

# CHAPTER 3

## ENVIRONMENTAL RESOURCES, IMPACTS AND MITIGATION

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This chapter identifies the physical, biological, social and economic setting (existing conditions<sup>1</sup>) of the project area. It then examines how the environment would change in response to the No-Build and Build Alternative. Anticipated direct, indirect, and cumulative impacts for the No-Build Alternative and the proposed Build Alternative are presented.

- **Direct impacts** are caused by the action and occur at the same time and place (e.g., short-term construction impacts, right of way requirements, and removal of vegetation).
- **Indirect impacts** are caused by the action and occur later in time or farther removed in distance, but are still reasonably foreseeable (e.g., inducing growth, changing land use patterns, increasing population density or growth rates, and converting natural habitat and affecting ecosystems by fostering development).
- **Cumulative impacts** are impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes other actions (e.g., habitat removal over the long term caused by continuing development in addition to this project).<sup>2</sup> Cumulative impacts can result from individually minor, but collectively major actions taking place over a period of time. The cumulative impact analyses in this EA evaluate the combined impact of the Build Alternative (which includes the Tier 1 projects in Section 3.5.1, Table 3-11, City of Phoenix Transportation System Plan Projects Related to the Fern Valley Interchange Project) with three other “actions.” These actions are considered sufficiently likely to occur, and thus warrant consideration. They are:
  - Construction of other planned and funded transportation improvements in the project area included in the *Regional Transportation Plan*,<sup>3</sup> (listed in Table 3-1 and shown on Figure 3-1). These are the only planned and funded projects close enough to the interchange to have potential impacts associated with the Build Alternative;

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<sup>1</sup> Existing conditions may also be referred to as “affected environment.”

<sup>2</sup> The Council on Environmental Quality (CEQ) defines cumulative impact as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” (40 CFR 1508.7)

<sup>3</sup> Rogue Valley Metropolitan Planning Organization, Regional Transportation Plan, as adopted March 24, 2009, downloaded April 10, 2009, from <http://rvmpo.org/files/1RTP.pdf>. The list includes all RTP projects within the Phoenix UGB. No other RTP projects are close enough to have identifiable cumulative impacts with the Build Alternative.

- Implementation of the *Greater Bear Creek Valley Regional Plan*,<sup>4</sup> described in Section 3.2, Land Use, and shown on Figure 3-9; and
- The Knollcrest Orchard, Arrowhead Ranch, and Centennial Golf Course land development projects described in Section 3.2, Land Use, and shown on Figure 3-9.

**TABLE 3-1: OTHER TRANSPORTATION PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS**

Jurisdiction	RTP* No.	Location	Description	Timing**
City of Phoenix	602	1st St., Rose St. to OR 99 (SB)	Widen to provide bike lanes and sidewalks	Short Range
	600	4th St., OR 99 (SB ) to OR 99 (NB)	Widen to provide bike lanes	Medium Range
	601	4th St., Rose St. to Colver Rd.	Widen to provide bike lanes and sidewalks	Medium Range
	603	Rose St., 1 <sup>st</sup> St. to 5 <sup>th</sup> St.	Widen to provide bike lanes	Medium Range
	605	Bolz Rd., OR 99 to Fern Valley Rd.	Widen to provide bike lanes and sidewalks	Medium Range
	611	Colver Rd., 1 <sup>st</sup> St. to southern UGB limits	Widen to provide bike lanes and sidewalks	Long Range
	614	3rd St., existing terminus to OR 99 (NB)	Construct new street with bike lanes and sidewalks***	Long Range
	615	Parking St., OR 99 (NB) to 3 <sup>rd</sup> St.	Construct new street with bike lanes and sidewalks***	Long Range

\*Regional Transportation Plan, as adopted March 24, 2009, downloaded April 10, 2009, from <http://rvmpo.org/files/1RTP.pdf>. Note that the plan includes neither Jackson County nor ODOT projects in the area of the Fern Valley Interchange.

\*\*Short Range means between 2009 and 2013, Medium Range means between 2014 and 2019, and Long Range means between 2020 and 2034.

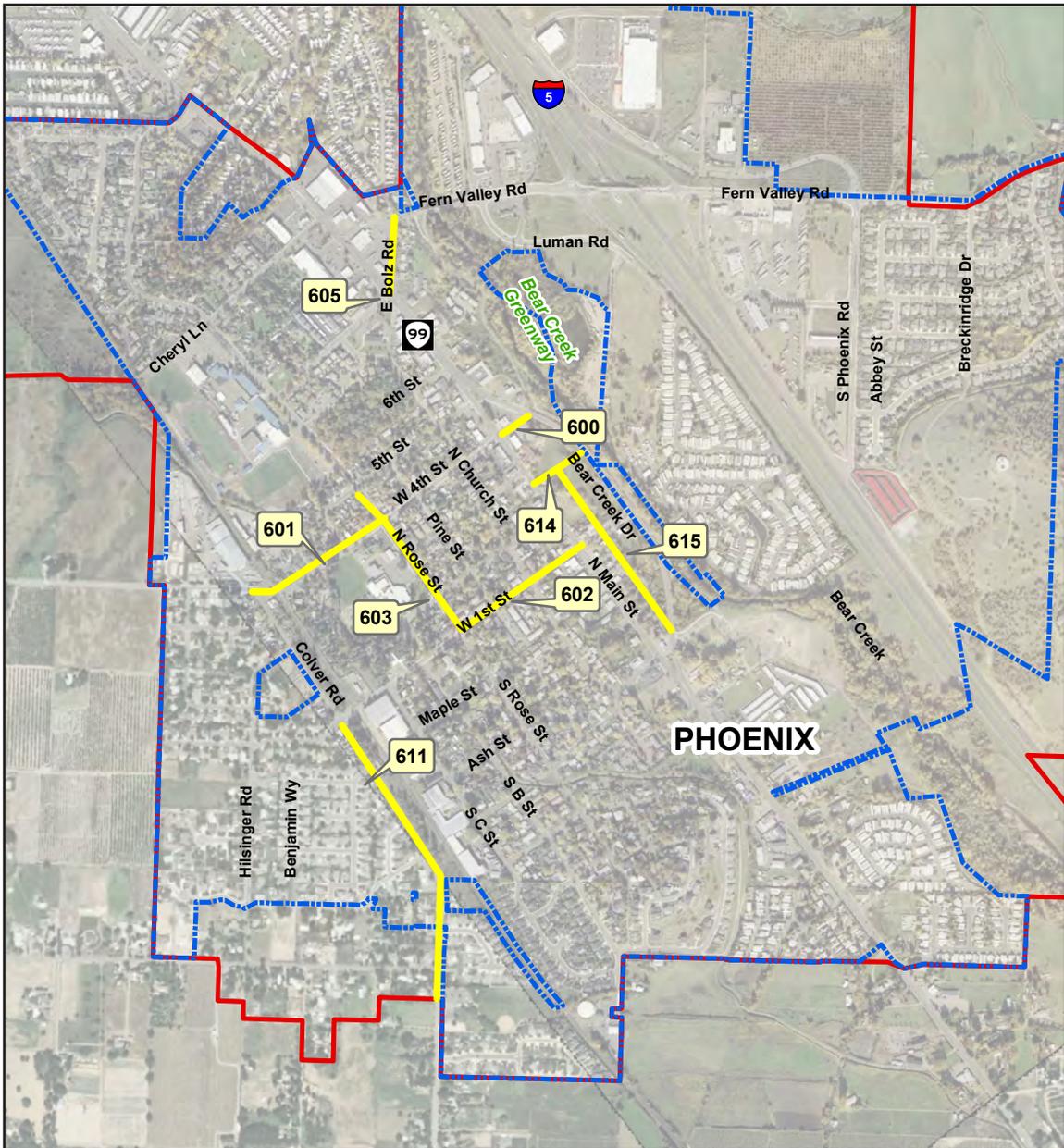
\*\*\*The *Phoenix Transportation System Plan* classifies this street as a collector and states that collectors typically have one through travel lane in each direction

ODOT adheres to the “Oregon Standard Specifications for Construction,”<sup>5</sup> which includes standard measures that minimize and/or mitigate environmental impacts. In addition, efforts to minimize social and economic impacts were considered throughout the alternative development process. Mitigation measures to offset or reduce impacts are included with each resource if they differ from standard requirements or if they are usually of particular interest to the public (e.g., noise mitigation). Specific mitigation measures are subject to change based on regulatory requirements and changing project needs.

<sup>4</sup> Rogue Valley Council of Governments, *Greater Bear Creek Valley Regional Plan*, Draft, October 2008, [http://rvcog.org/mn.asp?pg=rps\\_regional\\_plan](http://rvcog.org/mn.asp?pg=rps_regional_plan).

<sup>5</sup> Section 00280 (Erosion Control) and Section 00290 (Environmental Protection) specifically address environmental protection during construction of ODOT projects. “Oregon Standard Specifications for Construction” can be found at the following website:

[http://www.oregon.gov/ODOT/HWY/SPECS/standard\\_specifications.shtml](http://www.oregon.gov/ODOT/HWY/SPECS/standard_specifications.shtml)



**Map Features**

-  City Limits
-  Urban Growth Boundary
-  Funded RTP Projects

Source: Jackson County

0      Feet      2,000  
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**Funded Regional Transportation Plan  
 Projects in the Project Area**

Figure 3-1  
 January 2010



Each resource in this chapter is discussed in terms of the existing conditions, impacts, and proposed mitigation and/or conservation measures to avoid or minimize impacts associated with the alternatives. Blue text boxes provide a brief summary of the estimated environmental impacts associated with the project alternatives.

The information provided in this chapter is a summary of more detailed information and analyses provided in technical reports developed for each subject area (see Chapter 6, References, Technical Reports Prepared for this Project). These technical reports are available online at ODOT's Region 3 website<sup>6</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503 (541-774-6299).

## 3.1 TRANSPORTATION

### 3.1.1 Traffic Analysis

The traffic analysis for this project includes information and graphics regarding existing and projected future traffic volumes, crash history, turning movements, intersection capacity analyses, and anticipated future congestion. This information is summarized below and is provided in detail in the Traffic Analysis Report (see Chapter 6, References, Technical Reports Prepared for this Project).

#### *Mobility Standards*

A mobility standard is a measure of how well a road functions—both in terms of how many vehicles are able to use the road and how efficient the road use is. A volume-to-capacity (v/c) ratio is the ratio of the volume of traffic on a road segment or at an intersection compared to the available capacity of that road segment or intersection. A v/c of 1.0 represents an intersection that is at capacity—it cannot efficiently handle additional traffic. A v/c greater than 1.0 is over-capacity and indicates severe congestion. In order to improve a v/c ratio, either the volume needs to be reduced or the capacity increased.

The *Oregon Highway Plan* (OHP) indicates that the Highway Mobility Standards Policy applies primarily to transportation and land use planning decisions. By defining acceptable levels of highway system mobility, the policy provides direction for identifying deficiencies in the state highway system. The policy does not, however, determine what actions should be taken to address these deficiencies. The highway mobility standards in the policy are neutral regarding whether solutions to mobility deficiencies should be addressed by actions that reduce highway volumes or increase highway capacities. The OHP Major Improvements Policy establishes priorities for actions to address deficiencies. If it is determined that the deficiency should be corrected by an ODOT project, *Highway Design Manual* (HDM) standards apply to the project's design; these are more restrictive in order to protect the transportation investment. Table

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<sup>6</sup> ODOT's Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>

3-2 shows the maximum mobility standards for roadways affected by the Fern Valley Interchange alternatives.

<b>TABLE 3-2: MOBILITY STANDARDS<sup>1</sup></b>			
<b>Type of Roadway</b>	<b>Project Area Roadway</b>	<b>No-Build Alternative</b> (Oregon Highway Plan V/C Standards) <sup>2</sup>	<b>Build Alternative</b> (Highway Design Manual V/C Standards) <sup>2</sup>
Interstate Highway & Statewide Freight Route	I-5	0.80	0.75
Interstate Ramp Terminals	@ Fern Valley Road	0.85	0.75
District/Local Interest Roads	OR 99 Fern Valley Road N. Phoenix Road Phoenix local roads	0.90	0.85

1. Maximum volume-to-capacity ratios  
 2. The Highway Design Manual standards for build alternatives are more restrictive than the Oregon Highway Plan standards for no-build alternatives. Build alternatives are held to a higher standard in order to protect the public's transportation investment.

### *2004 Traffic Volumes, Traffic Capacity, and Congestion*

The following section provides a brief overview of 2004<sup>7</sup> traffic volumes and intersection capacity in the project area. Traffic counts to determine existing conditions were taken in June 2003 and in March and October 2004.

I-5, OR 99, Fern Valley Road, and N. Phoenix Road have the highest traffic volumes in the project area. Table 3-3 shows year 2004 Average Daily Traffic (ADT)<sup>8</sup> volumes for major roadways in the project area. Approximately 14% of the traffic on I-5 at this interchange in 2004 was trucks or other multi-axle vehicles.

Today, traffic congestion is seen along most of Fern Valley Road from OR 99 to N. Phoenix Road. The traffic volumes on Fern Valley Road have increased to the point that it is difficult at times to turn onto the interchange ramps. Turning onto or off of Fern Valley Road is blocked by through traffic a third or more of the peak period from 3:00 to 6:00 p.m. There are several places where traffic queues from more than one intersection currently overlap, causing major congestion. During the peak hour, from 4:00 to 5:00 p.m., congestion causes vehicles to queue on the off-ramps, and the ramp intersections

<sup>7</sup> The traffic analysis used 2004 volumes, which were current at the time of the analysis. These 2004 volumes have been verified against 2007/2008 I-5 and OR 99 volume tables. In almost all cases, the 2004 volumes were equal to or greater than 2007/2008 volumes. For the most part, the volumes were higher in 2004 or within an acceptable tolerance level. The only intersection that was determined to be substantially higher in 2008 is the Fern Valley/N. Phoenix Road intersection. The 2008 traffic count is higher because Home Depot was not open in 2004. However, Home Depot is in the traffic model that was used for this project and therefore is appropriately represented in future-year volumes.

<sup>8</sup> ADT is the average amount of traffic per day on a particular roadway segment or intersection.

with Fern Valley Road are at or over capacity. (Graphics showing 2004 queues are provided in Appendix B.)

<b>TABLE 3-3: 2004 AND PROJECTED FUTURE (2030) TRAFFIC VOLUMES</b>			
<b>Roadway</b>	<b>2004</b>	<b>2030 No-Build Alternative</b>	<b>2030 Build Alternative</b>
I-5 North of interchange	38,600	61,400	62,400
I-5 South of interchange	41,400	67,000	73,500
Fern Valley Road between Luman and OR 99	16,100	22,000	30,800
OR 99 North of Fern Valley Road	21,200	31,500	30,400
N. Phoenix Road north of Fern Valley Road (north of Extended S. Phoenix Road intersection)	9,200	18,600	19,244

Many intersections in the project area are currently congested, which has led to a lower overall level of mobility. The Fern Valley Road intersections with the I-5 ramp terminals, N. Phoenix Road and OR 99 are well over capacity, exceeding maximum acceptable v/c ratios. High v/c ratios at unsignalized intersections in the project area are caused by a lack of appropriate gaps in traffic, which results in long delays as vehicles try to turn left.

The high numbers of private driveways and closely spaced streets on OR 99 cause conflicts between through traffic and vehicles that are attempting to turn. Substantial congestion on OR 99 is primarily at the OR 99/Fern Valley Road intersection. Traffic regularly blocks the Cheryl Lane and Fern Valley Road intersections, making right turns difficult (a median barrier prevents left turns).

### *Projected Traffic Volumes and Intersection Capacity*

Analysis of traffic congestion begins with vehicle counts at major intersections. Projections of future traffic congestion are created using these vehicle counts, assumptions from the Rogue Valley Council of Governments about expected population growth in the area, and average numbers of vehicle trips that are generated for any given type of land use. These assumptions about what will develop and where it will be developed provide the basis for the traffic congestion analysis for each alternative.



*North on OR 99 from Ray's parking lot*

The following section provides a brief overview of projected (year 2030) traffic volumes and intersection capacity (v/c ratios) as they relate to the project alternatives. Table 3-4 provides 2004 and future v/c ratios at major intersections for the No-Build and Build Alternatives.

**No-Build Alternative.** With the No-Build Alternative, projected future traffic volumes in the project area would increase over time, resulting in more traffic congestion in the area. There would be more traffic congestion at major intersections and slower traffic movement through the intersections and within the region. (Table 3-4 provides the v/c ratios for major intersections in the project area. Graphics showing 2030 queues for the No-Build Alternative are provided in Appendix B.)

TABLE 3-4: V/C RATIOS <sup>1</sup>					
		NO-BUILD		BUILD ALTERNATIVE	
Intersection	2004	2010	2030	2010	2030
I-5 North at Fern Valley Road	1.06 <sup>2</sup>	0.87	1.38	0.32	0.52
I-5 South at Fern Valley Road	0.99 <sup>2</sup>	0.85	1.37	0.41	0.62
Fern Valley Road/ Luman Road	0.50	0.60	0.71	0.43	0.57
Fern Valley Road/OR 99	0.77	0.77	0.98	0.67	0.75
OR 99/Bolz Road	0.45 <sup>2</sup>	0.39	0.47	0.57	0.74
Fern Valley Road/Bolz Road	0.46	0.53	0.81	0.40	0.59
Fern Valley Rd./ N. Phoenix Rd	1.84 <sup>2</sup>	0.54	0.88	N/A <sup>3</sup>	N/A
Realigned N. Phoenix Rd./ Extended S. Phoenix Rd.	N/A	N/A	N/A	0.40	0.60
Existing Fern Valley Rd./S. Phoenix Rd.	N/A	N/A	N/A	0.22	0.40

<sup>1</sup> Black-shaded cells indicate that the 1999 *Oregon Highway Plan* maximum v/c ratio or the *Highway Design Manual* design ratio has been or will be exceeded.

<sup>2</sup> The Fern Valley Road/N. Phoenix Road intersection was signalized in 2006. This signal was not analyzed as part of the existing conditions in 2004, but has been incorporated into the future-year analyses for the No-Build Alternative. That is why the v/c ratio is lower 2010 than in 2004—signalization results in a better functioning intersection.

<sup>3</sup> N/A indicates the intersection does not exist in that alternative.

By 2030, ADT is projected to grow substantially, resulting in much heavier traffic congestion than the current conditions. The problems that existed in 2004, when vehicle counts were conducted, would worsen. The No-Build Alternative could not effectively

handle this additional traffic, and the entire study area system would not function properly. As a result, with the No-Build Alternative, Fern Valley Road would be completely congested, with long traffic queues blocking travel to connecting roads and properties. Seven of the sixteen intersections in the project area would be very congested. The Fern Valley Road intersections with OR 99, N. Phoenix Road, and the interchange ramp terminals would not adequately function with the increased traffic. Traffic on the interchange ramps would spill back onto I-5, creating serious safety conflicts between high-speed and stopped vehicles. OR 99 would have long lines of traffic. The ability of vehicles trying to turn into and out of side streets along OR 99 would be very limited.

**Build Alternative.** Projected 2030 traffic volumes for the Build Alternative are generally higher than with the No-Build Alternative. The improvements associated with the Build Alternative would cause the volumes on Fern Valley Road, OR 99 and I-5 to increase about 27%, as vehicles that were diverting elsewhere return to use this interchange.

The Build Alternative would improve traffic conditions in the project area. All intersections in the project area would meet v/c standards and could handle the traffic projected for the year 2030. Traffic congestion would still exist in peak hours, when lines of vehicles could be relatively long, extending away from the OR 99/Fern Valley Road intersection, and blocking adjacent minor street intersections. This would be caused by traffic blocking adjacent turn lanes and limiting the ability of the intersection to move vehicles efficiently. This congestion would exist for over a third of the peak traffic hours in 2030. The congestion could extend past the Fern Valley Road/Luman Road intersection, reaching the southbound interchange ramp terminals. However, this congestion would be substantially less than with the No-Build Alternative. Graphics showing 2030 queues for the Build Alternative are provided in Appendix B. Additional discussion on traffic and its relationship to land use and traffic-inducing growth is provided in Section 3.2, Land Use, and Section 3.4, Socioeconomics.

The Build Alternative would reduce the travel lane widths on OR 99 in the project area to 11 feet to help accommodate dual left-turn lanes at the OR 99/Bolz Road intersection. This reduction in lane width would cause a slight increase in the v/c ratio (0.75 instead of 0.74) and add to the queue length; however, these increases are not significant.

For the Build Alternative, Fern Valley Road at OR 99 is the controlling intersection. This means that it will be the first intersection within the project area to exceed mobility standards. Based on this, the Build Alternative could handle traffic about 12 years beyond 2030. If additional improvements are made to OR 99, such as adding through lanes on OR 99—especially construction of an additional southbound lane, the Build Alternative could last even longer—about 25 years beyond 2030.

### *Spacing Standards*

Spacing standards help to maintain and/or improve the safety and mobility of the roadway system by reducing the potential for vehicular conflicts. ODOT, Jackson County and the City of Phoenix spacing standards call for minimum distances between

adjacent roadways and private approaches that are under their jurisdiction. The specific distance is typically determined by a combination of roadway type (functional classification), traffic volume, traffic control (i.e., signalized vs. stop-sign controlled), posted speed, and adjacent land use characteristics. The *Oregon Highway Plan* prescribes the following spacing standards for the interchange and nearby roads:

- Interchange-to-interchange: three miles for an urban interstate.
- Ramp-to-ramp: one mile between the ramps of two interchanges.
- Next intersection adjacent to ramp terminal: 1,320 feet for a two-lane crossroad in an urban area to the next full intersection.
- Street/driveway spacing: 500 feet between approach roads at 45 mph posted speed; 350 feet between approach roads at 35 mph or less and for the existing block spacing for public streets. Minimum driveway spacing is 175 feet or mid-block, if block spacing is less than 350 feet.

Before the South Medford Interchange was recently rebuilt, the Fern Valley Interchange just met standards in terms of its distance to adjacent interchanges. The Build Alternative would result in interchange spacing that is slightly substandard. The new South Medford Interchange was built south of its current location and the new Fern Valley Interchange ramps would be generally further north of its current location, so the interchange-to-interchange spacing would be about 2.8 miles instead of the 3.0 miles required by the Oregon Highway Plan. A deviation from the Oregon Highway Plan would be required for this substandard distance between interchanges.

Figure 3-2 shows how intersection spacing relates to key distances associated with the Build Alternative. When spacing standards are not met, anticipated results are increased queuing and congestion, a lower level of service, difficulties making turning movements into driveways, and other traffic-related problems. With the Crossing Diamond Interchange (CDI), the ramp terminals along Fern Valley Road must be spread further apart than with conventional interchanges. This would reduce the spacing between the ramp terminals on Fern Valley Road and adjacent intersections. However, this would not reduce the ability of the interchange and adjacent roads to function as needed over the 20-year design life of the project.

Ramp terminal spacing with adjacent Fern Valley Road intersections would be substandard with the Build Alternative west of I-5 at Luman Road. The ramp terminal would be about 540 feet from the nearest street intersection (Luman Road). East of I-5, the distance from the ramps to the first intersection (Realigned N. Phoenix Road/Extended S. Phoenix Road/Grove Way) would be about 850 feet. The proposed substandard spacing would not reduce the ability of the interchange and adjacent intersections to function since all queues are isolated and would not affect upstream intersections. The substandard spacing has been reviewed and deemed acceptable under current and future traffic conditions and volumes, and would be addressed through the design exception process.

Figure 3-2  
Distance to Adjacent Intersections



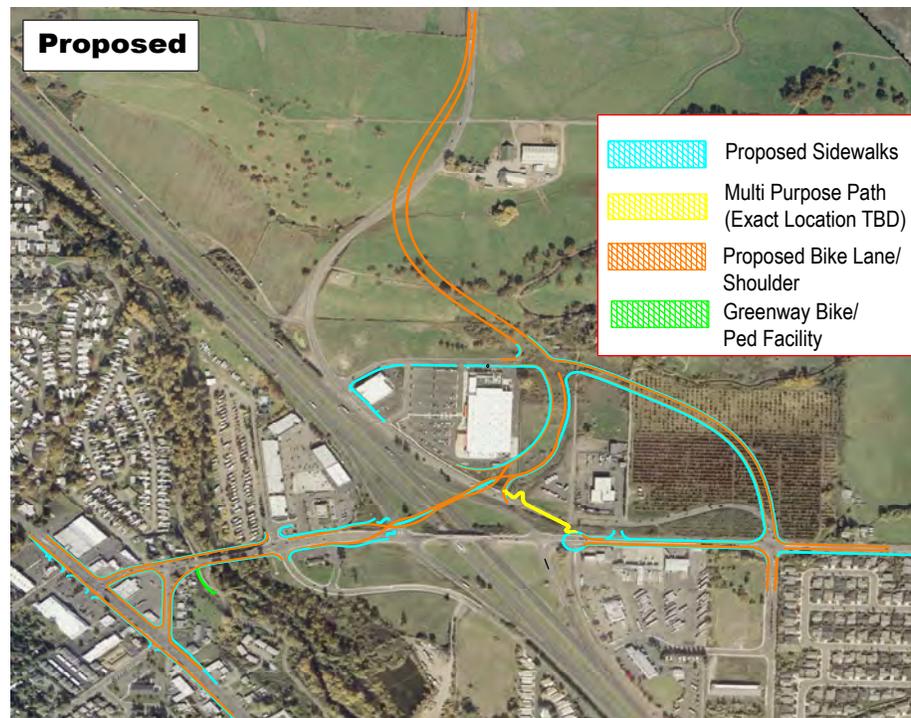
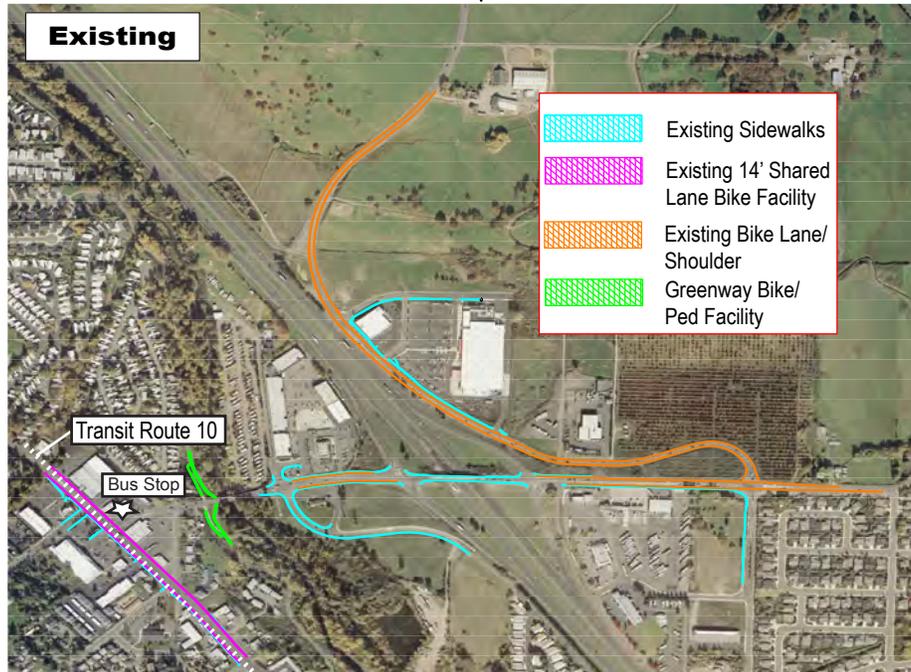
On OR 99 within the project area, substandard street spacing (about 120 feet) occurs between Cheryl Lane and Fern Valley Road; to meet standards, it should be 350 feet. Also, for about two miles along OR 99 in the vicinity of the project, there are about 100 private driveways on both sides of the highway; these average about 200 feet, well over the OHP standard of 350 feet.

### 3.1.2 Bicycle and Pedestrian Facilities

**Existing Conditions.** As indicated in Chapters 1 and 2, providing adequate bicycle and pedestrian facilities throughout the project area has been an important issue considered in development of this proposed project. The provision of standard bike and pedestrian facilities was one of the criteria used to screen alternatives. Existing bike and pedestrian facilities in the project area are shown on Figure 3-3.

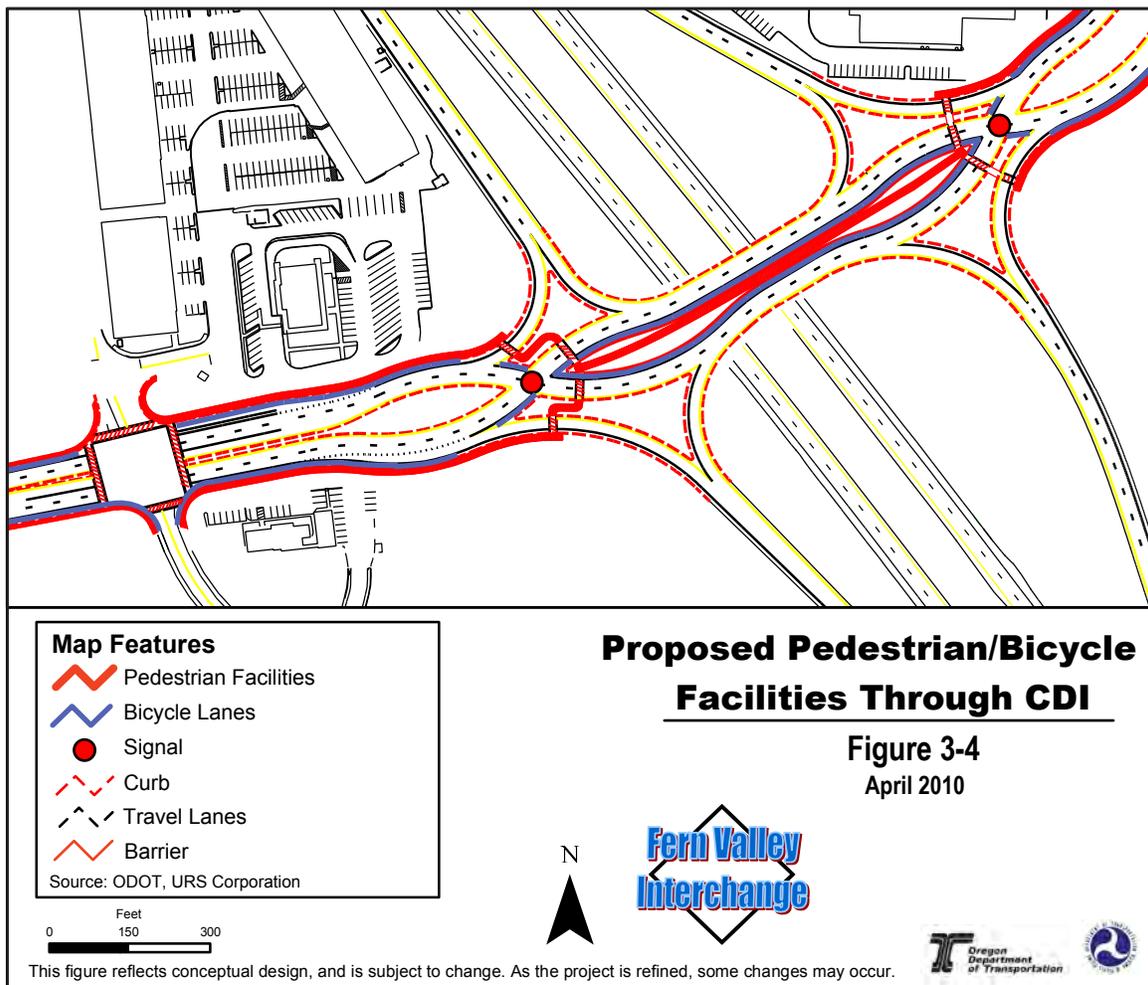
Bikes currently use existing shoulders or share travel lanes on roadways in the project area; dedicated bike lanes or shoulders are not provided. On OR 99, bikes share the roadway on 14-foot outside lanes. On Fern Valley Road, bikes use the substandard shoulders (4-foot shoulders on the overcrossing of I-5 and 6-foot shoulders on the approaches).

