million (excluding ROW, utility relocation, or costs to address potential hazardous waste)</li> <li>▪ The widening of E Pine Street would begin just west of the bridge structure and the second left-turn lane would have up to 200 feet of additional storage</li> </ul>	
<b>Implementation</b>	<ul style="list-style-type: none"> <li>▪ Medium to low priority</li> <li>▪ Monitor queuing on the southbound off-ramp maintain safe operations</li> </ul>	

Preliminary Alignment Concept

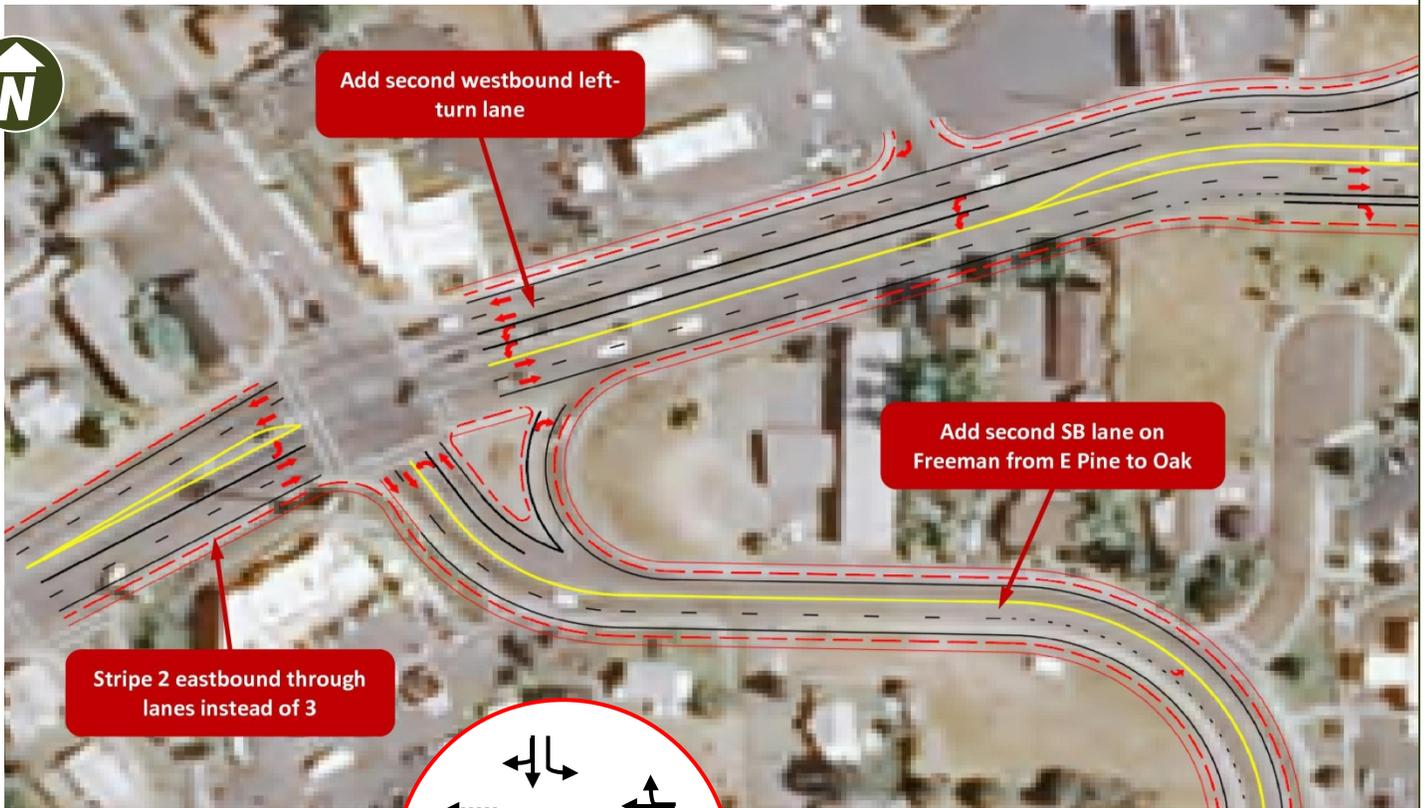


**10<sup>th</sup> Street/Freeman Road Improvements – Option 1**

**I-5 Exit 33 (Central Point):  
Interchange Area Management Plan**



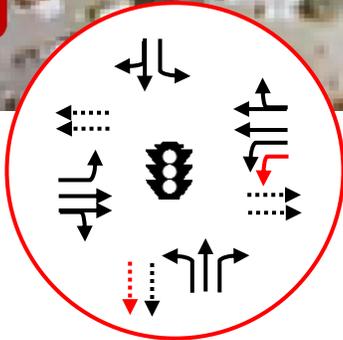
<p><b>Description</b></p>	<ul style="list-style-type: none"> <li>▪ <u>E Pine Street</u>: Add second westbound left-turn lane onto Freeman Road and reduce number of eastbound through travel lanes from three lanes to two lanes through the intersection</li> <li>▪ <u>Freeman Road</u>: Add second southbound receiving lane on Freeman from E Pine Street to Oak Street</li> <li>▪ Restrict or close accesses between freeway ramps and 10<sup>th</sup> Street/Freeman Rd</li> </ul>	
<p><b>Purpose</b></p>	<ul style="list-style-type: none"> <li>▪ Address capacity and safety concerns between I-5 southbound ramp terminal and 10<sup>th</sup> Street/Freeman Road</li> </ul>	
<p><b>Roadway Characteristics</b></p>	<ul style="list-style-type: none"> <li>▪ Existing roadway width is 36 to 48 feet in 80-foot right of way (ROW)</li> <li>▪ Posted speed is 35 mph</li> <li>▪ 21 rear end collisions, spillback into adjacent intersections (Jewett and Southbound ramp terminal)</li> </ul>	