Discontinuous and narrow sidewalks in the project area currently create safety concerns for pedestrians. There are no sidewalks on OR 99 north of Fern Valley Road except intermittently on business frontages. Sidewalks are also discontinuous along Fern Valley Road, posing problems on the I-5 overcrossing and from Bear Creek Bridge to OR 99 where there are no sidewalks.



**No-Build Alternative.** With the No-Build Alternative, minimal changes to existing bike and pedestrian facilities are anticipated. The specific bike or pedestrian projects included in Table 3-1 will occur regardless of whether or not the Fern Valley Interchange project is built. Without the Fern Valley Interchange these bike and pedestrian projects would still likely result in intermittent and substandard facilities compared to the Build Alternative.

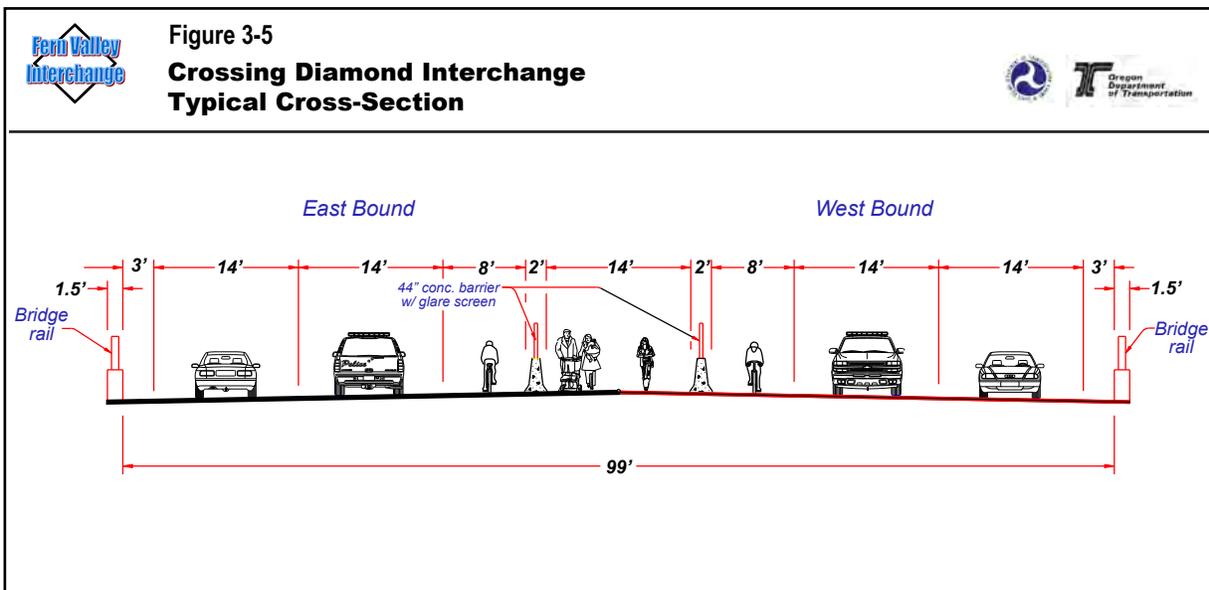
**Build Alternative.** As shown on Figures 3-3 and 3-4, the Build Alternative would improve bike and pedestrian facilities throughout the area directly impacted by the project.



Bicycles on Fern Valley Road, E. Bolz Road, Realigned N. Phoenix Road, and Extended S. Phoenix Road would be accommodated by 6-foot-wide shoulders that would be designated by pavement markings for bike travel. Bikes would be accommodated on the CDI by 6-foot shoulders; the shoulders would be designated by pavement markings for bike travel. Bikes would travel on the shoulders adjacent to traffic and use the same travel patterns as vehicular traffic. Bike lanes on OR 99 would be accommodated by 5-foot

shoulders which would not meet the desired 6-foot standard. Though not ideal, the 5-foot shoulders would function safely for bicycle travel given the traffic conditions and traffic volumes along OR 99. Some locations in transition areas (e.g., when a 4-lane roadway transitions to a 2-lane roadway) may include 5- to 8-foot shoulders.

Pedestrians would be accommodated by 6-foot sidewalks on OR 99, Fern Valley Road and E. Bolz Road; through the center of the CDI; and on all new roads east of I-5. Pedestrian movement on the CDI would be on sidewalks to the signals at the ramp terminals. At the signals, pedestrians would cross the ramps and Fern Valley Road in designated crosswalks to the center of the CDI, where the pedestrians would be protected by barriers while crossing over the structure. Figure 3-5 depicts the proposed cross-section of the CDI.



A multi-purpose path, as indicated in yellow on Figure 3-3, would be constructed in the southeast interchange quadrant from the cul-de-sac at existing Fern Valley Road to the CDI structure over I-5. This path would provide a more direct route for east/west bicycle and pedestrian travel.

Public comments indicated substantial public interest and concerns regarding potential bicycle and pedestrian facilities for the proposed project. In response, the Citizens Advisory Committee formed a Bicycle/Pedestrian Subcommittee to address concerns raised about how bicycle and pedestrian facilities would be accommodated with Build Alternative. This subcommittee included representatives from the bike/pedestrian community, OR 99 business interests, and the City of Phoenix. This subcommittee primarily discussed with the ODOT designer how to safely accommodate bicycles and pedestrians given the very limited OR 99 roadway cross-section, which varies in width throughout the project area. If OR 99 was widened to include full standard 12-foot travel

lanes, 6-foot bike lanes, and 6-foot sidewalks, the result would be substantial right of way acquisition from businesses along OR 99 (at least 8 to 12 additional displaced businesses plus off-street parking removal from most of the remaining businesses). In response to recommendations by the Bike/Pedestrian Subcommittee, the project teams adjusted the cross-section on OR 99 to provide 11-foot travel lanes, 11-foot turn lanes, 6-foot sidewalks, and 5-foot (striped) shoulder bike lanes. Resolution of the bicycle and pedestrian issue along OR 99 is further discussed in Chapter 5, Public Involvement and Agency Coordination. The widths of the travel lanes, turn lanes and bicycle lanes proposed with the Build Alternative have been reviewed by the appropriate design approval authorities and it has been determined that an exception to design standards would be approved.

### 3.1.3 Public Transportation

**Existing Conditions.** The Rogue Valley Transportation District (RVTD) provides public transportation in the project area. RVTD operates four bus routes that serve the cities of Central Point, Jacksonville, Phoenix, Talent, Ashland, and White City. Bus route #10 stops in three locations in the City of Phoenix along OR 99: near Ray's Food Place (bus stop is within the project area), at Umpqua Bank (about 1,300 feet north of the OR 99/Fern Valley Road intersection), and at Video World (about 1,500 feet south of the OR 99/Fern Valley Road intersection). Figure 3-3 shows the bus route and bus stop in the immediate Build Alternative impact area; Figure 3-14 in Section 3.4, Socioeconomics, shows the bus route and stops in the project area. There are no bus stops or service east of I-5, meaning those residents from Phoenix Hills and the east side rural area must travel to OR 99 to catch a bus.

**No-Build Alternative.** The No-Build Alternative would not directly affect current bus service to Phoenix. However, the No-Build Alternative would affect the provision of bus service as travel time is worsened by increased congestion.

**Build Alternative.** The Build Alternative would not directly affect bus service to Phoenix, except for potential delays during construction. However, park-and-ride locations and bus pull-outs could be considered. Travel time for buses would be improved by reduced congestion. For example, northbound travel time in 2030 between Cheryl and Bolz on OR 99, where there is existing transit service, is projected to be over 70 percent faster under the Build Alternative compared to the No-Build Alternative (23 seconds vs. 1 minute 21 seconds) and southbound travel time almost 30 percent faster (39 seconds vs. 55 seconds).

### 3.1.4 Conclusion

The Build Alternative would, overall, result in improved conditions and safety for traffic, bicyclists, pedestrians, and public transportation. Although the volume of traffic may increase under the Build Alternative and some congestion would remain, all intersections would meet v/c standards and could still handle traffic projected for 2030. Medians installed along OR 99, Fern Valley Road, and on the interchange would reduce turning

movement conflicts and improve safety. The provision of ADA-compliant sidewalks and designated bike lanes would improve the safety and visibility for bicyclists and pedestrians. The Build Alternative would not directly affect bus service to Phoenix, except for potential delays during construction; however, travel time for buses would be improved by reduced congestion. Park-and-ride locations and bus pull-outs could be considered.

Although substandard spacing distances are incorporated into this proposed project, the design of the Build Alternative has been reviewed and deemed acceptable under the current and future traffic conditions and volumes, and therefore would be addressed through the design exception process. Based on the traffic and transportation analysis, the Build Alternative is not anticipated to result in significant adverse traffic and transportation impacts.

## 3.2 LAND USE

### 3.2.1 Existing Conditions

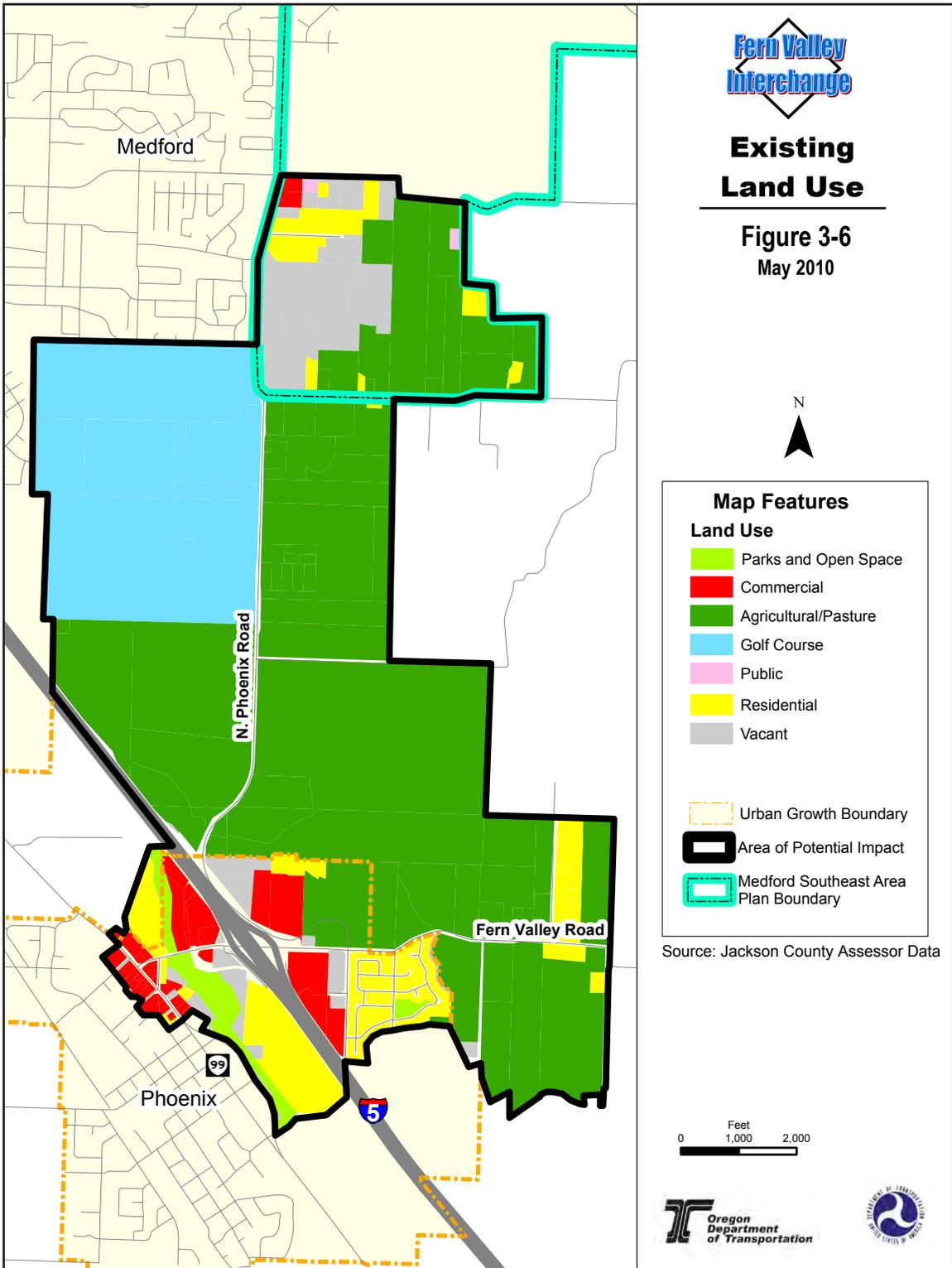
#### *Existing Land Use*

General existing land uses in the vicinity of the project are described below and shown in Figure 3-6.

**West of I-5.** The northwest quadrant of the interchange from I-5 to Bear Creek is fully developed with retail commercial and residential development. A 71,000+ square-foot outlet mall (The Shoppes at Exit 24), a fast food restaurant, and a recreational vehicle park (Holiday RV Park) are the major land uses in this quadrant. All of these uses are served by a signal at the Fern Valley Road/Luman Road intersection just east of the Bear Creek Bridge.

The southwest quadrant of the interchange from I-5 to Bear Creek is mostly undeveloped. A small single-story office building containing two businesses is located along Fern Valley Road. The remaining acreage is composed of two vacant properties: a 20-acre privately-owned parcel and an 11-acre state-owned parcel. There is a 1.8-acre pond southeast of the office building. Bear Lake Estates, a 210-unit manufactured home park, is located further to the south, adjacent to I-5. Luman Road is the approach road for all uses in this quadrant.

The Bear Creek Greenway is a linear park which lies between downtown Phoenix and the interchange. The Greenway includes Bear Creek, land on either side of the creek, and a paved multi-use path. It is part of the Bear Creek Greenway between Central Point and Ashland. The Bear Creek Greenway is discussed in detail in Section 3.6, Parks and Recreation.



West of the Bear Creek Greenway, lands are mostly developed. Older residences front both Fern Valley Road and E. Bolz Road, while commercial uses have developed along OR 99. A shopping center, including Ray's market, is located directly west of the OR 99/Fern Valley Road intersection. Its parking lot serves as the west leg of this intersection. North of the Phoenix downtown couplet, commercial uses along OR 99 form a commercial strip; most of these properties have individual driveways connecting to OR 99. Little vacant land is present in this area, but several properties are underdeveloped relative to what local zoning allows. Coleman Creek Estates, a manufactured home park, is located north of Fern Valley Road, just east of the OR 99/Fern Valley Road intersection. Coleman Creek Estates, which has an approach road from Fern Valley Road, is set back about 150 feet from the road. Most of the dwellings within Coleman Creek Estates (about 125 units) consist of older, single-wide units.



*Downtown Phoenix, Oregon*

The downtown commercial area of Phoenix is located along a couplet south of the OR 99/Fern Valley Road intersection. OR 99 is a couplet through downtown Phoenix, with the northbound lanes (Bear Creek Drive) located adjacent to Bear Creek, and the southbound lanes (N. Main Street) going directly through the downtown business district. City government buildings are located near the downtown couplet.

**East of I-5.** The northeast interchange quadrant (within the City of Phoenix UGB) contains a truck sales/repair business and two large retail stores (Home Depot developed in 2006 and La-Z-Boy Furniture developed in 2007). Several rural residential uses, undeveloped land, and a pear orchard account for the balance of existing land uses in this quadrant.



*Fern Valley Interchange looking north*

The southeast interchange quadrant is about one-third commercial development (mostly retail and traveler services), and lies in a triangular area bordered by I-5, Fern Valley Road, and S. Phoenix Road. Businesses include the Petro Truck Center (including a truck wash, gas station and motel), a recreational vehicle park, mobile home sales lot, and mini-storage. East of S. Phoenix Road, land use is residential (the Phoenix Hills neighborhood). This neighborhood contains about 200 single-family dwellings.

East and north of the City of Phoenix UGB, land use is primarily agricultural. Further to the north are a golf course, cemetery, and the Medford urban area.

## Zoning and Comprehensive Plan Designations

**Zoning.** Zoning in the vicinity of the project is shown in Figure 3-7. West of I-5, zoning is primarily Commercial Highway near the interchange and along OR 99, and is medium- to high-density residential north and south of the commercial zones along Fern Valley Road. Zoning regulations allow some commercial uses along I-5 that are not allowed along OR 99.<sup>9</sup> A Bear Creek Greenway zone is intended to protect Bear Creek and adjacent vegetation as a natural area for wildlife habitat and open space, help protect water quality, and provide a linear public park. According to the Phoenix Land Development Code, permitted uses in the Bear Creek Greenway District include: public parks and nature study areas; paths and trail systems for pedestrians, bicyclists, and equestrians, but not including motorized vehicles; and uses or structures associated with a permitted use, such as off-street parking and maintenance buildings. Conditionally permitted uses in the Bear Creek Greenway District include: recreational or stream-oriented facilities or activities that are compatible with the Greenway, public or municipally owned facilities that are compatible with the Greenway, agricultural uses other than livestock, and mining or aggregate removal.

East of I-5, zoning within the City of Phoenix is Commercial Highway near the interchange, single-family residential for the Phoenix Hills neighborhood, and rural residential in the northeast corner of the UGB. Outside the Phoenix UGB in Jackson County, most of the land is zoned Exclusive Farm Use (EFU), with some small rural residential zones.



*Phoenix Hills neighborhood*

More specific explanations of zoning regulations applicable to this project are provided in the Land Use and Planning Technical Report (available online at ODOT's Region 3 website<sup>10</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

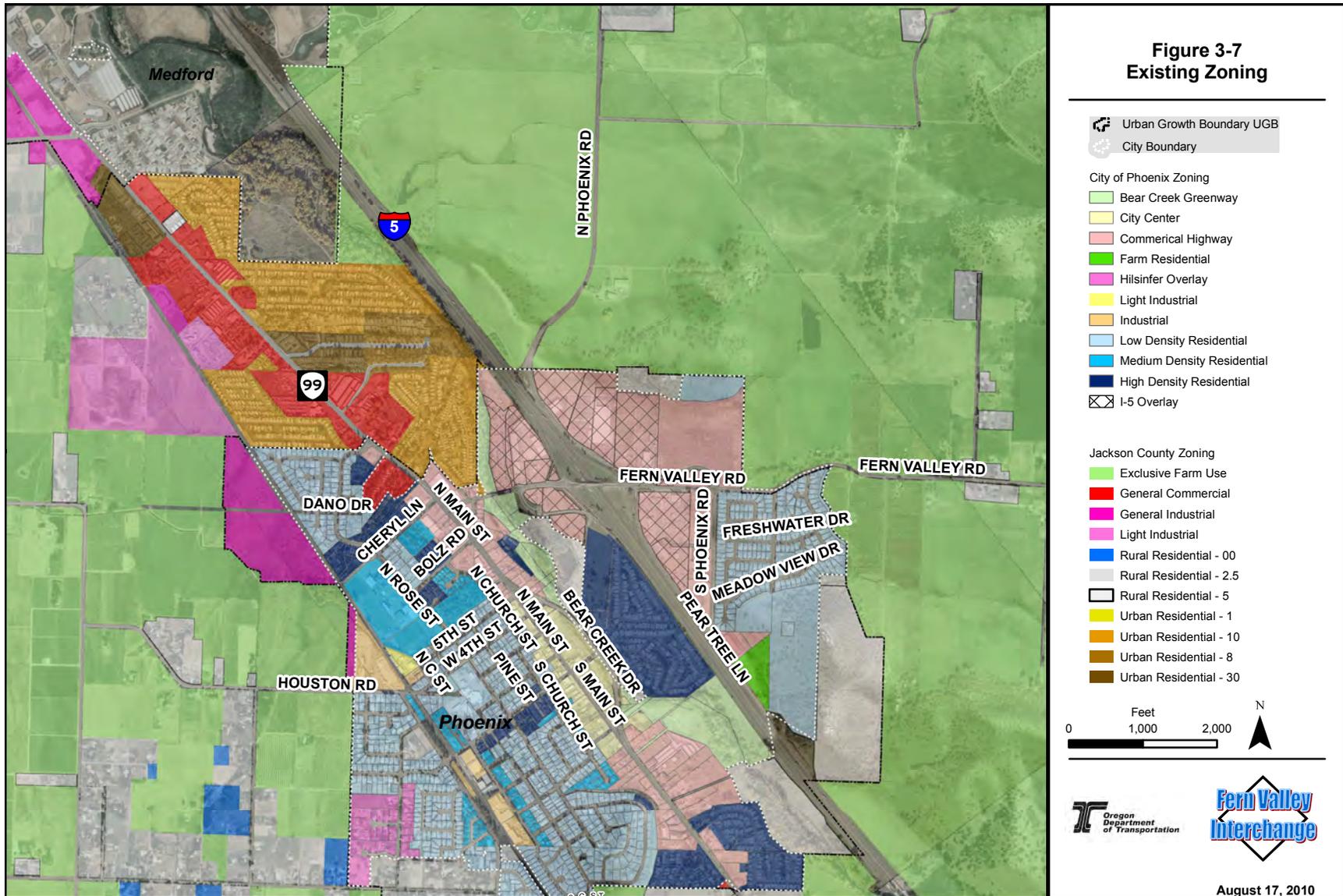
**Comprehensive Plan Designations.** Figure 3-8 shows comprehensive plan designations within the general project area. City of Phoenix lands adjacent to the interchange are designated by the *City of Phoenix Comprehensive Plan* for Interchange Business.<sup>11</sup> Other plan designations near the interchange include Bear Creek Greenway, Low and High Density Residential, and Farm Residential.

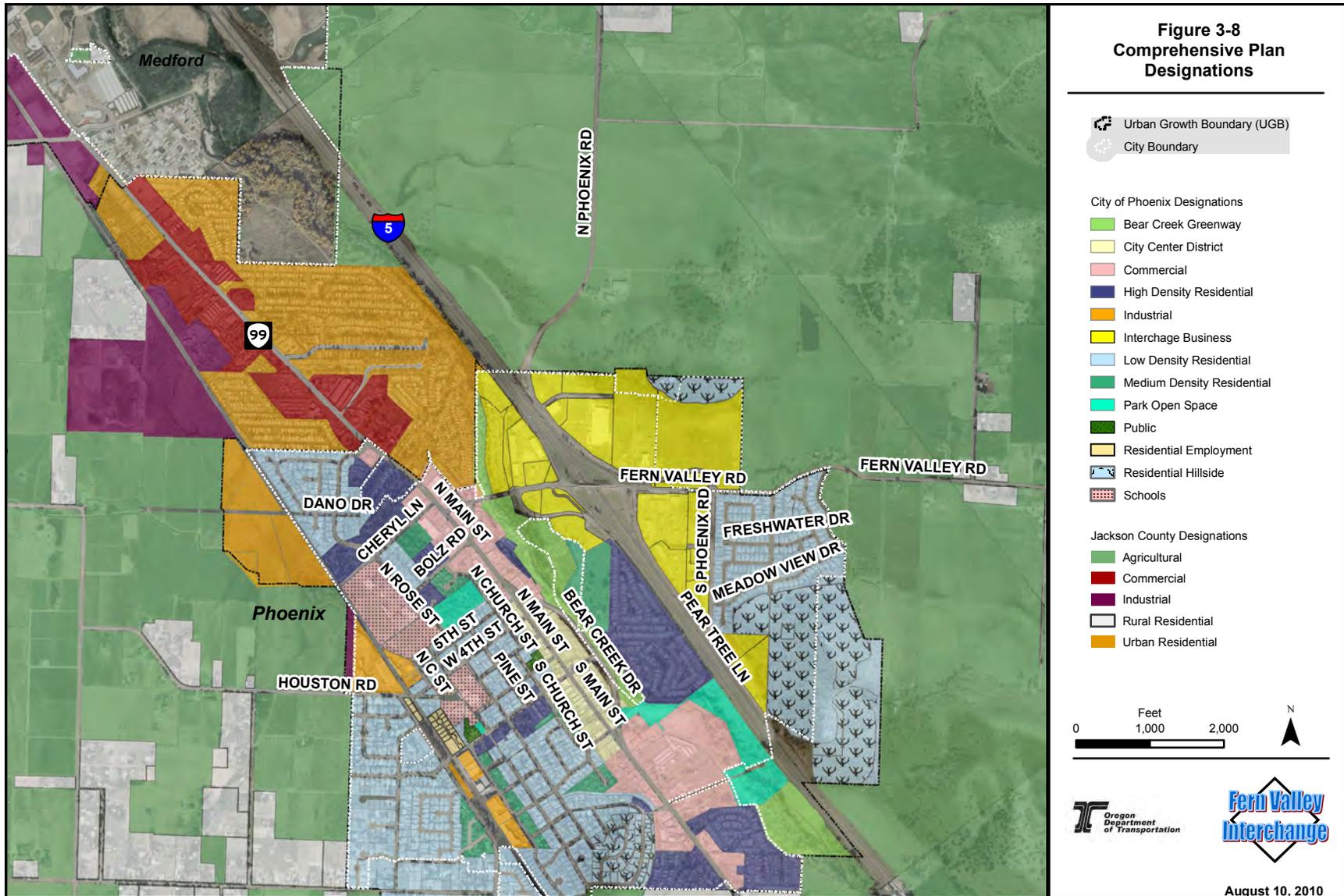
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<sup>9</sup> These are retail sales and service with greater than 50,000 square feet of gross leasable area, truck stops, truck sales, heavy equipment sales, transportation, freight and distribution, taxi cab dispatch, emergency vehicle dispatch, and "industrial service (e.g., cleaning, repair)."

<sup>10</sup> ODOT's Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>

<sup>11</sup> Referring to lands with this designation, the Plan states, "They are intended to provide services and goods for the traveling public, as well as business locations serving the community, and the region. Uses typically include truck stops, auto repair/service stations, restaurants, motels, other tourist accommodations, vehicle sales and service, product manufacturing, storage and distribution facilities, offices, and retail."





Land further to the north of the interchange is within the City of Medford's UGB, and is planned for Urban Residential use. In 1998, the City of Medford adopted the *Southeast Plan* (Figure 3-6),<sup>12</sup> which includes provisions for a 1,040-acre, mixed-use development that is expected to include about 4,100 to 8,700 dwellings and provide housing for more than 10,000 people. As many as 10,436 units could be developed under the City of Medford's planned unit development zoning code provisions. Also included is a "Village Center," which is planned as a 178-acre "Transit-Oriented District," to include 150,000 square feet of retail and commercial space. Development in the *Southeast Plan* area will increase traffic volumes through the Fern Valley Interchange.

More specific explanations of comprehensive plan designations applicable to this project are provided in the Land Use and Planning Technical Report (available online at ODOT's Region 3 website<sup>13</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

### *Development Trends*

As a small jurisdiction within a larger region, land use changes in Phoenix tend to reflect regional economic conditions and development needs, but are also affected by local geography and available land. Over the ten years prior to 2008, rapid development occurred in the Phoenix area and in the vicinity of the interchange:

- Additional residential lots were added to the Phoenix inventory; almost 1,000 housing units were added to the City of Phoenix housing supply, compared with half that number during each of the preceding decades.
- Commercial and industrial development has been concentrated in the interchange area. As mentioned above, Home Depot and La-Z-Boy Furniture recently joined the other pre-existing development described in the section on existing land use above. Additional commercial development within the interchange area is anticipated, but official applications for development have not yet been submitted.
- Extensive residential and commercial development has occurred and is planned in southeast Medford, as reflected in Medford's *Southeast Plan* (discussed above).
- One landowner within the Phoenix UGB and at least two landowners between Phoenix and Medford have plans for developments. The first, Knollcrest Orchards, is located within the Phoenix UGB. It would be a 36-acre retail, office, and residential development on the pear orchard property north of Fern Valley Road and east of N. Phoenix Road. The second, Arrowhead Ranch, would be a commercial and residential development on a 400-acre property on the east side



*Fern Valley Road/Luman Road intersection looking east*

<sup>12</sup> The *Southeast Plan*, City of Medford, was initially adopted in 1998 and revised in December 2004.

<sup>13</sup> ODOT's Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>

of N. Phoenix Road north of the Phoenix UGB. The third, referred to here as the Centennial Golf Course housing complex, would include 1,352 units around the existing Centennial Golf Course (west of N. Phoenix Road and immediately south and east of the Medford UGB). Figure 3-9 shows the location of these developments.

Full development in the vicinity of the interchange could be hampered by severe congestion on OR 99, Fern Valley Road, and N. Phoenix Road. It is anticipated that transportation improvements, including this project as well as those included in the *Regional Transportation Plan Tier 1*,<sup>14</sup> will be needed to avoid severe traffic congestion as development occurs in this area.

### *Regional Problem Solving and the Greater Bear Creek Valley Regional Plan*

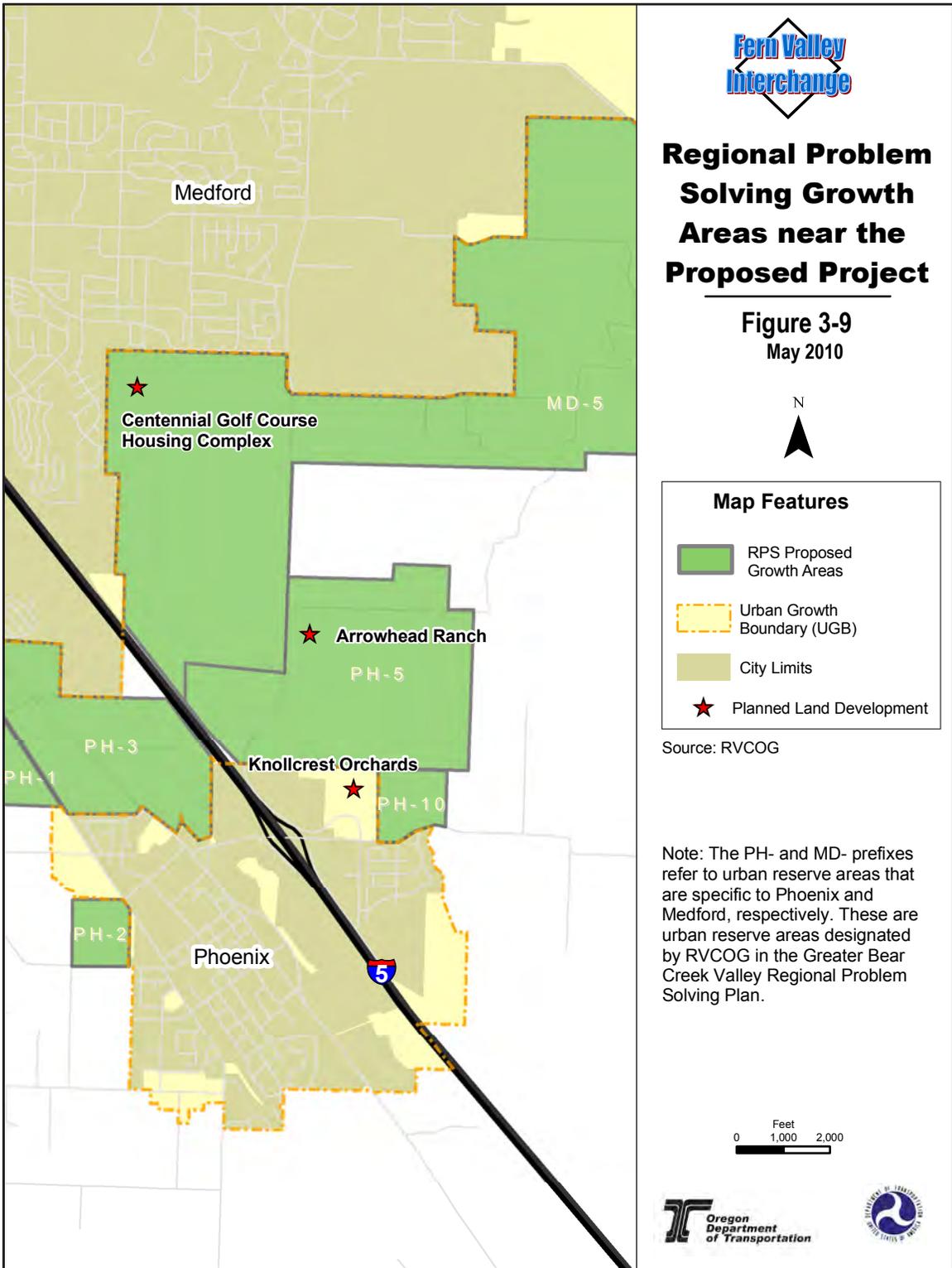
Regional Problem Solving (RPS), enacted by the Oregon legislature in 1996, authorizes local governments to collaborate with each other and affected state agencies to solve regional problems through a cooperative process. Amendments to comprehensive plans and land use regulations aimed at solving the problem may be permitted, even though they conflict with state administrative rules, so long as they conform, on the whole, to the Statewide Planning Program.

All of the communities within the Bear Creek Valley worked together through the RPS process to develop the draft *Greater Bear Creek Valley Regional Plan*. The draft plan identifies “urban reserves” into which the region’s cities would expand their UGBs. The urban reserves would accommodate a doubling of the region’s population over a roughly 50-year timeframe. The Regional Plan does not have legal standing until adopted by local governments. The Regional Plan is currently undergoing adoption by local governments with full adoption of the plan scheduled in 2011.

The draft *Greater Bear Creek Valley Regional Plan* includes proposed urban reserves to the north and east of the City of Phoenix UGB (Figure 3-9). While most of these lands are currently zoned EFU and protected by the Statewide Planning Program, future UGB expansion into them would result in their urbanization. Some of the UGB expansions into the proposed urban reserves along N. Phoenix Road between Medford and Phoenix could occur within the next five years. In the long term, the City of Phoenix could add over 500 acres to its UGB and Medford could add 1,767 acres. Comprehensive plan amendments adopted at the time of UGB expansion would determine allowed uses. The cumulative impacts analysis evaluates the combined impacts of expansion of the Phoenix and Medford UGBs into the urban reserves and the project alternatives.

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<sup>14</sup> Tier 1 projects are those projects that are included in the financially-constrained Transportation Improvement Plan for the Metropolitan Planning Organization. Because they are included in the financially constrained list, there is a presumption that there will be adequate funds to construct the projects.



### 3.2.2 Land Use Impacts

This section analyzes the direct, indirect, and cumulative impacts of the project alternatives on land use. Direct land use impacts are changes from the existing land use to transportation uses. Indirect land use impacts are changes in land use that result from how a transportation project alters access to the land and regulatory restrictions on its use. Cumulative impacts are those which may occur in the future when project-related impacts combine with the impacts of other planned or reasonably foreseeable projects or actions. As described at the beginning of this chapter, the cumulative impact analysis in this EA examines the impacts of the No-Build and Build Alternatives in combination with the impacts of the planned transportation improvements in Table 3-1, implementation of the *Greater Bear Creek Valley Regional Plan*, and the three planned land development projects listed at the beginning of this chapter (Knollcrest Orchard, Arrowhead Ranch, and Centennial Golf Course).

#### *Direct Impacts*

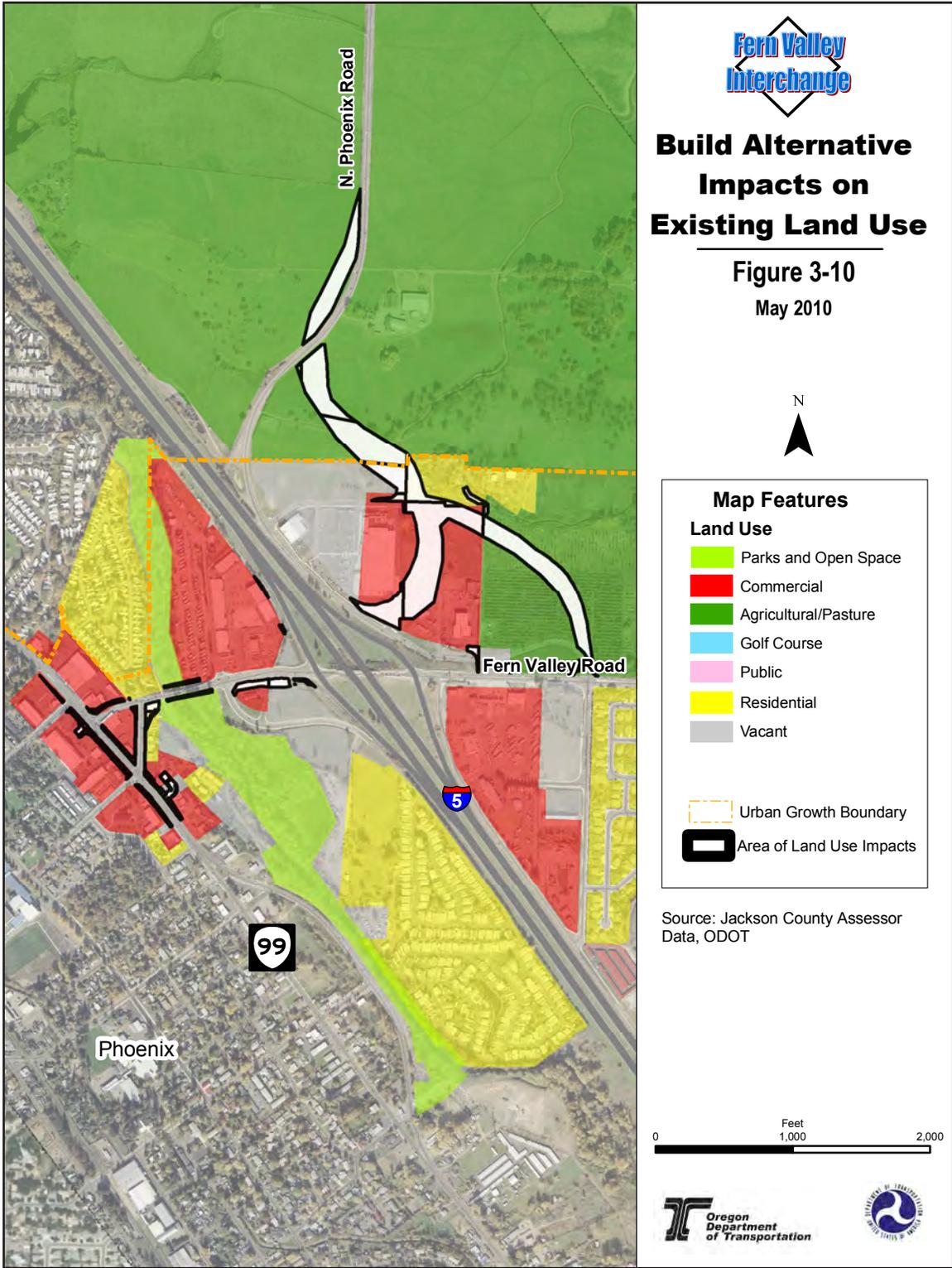
**No-Build Alternative.** The No-Build Alternative would not have direct land use impacts because land would not be taken out of its existing use for transportation use. There are some local improvement projects identified in local plans that contain elements of the Build Alternative, and that may be constructed in the future, with or without this interchange improvement project. The improvement projects focus on widening for bike lanes and sidewalks—and would result in very minor right of way acquisition and no substantial impacts would be anticipated.

**Build Alternative.** Table 3-5 shows the direct impacts by existing land use, zoning, and comprehensive plan designation. Figure 3-10 shows the land uses affected by the Build Alternative. Direct land use impacts are also discussed under Section 3.3, Right of Way.

<b>TABLE 3-5: DIRECT LAND USE IMPACTS OF THE BUILD ALTERNATIVE</b> (City of Phoenix, Except Where Noted)	
<b>Category</b>	<b>Build Alternative (acres<sup>1</sup>)</b>
<b>Existing Use</b>	
<b>Total area impacted (acres)</b>	<b>22.1</b>
Residential	2.3
Commercial	8.1
Farmland <sup>2</sup> (partial Jackson County)	9.7
Vacant/Open space	2.0
<b>Zoning</b>	
<b>Total area impacted (acres)</b>	<b>22.1</b>
Bear Creek Greenway	0.1
High Density Residential	0.1
Commercial Highway/General	14.5
Farm Residential-5	0.0
Exclusive Farm Use (Jackson County)	7.4
<b>Comprehensive Plan Designation</b>	
<b>Total area impacted (acres)</b>	<b>22.1</b>
Bear Creek Greenway	0.1
Commercial	2.3
Agricultural (Jackson County)	7.4
Interchange Business	12.1
High Density Residential	0.1
Low Density Residential	0.1

<sup>1</sup> Totals are an approximation and may have a margin of error due to mapping inaccuracies. Totals may slightly differ from text references due to rounding. Totals exclude temporary construction easements, which would return to their prior uses after project construction.

<sup>2</sup> Existing farmland acreage differs from EFU impacts because some land is currently in farm use (e.g., orchards and pastures), but is not zoned EFU.



The Build Alternative would impact approximately 22.1 total acres of land. West of I-5, most of the impacts would be to commercial frontage. In addition, two residences and four businesses would be displaced. East of I-5, most of the impacted land is currently in agricultural/pasture and commercial use, with some vacant land. The Build Alternative would have its largest direct impact on commercially-zoned land. The second largest impact would be to land zoned for EFU.

### *Indirect Impacts*

As stated above, indirect land use impacts are changes in land use that mainly result from how a transportation project alters access to the land. The statutes and administrative rules for the Oregon Statewide Planning Program restrict development outside UGBs; therefore, unless the Phoenix UGB is expanded, development outside the UGB would be very limited under either the No-Build Alternative or the Build Alternative.

**No-Build Alternative.** Without improvements to the Fern Valley Interchange and the connecting local road system, the project area will experience heavy congestion by 2030. Table 3-4 provides the v/c ratios for major intersections in the project area. Graphics showing 2030 queues for the No-Build Alternative are provided in Appendix B.

The No-Build Alternative would constrain development in the project area in three ways:

- Traffic congestion would make the area undesirable for development.
- The City of Phoenix zoning code would severely limit development. Its regulations for most of the interchange area currently require developers to “mitigate” the traffic impacts of development if that development would cause traffic to exceed levels already exceeded by wide margins at the I-5 interchange ramp ends at Fern Valley Road and the Fern Valley Road/N. Phoenix Road intersection.
- The City may need to rezone the interchange area to limit commercial development because State law requires rebalancing the transportation system and allowed land uses when a planned project is not constructed.

Under the No-Build Alternative, urban development of lands between the City of Phoenix and City of Medford UGB’s would not be able to occur. This is because urban development would require expansion of the UGBs, but UGB expansion would not be allowed because the existing interchange lacks the capacity to accommodate additional trips.

**Build Alternative.** The Build Alternative would require adoption of the IAMP by the City of Phoenix and the Oregon Transportation Commission. The IAMP measures are intended to result in lower vehicle trip-generating development than would occur without the IAMP. The indirect impacts of the Build Alternative would occur mainly in the interchange area.

**Impacts to Undeveloped Land.** The Build Alternative would likely impact undeveloped land inside the Phoenix UGB in three ways.

- By reducing congestion near the interchange, the Build Alternative would substantially improve traffic movement in the interchange area, increasing its attractiveness for development.<sup>15</sup>
- The Build Alternative would enable additional development to occur because it would remove violation of v/c standards in the interchange area as a constraint on development. Most of the development would be commercial, as designated by the Phoenix Comprehensive Plan.
- More of the commercial uses developed would be types that do not generate high volumes of motor vehicle trips. This is because the IAMP would regulate the development that generates high amounts of traffic (e.g., discount club stores and “superstores,” supermarkets, service station/convenience markets, and fast-food restaurants). Such uses generate from 1.5 to 9 times the number of peak-hour motor vehicle trips per acre than the uses likely to be allowed under the proposed IAMP trip budget measure (see Chapter 2, Section 2.2, Interchange Area Management Plan).<sup>16</sup>

Because the Build Alternative would provide sufficient traffic capacity to accommodate a substantial amount of development between the Phoenix and Medford UGBs, the Build Alternative would enable UGB expansion into that area. However, how much development is uncertain because no UGB expansions have been adopted. This means that how much development would occur between the two UGBs during the design life of the proposed project is unknown. To obtain an indication of the scale of potential traffic generation, during development of the IAMP, ODOT forecasted traffic volumes assuming Phoenix expanded its UGB to include all of the Phoenix urban reserves in the draft Regional Plan because, once those areas are developed, they will have the biggest traffic impacts on the new interchange. However, ODOT did not forecast traffic volumes that assumed that Medford expanded its UGB into the much larger urban reserves to the north of the Phoenix urban reserves because, in order for that expansion to take place, other transportation improvement projects would have to occur.<sup>17</sup> In addition, the timing of UGB expansion into either the Phoenix or Medford urban reserves is unknown but is expected to occur over a period longer than the design life of the proposed interchange project.

Another reason for the uncertainty regarding how much development could occur between the Phoenix and Medford UGBs is that the effect of the IAMP on how much development would occur is unknown. One possibility is that more development would occur with the IAMP than without it. This could occur because:

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<sup>15</sup> For example, travel time from the OR 99/Cheryl Lane intersection to the northeast and southeast interchange quadrants in 2030 are forecasted to be about 3 minutes and 3½ minutes, respectively, versus about 11½ and 11 minutes, respectively, under the No-Build Alternative. The differences are similar for the reverse trips.

<sup>16</sup> High trip-generating uses could be developed, but only if combined with other uses that counter-balance high rates of vehicle trip generation.

<sup>17</sup> Specifically, it was determined that the South Stage Overcrossing project would have to be constructed to accommodate the traffic that could be generated from the potential development of Medford’s expanded UGB. This project is currently not funded and not included in the City of Medford’s TSP.

- The capacity expansion and retention measure (described in Chapter 2, Section 2.2, Interchange Area Management Plan) would allow growth to continue when critical intersections become at risk of violating v/c standards.
- Under the trip budget measure, the City of Phoenix would extend the trip budget overlay zone into the area added to its UGB. This measure could allow more development than would be allowable without the trip budget measure. It would do this by avoiding uses that generate large numbers of trips that would use up the capacity of interchange area intersections and thus limit subsequent development.
- If development would jeopardize the performance of the OR 99/Fern Valley Road intersection or other intersections in the interchange area, ODOT could use the IAMP measure, Adoption of Plan and Code Components (described in Chapter 2, Section 2.2, Interchange Area Management Plan), to limit this development. This measure could discourage the development of uses that generate trips at high rates, resulting in more development than would occur without the IAMP.

A second possibility is that the IAMP could reduce the amount of development that occurs. This could happen if development were to reach a point where it jeopardized the performance of the interchange and area intersections, and ODOT relied on the IAMP measures mentioned above to restrict development.

The OR 99 Setback Overlay Zone measure of the IAMP (described in Chapter 2, Section 2.2, Interchange Area Management Plan) would not alter land use because it would apply only when land within it is redeveloped. In addition, parcels within this zone are of sufficient size to accommodate uses and conform to the 15-foot setback requirement.

The IAMP is intended to allow the City of Phoenix to develop consistent with its acknowledged land uses, in a manner that protects the performance and capacity of the new interchange from the effects of land development that the new interchange would enable.



*Northeast from N. Phoenix Rd to Arrowhead Ranch*

***Impacts to Developed Land in the Southeast Interchange Quadrant.*** One of the concerns raised during development of this proposed project was the potential impact of the Build Alternative to developed commercial land in the southeast interchange quadrant. As a result, travel distances and times were calculated for this location. Table 3-6 provides the distances and travel times of most concern to commercial and residential property owners in the southeast quadrant.

With the Build Alternative, the truck stop and adjacent commercial uses would still be visible from the I-5 northbound exit ramp terminal. As a result, the Build Alternative is not anticipated to cause use of the land occupied by the Petro truck stop to shift to a less highway-oriented type of use, even though the distance to the truck stop from the northbound and southbound ramp terminals would be longer with the Build Alternative than with the No-Build Alternative. However, long-term impacts to the businesses in the interchange’s southeast quadrant due to the additional distance from I-5 are unknown

because studies regarding the economic viability of businesses in this situation are inconclusive (see Section 3.4.1, Population, Housing, Business/Employment, Indirect Impacts). The following provides a brief summary of the findings documented in Table 3-6:

- From the northbound I-5 off-ramp terminal to the Petro truck stop, the Build Alternative would result in traffic traveling a distance of about 3/4 mile with a travel time of 1 minute 25 seconds. With the No-Build Alternative, this distance would be about 500 feet with a travel time of 30 seconds.
- From the Petro truck stop to the northbound I-5 on-ramp, the distance would be 2/3 mile under the Build Alternative with a travel time of almost two minutes. Under the No-Build Alternative the distance would be about 1/3 mile with a travel time of 6 minutes.
- From the southbound I-5 off-ramp to the Petro truck stop, the Build Alternative would result in traffic traveling a distance of about 1/2 mile with a travel time of 1 minute and 40 seconds; with the No-Build Alternative, this distance would be about 1/5 mile with a travel time of 1 minute 24 seconds.
- From the Petro truck stop to the southbound I-5 on-ramp, the Build Alternative would result in traffic traveling a distance of a little more than 3/4 mile with a travel time of 2 minutes and 40 seconds. With the No-Build Alternative the distance traveled would be 1/2 mile and the travel time is 7 minutes 40 seconds.

### *Cumulative Impacts*

The key potential cumulative impacts of the project alternatives involve UGB expansion into the urban reserve areas proposed in the *Greater Bear Creek Valley Regional Plan* (see Figure 3-9).<sup>18</sup> The impacts of the Knollcrest Orchard, Arrowhead Ranch, and Centennial Golf Course housing complex land development projects would combine with the impacts of the Build Alternative.

**No-Build Alternative.** The No-Build Alternative would prevent or constrain UGB expansions and zone changes, and thus land development for which a UGB expansion or zone change would be required. The Knollcrest Orchard development probably would not occur because the Phoenix Land Development Code requires mitigation of traffic impacts which the development project probably could not afford (see the discussion of indirect impacts of the No-Build Alternative, above). Similarly, the No-Build Alternative would likely prevent expansion of the Phoenix UGB into urban reserve areas PH-5 or PH-10 (see Figure 3-9) because the Transportation Planning Rule (TPR) would not allow the needed amendments of the Jackson County and Phoenix comprehensive plans. This would preclude the Arrowhead Ranch land development.

How much the No-Build Alternative would constrain expansion of the Medford UGB would depend on how much a particular expansion would affect performance of the Fern Valley Interchange and the South Medford Interchange (located just north of the Fern

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<sup>18</sup> Rogue Valley Council of Governments, *Greater Bear Creek Valley Regional Plan*, Draft, October 2008, [http://rvcog.org/mn.asp?pg=rps\\_regional\\_plan](http://rvcog.org/mn.asp?pg=rps_regional_plan).

Valley Interchange). This would affect the expansion of the Medford UGB needed for the Centennial Golf Course housing complex land development project.

<b>TABLE 3-6: ALTERNATIVE COMPARISONS OF DISTANCES AND PROJECTED 2030 PEAK HOUR TRAVEL TIME<sup>1</sup> TO SOUTHEAST INTERCHANGE QUADRANT</b>		
<b>Location</b>	<b>No-Build Alternative</b>	<b>Build Alternative</b>
<b>NB<sup>2</sup> I-5 TERMINAL – S. PHOENIX ROAD</b>	0.24 mile (1,250 feet)	0.54 mile (2,890 feet)
NB off-ramp terminal to S. Phoenix Road	0:35	1:18
S. Phoenix Road to NB on-ramp terminal	1:59	1:48
<b>SB<sup>3</sup> I-5 TERMINAL – S. PHOENIX ROAD</b>	0.37 mile (1,970 feet)	0.69 mile (3,660 feet)
SB off-ramp terminal to S. Phoenix Road	1:39	1:33
S. Phoenix Road to SB on-ramp terminal	3:25	2:36
<b>NB I-5 TERMINAL – PETRO</b>	0.09 mile (500 feet) to Petro 0.34 mile (1,980 feet) from Petro <sup>4</sup>	0.75 mile (3,960 feet) to Petro 0.69 mile (3,620 feet) from Petro <sup>4</sup>
NB off-ramp terminal to Petro	0:30	1:25
Petro to NB on-ramp terminal	6:00	1:57
<b>SB I-5 TERMINAL – PETRO</b>	0.17 mile (900 feet) to Petro 0.51 mile (2,680 feet) from Petro <sup>4</sup>	0.51 mile (4,730 feet) to Petro 0.83 mile (4,390 feet) from Petro <sup>4</sup>
SB off-ramp terminal to Petro	1:24	1:40
Petro to SB on-ramp terminal	7:40	2:40
<b>OR 99 -- S. PHOENIX ROAD</b>	0.70 mile (3,670 feet)	1.1 mile (5,800 feet) to S. Phoenix Rd 1.0 mile (5,260 feet) from S. Phoenix Rd
OR 99 to S. Phoenix Road	10:41	3:11
S. Phoenix Road to OR 99	6:25	3:58
<sup>1</sup> Travel times are provided in “minutes:seconds.” All of the traffic and travel time estimates were done for the peak hour. Traffic volumes were not created for off-peak hours; therefore, no off-peak travel times are available. <sup>2</sup> NB = northbound <sup>3</sup> SB = southbound <sup>4</sup> Trucks are required to exit Petro via Furry Road to S. Phoenix Road		

**Build Alternative.** The cumulative impact of the Build Alternative and adoption and implementation of the *Greater Bear Creek Valley Regional Plan* would be very similar to the indirect effects described above. This is because whether or not Phoenix and Medford expand their UGBs is not dependent on adoption of the Regional Plan; UGB expansion is determined through justifying additional land needs. However, if the Regional Plan is adopted, it will control where UGBs may and may not be expanded.

Urban development between Phoenix and Medford under the Build Alternative is likely to be the same or similar whether or not the Regional Plan is adopted. There are several reasons for this:

- The urban reserves include the areas where the owners are most likely to seek UGB expansion;
- The urban reserves are best positioned for the extension of sewers, water lines, and roads; and
- The definition and selection of urban reserves considered the factors which bear on the selection of land for UGB expansion.

The Build Alternative would enable development of the Knollcrest Orchard property to proceed. The Trip Budget Overlay Zone measure of the IAMP (Chapter 2, Section 2.2, Interchange Area Management Plan) could influence the land uses that are developed. The Knollcrest Orchard property owner applied for development approval before the effective date of the zoning code amendments implementing the Trip Budget Overlay Zone measure. This means the provisions of the previous code apply to the approval. However, the owner could re-file the application under the amended code. This is because, while the previous code allows more trip generation on the development site, it has stricter requirements for mitigation of traffic impacts.

Depending on timing, the Build Alternative may enable the Arrowhead Ranch land development to occur by providing needed capacity at the Fern Valley Interchange. Similarly, the Build Alternative would reduce the possibility that the capacity of the Fern Valley Interchange would constrain the expansion of the Medford UGB necessary for the Centennial Golf Course housing complex to be developed.

The Build Alternative could also influence the specific land uses developed at both the Arrowhead Ranch and Centennial Golf Course. For both land developments, ODOT could use the Adoption of Plan and Code Components measure of the IAMP (described in Chapter 2, Section 2.2, Interchange Area Management Plan) to avoid development that would exceed the capacity at the OR 99/Fern Valley Road intersection. In addition, the City of Phoenix would expand the Trip Budget Overlay Zone to include the Arrowhead Ranch development, thus limiting land uses that generate high rates of motor vehicle trips

There would be no discernible cumulative land use impacts of the Build Alternative with the land use impacts of the transportation improvement projects listed in Table 3-1.

### 3.2.3 Summary of Proposed Mitigation Measures

The IAMP would largely protect the performance of the interchange from the effects of land development that the new interchange would enable. In addition, the acquisition of access rights along N. Phoenix Road north of the Phoenix UGB would enhance ODOT's ability to protect the performance of N. Phoenix Road (see Section 3.3, Right of Way, and Chapter 2, Section 2.2, Interchange Area Management Plan). Therefore, there is no need for additional mitigation measures.

### 3.2.4 Conclusion

The Build Alternative would convert about 22.1 acres of land to transportation use. In an area the size of the Rogue Valley (approximately 1.8 million acres), this is a small land use conversion. When transportation projects improve traffic conditions and increase the traffic capacity, these projects improve conditions for increased development. However, in Oregon, land use impacts are considered acceptable as long as these impacts do not conflict with adopted comprehensive plans and/or generate traffic that jeopardizes the performance of the roadway system, including the interchange. As described in Section 3.5, the Build Alternative would comply with applicable comprehensive plans. While the Build Alternative would result in the development of land in the interchange area, the Phoenix Comprehensive Plan calls for this development. In addition, the IAMP would restrict development that would generate high traffic volumes, protecting the roadway network and interchange from violation of applicable mobility performance standards. Based on the land use analysis and implementation of the IAMP, the Build Alternative is not anticipated to result in significant land use impacts.

## 3.3 RIGHT OF WAY

### 3.3.1 No-Build Alternative

The No-Build Alternative would not result in the acquisition of right of way or changes in driveways.

### 3.3.2 Build Alternative

#### *Direct Impacts*

Right of way requirements described in this section are estimates and will be more specific as the alternative is refined. The preliminary right of way requirements are presented here to provide a general idea of the Build Alternative's impacts. If the Build Alternative is selected, during the process of final design, specific right of way acquisitions would be identified and individual landowners notified. Additional information is provided in the Right of Way Technical Report.

**Estimated Right of Way Requirements.** Table 3-7 shows the estimated right of way requirements for the Build Alternative. This includes the estimated number of parcels affected, the total area required, the types of affected properties, property impacts, and right of way costs. Anticipated right of way acquisition for specific properties is provided in Appendix C.

<b>TABLE 3-7: ESTIMATED RIGHT OF WAY REQUIREMENTS</b>	
<b>Criteria</b>	<b>Build Alternative</b>
Number of parcels impacted <sup>1</sup>	42
Estimated fee acquisition for right of way, including permanent easements for slopes, utilities, and approach roads (acres)	22.1
Temporary construction easements (acres)	2.0
Business relocations (coffee stand, restaurant, and two mobile food vendors)	4
Residential displacements	2
Off-street parking spaces removed	67
Right of way cost estimates (2011 dollar values)	\$14.4 million
<sup>1</sup> An impacted parcel is defined as the property held under one legal entity. In many cases, several tax lots are held under the same ownership and are treated as one parcel.	