<p><b>How Improvement Addresses Deficiencies</b></p>	<p><b>Existing/Future Deficiency</b></p>	<p><b>With Improvement</b></p>
	<ul style="list-style-type: none"> <li>▪ Jewett School Road access</li> <li>▪ Insufficient westbound left-turn storage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduce the number of conflict points at Jewett</li> <li>▪ Additional storage may reduce the potential for rear end collisions</li> <li>▪ Additional left-turn storage</li> </ul>
<p><b>Additional Considerations</b></p>	<ul style="list-style-type: none"> <li>▪ A raised median should be considered for enforcement of restricted access at Jewett School Road</li> <li>▪ Minimize the impacts to adjacent businesses with a public connection or easement, potentially through the school property, to 10<sup>th</sup> Street opposite Manzanita Street</li> <li>▪ There are some hazardous materials sites located both north and south of E Pine Street</li> </ul>	
<p><b>Cost Option</b></p>	<ul style="list-style-type: none"> <li>▪ \$2.2 million (excluding ROW, utility relocation, or costs to address potential hazardous waste)</li> <li>▪ Additional ROW would likely be needed along both E Pine Street and Freeman Road</li> </ul>	
<p><b>Implementation</b></p>	<ul style="list-style-type: none"> <li>▪ Access management could be implemented at any time; especially if a clear pattern of crashes develops</li> <li>▪ As long as the queuing does not interfere with the southbound ramp terminal operations, the second left-turn lane on E Pine Street and second receiving lane on Freeman Road should be considered a medium- to long-term priority improvement</li> </ul>	