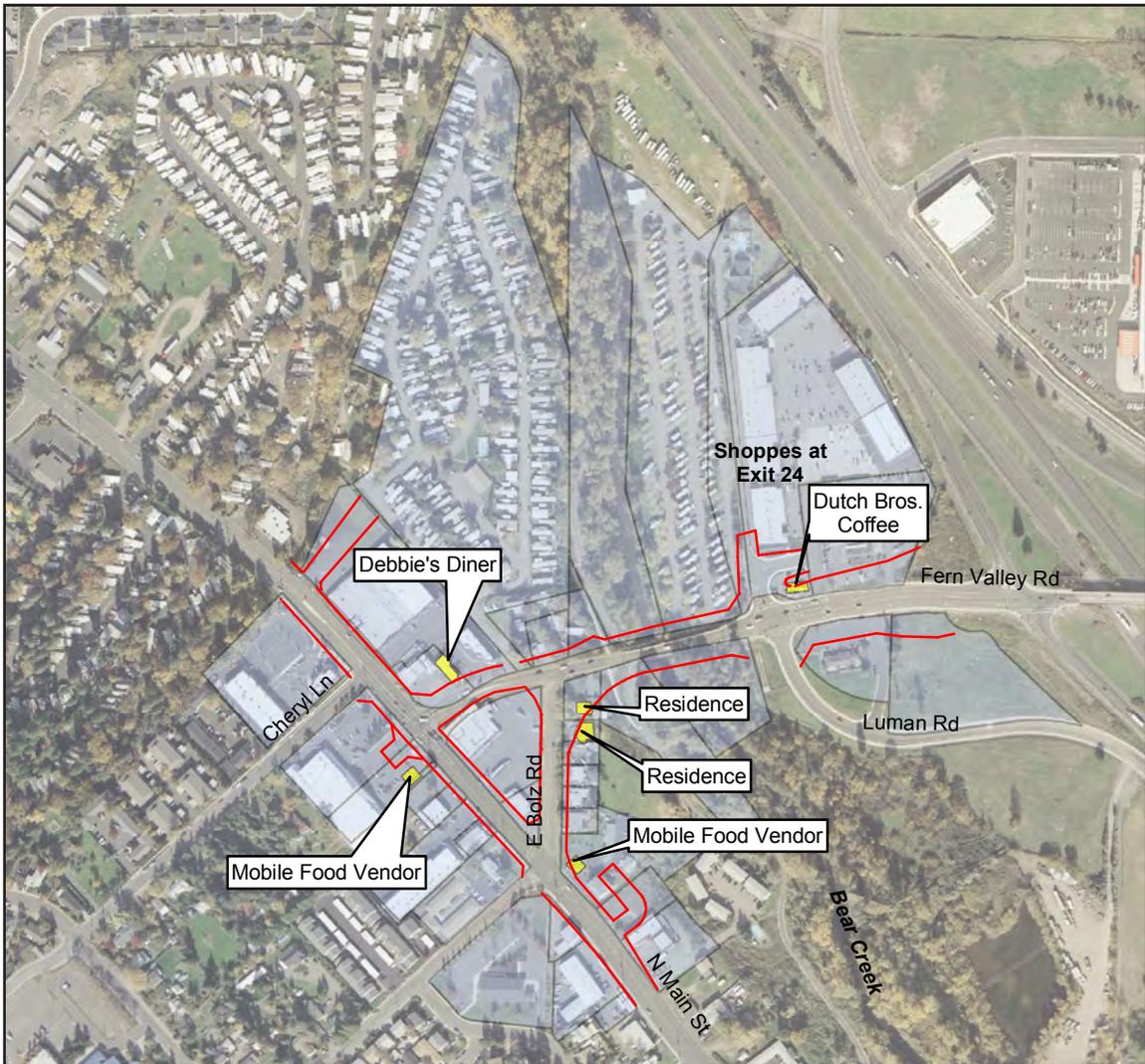
Figures 3-11 and 3-12 show the approximate right of way required for the Build Alternative. The Build Alternative would impact about 42 parcels of land, primarily affecting properties zoned and improved as commercial, residential, and farm use.

Approximately 22.1 acres of land would be purchased for right of way and about 2.0 more acres would be required for temporary construction easements. The Build Alternative is estimated to require two residential displacements and four business relocations, all of which would occur west of I-5:

- Two residences on E. Bolz Road
- Four businesses: a coffee stand located on The Shoppes at Exit 24, Debby's Diner, and two mobile food vendors currently located along OR 99. If the vendors are located in the impacted areas when the acquisition process begins, they would be required to move, and thus may be eligible for relocation benefits.

Lands zoned for EFU must be avoided as much as possible in locating transportation projects. The Build Alternative would require that a total of about 7.4 acres of EFU land north of the UGB be converted to transportation use. Potential planning issues related to using EFU land for this project are discussed under Section 3.5.2, Jackson County Land Development Ordinance.

Right of way costs for the Build Alternative are estimated to be about \$14.4 million (2011 dollars).



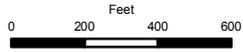
**LEGEND**

- ROW Line
- Potentially Impacted Parcels
- Potential Displacements

**Build Alternative  
Right of Way Impacts:  
West of Interchange**

**Figure 3-11**  
May 2010

Source: ODOT  
URS Corporation



Right-of-way line locations on the aerial photo are approximate.  
This figure reflects conceptual design, and is subject to change. As the project is refined, some changes may occur.



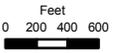
**LEGEND**

- ROW Line
- Potentially Impacted Parcels
- - - Access Control Line

**Build Alternative  
Right of Way Impacts:  
East of Interchange**

**Figure 3-12**  
May 2010

Source: ODOT  
URS Corporation



Right-of-way line locations on the aerial photo are approximate.  
This figure reflects conceptual design, and is subject to change. As the project is refined, some changes may occur.

**Parking-Related Impacts.** The Build Alternative would result in the loss of about 67 off-street parking spaces:

- McDonald’s restaurant—14 parking spaces (18% of total parking spaces)
- Office building in southwest quadrant—20 parking spaces (48% of total parking spaces)
- Ray’s Food Place—27 parking spaces (15% of total parking spaces)
- Bavarian Inn—2 parking spaces (7% of total parking spaces)
- Home Depot—4 parking spaces (1% of total parking spaces)

The only on-street parking to be removed by the Build Alternative is on E. Bolz Road between OR 99 and Bear Creek. This parking is primarily used by residents of the homes along the east side of E. Bolz Road and by owners, patrons, or employees at nearby businesses. Removal of this parking would not require payment to residential or commercial users because it is publicly owned.

**Changes in Driveways and Approach Roads.** The No-Build Alternative would not directly result in changes to driveways and approach roads. Over time, however, the No-Build Alternative would result in the need to change travel patterns as traffic congestion creates safety problems in the project area. With the No-Build Alternative, safety issues and congestion would eventually create conditions where driveways and/or approach roads would be closed, combined and/or relocated. These changes would be based on an Access Management Strategy (AMStrat), which would define how existing and planned driveways and approach roads are to be managed over time to increase safety by moving in the direction of ODOT driveway and approach road spacing standards. The No-Build Alternative would implement this AMStrat on a piecemeal basis as smaller projects occur.

The Build Alternative would implement the AMStrat for the project area much more quickly than with the No-Build Alternative. The following summarizes the changes in existing driveways and approach roads anticipated with the Build Alternative (shown in Appendix C, Right of Way Information, on maps C-1 and C-2 and listed in Table C-2).

- West of I-5
  - 14 existing approaches change to right-in/right-out only
  - 6 existing approaches to be closed or relocated
- East of I-5
  - Access control lines (where no access would be granted) to be located along alternative alignment east of I-5 (see Figure 3-12)<sup>19</sup>
  - 16 existing approaches to remain in their current locations, but their connections to the roadway system would change
  - 15 existing approaches to be closed or relocated

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<sup>19</sup> Oregon Revised Statute (ORS) 374.405 requires that no right of access accrue to properties abutting a state highway when the highway is realigned, relocated, or reconstructed. ORS 374.410 allows ODOT to determine any right of access to properties acquired for state highway right of way.

### 3.3.3 Housing Availability

According to the Census 2000, there are about 1,850 housing units in Phoenix. However, housing in the Rogue Valley is somewhat difficult to find in the modest price range of the two impacted residences, but current listings of homes that are available indicate that there were five listings of homes in this price range in the Phoenix, Talent, and south Medford area (as of September 2008). The right of way relocation program<sup>20</sup> would assure that decent, safe, and sanitary housing is available to affected owners and renters before they would be required to move.

### 3.3.4 Business Replacement Sites

Three of the businesses that would be displaced are located on pad sites on larger properties. There appears to be adequate vacant land and/or other pad sites available for replacement sites for these businesses. One potential business displacement, Debby's Diner, may be able to be relocated on the existing property (see Figure 3-11). To provide context for the Build Alternative impacts to businesses, there are about 150 to 200 businesses in Phoenix.

### 3.3.5 Acquisition Process

If the project proceeds to the acquisition phase, property owners would be offered just compensation for the required rights of way. Just compensation is based on the valuation of needed property and an estimation of the compensable economic damages to the remaining property and improvements. The valuation process would be conducted either by an experienced and qualified ODOT employee or by an independent fee appraiser under contract with ODOT. ODOT right of way acquisition procedures, which follow federal regulations and Oregon law, have been designed to protect owners of properties needed for highway rights of way. Additional information about ODOT's land acquisition and relocation assistance programs is provided in Appendix C.

### *Displacements*

For those displaced by the project, ODOT provides a relocation assistance program. Federal laws ensure the fair and equitable relocation and re-establishment of persons, businesses, farms and nonprofit organizations displaced as a result of federal or federally assisted programs. Owners of the affected properties must be paid just compensation for the land acquired and paid for any damages to remaining property.

No family or individual would be required to vacate any dwelling until comparable replacement housing—which is within their financial means and available for immediate occupancy—has been found and offered. All relocatees would be given advisory

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<sup>20</sup> Acquisition and relocation assistance procedures are governed by the Uniform Relocation and Real Property Acquisition Act of 1970, as amended; Federal Law 91.646; the Code of Federal Regulations (CFR Volume 49, Part 25); and Oregon Revised Statutes (ORS 281.045 to 281.105).

assistance to enable them to occupy decent, safe, and sanitary replacement housing. Relocation advisory services and assistance would be provided regardless of race, color, religion, sex, or national origin, and would be done in accordance with the ODOT's Relocation Assistance Program, as described in the brochure included in Appendix C.

### *Other*

The Build Alternative would affect the roadway approaches to some properties. In terms of right of way acquisition, reasonable approaches would be provided to each property, or damages (if compensable) would be determined by the appraisal process. A landlocked property owner would be offered the appraised value for the loss of reasonable approach to the roadway. In some cases, roadway approaches (driveways) would be eliminated from an existing location for safety or traffic control reasons. If there is alternate, reasonable approach to the remainder, there may be no compensable damage.

Median barriers would be added to some roadway sections in the project area, limiting some left-turn movements to and from the highway. The locations of these barriers, shown in Chapter 2, Figures 2-2 and 2-5, are on OR 99 (north of Cheryl Lane to E. Bolz Road) and east of I-5 from the interchange to Grove Way/Extended S. Phoenix Road. These highway improvements and other changes in traffic circulation are within the regulatory authority of ODOT, and such changes are not compensable. Compensable damages regarding closure of driveways or approach roads would be addressed through the right of way process.

A portion of the project would involve acquisition of small strips of right of way along existing street and highway frontages with impacts only to landscaping, fencing, asphalt parking, and signs on improved properties, as well as relocation of personal property. Any of these types of improvements that are located on existing ODOT right of way are not eligible for compensation or relocation benefits when those uses are eliminated. Off-premise signs (billboards) that are impacted may be eligible to be moved with relocation benefits.

### *Indirect and Cumulative Impacts*

There would be no indirect or cumulative impacts associated with the Build Alternative.

### **3.3.6 Summary of Proposed Mitigation Measures**

- If adequate, decent, safe, and sanitary replacement housing is not available for displaced residents, then housing would be provided under the provisions of the Replacement Housing of Last Resort program. This program is initiated when a housing shortage develops prior to right of way acquisition, or when the relocatees require special housing. This allows unique and innovative methods to be used to provide the needed housing, including rehabilitation or relocation of existing housing, or construction of new housing.

- Owners of displaced commercial properties would be entitled to just compensation for land and improvements. Just compensation would be based on ODOT's valuation of the needed property, and its estimation of damages to the remaining property. Displaced property owners also would be entitled to receive compensation for moving personal property to replacement sites within a 50-mile radius of the displaced property. Costs of searching for a replacement location may be claimed up to \$2,500. Owners of displaced businesses may be eligible to choose a fixed payment in lieu of the payments for actual moving and related expenses and actual reasonable reestablishment expenses, equal to their average annual net earnings during the two tax years immediately preceding the year in which the business is displaced, not to exceed \$20,000 or be less than \$1,000.
- ODOT's land acquisition and relocation assistance programs are summarized in the brochure: "Acquiring Land for Highways and Public Projects" (Appendix C).<sup>21</sup> A more detailed description of programs for displaced residential occupants is contained in a brochure titled: "Your Rights and Benefits as a Displaced Person under the ODOT Relocation Assistance Program." These publications can be obtained from the ODOT Region 3 Right of Way Office, 100 Antelope Road, White City, OR 97503 (541-774-6299). Information is also available on ODOT's website.<sup>22</sup>

### 3.3.7 Conclusion

As indicated in Section 3.3.2, Build Alternative, about 22.1 acres on 42 parcels of land would be impacted by the Build Alternative, and 4 business relocations (including 2 mobile food vendors) and 2 residential displacements would result. These right of way requirements would represent about 2.6 percent of the City of Phoenix's 1600 tax parcels, about 2 to 3 percent of the City's 150 to 200 businesses, and less than 1 percent of the City's 1,850 housing units. In the context of the number of properties, businesses and residences in the City of Phoenix, this number of impacts is not substantial.

Changes in driveways and approach roads would occur regardless of whether the Build Alternative is selected. If the Build Alternative is not constructed, safety issues and congestion would eventually create conditions where driveways would be closed, combined and/or relocated.

Based on right of way analysis and associated mitigation measures, the Build Alternative is not anticipated to result in significant right of way impacts.

## 3.4 SOCIOECONOMICS

Socioeconomic impacts focus on both social and economic impacts to individuals and the community. Social impacts include residential displacements, population redistribution, neighborhood and/or community disruption, quality of life, availability of alternate

<sup>21</sup> This brochure is also available in Spanish.

<sup>22</sup> ODOT's Right of Way website: <http://www.oregon.gov/ODOT/HWY/ROW/>

transportation modes, and safety. Economic impacts include business displacements, business distribution/development, approach roads or driveways to businesses, business visibility, property values, and tax base effects. Socioeconomic impacts also include effects to minority and low income populations (referred to as environmental justice), the elderly, and the disabled.

The existing socioeconomic conditions described below focus on Jackson County, Phoenix and Medford because resources and services (e.g., labor and materials for project construction, lodging for construction workers) may come from these areas. Direct, indirect, and construction socioeconomic impacts are discussed under each major section below. Cumulative socioeconomic impacts are discussed in Section 3.4.6. The proposed mitigation measures for socioeconomic impacts are discussed in Section 3.4.7.

### 3.4.1 Population, Housing, Business/Employment

#### *Existing Conditions*

Table 3-8 compares state, county and city population, housing and employment in the project area.

<b>TABLE 3-8: POPULATION, HOUSING, AND EMPLOYMENT</b>				
<b>Measure (Year)</b>	<b>State of Oregon</b>	<b>Jackson County</b>	<b>City of Medford</b>	<b>City of Phoenix</b>
<b>Population</b>				
Total (2008)	3,791,075	205,305	76,850	4,855
Growth rate <sup>1</sup> (2000-2008)	1.2%	1.5%	2.4%	2.2%
Projected (2040)	5,425,408	297,496	N/A <sup>3</sup>	N/A
Growth rate (2010-2040)	1.2%	1.2%	N/A	N/A
<b>Housing</b>				
No. of housing units (2009)	1,636,460	88,143	30,495	2,006
Value of owner-occupied units <sup>2</sup> (2009)	\$240,278	\$247,147	\$241,691	\$172,852
Percent vacant housing (2009)	8.6%	7.0%	5.8%	7.1%
<b>Employment</b>				
Employment (2009)	1,643,600	78,570	N/A	N/A
Average unemployment rate (2009)	12.4%	14.2%	N/A	N/A
Growth rate (2008-2009)	-5.3%	-4.1%	N/A	N/A
<sup>1</sup> Annual Average Rate of Growth				
<sup>2</sup> Median value of specified owner-occupied units				
<sup>3</sup> N/A = not available				
Sources: see Socioeconomic Technical Report				

The Jackson County population represented 5.4% of the State of Oregon population in 2008. Population growth in Jackson County is expected to slow to 1.2% during the period 2010 to 2040. Also in 2008, the number of residents in Phoenix represented less than 3% of the Jackson County population. The average population growth rates for the City of Phoenix have been higher compared to Jackson County and the State of Oregon as a whole, and lower when compared to the same measure for the City of Medford.

In 2009, housing units in Jackson County represented approximately 5% of the total housing units in Oregon. Housing units in Phoenix represented less than 3% of the total housing units in Jackson County. Housing values in Phoenix are lower, on average, compared to Medford and Jackson County. Vacancy rates in the County were lower, on average, compared to the State of Oregon. Vacancy rates in Phoenix were higher when compared to Medford and Jackson County.

Jackson County has relatively more jobs in manufacturing; trade, transportation and utilities; educational and health services; and leisure and hospitality when compared to some other areas in Oregon. Jackson County's employment represents about 5% of the employment in Oregon. Current employment in Jackson County and Oregon has in fact decreased compared to 2008, due in part to the national recession, indicating a depressed economy. The number of jobs in Oregon decreased by more than 5% during the period 2008 to 2009, while the number of jobs in Jackson County decreased by more than 4% for the same period. Jackson County unemployment rate was approximately 14% in 2009, compared to 12% for Oregon. Retail trade has a strong presence in the City of Phoenix. Most businesses in Phoenix have fewer than 20 employees.

Employment in the project vicinity focuses on the Phoenix commercial core and its City government buildings (west of I-5, near and south of the OR 99/Fern Valley Road intersection) and businesses near the interchange. Recent business development in the interchange area has increased employment opportunities in the Phoenix area.

### *Direct Impacts*

**Residential and Business Right of Way Requirements.** There would be no direct right of way impacts associated with the No-Build Alternative.

Right of way requirements (including relocations and parking impacts) associated with the Build Alternative are discussed in Section 3.3, Right of Way. Right of way relocations could result in increased challenges for business owners as they either relocate or rearrange business personal property to adjust to relocation. Residents would experience disruption if they are required to relocate. Removal of 67 off-street parking spaces from businesses is addressed in Section 3.3, Right of Way, and does not appear to affect the viability of those businesses. Each of the 5 businesses that would lose parking would lose 18% or less of existing parking spaces, with the exception of the office building in the southwest quadrant, which would lose 48% of parking spaces. As explained in detail in the *Socioeconomic Technical Report*, the 4,400 square foot office building would require approximately 22 parking spaces, which would be the number of

parking spaces remaining after the right of way acquisition. According to industry standards, 22 parking spaces are enough for the medical business to remain viable. To the extent the homes and businesses use on-street parking along E. Bolz, affected residents and businesses could experience an impact due to loss of that on-street parking; however, these homes and businesses do have off-street parking.

**Local Circulation Patterns.** Traffic flow affects the ability of patrons to travel to businesses and the ability of residents to travel from their homes to employment.

Distance and travel time between Phoenix developments west and east of I-5 was identified during alternative development as an issue of importance to the community. Table 3-6 (Section 3.2.2, Land Use Impacts) shows the approximate distance and time required to travel from OR 99 to S. Phoenix Road for each alternative. The No-Build Alternative would be shorter in distance than the Build Alternative (0.7 mile versus about 1 mile), but in 2030 would require more travel time (10 minutes 41 seconds versus 3 minutes 11 seconds). With the No-Build Alternative, there would be no change in existing circulation patterns and visibility of nearby commercial and residential properties. However, travel to businesses and residences would become more difficult as more traffic congestion occurs—and would worsen compared with what would occur under the Build Alternative.

With the Build Alternative, congestion would still exist along Fern Valley Road between Luman Road and the southbound ramp terminal. Eventually, this could impact both intersections and the overall interchange operation, potentially making travel to the commercial areas in the northwest quadrant difficult.

With the Build Alternative, changes to approach roads or driveways to most existing businesses in the northeast interchange quadrant are not likely to result in substantial changes to the economic viability of those businesses. The critical intersection east of I-5 for traffic operation with the No-Build Alternative is the Fern Valley Road/N. Phoenix Road intersection; the critical intersection for the Build Alternative is the Realigned N. Phoenix Road/Extended S. Phoenix Road/Grove Way intersection. With the Build Alternative, the critical intersection operates more efficiently than with the No-Build Alternative because the Build Alternative intersection requires fewer left turns.

The Build Alternative would reconfigure the local street system and would require a more circuitous route from I-5 to reach the mostly highway- and trucking-related businesses in the southeast interchange quadrant—thus changing long-term travel patterns. Existing Fern Valley Road west of S. Phoenix Road would become a cul-de-sac, providing access to the Petro truck stop, motel, and restaurant from Fern Valley Road westbound only. The cul-de-sac would include an access to Pear Tree Lane. As shown in Table 3-6 (Section 3.2.2, Land Use Impacts), vehicles traveling from I-5 northbound to these businesses would be required to travel further with the Build Alternative (about 1/2 mile to the Fern Valley Road/S. Phoenix Road intersection) compared to the No-Build Alternative (about 1/4 mile). The roadway configurations east of I-5 are compared below; distances are measured from the northbound interchange off-ramp to the existing Fern Valley Road/N. Phoenix Road intersection.

- With the No-Build Alternative, the roadway configuration would remain the same as it is currently. The northbound interchange ramps terminate at Fern Valley Road. Vehicles make an immediate right turn onto Fern Valley Road and travel about 500 feet to the Petro driveway. With the Build Alternative, vehicles would travel from the I-5 northbound ramp terminal about 930 feet in a northerly direction to the new signalized Grove Way/Realigned N. Phoenix/Extended S. Phoenix Road intersection. Vehicles would turn right on Extended S. Phoenix Road and travel about 1,960 feet to the existing Fern Valley Road/S. Phoenix Road intersection, then about an additional 700 feet to the Petro driveway.
- Travel time for vehicles would be less with the No-Build Alternative than with the Build Alternative from the interchange ramps to Petro—about 30 seconds versus about 1 minute 25 seconds from the northbound ramps, and about 1 minute 24 seconds versus 2 minutes 40 seconds from the southbound ramps.
- Conversely, travel time from Petro to the interchange ramps would be more with the No-Build Alternative than the Build Alternative—about 6 minutes versus about 2 minutes to the northbound ramps, and about 7 minutes 40 seconds versus 2 minutes 40 seconds to the southbound ramps.

With the No-Build Alternative, vehicles traveling from the interchange to the Phoenix Hills neighborhood would continue to be routed on existing Fern Valley Road. In 2030, peak hour traffic volumes at the Fern Valley Road/S. Phoenix Road intersection would be about 2005 vehicles with the No-Build Alternative. The Build Alternative would route traffic to the neighborhood via Extended S. Phoenix Road to S. Phoenix Road or existing Fern Valley Road and then Breckinridge Drive. Peak hour traffic volumes at the Fern Valley Road/S. Phoenix Road intersection would be about 825 vehicles in 2030 with the Build Alternative.

With the No-Build Alternative, vehicles would continue to turn directly from Fern Valley Road onto Pear Tree Lane and the Petro driveway to reach Petro. Traffic queues in 2030 with the No-Build Alternative would result in very congested conditions at the Fern Valley Road/S. Phoenix Road intersection. Traffic would back up all along Fern Valley Road to at least 750 feet past this intersection to the east. In addition, traffic queues would back up about 1,625 feet on S. Phoenix Road, blocking the S. Phoenix Road/Furry Road intersection. These queues could block trucks from using Furry Lane for truck movements at Petro, causing more truck traffic to use S. Phoenix Road and Pear Tree Lane. These traffic queues would reduce the ability of residents to enter and exit the neighborhood and would almost double the number of trucks (from existing year to 2010) idling on streets adjacent to the neighborhood.

The Build Alternative would substantially reduce the traffic and queuing at the Fern Valley Road/S. Phoenix Road intersection adjacent to the Phoenix Hills neighborhood. Through traffic could completely avoid this intersection. However, the traffic patterns for trucks traveling to the Petro truck stop would require that all of the trucks entering and exiting Petro use the Fern Valley Road/S. Phoenix Road intersection.

With the Build Alternative, median installation on OR 99 (from north of Cheryl Lane to E. Bolz Road) would restrict left-turn movements to and from OR 99. This could result in

some out-of-direction travel for some patrons of businesses located along OR 99. The maximum out-of-direction travel along OR 99 would be about 750 feet. Median installation east of I-5 (from the interchange to Grove Way) would not result in out-of-direction travel for businesses; the impacts to businesses would be the result of the placement of the alignment—not the median. However, a change in travel patterns for vehicles would result if drivers traveling from the on-ramps change their minds and decide to travel in the opposite direction. East of I-5, vehicles could only turn around at the Grove Way/Extended S. Phoenix Road intersection; west of I-5, vehicles would have to travel to the Fern Valley Road/Luman Road intersection to turn around. The maximum out-of-direction travel east of I-5 between the interchange and the Grove Way/Extended S. Phoenix Road intersection would be about 1,800 feet.

### *Indirect Impacts*

**Traffic Circulation and Visibility.** By 2030, with the No-Build Alternative, traffic flow in the interchange and Phoenix area would be highly congested. Table 3-4 provides the v/c ratios for major intersections in the project area. Graphics showing 2030 queues for the No-Build Alternative are provided in Appendix B. This congestion would result in adverse quality-of-life impacts for residents and businesses owners, patrons, and employees, as well as a decrease in the ability to do business. Over time, business retention and attraction could suffer. The absence of interchange improvements could also cause a shift in regional development patterns. As discussed in Indirect Impacts (Section 3.2.2, Land Use Impacts), less commercial development would occur within the interchange area. Development planned within the Phoenix and Medford urban growth boundaries could occur elsewhere in the region. This could result in long-term socioeconomic effects, such as decreases in business revenues, employment, and income near the interchange, and decreases in tax revenue for the City of Phoenix.

With the No-Build Alternative, there would be no change in existing local circulation patterns and visibility of nearby commercial and residential properties. However, the worsening congestion and long lines of vehicles associated with the No-Build Alternative could eventually decrease the desirability of traveling to existing businesses for patrons—resulting in patrons avoiding these businesses and patronizing businesses where traffic circulation is easier and safer. These congested conditions could also eventually decrease the desirability for future business development as patrons begin to avoid the highly-congested area.

The Build Alternative could result in businesses and residences moving to the area due to improved traffic conditions. The IAMP included in the Build Alternative would manage growth so this development does not overload the interchange. Eventually, additional road improvements would be required to handle more traffic if additional business and residential growth is desired.

Concern has been raised by commercial property owners in the southeast interchange quadrant that their businesses would draw fewer customers due to the additional distance required to reach them with the Build Alternative. While changes in land uses are not anticipated, long-term impacts to the businesses in the interchange's southeast quadrant

due to the additional distance from I-5 cannot be known with certainty. Distance, travel time, and ease of traffic circulation are all considered when choosing to visit a business. Studies regarding the economic viability of businesses in this situation are inconclusive. The perception that these businesses are too far from I-5 would be lessened because the businesses themselves would remain visible from I-5. This impact would also be dependent on the extent to which signage and directions are clearly marked. Land use, traffic, and socioeconomic analyses indicate that the Build Alternative is not expected to substantially reduce business volumes at the Petro truck stop, compared to the No-Build Alternative, for the following reasons:

- As described in the socioeconomic direct impact section and in Section 3.2.2, Land Use Impacts, Indirect Impacts, while the Build Alternative would increase travel time and distance *from* the I-5 ramp terminals to the truck stop, it would dramatically reduce travel time *to* the I-5 ramp terminals from the truck stop by 2030.
- Available alternate truck stops are limited. There is only one other national chain truck stop in the Medford area that provides a range of services comparable to the Petro truck stop—the Pilot Travel Center located to the north near the Exit 33 interchange in Central Point. The only other truck stop in the area is the Witham Truck Stop near the Exit 30 (Crater Lake) interchange at OR 62 in Medford. It is not part of a national chain, offers fewer services, and routing to and from it from I-5 is circuitous. The closest major truck stop to the south with comparable services is the Weed Truck and Travel Center in Weed, California, which is located about 47 miles south of Phoenix.
- The Build Alternative would not change most of the factors that influence how truckers choose a truck stop. According to the Oregon Trucking Association, truckers use a truck stop based on when they need fuel, the price of fuel or where their trucking company has a fuel account, access, and amenities (such as parking, quality of food, motel, movie theater, and showers). Thus, routing to the truck stop, the only consideration the Build Alternative would affect, is just one of many considerations that bear on truck stop choice.
- Non-regular customers would not be aware of the circuitous routing to and from the Petro truck stop, when they see the truck stop sign and exit I-5, and so would not be less likely to patronize it than under the No-Build Alternative.

The truck stop's regular customers would probably continue to use the truck stop through construction and operation of the Build Alternative, as long as these customers are informed of construction activities and the change in routing well in advance. To these customers, this truck stop is a destination business. Construction could discourage motorists who are not as familiar with the area. Construction could also discourage regular I-5 corridor travelers. Signage during construction could lessen the degree to which truck stop patronage stop decreases (Yamamoto, 2009).

**Avoidance of High Vehicle Trip-Generating Development.** The IAMP includes measures that avoid development that generates high volumes of traffic. The project could result in more successful commercial areas and higher profits for landowners and developers in the long run. An individual landowner or developer may realize higher

initial returns on investment from high-trip generating uses. However, in the future, higher congestion could reduce the return on investment and result in denials of approval for other development.

By reducing the number of trips traveling through the interchange area, the area north and east of the interchange would remain attractive to new business due to adequate traffic flow. Development in the interchange area that avoids high trip-generating uses could also improve livability for the occupants of nearby residential areas. Lower trip-generating uses would decrease congestion in the long run, thus increasing quality of life for nearby residents.

### *Construction Impacts*

Construction of the Build Alternative would occur on weekdays and possibly some weekends. The Fern Valley Interchange is anticipated to remain open during construction, thus allowing continued routing to and from I-5 at this location. If a short-term interchange closure was required, traffic could be diverted to the nearest I-5 interchanges to the north and south of the Fern Valley Interchange (E. Barnett Road interchange in Medford—3 miles to the north; W. Valley View Road interchange in Talent—3 miles to the south).

Construction would result in temporary detours and nuisances to businesses and residences located near construction areas. These impacts include: noise and dust from construction equipment and machinery, temporary loss of on-street (and possibly some off-street) parking, lane closures and traffic delays up to 20 minutes, and temporary changes in traffic circulation to businesses, residences, and the Bear Creek Greenway.

West of I-5, because the Build Alternative would mostly use existing roads, construction would result in more traffic delays than east of I-5. Short-term or partial closures of some roads and driveways could occur in order to ensure safety during potentially dangerous construction activities (e.g., demolition of the Bear Creek Bridge structure). These delays would directly impact traffic traveling to businesses and residences. East of I-5, construction of the Build Alternative would have substantially less impact on traffic because more of the alignment is located away from existing roadways.

Potential temporary decreases in business revenue due to construction detours and nuisances would likely be low, and would not affect the ability of businesses to operate over time. These nuisances could result in residences experiencing temporary impacts upon their quality-of-life.

## 3.4.2 Environmental Justice, Elderly, and Disabled Populations

### *Existing Conditions*

**Environmental Justice.** Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* forms the

basis for environmental justice policies in the United States. It requires Federal agencies to identify and address disproportionately high and adverse human health or environmental effects (including social and economic effects) of their programs, policies, and activities on minority and low-income populations. USDOT Order 5610.2 (*Order to Address Environmental Justice in Minority Populations and Low-Income Populations*) implements the EO for federally-funded transportation projects. Table 3-9 provides comparisons in the area within 500 feet of the Build Alternative’s roadway edge, the City of Phoenix, Jackson County and the State of Oregon regarding minority, low income, elderly and disabled populations.

**TABLE 3-9: COMPARISON OF MINORITY, LOW INCOME, ELDERLY AND DISABLED POPULATIONS**

Measure	State of Oregon	Jackson County	City of Phoenix	Build Alternative Area within 500 ft. of roadway edge <sup>5</sup>
Percent of population that is minority (2000) <sup>1</sup>	17	11	13	16
Percent of population that is minority (2006-2008) <sup>2</sup>	20	14	N/A <sup>6</sup>	N/A
Percent of residents speaking a language other than English	14 <sup>3</sup>	9 <sup>3</sup>	10 <sup>4</sup>	N/A
Percent of population living below poverty level	14 <sup>3</sup>	13 <sup>3</sup>	12 <sup>4</sup>	10 <sup>4</sup>
Percent of population age 65 and over	13	16	21 <sup>1</sup>	N/A
Percent of population classified as disabled	19	20	22 <sup>1</sup>	N/A

<sup>1</sup> For the year 2000.

<sup>2</sup> Three-year estimates for the period 2006-2008.

<sup>3</sup> For the time period from 2005 to 2007.

<sup>4</sup> For the year 2000. Poverty and language statistics for the period 2005-2007 were not available for the City of Phoenix or the area within 500 feet of the roadway edge.

<sup>5</sup> The percentages for the areas within 500 feet of the roadway edge are estimated with the assumption that the minority, low-income, or elderly population is uniformly distributed throughout each census tract. Census blocks in the project area are relatively large and, in reality, may not have a uniform distribution of minority, low-income, or elderly populations. The assumption of uniformity was needed to assess the potential occurrences of Environmental Justice populations near the project. The exact percentages of minority, low-income, and elderly residents within 500 feet of the roadway edge with each Build Alternative could be higher or lower than the estimates given in this table.

<sup>6</sup> N/A = not available

In accordance with the FHWA definition, a person is considered minority if he or she is Hispanic, Latino, black or African American, American Indian, Alaska Native, Asian, Native Hawaiian/Pacific Islander, and mixed-race individuals. In general, Phoenix has relatively more minority residents than Jackson County as a whole, and relatively fewer minority residents than the State of Oregon as a whole.

An analysis of U.S. Census (*Census 2000*) data indicates that minority populations are present near the Fern Valley Interchange project, primarily in the northern quadrants (Figure 3-13). Although minority data for years more recent than 2000 were not available for the City of Phoenix or the area within 500 feet of the Build Alternative roadway edge,<sup>23</sup> 2006-2008 U.S. Census data indicate that the minority population in both Jackson County and Oregon as a whole has risen by 3%. Also, during the 2007-2008 school year, approximately 31% of the students in the Phoenix-Talent School District No. 4 were identified as minority students. According to Laurel Prairie-Kuntz, Planning Director at the City of Phoenix (2009 discussion), the Hispanic population in Phoenix has grown in recent years. This community is comprised of populations that support agricultural operations in the region.

*Census 2000* data did not indicate low-income (defined as at or below the federal poverty level) populations near the interchange. Field observations, consisting of windshield surveys of the area within 500 feet of the interchange footprint were conducted in 2009. These observations did not reveal a readily-identifiable low-income group living near the proposed project.

Although direct comparison is not possible because recent poverty statistics are not available for the City of Phoenix, it appears that the percentage of population living below poverty level in the City of Phoenix was lower in comparison with Jackson County and the State of Oregon.

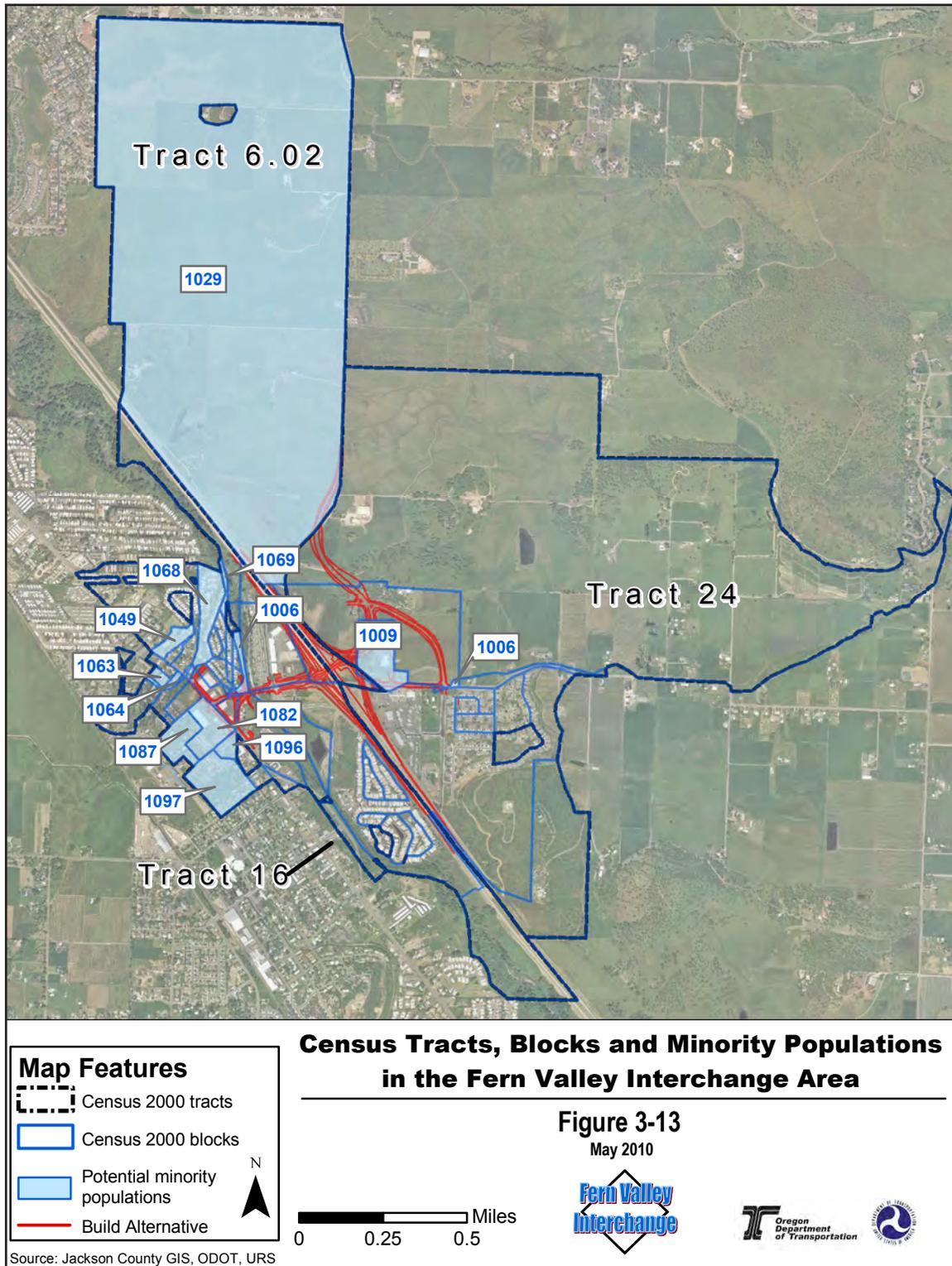
Although the percentage of low-income populations within 500 feet of the outer edge of the roadway shoulders is not higher than the same measure for Jackson County, the manufactured home parks near the Fern Valley Interchange could indicate potential low-income populations because manufactured homes are relatively low cost forms of housing. Based on field observation, the mobile homes in Bear Lake Mobile Estates appear to be in good condition, while those in Coleman Creek Estates appear to be relatively older and in fair condition. Residential areas located in Census blocks identified as having minority percentages that were above the Jackson County average include areas near Coleman Creek Estates. Based on *Census 2000* data and field observations, potential environmental justice populations near the Build Alternative alignment include Coleman Creek Estates.

**Elderly and/or Disabled.** Although federal regulations do not provide for separate consideration of elderly and disabled populations, these populations are protected by Title VI of the Civil Rights Act of 1964 and related nondiscrimination statutes. The Americans With Disabilities Act (ADA) requires that transportation facilities accommodate the disabled, including those with mobility or vision impairments. A larger elderly and disabled population can indicate a population with special transportation needs. Many may not be able to walk as well or as far as younger people, and many no longer drive—therefore, they can often be more dependent on transit. A larger elderly population can

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<sup>23</sup> The decision to use 500 feet for potential impacts immediately adjacent to the project alternatives was made because 500 feet is estimated to be the distance at which local impacts, such as construction noise, start to diminish.

also signify a lower-income community because many retirees are on fixed, lower incomes.



As shown in Table 3-9, the City of Phoenix had the highest percent of population age 65 or over in the year 2000 compared to the State of Oregon and Jackson County. Elderly populations are identified throughout the immediate project area—and, if not adjacent to the project, use the roadway system in the project area. The City of Phoenix also had a higher percentage of disabled during this time period.

### *Direct Impacts*

**Environmental Justice.** Environmental Justice impacts result if a project would result in disproportionately high and adverse effects to minority or low-income populations. There are three fundamental environmental justice principles:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- To ensure the full and fair participation by all potentially-affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

**No-Build Alternative.** There would be no direct Environmental Justice impacts with the No-Build Alternative.

**Build Alternative.** As indicated under existing conditions, environmental justice populations exist near the project based on the identification of minority populations using *Census 2000* data; however, *Census 2000* data did not indicate low-income populations near the interchange. The next step taken was to look at impacts (displacements, driveway and parking changes, traffic, air quality, noise, and visual resources) to assess whether these environmental justice populations are likely to experience high and disproportionately adverse impacts due to the project. The following summarizes this impact evaluation

- **Displacements:** Two homes on E. Bolz Road would be displaced. These two homes are located in census tract 16, block group 1, block 1005, which is identified as non-minority and non-low income based on *Census 2000*. Therefore, the displacement impact would not be disproportionately high and adverse for minority or low-income populations.
- **Driveway and Parking Changes:** No residential driveways or off-street residential parking would be removed. Therefore, driveway and parking impacts would not be disproportionately high and adverse for minority or low-income populations.
- **Traffic:** All Jackson County residents would experience an increase in quality-of-life due to the improvement in traffic conditions. Shorter travel times resulting from the project would be felt more by those living nearest the project compared to those living further away. The traffic impact would not be disproportionately high and adverse for minority or low-income populations.

- **Air Quality:** No substantial changes in air quality would occur. The air quality impact would not be disproportionately high and adverse for minority or low-income populations.
- **Noise:** Traffic noise impacts would occur at two residences along E. Bolz Road and at 36 front-line residences at Bear Lake Mobile Estates. The two homes along E. Bolz Road are located in census tract 16, block group 1, block 1005, which is identified as non-minority and non-low income based on *Census 2000*. Bear Lake Mobile Estates is located within census tract 16, blocks 1002, 1116, 1117, 1118, 1119 and 1120, none of which are identified as a minority or low-income areas. Therefore, the noise impacts would not be disproportionately high and adverse for minority or low-income populations.
- **Visual Impacts:** Residential areas that could experience visual impacts or changes include a few homes within Coleman Creek Estates, the homes along E. Bolz Road, long-term RVs in the Holiday RV Park, and Phoenix Hills. Of these four areas, the only area identified as having minority populations is Coleman Creek Estates. Coleman Creek Estates is located in census tract 16, blocks 1006, 1007, 1008, 1009, 1068, 1069, 1070, 1071, 1072 and 1074. Three of these ten census blocks are identified as minority areas. Most of the visual impacts would occur in non-minority and non-low income areas. Therefore, the visual impacts would not be disproportionately high and adverse for minority or low-income populations.

In summary, the Build Alternative would not result in disproportionately high and adverse impacts upon minority and low-income populations, and therefore would not result in environmental justice impacts.

Outreach to potentially protected populations in the project area was incorporated into development of the Build Alternative for this project. This outreach is summarized below and in Chapter 5, Public Involvement and Agency Coordination.

No disproportionately high or adverse impacts to minority or low income populations would occur with the construction of the Build Alternative.

**Elderly and/or Disabled Populations.** Impacts affecting the elderly and disabled tend to focus on providing adequate bike and pedestrian facilities and considering community cohesion.

The No-Build Alternative would result in the continuation of degraded and non-continuous sidewalks and bikeways in the project area. Lack of adequate facilities that meet ADA standards would result in continued transportation difficulties for the elderly and/or disabled.

The Build Alternative would provide benefits to the elderly and/or disabled groups in the project area. Bicycle and pedestrian facilities would be added and existing facilities improved. All walkways constructed in association with this project would meet or exceed minimum ADA standards.

Impacts to community cohesion can be particularly disruptive to unique groups such as minority, low-income, elderly, or disabled populations. These groups may have potentially unique needs, such as a higher-than-average dependency on public transportation, social services, walking, or bicycling. Generally, the fewer personal resources an individual has, the more harmful the loss of community services. In general, the Build Alternative is anticipated to improve community cohesion for all populations (including the elderly or disabled) through improving safety and bicycle and pedestrian circulation, complying with ADA standards for walkways, and decreasing congestion.



*Bear Lake Estates*

### **Outreach to Environmental Justice, Elderly and Disabled Populations.**

Development of the Build Alternative for this project included outreach to protected populations to identify and address issues of concern. These efforts included the following:

- Identifying the locations of potential minority, low income, elderly and disabled populations. Methods included review of Census information specific to minorities, low income and elderly and disabled populations; school district information specific to minority populations; and field observations to identify protected populations.
- Including a CAC member to represent potential low income and minority residents who could be impacted by the project. The manager of Coleman Creek Estates, a mobile home park west of Bear Creek and north of Fern Valley Road, represented these populations. When she had to withdraw from the committee, a representative was actively sought to address low income and minority concerns. As a result, a resident of Coleman Creek Estates was placed on the CAC, with the specific intent of representing low income and minority populations. The following summarizes the major issues raised by these representatives and how these issues were resolved:
  - There is difficulty getting in and out of Coleman Creek Estates; this community needs good accessibility and a safer entrance. The Coleman Creek Estates representative expressed concern regarding having only a right-in/right-out approach road to the neighborhood and the potential impacts on the neighborhood. The result of these discussions was that an additional approach road from OR 99 to and from Coleman Creek Estates was included in the design just north of Cheryl Lane; the existing approach road from Fern Valley Road is retained, but allows right-in/right-out traffic movements only.
  - There were accessibility concerns east of I-5 making it difficult to go to the restaurant in the southeast interchange quadrant; to reach the

restaurant, cars and trucks would need to travel through the truck bays or gas station. The alternative that included this arrangement was not advanced for further consideration.

- Bike and pedestrian facilities are very important to the low income, minority, elderly and disabled communities. Bike and pedestrian facilities would be provided throughout the Build Alternative, resulting in a substantial improvement throughout the project area.
- Inviting the Bear Lake Estates retirement community to actively participate with the CAC. Some early alternatives included potential changes to Luman Road, which is the only approach road to this neighborhood. Most residents of Bear Lake Estates voiced opposition to changing the Luman Road approach to their neighborhood, placing an interchange close to their community, or adding an approach road that connected the neighborhood to OR 99. Their collective interest was to avoid disrupting their community. A liaison from that community attended several CAC meetings where potential impacts to Bear Lake Estates were discussed. As a result, the Build Alternative meets all of their requests; it does not include substantive changes to Luman Road, except that its intersection with Fern Valley Road is improved. No additional approach roads to Bear Lake Estates are proposed.
- Indicating in open house announcements that accommodations would be provided to persons with disabilities, alternate formats for documents were available upon request, and a sign interpreter is available if needed. No specific alternative formats have been requested to date.

In addition, the following outreach activities are planned following release of this environmental document:

- The Executive Summary, which will be widely distributed, will include a statement that it will be provided in Spanish upon request.
- Flyers announcing the public hearing for this project will be provided at the local market oriented to Spanish-speaking populations. This flyer will also announce the availability of the Executive Summary of the EA in Spanish upon request.
- Flyers announcing the public hearing will be distributed to manufactured home parks and made available at key locations throughout Phoenix.
- A Spanish-speaking translator will be available at the public hearing.

More detailed information on public involvement activities and the project development process associated with this project is provided in Chapter 5, Public Involvement and Agency Coordination (available online at ODOT's Region 3 website<sup>24</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

<sup>24</sup> ODOT's Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>

### *Indirect Impacts*

No potential indirect impacts to minority, low-income, the elderly, and/or disabled are anticipated with the No-Build or Build Alternative that would differ from impacts to other populations.

Some of these residential areas could potentially experience development pressure in the long run and, ultimately, displacement, which could be attributable to the project.

### *Construction Impacts*

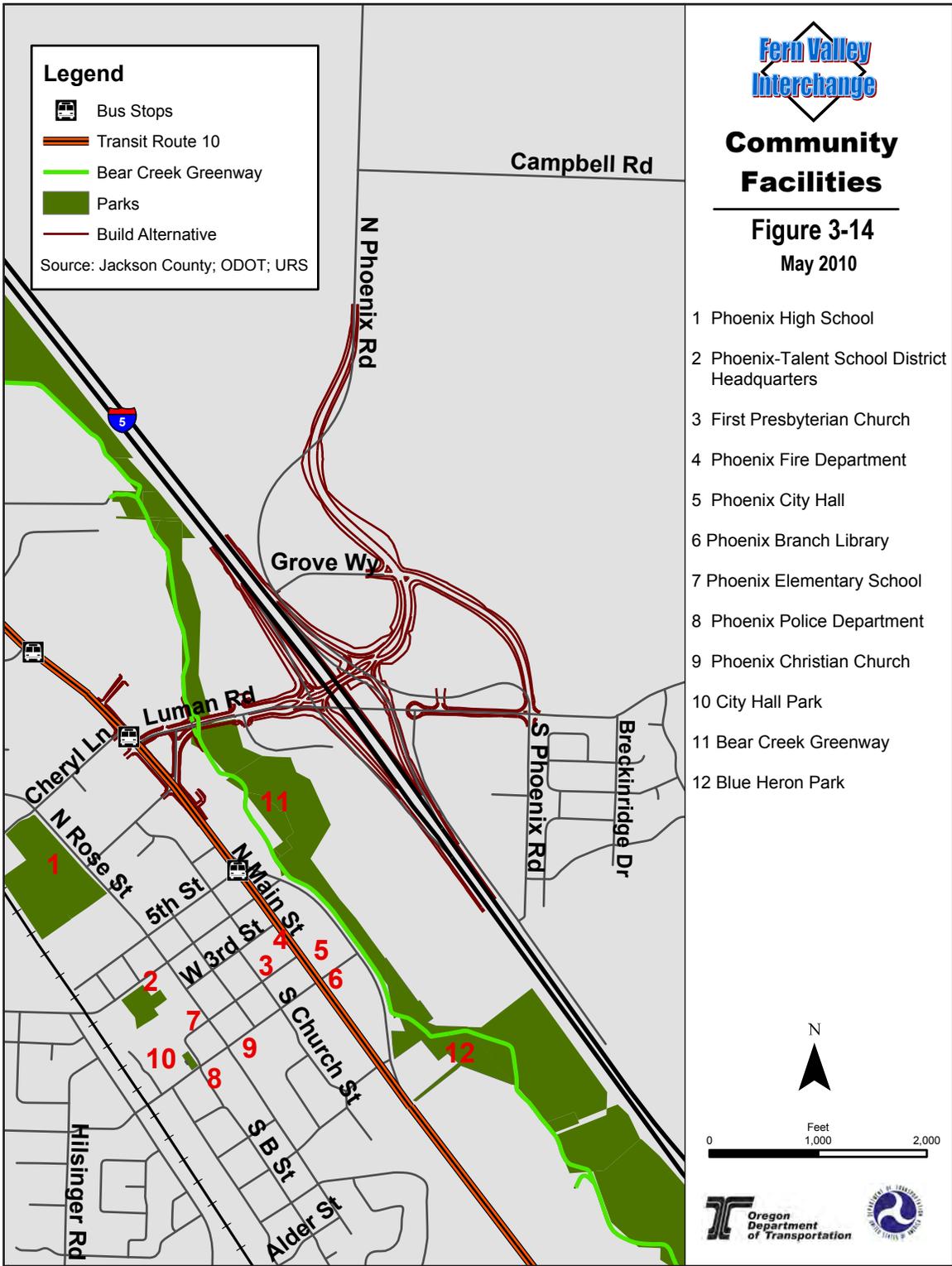
Construction would result in temporary detours and nuisances to businesses and residences located near construction areas, which could include protected populations, but these would not be disproportionately high adverse impacts. These impacts include: noise and dust from construction equipment and machinery, temporary loss of on-street (and possibly some off-street) parking, lane closures and traffic delays, and temporary changes in routings to businesses, residences, and the Bear Creek Greenway. These impacts would not differ from those experienced by other populations in the project area.

### 3.4.3 Community Services, Bike and Pedestrian Facilities, Public Transportation

#### *Existing Conditions*

**Community Services.** Facilities and services near the Fern Valley Interchange project include general government services, fire protection services, law enforcement, schools, parks, libraries, hospitals, and churches. Community facilities and public services (within one mile of the project) are located in the southwest quadrant of the interchange (see Figure 3-14).

The nearest hospital is located in Medford, about five miles northwest of the interchange. Ambulance services are located at 2020 Milligan Way in Medford. The Phoenix fire station is located on W. 2<sup>nd</sup> Street, about 0.5 mile south of the project. Oregon State Police (OSP) provides law enforcement services on Oregon's state and interstate highways; the OSP Southern Region Communications Center is located at 4500 Rogue Valley Highway in Central Point, about 14 miles northwest of the project. The Phoenix Police Department is located on W. 1<sup>st</sup> Street, about 0.9 mile south of the project. The Jackson County Sheriff's Office is headquartered on W. 8<sup>th</sup> Street in Medford, about five miles northwest of the project.



All of the schools in Phoenix are located west of OR 99. School buses must cross the interchange to carry students from residential areas east of I-5 to Phoenix schools. School bus stops in or near the project area include stops along Fern Valley Road at Coleman Creek Estates, Luman Road, Pear Tree Lane, and between Breckinridge Drive and N. Phoenix Road.

**Bike and Pedestrian Facilities.** The Citizen Advisory Committee (CAC) identified the provision of safe bike and pedestrian facilities and school bus stops as important for this project—and have indicated that these facilities create a more livable, cohesive community. Currently, there are no bike lanes along Fern Valley Road or OR 99. Sidewalks are discontinuous, but there are crosswalks at all major intersections along OR 99. Issues of particular concern include the need to accommodate bicyclists and pedestrians along OR 99 and Fern Valley Road, and to provide a wide enough bike lane for less-experienced cyclists to maneuver.

**Public Transportation.** RVTB bus service (as discussed in Section 3.1.3, Public Transportation) is routed along OR 99 through Phoenix. Three bus stops are located in Phoenix: near Ray’s Food Place (bus stop is within the project area), at Umpqua Bank, and at Video World. There are no bus stops or service east of I-5, meaning those residents from Phoenix Hills and the east side rural area must travel to OR 99 to catch a bus.



*OR 99 and RVTB Bus Stop, looking north towards the OR 99/Fern Valley Road intersection*

### *Direct Impacts*

**No-Build Alternative.** Current routes to public services and community facilities would remain the same as it is now. Congestion would continue to slow the provision of emergency services.

There would be no change to the existing intermittent pedestrian and bicycle facilities in the project area, with the exception of possible future small projects to add improvements. Safety would not be improved because adequate, standard bike lanes and sidewalks would not be provided.

No changes in bus facilities or services are currently anticipated.

**Build Alternative.** With the Build Alternative, there would be no changes in current routes to public services and community facilities. However, these services would be more easily accessible due to shorter delays and less congestion. The ease and safety of non-vehicular travel to public services and community facilities would improve due to the addition and improvement of sidewalks and bike lanes.

Response times for fire and police services would likely shorten due to better traffic flow. Depending on the route taken, the Build Alternative would result in improved travel times for emergency vehicles compared with the No-Build Alternative (see Section 3.2.2, Land Use Impacts, Indirect Impacts; and Section 3.4.1, Population, Housing, Business/Employment, Direct Impacts, Local Circulation Patterns above for specific times and distances). A decrease in travel time of even a few seconds can be meaningful for emergency vehicles and the community members requiring assistance.

RVTD is expected to continue to operate along OR 99, between Medford and Ashland. A substantial and permanent change in demand for public schools and recreational facilities is not expected as a result of this project. No changes in bus facilities are currently anticipated as a result of the Build Alternative, although park-and-ride locations and bus pull-outs could be considered. Travel time for buses would be improved by reduced congestion.



*Eastbound traffic on Fern Valley Road*

### *Indirect Impacts*

Over time, the No-Build Alternative would continue to decrease accessibility to public services and community facilities as congestion increases. As traffic continues to increase, more delays and congestion would impact the ease of travel to public services (including emergency services) and community facilities. Because of the lack of adequate bike lanes and sidewalks, safety would become more of a problem as congestion increases. As congestion increases, travel time would increase, thus slowing bus service in the area.

The Build Alternative would improve mobility and traffic flow, resulting in improved travel time and safety to public services and community facilities throughout Phoenix and Jackson County. Potential new development east of the interchange in the long run could encourage RVTD to extend bus service to neighborhoods such as Phoenix Hills. No indirect adverse impacts to public services and community facilities would result from the Build Alternative.

### *Construction Impacts*

Construction of the Build Alternative could temporarily increase response times for emergency vehicles (however, the construction contract would specify that travel routes for emergency vehicles must be maintained at all times) and could increase travel delays for buses, bikes and pedestrians in the short term.

### 3.4.4 Community Cohesion and Neighborhoods

#### *Existing Conditions*

Residences near OR 99 include older single family homes interspersed with commercial uses. Manufactured home parks north and south of Fern Valley Road (Coleman Creek Estates and Bear Lake Mobile Estates) form cohesive neighborhood areas that directly connect to Fern Valley Road. The residences in Phoenix Hills east of I-5 form a cohesive neighborhood that directly connects to Fern Valley Road. Rural residential properties north of Fern Valley Road and east of I-5 are much less dense and retain a sense of rural community.

Commercial properties in the interchange quadrants retain the sense of cohesive business communities. For example, the northeast quadrant developments reflect the ongoing change from rural to urban uses. The highway-oriented businesses in the southeast quadrant provide services to travelers and truckers.



*Fern Valley Interchange looking north;  
Phoenix Hills neighborhood in foreground*

#### *Direct Impacts*

Although the No-Build Alternative would not directly impact the cohesiveness of the community or neighborhoods, it would continue the pattern of congestion, and therefore continue the sense of separation of the community of Phoenix west and east of I-5. The Build Alternative would not directly separate a community nor disrupt a cohesive neighborhood. The Build Alternative would displace two of the four existing residences along E. Bolz Road (see Section 3.3, Right of Way). These existing residences are unique because they are located adjacent to each other in a primarily commercial and highway/interchange area; the residences are non-conforming uses—and are planned and zoned for commercial use.

The Build Alternative would widen the I-5 overpass structure and improve bicycle and pedestrian facilities, thus increasing the ease of travel between the west and east sides of Phoenix. In addition, traffic flow into and out of most residences and businesses would be improved. These improvements could help increase the sense of community, which could encourage business attraction and retention.

#### *Indirect Impacts*

**Residential Proximity Impacts.** No indirect proximity impacts would occur with the No-Build Alternative.

With the Build Alternative, new development related to the realignment of N. Phoenix Road could occur in the long run. The pace and extent of new commercial development near the Phoenix Hills neighborhood would be limited because no new intersections would be constructed; the Fern Valley Road/N. Phoenix Road intersection would move north, away from Phoenix Hills; and Fern Valley Road would be terminated east of Pear Tree Lane. Therefore, residential proximity impacts would likely be low. However, the volume of truck traffic at the Fern Valley Road/S. Phoenix Road intersection and along S. Phoenix Road bordering Phoenix Hills on the west would increase with the Build Alternative because trucks entering and exiting the southeast commercial area would have to travel through this intersection. With the No Build Alternative, trucks accessing the commercial area would turn into the commercial area from eastbound Fern Valley Road, before they reach the Fern Valley Road/N. Phoenix Road intersection.