Stripe 2 eastbound through lanes instead of 3

Add second westbound left-turn lane

Add second SB lane on Freeman from E Pine to Oak



- Legend**
- Edge of Pavement
  - Right of Way Line
  - Centerline Striping



Terminals



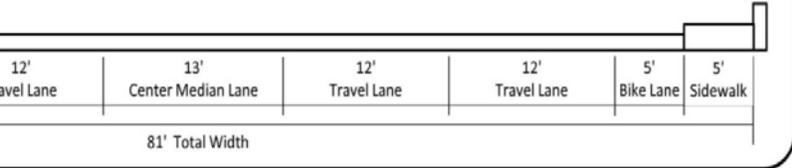
	<p>Add a sidewalk on the south side of E Pine Street between the northbound and southbound ramp terminals.</p> <ul style="list-style-type: none"> <li>▪ Address existing pedestrian network deficiency</li> <li>▪ Improve pedestrian safety</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Existing paved surface on the bridge is 74 feet (79 –feet inside the bridge railings)</li> <li>▪ Posted speed is 35 mph</li> <li>▪ 1 pedestrian crash (near Northbound Ramp terminal) in analysis period (2006-2008)</li> </ul>	
<p>Deficiencies</p>	<p style="text-align: center;"><b>Existing/Future Deficiency</b></p> <ul style="list-style-type: none"> <li>▪ No sidewalk on south side between ramps</li> <li>▪ Several pedestrians use the bike lane instead of the north sidewalk</li> </ul>	<p style="text-align: center;"><b>With Improvements</b></p> <ul style="list-style-type: none"> <li>▪ Proposed 5-foot sidewalk</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Once a sidewalk is added to the bridge structure, it can be connected to the rest of the network with relative ease</li> <li>▪ A more typical 6-foot sidewalk could be constructed to connect to the existing facilities at the ramp terminals and resume standard widths</li> <li>▪ Would require a design exception for new lane widths created by addition of sidewalk</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ \$1.2 million assuming curbs and sidewalks (excluding seismic retrofitting of bridge, drainage, new guardrail, signage)</li> <li>▪ Estimate assumes removal of the existing railing and some decking and construction of a 5-foot sidewalk, railing</li> <li>▪ Off the bridge, the estimate assumes a new 6-foot sidewalk extending to the I-5 ramp terminals, with new curbs</li> <li>▪ High- to medium priority</li> </ul>	

Preliminary Alignment Concept

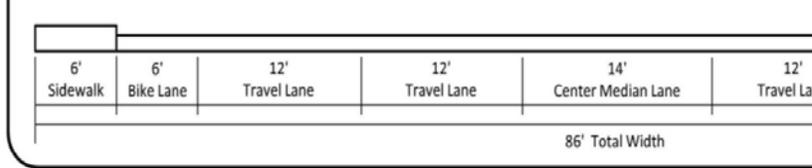


ion  
Section

CROSS-SECTION ON FREEWAY OVERPASS (BRIDGE)



CROSS-SECTION BETWEEN RAMPS AND OVERPASS (M)