**Air Quality and Noise Impacts to Residences.** The Build Alternative would not result in socioeconomic impacts relating to air quality (see Section 3.11, Air Quality). There would be no new exceedances of the National Ambient Air Quality standards and air quality conditions would not worsen.

With the Build Alternative, residents at the two noise-impacted properties along E. Bolz Road could experience a decrease in quality of life due to increased noise levels (see Section 3.10, Noise, for additional details regarding noise levels). Over time, the increased noise levels could help to increase pressure for a change to commercial use of these parcels.

The aesthetic character of Bear Lake Estates would be substantially changed if a sound wall were constructed. The final decision to include sound wall abatement along I-5 adjacent to Bear Lake Estates has not yet been made (see Section 3.10, Noise).

More detailed information on air quality and noise is provided in Section 3.11, Air Quality and Section 3.10, Noise, as well as in the Air Quality Technical Report and the Noise Technical Report (available online at ODOT's Region 3 website<sup>25</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

### *Construction Impacts*

The Build Alternative would temporarily result in dust, noise, traffic delays and congestion associated with construction activities (see discussion of construction impacts in Section 3.4.1, Population, Housing, Business/Employment).

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<sup>25</sup> ODOT's Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>

### 3.4.5 Economic and Fiscal Conditions

#### *Existing Conditions*

The City of Phoenix' projected 2008 budget was approximately \$2.7 million. Tax revenues collected in 2008 were expected to be about 60% of total revenues. The Jackson County 2006-2007 budget was approximately \$287 million. Property taxes represented about \$29 million in revenue in fiscal year 2006-2007.

#### *Direct Impacts*

With the No-Build Alternative, direct economic benefits due to construction spending would not occur. Direct impacts to assessed value of property and associated revenue for the City of Phoenix and Jackson County would not occur.

Direct economic benefits due to construction of the Build Alternative would include additional spending, income, and jobs associated with construction. To the extent that construction materials are purchased within Jackson County, local sales, income, and jobs would temporarily increase. Many construction workers would probably originate from the Medford area, depending on the size of the required workforce.

Construction would cost about \$56.2 million (2012 dollars) for the Build Alternative, not including right of way acquisition or utility relocation costs. It is estimated that every \$1 million of construction expenditure in Jackson County results in 9.1 direct full-time equivalents (FTEs),<sup>26</sup> thus, the \$56.2 million project cost would employ approximately 416 FTE construction workers over the course of the two-year construction period. Construction would also result in indirect jobs, an impact that is discussed in the next section.

As a result of right of way acquisitions, Jackson County's total assessed value of private property would decrease because properties used for the highway would be converted to public use—and thus would no longer be taxable. The decrease in annual property tax revenue would be about \$174,000 (0.60% of property tax revenue) with the Build Alternative (based on the average property tax rate in Jackson County of \$2.5029 per \$1,000 assessed value). This loss would represent approximately 0.6% of annual property tax revenues (2005-2006 fiscal year).

New development has been occurring in Phoenix. Development trends can affect residential and commercial property values. This project would generally result in better traffic conditions for residents and business owners, patrons, and employees. Therefore, over time, the Build Alternative would likely increase the attractiveness of the area in general, and could have a positive effect upon property values.

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<sup>26</sup> One full-time equivalent equals one full-time job (1,080 hours of work). One full-time equivalent could equal two or more part-time jobs. The source used to estimate direct jobs from construction cost is the following: Oregon Department of Transportation, *Short-Run Job Impacts*, 2004.

Some residences that are located near areas where commercial development occurs could experience adverse impacts on residential property values (e.g., negative change of view, increased noise). However, these homes could also experience property value increases due to better traffic flow, improved safety and vehicular and non-vehicular connections, and less congestion.

The pear orchard east of the Peterbilt property is located on a parcel that would be partially acquired by the Build Alternative. The orchard does not currently operate as a business. With the Build Alternative, Realigned N. Phoenix Road would extend through the orchard, but a large portion of the parcel would remain useable for continued orchard use.

### *Indirect Impacts*

**Construction-Related Indirect Impacts.** An estimated \$1 million of construction expenditure in Jackson County results in 2.5 indirect FTEs and 4.8 induced FTEs.<sup>27</sup> Indirect jobs are those that would result from purchases of goods and services by supplier firms (firms that supply materials or equipment for project construction). Induced jobs are those associated with increased spending throughout the economy that would occur due to direct and indirect economic effects. The \$56.2 million project cost would be associated with approximately 334 indirect and induced FTEs over the course of the two-year construction period. These FTEs represent the ripple effect of construction activities, and would occur in all industries. The indirect and induced FTEs would be temporary because they are associated with construction, and would last only as long as the construction period, with some lag. These impacts are in addition to the direct impacts discussed above.

**Property Tax and Other Revenues.** The No-Build Alternative would not change property tax revenues, but could indirectly decrease revenues if new development becomes less desirable and development occurs in other areas due to increased congestion in the project area.

Although the Build Alternative would result in the direct reduction of property tax revenues due to converting private property to public right of way, this could be countered by indirect increases in revenues if City of Phoenix and Jackson County experience: (1) increases in assessed value due to the long-term transportation benefits of the project, and (2) new private development attributable in part to the transportation improvements associated with this project.

Jackson County and the City of Phoenix could experience higher property tax revenues because the proposed IAMP includes restrictions on high vehicle trip-generating land uses near the interchange. High trip-generating uses generally have lower assessed values per acre than low trip-generating uses.

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<sup>27</sup> The source used to estimate indirect and induced jobs from construction cost is the following: Oregon Department of Transportation, *Short-Run Job Impacts*, 2004.

A limitation on trip generation in the IAMP would reduce City of Phoenix transportation system development charge (SDC) revenues, but also would reduce the need for additional transportation infrastructure. Transportation SDCs are directly tied to how many trips a land use generates, so lower trip generation would reduce SDC revenue. However, SDC revenue would still be sufficient to cover the City's obligation to pay a portion of this Fern Valley Interchange project cost.

**Property Values.** Property values near the interchange could eventually be impacted by increased congestion associated with the No-Build Alternative by making some properties less desirable.

With the Build Alternative, residential property values near the interchange could increase or decrease in the future. The Build Alternative could affect property values through improved traffic flow, less congestion, fewer delays, changes in views, changes in traffic noise, types of traffic (e.g., cars moving slowly, or trucks moving quickly), and the proximity of new development. Over the long term, the improved traffic flow with the Build Alternative could increase property values slightly in a large area surrounding the interchange, which would counteract potential decreases in property values due to changes in views or noise levels that would be experienced.

**Regional Economic Benefits.** With the Build Alternative, the IAMP would limit development of high vehicle trip-generating land uses near the interchange, which could benefit the regional economy. The limitation would mean that certain businesses that are typically located near a highway (e.g., fast food restaurants, gasoline stations, convenience marts) would be less likely to locate near the interchange. However, these types of businesses would likely still locate in the region, and would therefore not represent a loss of jobs or income to the region. To the extent that businesses rely on I-5 for customers, they would likely locate at another interchange. To the extent that they rely on local customers, they would likely locate away from the interchange. Limiting high vehicle trip-generating uses would lessen congestion near the interchange and retain the attractiveness of the interchange area in the long run for businesses.

### 3.4.6 Cumulative Socioeconomic Impacts

#### *No-Build Alternative*

The No-Build Alternative would not substantively contribute to cumulative socioeconomic impacts in the project area or Jackson County. Social and economic trends would continue similar to current trends. Transportation issues would continue to occur in the Rogue Valley, and projects that would alleviate traffic in other areas could be constructed. The trend of increasing commercial development near the interchange could continue, but would likely occur at a slower rate because the area would be less attractive to new businesses if traffic congestion and delays continue to increase.

The current economic development strategy is reflected in the “interchange business” comprehensive plan designation of the interchange area, meaning land there “is intended

to provide services and goods for the traveling public, as well as business locations serving the community and the region.” The No-Build Alternative would impede this strategy. As discussed in Section 3.2.2, Land Use Impacts, under the No-Build Alternative, land could not be rezoned for commercial use if it does not already have commercial zoning and increasing congestion would reduce the area’s attractiveness for development.

### *Build Alternative*

Construction time periods for other developments and transportation projects in the Phoenix area and Jackson County are not known. For those construction periods that conflict with this interchange project, demand for construction workers could be high. Relatively high demand could result in the temporary migration of construction workers on a daily or weekly basis from other areas to the Phoenix or Medford area. This increased daily population could result in additional daily spending and related income and jobs at businesses that serve construction populations (such as grocery stores, restaurants, gasoline stations, and temporary lodging facilities). This impact could also result in increased demand for temporary housing and public services on a daily basis, to serve the additional daily or weekly population.

Over time, better traffic flow throughout the Phoenix area could contribute to business attraction and retention and new residential development. These two trends could be associated with increased industry diversity, increased demand for housing and services, higher tax revenues, and more revenue to businesses and governments in the future.

### **3.4.7 Summary of Proposed Mitigation Measures**

Mitigation measures for socioeconomic impacts include those that would also mitigate for other issues, such as right of way, traffic, noise, air, and visual impacts. These measures also help to decrease potential adverse socioeconomic impacts. Examples include:

- Right of way acquisition is covered by ODOT’s land acquisition and relocation assistance programs.
- Traffic management would be used to maintain traffic flow during construction as much as possible.
- Incorporate signage and coordinate with businesses to keep connections to businesses open during construction.
- Although response times for emergency vehicles could temporarily increase due to construction activities, emergency vehicle travel would be maintained at all times.
- Construction noise abatement measures would minimize the temporary noise impacts due to construction.
- Construction practices, such as spraying water to control dust, would minimize air quality impacts to adjacent land uses during construction.

### 3.4.8 Conclusion

Disruptions relating to the relocations of four businesses and two residences would occur—but the impact is unavoidable, and is not substantial in terms of the number of businesses and residences in the Phoenix area. On-street parking removal along E. Bolz Road would affect adjacent businesses and residences, but parking is available on those affected properties. The removal of 67 off-street parking spaces from businesses does not appear to affect the viability of those businesses. Overall, the traffic flow to businesses and residences in the project area would improve, resulting in fewer delays and stops, shorter travel times, and higher speeds.

While there would be a change in circulation patterns to the northeast interchange quadrant, improvements in traffic circulation with the Build Alternative would result in easier travel to that quadrant. The Build Alternative would result in a more circuitous route to the southeast interchange quadrant and to some businesses affected by out-of-direction travel, but the improved traffic circulation in the entire project area is anticipated to help counter the out-of-direction travel.

The decrease in annual property tax revenue of about \$174,000 resulting from the removal of property from the tax rolls with the Build Alternative is only about 0.6% of Jackson County's annual property tax revenues (2005-2006 fiscal year). This is likely to be countered by the Build Alternative because better traffic flow throughout the area could contribute to business attraction and retention and new residential development, resulting in increased industry diversity, increased demand for housing and services, higher tax revenues and more revenue to businesses and governments.

Emergency response times, and bicycle and pedestrian safety and circulation would improve as a result of the Build Alternative. There would be an increased potential for park-and-ride and safe bus pull-out locations. No disproportionately high adverse impacts to Environmental Justice populations would occur as a result of the Build Alternative.

Based on the socioeconomic analysis and associated mitigation measures, the Build Alternative is not anticipated to result in significant socioeconomic impacts.

## 3.5 CONSISTENCY WITH APPLICABLE PLANS AND POLICIES, AND LAND USE PERMIT REQUIREMENTS

This section addresses whether the project alternatives are consistent with city, county, regional, state, and federal plans and policies. In addition, the section indicates whether plan amendments would be required for the Build Alternative and identifies needed land use permits.

The Build Alternative is located almost entirely within the planning jurisdiction of the City of Phoenix, with a small portion within Jackson County's planning jurisdiction. The City and County are responsible for local transportation planning. The Rogue Valley Metropolitan Planning Organization (RVMPO) is responsible for regional transportation planning. The RVMPO includes the Cities of Ashland, Central Point, Eagle Point,

Jacksonville, Medford, Phoenix, and Talent; Jackson County; the White City Urban Renewal Agency; the Rogue Valley Transportation District; and the Oregon Department of Transportation. ODOT is responsible for statewide transportation planning and operations.

Table 3-10 and Figure 3-15 show roadway ownership and classifications in the project area. Roadway classifications are based on the function the roads are intended to perform. If a project changes the function of a road, the government agency with authority over the road must change its classification. If the Build Alternative is selected, ODOT and Jackson County or the City of Phoenix would discuss the potential for ownership transfers.

The Land Use and Planning Technical Report contains a detailed analysis of the Build Alternative's consistency with local, regional and state plans. This report is available online at ODOT's Region 3 website<sup>28</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299.

### 3.5.1 City of Phoenix

#### *City of Phoenix Transportation System Plan*

**Applicable Contents.** With the adoption of the IAMP, the *City of Phoenix Transportation System Plan*<sup>29</sup> (TSP) will expressly include the replacement of the Fern Valley Interchange as proposed under the Build Alternative.

**No-Build Alternative.** The No-Build Alternative is incompatible with the City's TSP because it would not widen the bridge structures over I-5 and Bear Creek, as listed in Table 3-11.<sup>30</sup>

**Build Alternative.** The Build Alternative will be compatible with the Phoenix TSP, when the City adopts the IAMP as part of the TSP. Under Oregon's Statewide Planning Program, the Build Alternative must be *compatible* with the Phoenix TSP, meaning "allowed under the plan."<sup>31</sup> The City will have to adopt the IAMP because it is part of the Build Alternative and includes measures the City will implement through the City of Phoenix Land Development Code. Therefore, the Build Alternative (including the IAMP) will not be "allowed under the plan" unless the IAMP is adopted as part of the TSP. The transportation system improvements under the Build Alternative are sufficiently related to the projects in Table 3-11 that demonstrate compatibility with the TSP.

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<sup>28</sup> ODOT's Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>

<sup>29</sup> As updated in March 2003.

<sup>30</sup> ODOT projects must be compatible with local plans. See ORS 197.180 and OAR 660-012-0015(1)(b), part of the TPR.

<sup>31</sup> ORS 197.180(1)(b) and ORS 197.180(12).

**TABLE 3-10: ROADWAY OWNERSHIP, FUNCTIONAL CLASSIFICATIONS AND FREIGHT DESIGNATIONS**

Ownership	Roadway	Functional Classification/ Freight Designation
ODOT	I-5	Interstate Highway/Statewide Freight Route (in OHP) <sup>1</sup>
	OR 99 north of couplet	District Highway (in OHP) <sup>1</sup> Arterial (in RTP) <sup>2</sup>
	Fern Valley Road west side of interchange to N. Phoenix Rd.	District Highway (in OHP) <sup>1</sup>
	N. Phoenix Road to 0.66 mi. north of Fern Valley Road	District Highway (in OHP) <sup>1</sup> Collector (within UGB in City of Phoenix Transportation System Plan) <sup>4</sup>
Jackson County	Fern Valley Road <ul style="list-style-type: none"> <li>◦ From OR 99 to east side of Bear Creek Br.</li> <li>◦ Outside the UGB</li> </ul>	Arterial <sup>3</sup> Minor Collector <sup>3</sup>
	N. Phoenix Road outside the UGB	Arterial <sup>3</sup>
City of Phoenix	OR 99/Bear Creek Drive couplet	Arterial <sup>4</sup>
	Fern Valley Road <ul style="list-style-type: none"> <li>◦ From east side of Bear Creek Bridge to west side of interchange</li> <li>◦ From N. Phoenix Rd to UGB</li> </ul>	Arterial <sup>4</sup> Collector <sup>4</sup>
	E. Bolz Road	Arterial <sup>4</sup>

<sup>1</sup> The *Oregon Highway Plan* indicates the following:

- Interstate Highways (NHS) provide connections to major cities, regions of the state, and other states; connections for regional trips within metropolitan areas; are major freight routes and their objective is to provide mobility; and have a management objective to provide for safe and efficient high-speed continuous-flow operation in urban and rural areas.
- District Highways are facilities of county-wide significance and function largely as county and city arterials or collectors; provide connections and links between small urbanized areas, rural centers and urban hubs; also serve local access and traffic; have a management objective to provide moderate to high-speed continuous-flow operation in rural areas and moderate to low-speed operation in urban and urbanizing areas for traffic flow and for pedestrian and bicycle movements.
- Statewide Freight Routes are part of the State Highway Freight System, the primary purpose of which is to facilitate efficient and reliable interstate, intrastate, and regional truck movement.

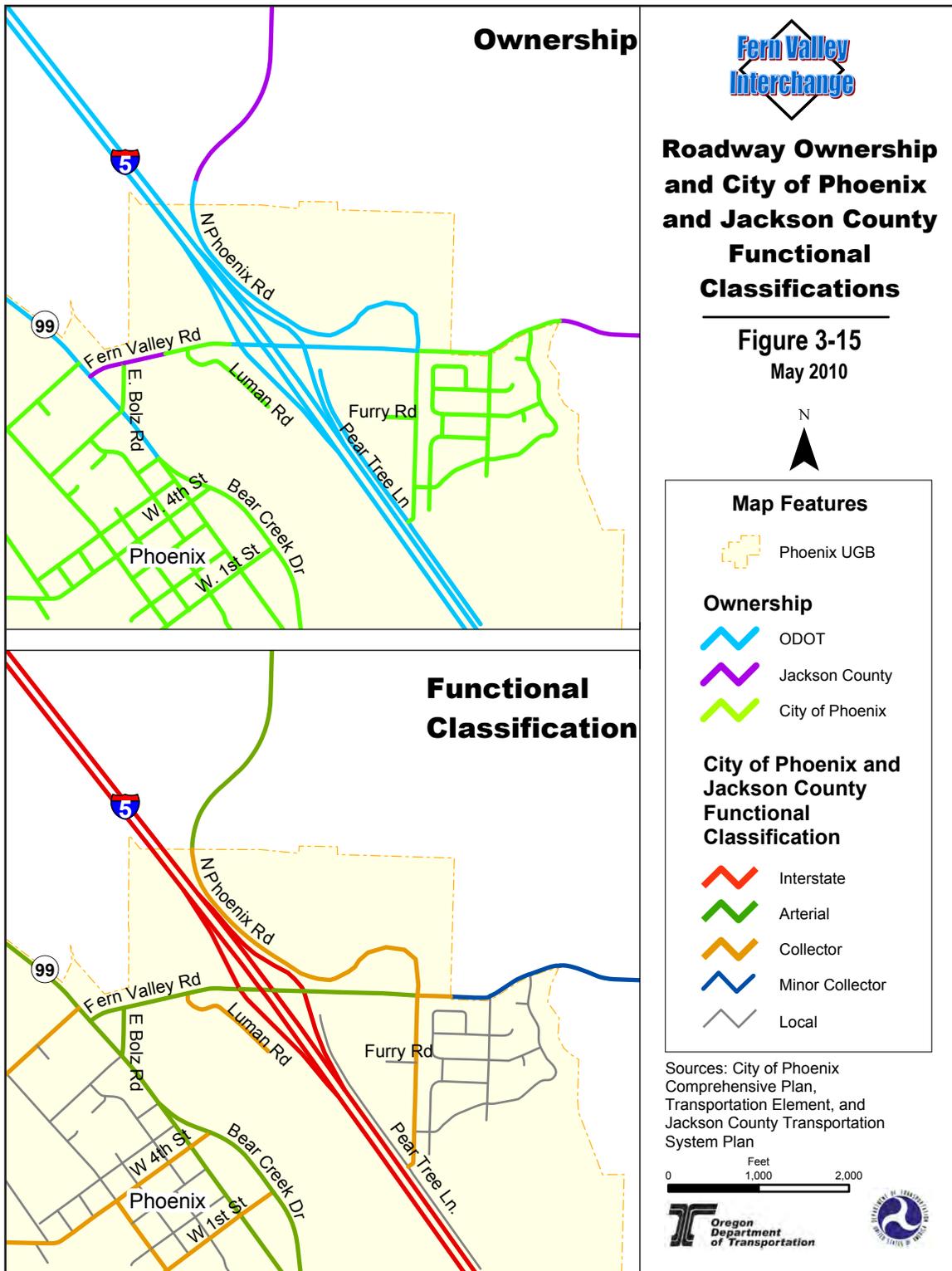
<sup>2</sup> The *Regional Transportation Plan* does not contain a definition of arterials or a description of their function or management.

<sup>3</sup> The *Jackson County Transportation System Plan* indicates the following:

- Arterials have a primary function to serve both local and through traffic as it enters and leaves urban areas; serve major traffic movements; provide access control through medians and/or channelization; restrict on-street parking; provide sidewalks and bicycle facilities; be used by public transit in urban areas; and carry high volumes of freight traffic that have both local and external destinations.
- Minor Collectors have a primary function to get traffic from neighborhoods and business areas to the arterial and major collector system; have slower speeds enhancing safety for pedestrians and bicyclists; may provide on-street parking in urban areas; provide pedestrian and bicycle facilities; should provide exclusive bicycle facilities in urban areas and shared facilities in rural areas; may be used by public transit in urban areas; and serve freight traffic destined for local delivery or local markets.

<sup>4</sup> The *City of Phoenix Transportation System Plan* states the following:

- Arterials are intended where motor vehicles are the principal mode of travel; pedestrians, bicycles, and low-powered vehicles are explicitly accommodated through facility design; transit and other multi-modal connections are available at transit-oriented development nodes (chiefly within the City Center); and sidewalks and bike lanes are required.
- Collectors provide convenient and safe travel for all modes; accommodate pedestrians, bicycles, and low-powered vehicles through facility design; and require sidewalks and bike lanes.



**TABLE 3-11: CITY OF PHOENIX TRANSPORTATION SYSTEM PLAN PROJECTS RELATED TO THE FERN VALLEY INTERCHANGE PROJECT**

<b>Jurisdiction/ Priority</b>	<b>Project</b>	<b>Description</b>
ODOT Tier 1 Long Range	Fern Valley Road Interchange with I-5	Widen bridge structure
ODOT Tier 1 Long Range	Hwy 99 and Fern Valley Road/Cheryl Lane	Realign intersection and upgrade signal
ODOT Tier 1 Long Range	Fern Valley Road and N. Phoenix Road	Install new signal
Jackson County Tier 1 Medium Range	Fern Valley Road bridge structure over Bear Creek	Widen bridge structure
City of Phoenix Tier 1 Short Range	Luman Road and Fern Valley Road	Install new signal

The Phoenix City Council has conducted hearings on amendments to the TSP to explicitly include the Build Alternative, adoption of the IAMP, and amendments to the Phoenix Land Development Code to implement the IAMP. Enactment will make the Build Alternative fully compatible with the Phoenix TSP. City of Phoenix adoption of the IAMP is anticipated in October of 2010.

*Other Components of the City of Phoenix Comprehensive Plan*

**Applicable Contents.** The only other component of the City of Phoenix Comprehensive Plan that explicitly applies to the Fern Valley Interchange is Policy 4.3 under Goal 4 of the Economic Element. Goal 4 indicates the intended role of the interchange. This goal states: “Designate lands within the I-5 interchange area to provide services and goods for the traveling public as well as business locations serving the community and the region.”<sup>32</sup> Policy 4.3 states:

The Fern Valley Interchange and Fern Valley Road within the City’s UGB are regionally significant transportation facilities. Developments occurring outside the interchange area (in Southeast Medford and rural Jackson County) have the potential to exhaust the interchange’s remaining unused capacity. The transportation impacts of Southeast Medford and rural Jackson County developments, like those of development within the interchange area, should also be offset by improvements, when necessary, to ensure “sufficient capacity” in the interchange area and ensure the protection of the public’s health, safety, and general welfare. The City shall endeavor to: 1) secure regional support for

<sup>32</sup> Economic Element, March 1998, Goal 4, p. 35.

interchange improvements; and 2) participate in any land use action that will “significantly increase travel demand” in the interchange area.<sup>33</sup>

**No-Build Alternative.** The No-Build Alternative is inconsistent with the policy favoring commercial development of the interchange area that is implicit in Goal 4, as quoted above. This is because, without the improvements provided by the Build Alternative, additional commercial development would be restricted (see the discussion of indirect land use impacts in Section 3.2.2, Land Use Impacts).

**Build Alternative.** The Build Alternative is consistent and therefore compatible with Goal 4 and Policy 4.3 for several reasons. First, the Build Alternative will enable additional commercial development in the interchange area to “provide services and goods for the traveling public as well as business locations serving the community and the region” (see the discussion of indirect land use impacts in Section 3.2.2, Land Use Impacts). Second, the Alternative Mobility Standard at I-5 Ramp Terminal Intersections, Jackson County Plan and Ordinance Provisions, and South Valley Transportation Strategy measures in the IAMP will address the potential for “developments occurring outside the interchange area (in Southeast Medford and rural Jackson County)”, “to exhaust the interchange’s remaining unused capacity.” Third, the Trip Budget and Motor Vehicle Trip Reduction Designs and Programs IAMP measures will provide means for the City of Phoenix to “participate in any land use action that will ‘significantly increase travel demand’ in the interchange area”.

### *City of Phoenix Development Code*

The *Development Code* does not expressly address highway improvement projects. However, three provisions would apply to the project:

- The Riparian Setbacks section, which requires the protection of streamside vegetation and the rehabilitation of disturbed lands within 100 feet of the banks of Class 1 and 2 Streams (anadromous fish-bearing streams, which include Bear, Payne and Coleman Creeks);
- The Code’s flood damage prevention regulations, which require a development permit; and
- The Bear Creek Greenway zoning district regulations, which require “the express written consent of the Phoenix Planning Commission” for development within the district.<sup>34</sup>

ODOT would obtain the required approvals and coordinate with the City of Phoenix on how best to meet riparian, flood protection, and Greenway protection standards.

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<sup>33</sup> Ibid., p. 36.

<sup>34</sup> Additional information on the Bear Creek Greenway is included in Section 3.8, Section 4(f).

### 3.5.2 Jackson County

#### *Jackson County Transportation System Plan*

**Applicable Contents.** The *Jackson County Transportation System Plan* incorporates by reference the Fern Valley Interchange project because it “incorporates by reference, the *Regional Transportation Plan* (RTP) for all regionally significant transportation facilities within the MPO area.”<sup>35</sup> The RTP includes the Fern Valley Interchange project as a Tier 1 transportation improvement.

Except for roadway standards applicable to the small segments of the Build Alternative that would be located outside the Phoenix UGB, Jackson County TSP policies would not apply to the Build Alternative. This is because the interchange and most of the associated improvements to the roadway network would be within the jurisdiction of the City of Phoenix. Jackson County TSP rural county roadway standards would apply only to the short segment of improvements to N. Phoenix Road north of the Phoenix UGB under the Build Alternative. The standards for N. Phoenix Road are 12-foot lane widths and 6-foot shoulders. The standards do not require bike lanes or sidewalks.

**No-Build Alternative.** The No-Build Alternative would be incompatible with the Jackson County TSP because the TSP includes the Fern Valley Interchange project.

**Build Alternative.** The Build Alternative would be consistent, and therefore compatible, with the Jackson County TSP. The Build Alternative would tie into the county’s portion of existing N. Phoenix Road north of the UGB and would not alter the function of N. Phoenix Road as an arterial. The proposed interchange project is included in the RTP and would not affect planning for the County’s portion of N. Phoenix Road. Lane and shoulder widths would meet or exceed applicable County standards.

#### *Jackson County Land Development Ordinance*

The *Jackson County Land Development Ordinance* (LDO) regulates highway improvements within the county in compliance with the statutes and administrative rules associated with the Statewide Planning Program. All lands east of I-5 within Jackson County (outside the Phoenix UGB) that would be directly impacted by the project are zoned EFU. The LDO would require ODOT to obtain a land use permit for the Build Alternative.



*Southwest on N. Phoenix Road from Arrowhead Ranch*

Because portions of the Build Alternative would impact land outside the Phoenix UGB

<sup>35</sup> Jackson County, *Oregon, Transportation System Plan*, May 16, 2005, Strategy 4.2.1-K, p. 32.

(Figure 3-16), the Build Alternative must be evaluated to determine whether it would be permitted without Statewide Planning Goal exceptions, as provided in OAR 660-012-0065. When a proposed project alternative would be located on land outside a UGB, it falls under the requirements of OAR 660-012-0065, a section of the Statewide Planning Program's TPR.<sup>36</sup> OAR 660-012-0065 identifies transportation improvements that may be allowed outside UGBs consistent with Goals 3 (Agricultural Lands), 4 (Forest Lands), 11 (Public Facilities and Services) and 14 (Urbanization) without having to take exceptions to one or more of these Goals. If transportation facilities and improvements are not identified in OAR 660-012-0065, they require Goal exceptions to locate outside UGBs.

East of I-5 and north of the City of Phoenix UGB, the Build Alternative would use about 7.4 acres of land outside the UGB in order to realign N. Phoenix Road. A number of other alternatives were considered in this area, but none were identified that would avoid using land outside the UGB. Because the function of N. Phoenix Road (as an arterial) would not change, and because the existing roadway would remain as a local approach road only, this change in the alignment of N. Phoenix Road outside the UGB on EFU land would be considered a "realignment" (as defined in OAR 660-012-0065), and thus would be allowed on rural land without goal exceptions.

Under the LDO, the Build Alternative would require a Type 2 (site development review) permit from Jackson County. A Type 2 permit does not require review by the Planning Commission or the Board of Commissioners.

### 3.5.3 Rogue Valley Regional Transportation Plan

**Applicable Contents.** The RVMPO manages regional transportation planning through its RTP (2009). The RTP includes the Fern Valley Interchange project as a Tier 1 transportation improvement. Classification as Tier 1 means funding for the project has been identified.<sup>37</sup>

The RTP includes the following transit-related policies related to local governments, RVTD and ODOT:

- Goal 6. Use incentives and other strategies to reduce reliance on single occupant vehicles.
  - Policy 6-1: Support Transportation Demand Management strategies.
  - Policy 6-2: Facilitate alternative parking strategies to encourage walking, bicycling, carpooling and transit.
  - Policy 6-3: Enhance Bicycle and Pedestrian Systems.
  - Policy 6-4: Support transit service.

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<sup>36</sup> The TPR is implemented through OAR 660, Division 12.

<sup>37</sup> Rogue Valley Metropolitan Planning Organization, 2009-2034 Regional Transportation Plan, Chapter 5.6, p. 2.



**Legend**

-  UGB
-  Build Alternative

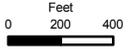
Source: ODOT, URS Corporation



**Build Alternative  
Impacts to Exclusive  
Farm Use Zones**

**Figure 3-16**

May 2010



This figure reflects conceptual design, and is subject to change. As the project is refined, some changes may occur.

**No-Build Alternative.** The No-Build Alternative is inconsistent and therefore incompatible with the RTP because the project is in the RTP’s Tier 1 project list. If the No-Build Alternative were selected, the Fern Valley Interchange Project would have to be removed from the RTP.

**Build Alternative.** The Build Alternative is consistent with the RTP because the project is in the Tier 1 project list and because the Build Alternative, including the IAMP, would advance Goal 6 and the Goal 6 policies listed above in the following ways.

- The bike lanes and sidewalks in the design of the Build Alternative would enhance bicycle and pedestrian systems.
- The Motor Vehicle Trip Reduction Designs and Programs IAMP measure (described in Chapter 2, Section 2.2, Interchange Area Management Plan) would support transportation demand management strategies and alternative parking strategies to encourage walking, bicycling, carpooling and transit, and transit service.
- The Bus Stop and Transfer Site Coordination and Shared Park-and-Ride Lot Help IAMP measures (described in Chapter 2, Section 2.2, Interchange Area Management Plan) would support transit service.

Transit amenities, such as bus pullouts, may be located along or near Fern Valley Road and N. Phoenix Road, but are not financed in association with this project. Collaboration between ODOT, RVTB, and local jurisdictions could identify potential future locations for bus pullouts along these routes. At this time, RVTB has stated that it is too difficult to merge back into traffic from bus pullouts, which causes delays due to waiting for traffic to clear—thus resulting in negative impacts to the bus schedules.

Although park-and-ride facilities are not currently included in this project, there are opportunities in the project area where these facilities could be located.

### 3.5.4 State Plans and Policies

#### *Applicable Contents*

**Statewide Planning Program.** The Oregon Statewide Planning Program includes 19 Statewide Planning Goals that express Oregon’s policies on land use and on related topics (e.g., citizen involvement, housing, natural resources, and transportation). These Goals are achieved through local adoption of comprehensive plans and implementing ordinances. State highway improvements must be compatible with applicable local comprehensive plans.

Goal 12, which addresses transportation issues, is intended to provide a safe, convenient, and economic transportation system. This is accomplished by requiring all jurisdictions to prepare multi-modal transportation plans that are based on an inventory of transportation needs and that consider social, economic, environmental and energy impacts.

The TPR implements Goal 12. The TPR specifies how local governments and state agencies must comply with Goal 12 and other Statewide Planning Goals, including how transportation facilities are provided on rural lands. The TPR requires TSPs to meet state, regional, and local transportation needs.

The Statewide Planning Program requires ODOT and other state agencies to carry out their duties in a manner compatible with local comprehensive plans and land use regulations. A key element of this program is coordination with other state agencies, regional planning organizations, and local governments. ODOT implemented these requirements by adopting its State Agency Coordination Program, which applies to transportation projects.<sup>38</sup> Under this program, ODOT may not issue a final environmental document and proceed with a project until the affected city and/or county has made all necessary amendments to their comprehensive plans or zoning regulations that are necessary for the project.<sup>39</sup>

**Oregon Transportation Plan (OTP).** The OTP provides long-range policies to guide the development of a safe, convenient, and efficient statewide transportation system that promotes economic prosperity and livability for all Oregonians. Goals and policies deal with a variety of subjects, including modal balance, accessibility, environmental responsibility, connectivity, safety, livability, land use, and economic development. The OTP is the umbrella plan for the modal plans listed below. It does not include individual projects like the Fern Valley Interchange project. The OTP is available online at ODOT's website<sup>40</sup> or upon request from ODOT's Transportation Planning Unit, 555 13th Street NE, Suite 2 Salem, OR 97301-4178.

**Oregon Highway Plan (OHP).** The OHP is a long-range plan that provides policies and strategies for the Oregon highway system across a 20-year timeframe. All state highway transportation projects within Oregon must be consistent with the OHP. The OHP includes a goal to optimize the overall efficiency and utility of the state highway system through the use of alternative modes and travel demand strategies. It does not include individual projects like the Fern Valley Interchange project, unless ODOT has adopted a facility plan for a project. ODOT has not adopted such a plan for the Fern Valley Interchange Project. The OHP is available online at ODOT's website<sup>41</sup> or upon request from ODOT's Transportation Planning Unit, 555 13th Street NE, Suite 2 Salem, OR 97301-4178.

**Oregon Bicycle and Pedestrian Plan (OBPP).** The OBPP identifies goals and policies for developing bicycle and pedestrian facilities on Oregon highways. The OBPP is available online at ODOT's website<sup>42</sup> or upon request from ODOT's Bike and Pedestrian Program, 355 Capitol Street NE, Salem OR 97301. Applicable policies are:

- Goal: To provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking.

<sup>38</sup> Oregon Administrative Rules Chapter 731, Division 15.

<sup>39</sup> See OAR 731-015-0075(3) and (6). This does not include land use permits, per OAR 731-015-0075(8).

<sup>40</sup> ODOT Transportation Planning Unit's website: <http://www.oregon.gov/ODOT/TD/TP/ortransplanupdate.shtml>

<sup>41</sup> ODOT Transportation Planning Unit's website: <http://www.oregon.gov/ODOT/TD/TP/orhwyplan.shtml>

<sup>42</sup> ODOT Bike and Pedestrian Program: <http://egov.oregon.gov/ODOT/HWY/BIKEPED/planproc.shtml>

- Action 1: Provide bikeway and walkway systems that are integrated with other transportation systems.
- Strategy 1A: Integrate bicycle and pedestrian facility needs into all planning, design, construction and maintenance activities of the Oregon Department of Transportation, local governments and other transportation providers.
- Urban Bicycle and Pedestrian Improvement Methods: Urban bikeways and walkways will be provided . . . As part of road construction projects: ODOT will incorporate needed bicycle and pedestrian facilities on construction, reconstruction and relocation projects, subject to the provisions of ORS 366.514.

### *No-Build Alternative*

The No-Build Alternative would fail to achieve Policy 2.1 of the OTP, which states, “It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long term benefit of people and goods movement.” In addition, operations at the Fern Valley Interchange and the OR 99/Fern Valley Road intersection would fail to meet the mobility performance (v/c) standards established by OHP Policy 1F (Highway Mobility Standards). The existing interchange fails to meet the standards, and violations of the standards are predicted to worsen (see Section 3.1.1, Traffic Analysis).

### *Build Alternative*

The text below addresses consistency with state plans and policies in general terms. The Land Use and Planning Technical Report addresses consistency with specific policies contained in the state plans referenced above. This technical report is available online at ODOT’s Region 3 website<sup>43</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299.

The Build Alternative would comply with Statewide Planning Program requirements because it is compatible with the City of Phoenix and Jackson County comprehensive plans and would not require a Statewide Planning Goal exception, as described above. It is consistent with the OTP because it would improve the capacity and operational efficiency of the transportation system. The Build Alternative, including the IAMP, is consistent with the OHP because the alternative would achieve applicable v/c standards and protect the performance of the interchange through land use measures developed and taken in collaboration with the City of Phoenix. The Build Alternative would also comply with the applicable policies of the OBPP.

The Build Alternative complies with the State Agency Coordination Program (referenced under Statewide Planning Program above) As stated in Section 3.5.1, the Build Alternative is compatible with the City of Phoenix TSP and the Phoenix Land Development Code provides for approval of projects like the Build Alternative. As

<sup>43</sup> ODOT’s Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>

indicated in Section 2.2, Interchange Area Management Plan, the City of Phoenix adopted the IAMP as part of the *Phoenix Comprehensive Plan*. The City would need to make no additional amendments to its Comprehensive Plan, including its TSP, or to its zoning code.

The Build Alternative would comply with the OBPP policies quoted above because it would include bicycle lanes and sidewalks across the new interchange and in conjunction with all other roadways built as part of the project.

### 3.5.5 Federal Policies

#### *Farmland Protection Policy Act (7 USC 4201-4209)*

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. The FPPA is intended to ensure “to the maximum extent practicable,” that federal programs are administered to protect farmland.

A farmland conversion impact rating conducted for the Build Alternative indicates that protection of the farmland the Build Alternative would impact is not warranted. Under the FPPA, the National Resource Conservation Service (NRCS) of the U.S. Department of Agriculture and a project’s sponsor (here FHWA) document the farmland impacts of federally-funded projects. The conversion impact rating includes all land that could be farmed, both inside and outside UGBs. Factors considered include the amount of land removed from farming both directly and indirectly, the land’s agricultural productivity, the effect on the viability for continued farming of remaining land in the same ownership and in the general area, and proximity to urban services and land uses. The higher the rating, the higher both the quality of the agricultural land and adverse impact on continued agricultural operations. Federal policy is that “sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated.”<sup>44</sup>

The Build Alternative would impact about 11.3 acres of farmland. The score for the Build Alternative is 153 (see Appendix D). Therefore, farmland protection need not be given further consideration. For this reason, FHWA has determined that the proposed conversion of farmland is consistent with the FPPA and FHWA’s policies.

### 3.5.6 Conclusion

When the City has incorporated the Build Alternative and IAMP into its plans and ordinances, which would be required for selection of this alternative, the Build Alternative would be compatible with the City of Phoenix Comprehensive Plan and the TSP. Similarly, the Build Alternative is compatible with the Jackson County Comprehensive Plan and consistent with the RTP. The Build Alternative complies with

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<sup>44</sup> Farmland Protection Policy Act, Section 658.4(c)(2).

the Oregon Statewide Planning Program, OTP, OHP, OBPP, and FPPA. Prior to construction, ODOT would obtain design review approval from the City of Phoenix and a Type 2 land use permit from Jackson County.

Based on the planning analysis, the Build Alternative is not anticipated to result in significant changes to state, regional and local plans.

## 3.6 PARKS AND RECREATION

### 3.6.1 Existing and Planned Parks and Recreation Facilities

Parks and recreational facilities in the project vicinity are shown in Figure 3-17. These parks and recreational facilities include Blue Heron Park, located along Bear Creek south of the proposed project; City Hall Park, located in downtown Phoenix, the Phoenix Elementary School playground, also located in downtown Phoenix; and the Phoenix High School recreational facilities, located at the west end of Cheryl Lane. In addition, the Bear Creek Greenway is a linear park located on the west side of I-5; it includes a recreational multi-use path. No planned parks or recreational facilities are currently identified in the project area as indicated from conversations with the City of Phoenix and Jackson County Parks.

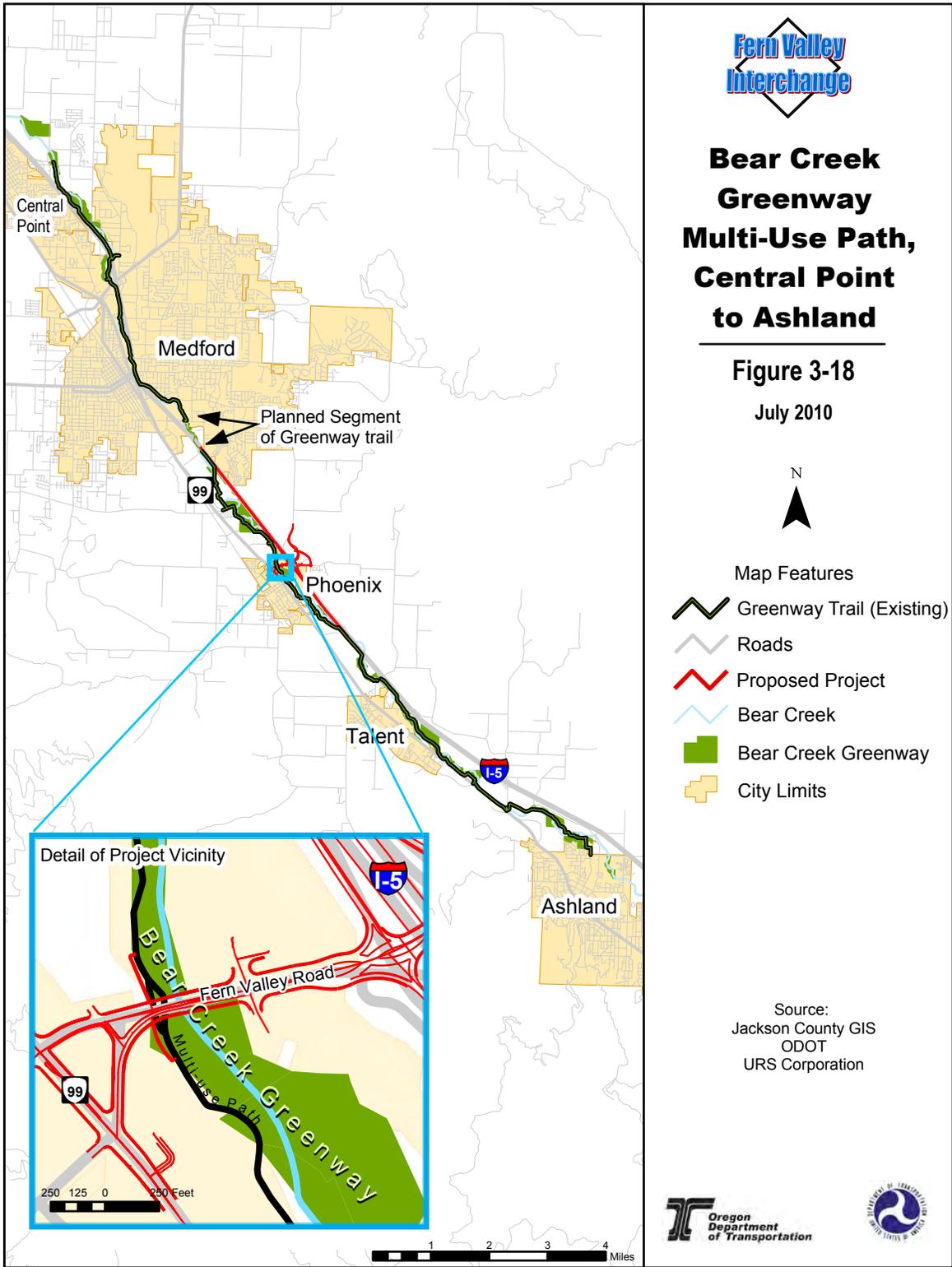
The Bear Creek Greenway is the only park located within the immediate project area. It is a linear park with a multi-use path approximately 17.3 miles long, extending from Ashland nearly to Central Point (see Figure 3-18). The Greenway is managed collaboratively by Jackson County, the five local governments in which it is located (Ashland, Talent, Phoenix, Medford, and Central Point), and the nonprofit Greenway Foundation. In the project area, the Greenway is under the jurisdiction of Jackson County, Oregon.

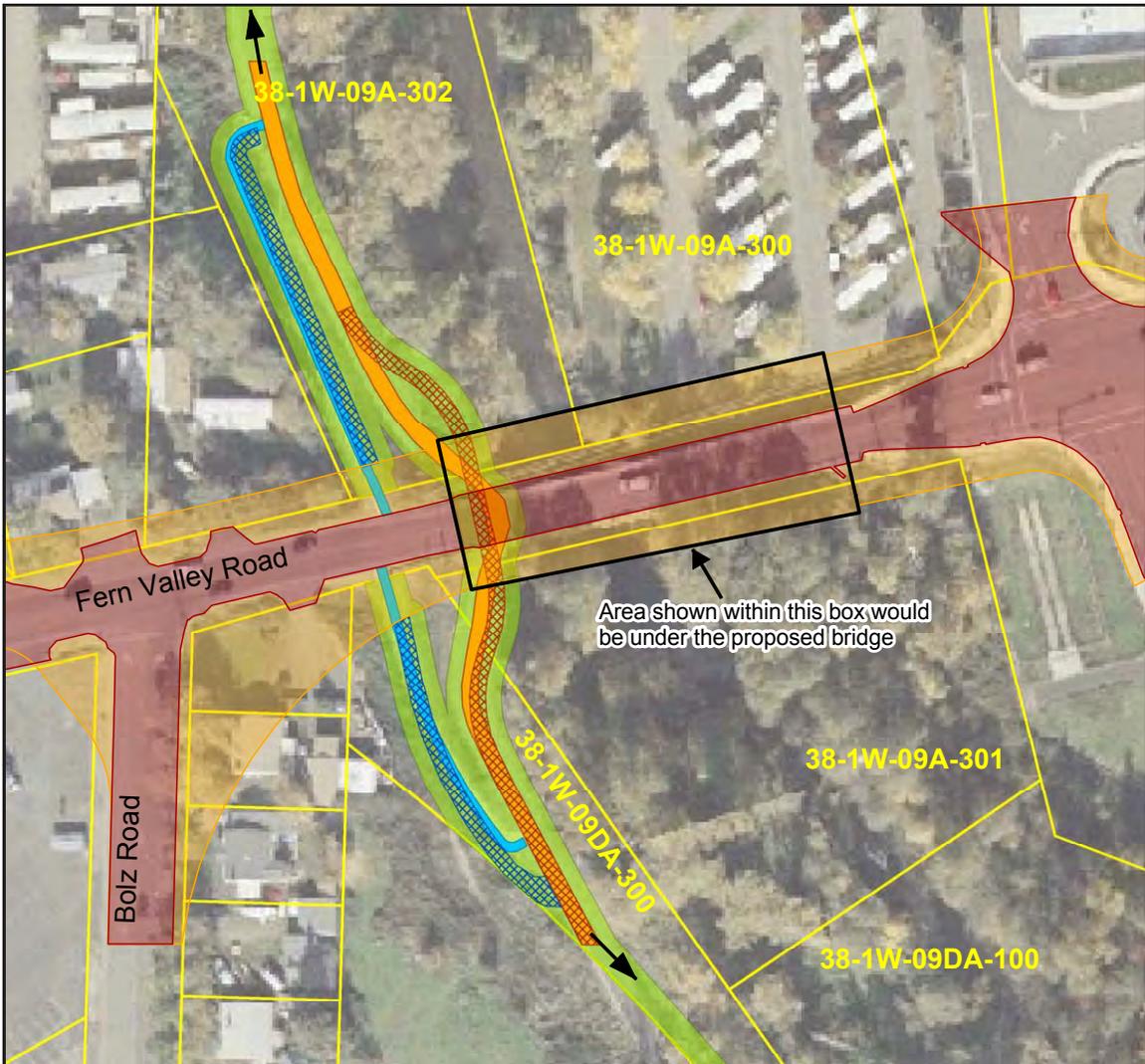
Within the project area, the multi-use path is approximately 12 feet wide. It is located on the west side of Bear Creek and crosses under Fern Valley Road at the Bear Creek Bridge (Ferns Bridge No. 10). Where the path crosses under the bridge, it narrows and makes a sharp turn around the bridge support, requiring extra care by bike users. There are ramps on both sides of Fern Valley Road that descend from the road to the multi-use path. The ramps are approximately 10 feet wide.

The path is primarily a recreational facility. Recreational activities on the multi-use path are varied and include bird watching, walking, jogging, bicycling, roller skating, and other similar non-motorized recreational pursuits. The path has a secondary use as a bicycle commuter route.

Figure 3-19 provides an aerial photograph of the Bear Creek Greenway and its relationship to the Build Alternative.







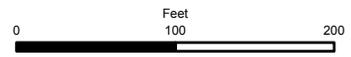
**Map Features**

- Proposed Project Footprint
- Existing Roadway Footprint
- Section 4(f) Resource: Multi-Use Path and 10' buffer
- Existing Path
- Proposed Path Realignment
- Existing Ramp
- Proposed Ramp Realignment (approximate)
- Tax Lot and Parcel Number

Source: Jackson County, ODOT, URS Corporation

**Build Alternative and the Bear Creek Greenway**

**Figure 3-19**  
June 2010



### 3.6.2 Impacts to Existing or Planned Parks and Recreation Facilities

The No-Build Alternative would not directly impact existing or planned parks and recreational facilities in the project vicinity; however, the No-Build Alternative would result in continued and worsening traffic congestion and poor transportation facilities that would impact the ability of park and recreational users to reach those destinations.

The Build Alternative would have no impacts to the Blue Heron Park, City Hall Park, the Phoenix Elementary School playground, or the Phoenix High School recreational facilities. The improved vehicular, bike and pedestrian facilities and improved traffic circulation associated with the Build Alternative would improve the ability of park and recreational users to reach those destinations.

The Build Alternative would change the alignment of the Bear Creek Greenway multi-use path and ramps but there would be no Section 4(f) use. Details of the Section 4(f) evaluation are provided in Section 3.8, Section 4(f). The Build Alternative would replace the existing two-lane Bear Creek Bridge (Ferns Bridge No. 10) over the multi-use path with a new four-lane bridge. The existing bridge is 36 feet wide, while the proposed bridge would be 100 feet wide. The new bridge would completely span the multi-use path. The new bridge bents would be located further from Bear Creek than those of the existing bridge. As a result of the new bridge design, the existing sharp curve in the multi-use path would be eliminated, allowing for better sight lines, requiring less maneuvers for bicyclists and reducing potential for conflict between pedestrian and bicycle path users. The Build Alternative would also realign the Bear Creek Greenway ramps from Fern Valley Road to the multi-use path to accommodate the wider roadway. Ramp geometry would be similar to that of the existing paths. This conceptual design is shown in Figure 3-19, which shows the approximate location of the proposed path and ramps.

During construction, a temporary protective enclosure would be constructed over the Bear Creek Greenway multi-use path to allow continued safe use of the path. When new bridge beams are installed, a temporary short-term detour would be instituted, routing bike and pedestrian traffic away from the path, up the path ramp, across Fern Valley Road, and back down the opposite path ramp. Traffic control measures would be implemented to ensure a safe crossing at Fern Valley Road for pedestrians and bicyclists. Path closures would be minimized to the greatest extent practicable, and are likely to be limited to several hours at a time or possibly an occasional one-day closure. All path closures would be coordinated in advance with Jackson County, the City of Phoenix, the Bear Creek Greenway Foundation and the general public. In advance of any path closures, notification will include signage along the path, as well as an update on the Bear Creek Greenway's website.

A temporary work bridge would be built to the north of the existing bridge. It would be approximately 50 feet wide and half the length of the existing span. The temporary work bridge would not be located on Greenway property and, therefore, would not use the path nor adversely affect the features, activities and attributes of the Bear Creek Greenway.

Installation of the temporary work bridge would allow for continued use of the Bear Creek Greenway.

### 3.6.3 Avoidance and Minimization Measures

The primary method to reduce impacts to the Greenway are to stay within the current right of way as much as feasible. Traffic analysis shows that the interchange does not meet ODOT standards if the bridge is not widened; therefore, alternatives that do not widen the bridge fail to meet the project purpose and need.

Project plans have not advanced to the stage of detailed bridge design, but as agency coordination and technical analysis progresses, design guidance will be developed to ensure that impacts to the Greenway are minimized. Initial recommendations for minimization and mitigation measures include:

- Temporary impacts to air quality within the Greenway resulting from construction activities will be mitigated by using ODOT standard dust control measures, such as watering, to reduce fugitive dust.
- The shape and placement of bridge footings will be designed so that path users have a straight and unobstructed view of the entire path under the bridge, which is an improvement over the existing alignment.
- Construction schedules and techniques will minimize the need for path closures. To provide for continued bicycle and pedestrian connections along the Greenway, ODOT will require a protective enclosure or other safety measures to allow people to walk or bike under the bridge throughout most of the time the bridge is being constructed. Some temporary closures of the Bear Creek Greenway nearest the bridge will be necessary to ensure public safety, but these closures will be minimized by rerouting bike and pedestrian traffic up over Fern Valley Road using the Bear Creek Greenway access ramps and traffic control measures to allow safe crossing of Fern Valley Road.
- The bridge will be designed so it is aesthetically compatible with the Greenway. When selecting materials for the bridge, colors and textures will be compatible with the surrounding environment. A new 80-foot-wide bridge over the Bear Creek Greenway was recently completed in Talent, a few miles south of the proposed project. This bridge is an example of the minimization strategies of improved path geometry and sightlines. Although the bridge itself is fairly wide, because of the open sightlines and ample path width, the experience of walking or bicycling under the wider bridge is far more pleasant, comfortable, and safe than the current experience under the existing Bear Creek Bridge in Phoenix.
- Vegetation removal will be minimized as much as feasible. Re-vegetation will be accomplished as soon as feasible after construction.



*Valley View Road overpass over the Bear Creek Greenway path in Talent*

### 3.6.4 Conclusion

The Build Alternative would have no impacts to Blue Heron Park, City Hall Park, or the Phoenix Elementary School Playground or the Phoenix High School recreational facilities. The Bear Creek Greenway multi-use path will be changed by the widening of the Bear Creek Bridge, but this impact has been determined to minimal, beneficial, and non-significant. The proposed project will not adversely affect the protected features, attributes or qualities which qualify the Bear Creek Greenway multi-use path for protection under Section 4(f).

## 3.7 CULTURAL RESOURCES

### 3.7.1 Historic Resources

#### *Existing Conditions*

A review of historical site records on file at the State Historic Preservation Office (SHPO) and the City of Phoenix was conducted to determine if historic resources could be affected by this project. In addition, during a site visit, all resources that appeared to be at least 45 years old were photographed and documented. Resources that were at least 45 years old and that retained sufficient historical integrity were researched and documented. The intent is to identify potential historic districts, sites, buildings, structures or objects that could be eligible for the National Register of Historic Places (NRHP).



*Coleman (Arrowhead) Ranch residence*

Two historic resources were identified and documented with Determinations of Eligibility: the Medford Canal (an irrigation canal running along the east side of the project area) and Coleman Ranch (now known as Arrowhead Ranch,<sup>45</sup> located at 3001 N. Phoenix Road). The Medford Canal and Coleman Ranch were both determined to be eligible for listing on the NRHP for their association with the early development patterns of the lower Rogue Valley. Locations of these two sites are shown in Figure 3-20. The James Kirk Farm (located at 3381 N. Phoenix Road) was evaluated and determined to be not eligible for the NRHP due to a loss of architectural and contextual integrity. The Determination of Eligibility forms to determine whether these resources would be considered historic are provided in Appendix E.



*Medford Canal*

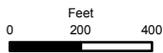
<sup>45</sup> “Coleman Ranch” is the reference used in this section because of its historic importance. All other references in this EA use the name, “Arrowhead Ranch,” as it is most commonly known by local residents.



**Map Features**

-  Coleman Ranch (Historic)
-  Medford Canal (Historic)
-  N Phoenix Thru Alternative

Source: ODOT, URS Corporation



## Locations of Historic Resources

**Figure 3-20**  
July 2010



This figure reflects conceptual design, and is subject to change. As the project is refined, some changes may occur.

## *Direct Impacts*

**No-Build Alternative.** There would be no direct impacts to historic resources resulting from the No-Build Alternative.

**Build Alternative.** The level of effect findings for both properties determined that there would be no historic properties adversely affected by the Build Alternative.<sup>46</sup> In the vicinity of the Coleman Ranch and Medford Canal, the Build Alternative would realign N. Phoenix Road, which would involve cutting into the hillside that is located northeast of Home Depot. The Build Alternative would realign N. Phoenix Road just outside the southwest corner of the tax lot on which the National Register-eligible Coleman Ranch is located. The historic property boundary for the Coleman Ranch is the tax lot. The proposed Build Alternative would not acquire any portion of this historic property. A portion of the old N. Phoenix Road adjacent to the Coleman Ranch would be retained for the Coleman Ranch driveway.

At the point where Realigned N Phoenix Road would come closest to the Medford Canal, the edge of the asphalt would be approximately 140 horizontal feet southwest of the canal, partway down the hillside on which the canal is located. The upper edge of the proposed cut slope would come within 10 feet of the canal, but would not directly impact the canal or its maintenance road. The proposed Build Alternative would not impact any portion of the Medford Canal.

## *Indirect and Cumulative Impacts*

**No-Build Alternative.** Both the indirect and cumulative impacts to the historic resources resulting from the No-Build Alternative would be increased traffic congestion adjacent to these sites.

**Build Alternative.** As discussed in Section 3.2.2, Land Use Impacts, the Build Alternative would enable UGB expansion into the area between the Phoenix and Medford UGBs and, consequently, urban development. This would change the landscape around the Coleman Ranch from a relatively rural setting to a suburban (or urban) setting.

## *Construction Impacts*

Because of the proximity of the Build Alternative to the historic resources, construction activities would be conducted close to both the Coleman Ranch and the Medford Canal. Construction work could temporarily disrupt normal activities on the Coleman Ranch site but would not adversely affect the historic character or integrity of the Coleman Ranch. Construction activities would occur close to the Medford Canal, but would not disrupt the canal's ongoing function as an active irrigation facility, nor would construction adversely affect the historic character or integrity of the canal or maintenance path that is located alongside the canal.

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<sup>46</sup> SHPO Concurrence obtained in March of 2008.

## *Avoidance and Minimization Measures*

The following minimization measures would be included in further design refinement and construction plans.

### **Medford Canal**

- The cut slope lines for the alternatives come close to the Medford Canal (about 10 feet)<sup>47</sup> where it passes through tax lot 38-1W-10-100 (the parcel directly south of the one on which Coleman Ranch is located). The project alignment has been developed to ensure that the canal is not impacted by the proposed Build Alternative.
- Construction plans need to specify that the Medford Canal and its maintenance road are to be left undisturbed and would not be used as staging areas; the canal would be designated as a no-work zone.

### **Coleman Ranch**

- The cut/fill slopes for the Build Alternative would be located close (about 20 feet)<sup>48</sup> to the southwest corner of the tax parcel on which the Coleman Ranch is located. The proposed Build Alternative has been located to avoid any impacts to the Coleman Ranch historic property.
- If construction requires the use of equipment that would produce significant vibrations, attention would be paid to the impact on potentially fragile elements of the buildings.
- Construction plans would specify that the Coleman Ranch property should be left undisturbed and would not be used as a staging area; the ranch would be designated as a no-work zone.