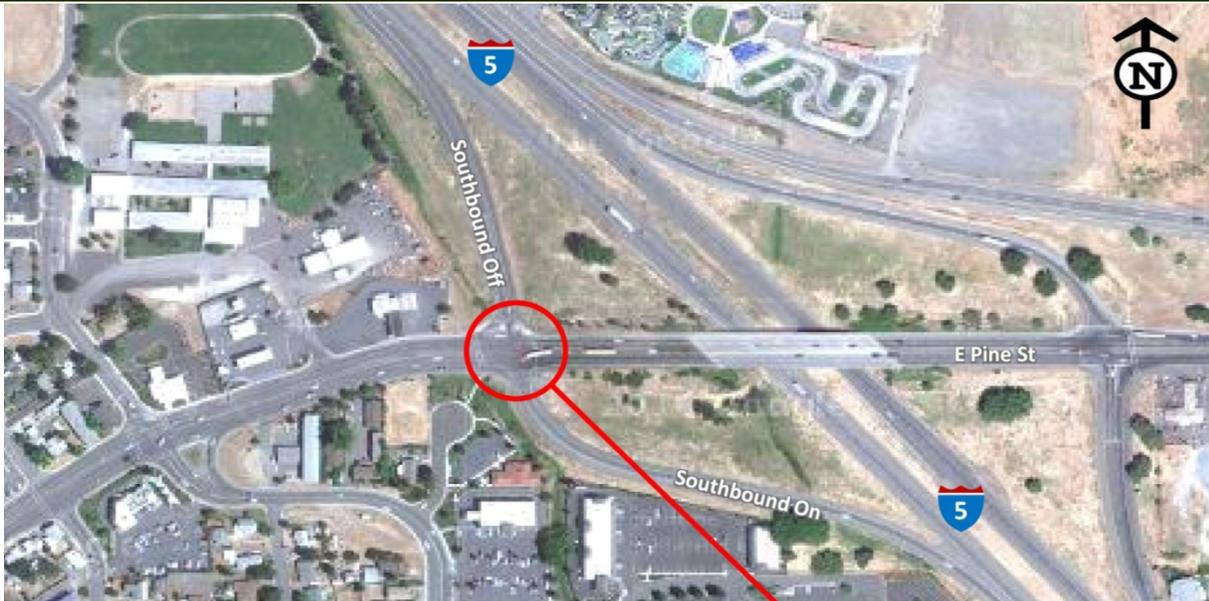
**Bike Lane Improvements**

**I-5 Exit 33 (Central Point):  
Interchange Area Management Plan**

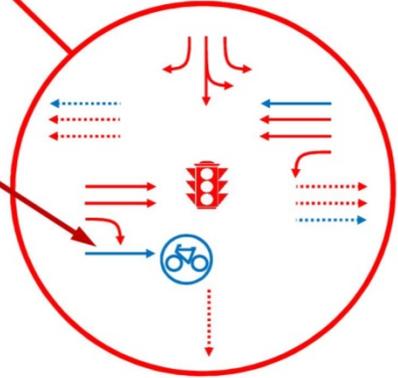


<b>Description</b>	Add a bicycle signal at the I-5 southbound ramp terminal intersection	
<b>Purpose</b>	<ul style="list-style-type: none"> <li>▪ Address the existing conflict between vehicles and bicyclists in the eastbound direction</li> <li>▪ Address existing safety concern for bicyclists</li> </ul>	
<b>Roadway Characteristics</b>	<ul style="list-style-type: none"> <li>▪ Posted speed is 35 mph</li> <li>▪ 19 intersection related crashes in analysis period (2006-2008)</li> </ul>	
<b>How Improvement Addresses Deficiencies</b>	<b>Existing/Future Deficiency</b>	<b>With Improvement</b>
	<ul style="list-style-type: none"> <li>▪ Bicyclists trying to travel eastbound along E Pine Street become trapped by the right-turn lane and must cross a stream of right-turning vehicles to continue through the intersection</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conflict mitigated</li> <li>▪ Additional delay would be experienced for the eastbound right-turn traffic and other movements might be affected by signal timing adjustments</li> </ul>
<b>Additional Considerations</b>	<ul style="list-style-type: none"> <li>▪ If Concept W-1 done first, this concept would not be needed</li> </ul>	
<b>Cost Option</b>	<ul style="list-style-type: none"> <li>▪ \$25,000 for new signal heads for the eastbound right-turn traffic and the bicycle lane and ideally some type of automated bicycle detection</li> <li>▪ Additional signage would be needed as well</li> </ul>	
<b>Implementation</b>	<ul style="list-style-type: none"> <li>▪ High priority</li> <li>▪ Ultimately, Concept W-1 would address the conflict, this would be a shorter term solution</li> </ul>	

Preliminary Alignment Concept



Install a bicycle signal on the eastbound approach to reduce conflict between bicycles and right-turning vehicles



Existing Bicycle Signal in Portland

- Legend**
- Vehicular Travel Lane
  - Bike Lane
  - Traffic Signal
  - Traffic Signal