**Conclusion.** The Build Alternative is not anticipated to directly impact either the Medford Canal or Coleman Ranch. Although the Build Alternative would accommodate additional development in the vicinity of the two historic resources, development that adds substantial traffic would be constrained by the IAMP. As a result, the type and scale of future development would be consistent with what has been occurring in the area: a gradual trend of increasing urbanization. While this increasing urbanization represents a change from the historic rural character of the area, it is not of the scale or degree sufficient to constitute an adverse impact on either historic resource. Based on the historic resource analysis, on April 1, 2008 SHPO concurred that the Build Alternative would not adversely affect historic properties.

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<sup>47</sup> The estimates regarding distance may change as the design is further refined.

<sup>48</sup> The estimates regarding distance may change as the design is further refined.

### 3.7.2 Archaeological Resources

No archaeological resources were identified during the database and field inventories conducted for this project. In addition, this project was discussed at ODOT quarterly meetings with the Confederated Tribes of the Grand Ronde Community of Oregon, Confederated Tribes of Siletz, and the Cow Creek Band of the Umpqua Tribe of Indians. The last meeting was in December 2009. Tribal consultation did not identify any traditional cultural properties. The SHPO letter of concurrence that no archaeological sites were identified is provided in Appendix E.

Archaeological reconnaissance cannot locate all archaeological resources potentially occurring within a project area. Vegetation, flood events, and existing development within portions of the project area often hinder the reconnaissance effort by covering or obscuring the visible remains of past cultures.

The Build Alternative is not anticipated to result in direct, indirect or cumulative impacts to known archaeological sites. Because no archaeological sites were identified during the current investigation, no impacts are anticipated and formal mitigation is not required. However, there is a potential for unidentified, buried resources to be directly impacted by various construction activities, particularly those that would occur within non-disturbed, native soil.

ODOT's *Standard Specifications for Highway Construction* includes measures that are intended to safeguard potential archaeological sites discovered during construction. Mitigation measures for construction of the Build Alternative would include:

- Contractor would immediately cease work at the site of a discovery; ODOT, FHWA, SHPO and the U.S. Department of the Interior (if appropriate) would be contacted.
- If a human burial is found, Oregon State Police, SHPO and the Oregon State Museum of Anthropology would be contacted. OSMA would identify the remains as Native American or non-Native American. If Native American, it would be reported to officials of the Commission on Indian Services in Salem for a determination of the appropriate Tribe. If not Native American, it would be reported to the local sheriff's office.
- Monitoring of construction along Payne and Bear Creeks by an archaeologist was recommended in the December 12, 2008, SHPO concurrence letter and would be included in the project specifications as needed.

**Conclusion.** The Build Alternative is not anticipated to directly impact archaeological resources. On January 21, 2009 SHPO concurred on the Finding of No Historic Properties Affected (Archaeology)

**Section 106 Finding:** Based on the historic resource analysis and associated avoidance and minimization measures, FHWA makes a Section 106 finding of No Adverse Effect for the Build Alternative. SHPO concurrence with this finding occurred on January 21, 2009.

## 3.8 SECTION 4(f)

### 3.8.1 Section 4(f) Requirements

The purpose of this section is to provide an assessment of the potential use of Section 4(f) resources associated with this project. This analysis has been conducted pursuant to the requirements of the National Environmental Policy Act and the Council of Environmental Quality (42 USC 4321), the Federal Highway Administration (23 CFR 774), and Section 4(f) of the US Department of Transportation Act of 1966 (49 USC 303).

Highway projects that use public recreation lands must fulfill the requirements of Section 4(f) of the 1966 Department of Transportation Act, codified at 23 USC 138. The purpose of Section 4(f) is to ensure that special effort is made to preserve public park and recreation lands, wildlife and waterfowl refuges, wild and scenic rivers, archaeological resources, and significant historic sites.

No public wildlife and waterfowl refuges, wild or scenic rivers, archaeological or significant historic sites would be used by the project's Build Alternative. One Section 4(f) resource, the Bear Creek Greenway, would be improved by the project's Build Alternative but this change would not constitute a Section 4(f) use. Additional discussion of avoidance and minimization techniques the project will implement related to the Bear Creek Greenway are included in the Parks and Recreation section of this chapter.



*Looking south on the Bear Creek Greenway path*



*Bear Creek Greenway multi-use path, facing north toward bridge; access ramp to Fern Valley Road on the left*

### 3.8.2 Description of 4(f) Resources Within the Immediate Project Area

#### *Historic Resources*

Two historic resources have been identified near the project footprint: the Medford Canal and Coleman Ranch. Those resources are described in Section 3.7.1, Historic Resources Existing Conditions.

#### *Parks and Recreation Lands*

The only park or recreation land within the project footprint is the Bear Creek Greenway. The Section 4(f) resource is considered to be the multi-use path in the Bear Creek

Greenway, plus a 10-foot buffer on either side of the path. The Bear Creek Greenway is described in Section 3.6.1, Existing and Planned Parks and Recreation Facilities. The entire Section 4(f) resource – the 17.3 mile multi-use path extending from Ashland to Central Point -- occupies approximately 67 acres.

### 3.8.3 Section 4(f) Resources

#### *Historic Resources*

**No-Build Alternative.** The No-Build Alternative would not directly use any portion of either the Medford Canal or the Coleman Ranch, nor would it result in any adverse effects to either resource. Therefore, there would be no Section 4(f) use associated with the No-Build Alternative

**Build Alternative.** The Build Alternative would not directly use any portion of either the Medford Canal or the Coleman Ranch. The SHPO has concurred with the project findings that there would be no historic properties adversely affected by the Build Alternative. Therefore, there would be no Section 4(f) use of these resources associated with the Build Alternative.

#### *Parks and Recreation Lands*

**No-Build Alternative.** Although the No-Build Alternative would not directly use the Bear Creek Greenway Section 4(f) property, it would result in the continued deterioration of the Bear Creek Bridge, and the existing poor alignment and poor sight distance associated with the multi-use path in that area would continue.

**Build Alternative.** The Build Alternative would replace an existing two-lane bridge over the Greenway and the multi-use path. The Build Alternative would also realign the Bear Creek Greenway ramps from Fern Valley Road to the multi-use path. During construction, there would be temporary, short-term path detours away from the path nearest the bridge, to the Bear Creek Greenway ramps, when necessary for safety. Improvements to the multi-use path are described more fully in Section 3.6.2, Impacts to Existing or Planned Parks or Recreation Facilities

The changes to the Section 4(f) resource as a result of the Build Alternative do not constitute a Section 4(f) use. The path and its 10-foot buffer will be completely spanned by the proposed bridge so there will be no direct use of the 4(f) resource. The path realignment under and around the existing bridge footing, will enhance recreational and commuter activities on the path because it improves sight lines, eliminates a sharp, blind curve, and eliminates potential user conflicts associated with the blind curve. Furthermore, the existing bridge footing blocks the view of Bear Creek from the multi-use path; the proposed bridge will remove those footings, enhancing views of the creek. The ramp realignment does not constitute a 4(f) use because it occurs within the Greenway and the new ramps will be similar in size and geometry as the existing ramps.

Therefore, these changes do not adversely affect the features, activities or attributes of the Bear Creek Greenway resource.

There will be no temporary use of the Bear Creek Greenway. Although the segment of the multi-use path under the bridge will be closed for short periods during construction, recreational use of the Bear Creek Greenway will be maintained through a minor detour up the ramps and across Fern Valley Road. When the detour is in place, traffic controls will be used to ensure that path users have a direct and safe crossing of Fern Valley Road. Although these periodic, short-term detours will represent a minor change to path users, the detour does not adversely affect the features, activities or attributes of the Bear Creek Greenway.

### 3.8.4 Conclusion

The Build Alternative does not involve a Section 4(f) use of any public wildlife or waterfowl refuge; wild or scenic river; significant archaeological or historic site; or park or recreation lands. Changes to the Bear Creek Greenway through the Build Alternative will enhance recreational activities on the multi-use path. Although changes include short-term detours and path realignment, they do not adversely affect the features, activities or attributes of the Bear Creek Greenway, nor do they constitute a Section 4(f) use.

## 3.9 SECTION 6(f)(3) OF THE LAND AND WATER CONSERVATION FUND ACT

Section 6(f)(3) of the Land and Water Conservation Fund (LWCF) Act of 1965, 19 U.S.C. sections 4601-4 through 4601-11, as amended, states that public property acquired or developed using LWCF funds cannot be converted to uses other than public outdoor recreation unless properties of at least equal fair market value and of reasonably equivalent usefulness and location are substituted.

The Jackson County Parks Department purchased tax lots 38-1W-09A-301 and 38-1W-09A-302 in part with LWCF money. The LWCF grant, number 41-00556, was received in 1979 and covered half of the purchase price of those two lots plus a third lot that is not impacted by the proposed project (38-1W-09A-100).

### 3.9.1 No-Build Alternative

There would be no Section 6(f) impacts with the No-Build Alternative.

### 3.9.2 Build Alternative

The Bear Creek Bridge that spans the Bear Creek Greenway would be replaced as a part of the proposed project. The new bridge would be wider than the existing right of way width, so the tax lots on the north and south sides of the bridge would be impacted. The

proposed Build Alternative would impact approximately 1,230 square feet of the Bear Creek Greenway—from tax lot 38-1W-09A-302 north of the Bear Creek Bridge and approximately 1,670 square feet from tax lot 38-1W-09A-301 south of the bridge (see Figure 3-21), for a total of 2,900 square feet, or 0.07 acres.

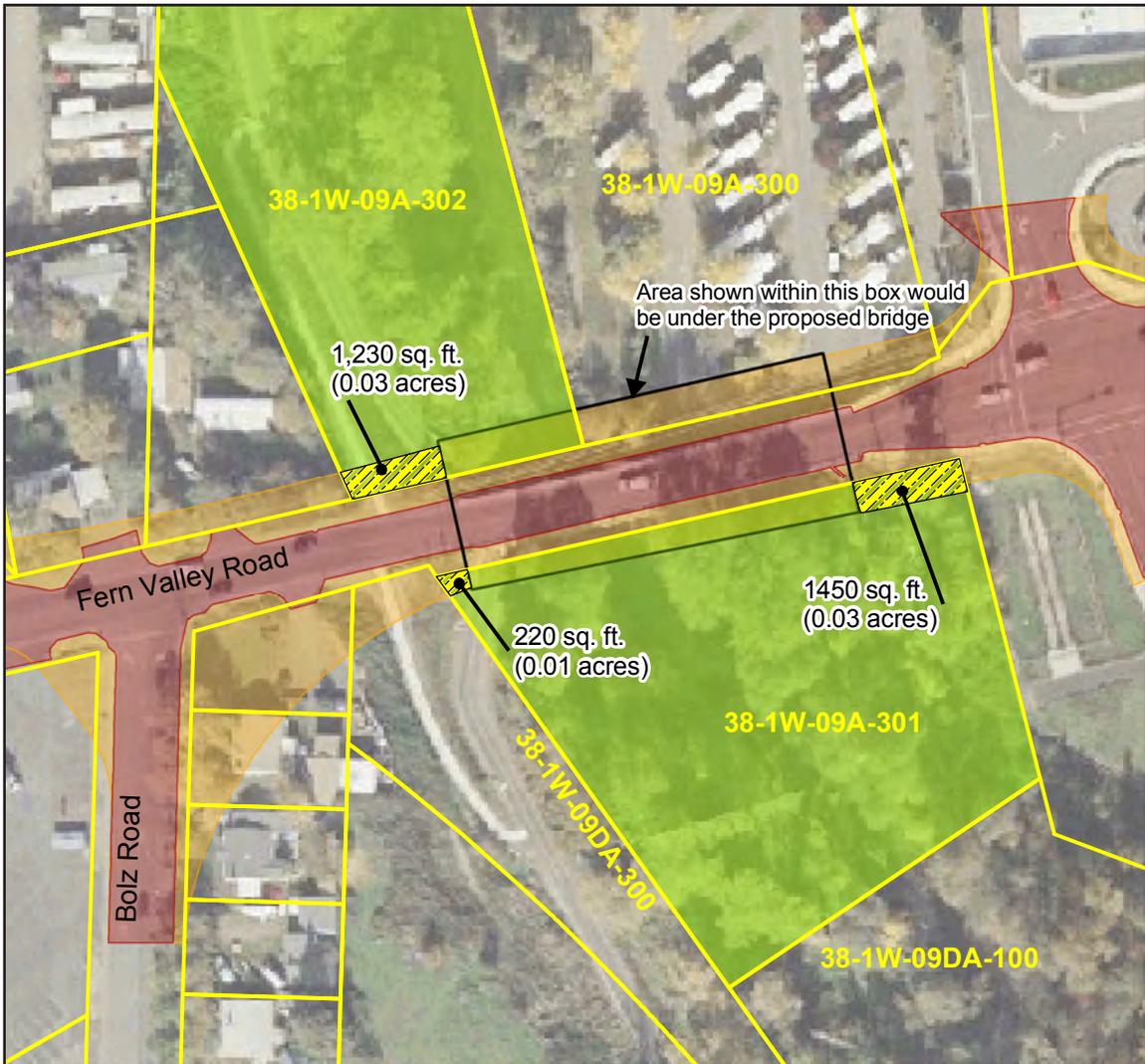
If the Build Alternative is selected, ODOT would coordinate with Jackson County, Oregon Parks and Recreation Department (OPRD) and NPS to ensure Section 6(f) conversion requirements are met.

### 3.9.3 Potential Section 6(f) Replacement Properties

As a result of Section 6(f) requirements (36 CFR 59.3), if the Build Alternative is selected, properties from the Bear Creek Greenway that would be acquired must be replaced with other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location. Coordination between ODOT, OPRD, and the Jackson County Parks Department is ongoing and a specific replacement property has not yet been identified. However, Jackson County has agreed in concept with replacing this property with alternate properties along the Bear Creek Greenway (see Record of Coordination below). ODOT and Jackson County are currently discussing 39-1E-04DA tax lot 2900, 39-1E-04DB tax lot 2000 or 39-1E-04AC tax lot 900 as proposed replacement locations for Section 6(f)(3) conversion. The fair market value of these replacement parcels has yet to be determined, but it is expected to meet or exceed the value of the properties impacted by the bridge replacement. These parcels are currently undeveloped and border Bear Creek in an area in which the Jackson County would like to expand the Bear Creek Greenway's multi-use path and tie into an existing dog park in Ashland. Any one of these parcels, once incorporated as part of the Bear Creek Greenway multi-use path, would provide the same recreational functions as the properties that are proposed to be impacted by replacement of the Bear Creek Bridge. Acquisition of the replacement property will occur following the completion of NEPA. The conversion of the replacement property will be completed prior to the start of construction of the project.

### 3.9.4 Record of Coordination

Discussions with Jackson County included evaluation of avoidance, minimization, and replacement site options. If the Build Alternative is selected, the final environmental documentation will specify the site(s) that the ODOT, Jackson County, OPRD, and FHWA agree would satisfy Section 6(f)(3) conversion mitigation requirements. The Bear Creek Greenway Foundation will receive a copy of this Environmental Assessment (EA).



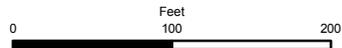
**Map Features**

-  Proposed Project Footprint
-  Existing Roadway Footprint
-  Parcels acquired in part with LWCF Funding
-  6(f) Conversion (0.07 acres)
-  Tax Lot and Parcel Number

**Build Alternative and Section 6(f) Conversion**

**Figure 3-21**

June 2010



Source: Jackson County, ODOT, URS Corporation

### 3.9.5 Conclusion

The Build Alternative impacts to Section 6(f)(3) protected recreational properties would be relatively minor—about 2,900 square feet (0.07 acre). These impacts would be less than 10 percent of the total 6(f)(3) protected area (6.73 acres) and less than 5 acres, and would be non-controversial; therefore, the impacts would qualify as small conversions by the NPS. Properties similar in value, function (equivalent usefulness), and location would replace the impacted area. Therefore, the Build Alternative would not result in significant impacts to Bear Creek Greenway parcels encumbered by Section 6(f)(3), nor would the Build Alternative result in significant impacts to any other park or recreational facilities.

## 3.10 NOISE

### 3.10.1 Methodology

Noise levels and impacts associated with this proposed project were determined by the use of Traffic Noise Model (TNM version 2.5). Existing noise levels and other data (e.g., topography that affects how noise is transmitted) were used to ensure the accuracy of the model. Existing noise levels were measured on-site at 20 locations within the project area. The locations and results of these measurements are provided in the Noise Technical Report.

The noise model was then used to determine existing noise levels in the proposed project impact area, as well as the change from existing noise levels to the future year 2030 levels for both the No-Build and Build Alternatives. The noise modeling locations are shown in Figure 3-22.

Noise is measured in decibels (dBA-  $L_{eq}$ ).<sup>49</sup> To help understand the noise levels in the following discussion, the dBA for common outdoor and indoor activities is shown in Figure 3-23.

Overall, the noise level range for the project area is typical for developed areas in and around I-5 and a major interchange. A summary of the modeling results is provided below; the detailed modeling results for the future No-Build and Build Alternative are shown in the Noise Technical Report (available online at ODOT's Region 3 website<sup>50</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

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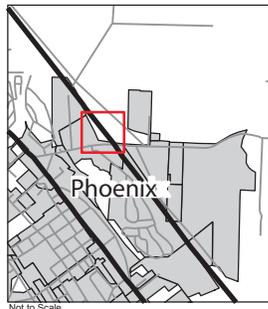
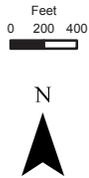
<sup>49</sup> dBA- $L_{eq}$  = decibels on the A-scale in hourly equivalent sound pressure levels.

<sup>50</sup> ODOT's Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>



**Map Features**

 Noise Modeling Locations



**Noise Model Locations**

Figure 3-22  
May 2010





Figure 3-23

**Noise Levels of Common Indoor and Outdoor Activities**



Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
Quiet Rural Nighttime	30	Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

### 3.10.2 Impacts

#### *Traffic Noise Impacts*

Traffic noise impacts are considered to occur in the following situations:

- Noise Abatement Criteria<sup>51</sup>—Predicted future noise levels approach or exceed ODOT noise abatement criteria (NAC) (summarized by land use in Table 3-12). ODOT defines “approach impact level” as a noise level that is within 2 dBA of the noise abatement criteria. At this level, a property is considered impacted by noise and warrants an analysis of abatement measures to reduce noise levels.
- Substantial Noise Increase Criteria—Predicted future noise levels substantially exceed the existing noise level. An increase of 10 dBA or more is considered substantial.

In the project area there are no Type A land uses (see Table 3-12). Type B uses include residences, hotels and motels, including the Pear Tree RV Park. Type C uses include office space and retail buildings along project roadways.

**Existing Conditions.** Sound levels under existing conditions and predicted for the No-Build and Build Alternatives are shown on Table 3-13 and Figure 3-24.

According to the noise study, the following properties currently exceed ODOT’s noise abatement criteria (see Table 3-13):

- Bavarian Inn (69 dBA—4 dBA higher than the 65 dBA noise abatement criterion)
- The 36 residences within Bear Lake Estates that face I-5 (66 to 72 dBA—1 to 6 dBA higher than the 65 dBA noise abatement criterion).

TABLE 3-12: NOISE IMPACT GUIDELINES BY LAND USE			
Land Use Receiver Category and Description		FHWA Hourly Leq (dBA)*	ODOT Hourly Leq (dBA)*
Type A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose	57 (exterior)	55 (exterior)
Type B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences (exterior), motels, hotels, schools, churches, libraries and hospitals	67 (exterior)	65 (exterior)
Type C	Developed lands, properties or activities not included in the above categories	72 (exterior)	70 (exterior)
Type D	Undeveloped land		--

\* ODOT defines “approach impact level” as a noise level 2 dBA below the noise FHWA noise abatement criteria.

<sup>51</sup> Noise level standards above which noise-reducing actions (abatement) should be considered.

**TABLE 3-13: EXISTING AND PREDICTED FUTURE EXCEEDANCES OF NOISE ABATEMENT CRITERIA\***

LOCATION	ODOT NOISE ABATEMENT CRITERIA	EXISTING NOISE LEVELS	FUTURE NO-BUILD NOISE LEVELS	FUTURE BUILD NOISE LEVELS
Bavarian Inn	65	<b>69</b>	<b>70</b>	<b>73</b>
Commercial properties along OR 99	70	69	<b>70</b>	<b>73</b>
Bear Lake Estates (fronting I-5)	65	<b>66 to 72</b>	<b>68 to 74</b>	<b>68 to 74</b>
Two residences along E. Bolz Road	65	61	63	<b>65</b>
Pear Tree RV Resort outdoor use area	65	64	<b>65</b>	<b>65</b>

\* **Bold** indicates noise levels that meet or exceed ODOT’s noise impact criteria. All noise levels are for the peak-noise hour, and are presented in an hourly Leq in dBA (the energy average noise level in decibels for a specific period of time)

**No-Build Alternative.** Future year 2030 traffic noise levels with the No-Build Alternative are predicted to increase 1 to 2 dBA over existing conditions throughout the project area due to expected growth in traffic numbers (see Table 3-13). Because traffic is the dominant noise source within the project area, predicted noise levels are highest for receivers located directly adjacent to the project roadways. By the year 2030, under the No-Build Alternative there are several locations that are predicted to continue to exceed ODOT’s noise abatement criteria:



*Bear Lake Estates*

- Bavarian Inn (predicted future noise level of 70—5 dBA higher than the 65 dBA noise abatement criterion)
- The 36 residences within Bear Lake Estates (predicted future noise levels of 68 to 74 dBA—3 to 9 dBA higher than the 65 dBA noise abatement criterion)

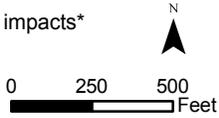
In addition, under the No-Build Alternative there would also be one additional property that would meet ODOT’s noise abatement criterion:

- The outdoor use area (pool) at the Pear Tree RV Resort east of I-5 (predicted future noise level of 65 dBA, which is equal to the 65 dBA noise abatement criterion)



**Legend**

-  Existing and future noise impacts\*
-  Additional No-Build Alternative impacts
-  Additional Build Alternative impacts
-  Sound wall to be evaluated



\*All existing noise impacts are predicted to occur with the No-Build and Build Alternatives

**Fern Valley Interchange  
Noise Impacts**

**Figure 3-24**

May 2010



**Build Alternative.** By the year 2030, the Build Alternative is predicted to result in noise impacts to the same properties as the No-Build Alternative. In addition, the Build Alternative would result in noise impacts to two residences along E. Bolz Road. (Two other residences along E. Bolz Road that would have been impacted by noise by the Build Alternative would be displaced by construction of the Build Alternative.) There would be no substantial noise impacts (10 dBA over existing) for any of the predicted future conditions.

### *Construction Noise Impacts*

In Oregon, construction is generally exempt from noise regulations during daytime hours. The City of Phoenix has a nuisance and noise ordinance, contained in the City's Municipal Code (Title 8, Article V, Sections 8.04.140 through 8.04.250). The ordinance is not applicable to traffic on public roadways. The ordinance would only be applicable to the project if construction was proposed outside the hours of 7:00 a.m. to 7:00 p.m. on weekdays.

Construction of the Build Alternative can cause localized, short-duration noise impacts. Noise would be generated by heavy equipment used during major construction periods. Major noise-producing equipment used at the construction site could include concrete pumps, pile-drivers, cranes, excavators, haul trucks, loaders, tractor trailers and general supporting equipment. Maximum noise levels could reach up to 90 dBA at the nearest receivers along the project work area. Other noise-producing equipment expected during this phase includes backhoes, air compressors, fork lifts, pumps, power plants, service trucks and utility trucks.

Construction activities (such as vibratory rollers, pile-driving, and demolition) can result in ground vibration, depending on the equipment and methods used. Ground vibrations normally do not reach levels that damage structures. There are no specific regulations or criteria that are applicable to vibration related to construction activities; however, there are U.S. Department of Transportation guidelines (see Vibration Mitigation below).

### 3.10.3 Noise Abatement (Mitigation) Measures

The following noise abatement (mitigation) measures would be incorporated into the Build Alternative if it is selected for construction.

#### *Construction Noise Abatement and Vibration Mitigation*

Standard ODOT specifications for control of noise sources during construction would be used to minimize construction noise impacts. ODOT would rely on the U.S. Department of Transportation guidelines for acceptable vibration levels from construction activities.

Construction noise levels for the Fern Valley Interchange project would result from normal construction activities. Noise levels for these activities can be expected to range from 70 to 90 dBA at sites 50 feet from the activities. These noise levels, although

temporary in nature, can be annoying. The following construction noise abatement measures would be included in the project specifications.

- No construction shall be performed within 1,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 10 p.m. and 6 a.m. on other days, without the approval of the ODOT construction project manager.
- All equipment used shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have unmuffled exhaust.
- All equipment shall comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency.
- No pile driving or blasting operations shall be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 8 p.m. and 8 a.m. on other days, without the approval of the ODOT construction project manager.
- The noise from rock crushing or screening operations performed within 3,000 feet of any occupied dwelling shall be mitigated by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the ODOT construction project manager.

If a specific noise impact complaint is received during construction of the project, the contractor may be required to implement one or more of the following noise abatement measures at the contractor's expense, as directed by the project manager:

- Locate stationary construction equipment as far from nearby noise-sensitive properties as feasible.
- Shut off idling equipment.
- Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
- Notify nearby residents whenever extremely noisy work will be occurring.
- Install temporary or portable acoustic barriers around stationary construction noise sources.
- Operate electrically powered equipment using line voltage power or solar power.

If nighttime or weekend construction is anticipated for this project, ODOT or the Contractor would be required to obtain a noise variance from the City of Phoenix or Jackson County or meet the existing nighttime noise ordinance prior to proceeding with construction outside the allowable weekday hours. Due to the limits during nighttime hours, it is unlikely that any meaningful construction could take place without a noise variance.

Where needed, mitigation for construction activities that create vibration could include rerouting heavily-loaded trucks away from residential streets, phasing construction activities that create vibration, and avoiding nighttime construction.

### *Traffic Noise Abatement*

In accordance with the ODOT Traffic Noise Manual, when traffic noise impacts are identified, noise abatement measures to reduce noise impacts must be evaluated for those

developments that existed prior to the date of public knowledge of the project. This includes identifying:

- Noise abatement measures which are reasonable and feasible and which are likely to be incorporated into the project; and
- Noise impacts for which no apparent solution is available and an explanation of why noise abatement was not recommended.

Types of noise abatement measures include:

- Traffic management measures (e.g., modifying speed limits, restricting or prohibiting truck traffic);
- Highway design measures (e.g., altering the roadway alignment, depressing roadway cut sections); and
- Noise barriers (e.g., sound walls, earthen berms).

Traffic management and highway design measures such as restricting truck traffic and lowering highway speed were not considered reasonable or feasible mitigation measures because these measures would create unreasonable delay and conflict with the designated purpose of the highway. However, sound walls are being considered for properties likely to be impacted by noise from the Build Alternative. Mitigation measures that meet ODOT's feasibility and reasonableness criteria may be recommended for inclusion into the project. Feasibility deals primarily with engineering considerations, such as whether a reduction of at least 5 dBA can be achieved or whether there would be a negative effect on property access. Reasonableness assesses the practicality of the abatement measures given a number of factors, such as cost, amount of noise reduction, and future traffic noise levels.

Noise abatement measures (such as sound walls) are not usually recommended for commercial properties because these properties typically depend on visibility from highways for patronage. In addition, commercial properties also often are located in areas with multiple driveways in a short distance. Multiple driveways substantially reduce the effectiveness of a sound barrier.

Typically, in residential areas, sound barriers that provide noise mitigation to a large number of residences have more benefit and may warrant a higher total barrier cost than those that mitigate a few residences. Sound barriers considered for residential areas, must meet the following reasonable and feasible criteria:

- Result in a substantial noise reduction (at least 5 dBA) at impacted residences;
- Meet reasonable cost criteria (typically a maximum of \$25,000 per benefited residence).
- Be supported by a majority of impacted property owners; and
- Consider land use and zoning, environmental impacts, driveways, non-traffic noise, and safety.

During final design of the Build Alternative, recommendations for sound walls may change due to design changes and/or right of way acquisition. The following summarizes the measures considered to reduce noise impacts expected with the Build Alternative.

**Hotels and Resorts.** The Bavarian Inn and Pear Tree RV Resort outdoor pool area (Type B land uses identified in Table 3-12) were considered for noise mitigation. Both properties are located on commercially-zoned properties. ODOT normally does not provide sound walls for commercial properties due to the need for highway-oriented businesses to be visible to passing vehicles. For this reason, no noise mitigation is proposed for these properties.

**Residences Along E. Bolz Road.** The two noise-impacted residences along E. Bolz Road were evaluated for sound walls, but are not being recommended because the sound walls would not be effective or reasonable. To be effective at this location (reduce noise at least 5dBA), a sound wall must be a continuous wall with no openings for driveways. To construct a sound wall without a driveway opening, alternate driveway connections to the residences would need to be provided, which would not be considered reasonable in this commercial area. If a sound wall were constructed with a driveway opening, it would only reduce noise by 3 dBA, which is less than the 5 dBA minimum reduction required by ODOT. The wall would cost approximately \$113,800 (at least \$56,900 per benefited residence). This would not meet ODOT's cost-effectiveness criterion of \$25,000 per benefited residence. In addition, because these two residences are located on commercially-zoned land, ODOT would not normally recommend a sound wall at this location.

**Bear Lake Estates.** A noise barrier was evaluated for the traffic noise impacts expected to the 36 residences within the Bear Lake Estates that face I-5. A sound wall approximately 2,766 feet long and 12 feet high constructed along the ODOT right of way would reduce I-5 traffic noise levels by 6 to 10 dBA at all 36 residences. The 22 non-impacted residences behind the residences facing I-5 would receive a noise reduction of approximately 7 dBA and thus would be included as benefited residences in the noise barrier cost per residence calculations. All residences within Bear Lake Estates would likely have future traffic noise levels of 64 dBA or less with a sound wall. This sound wall would have cost approximately \$830,000 or \$14,300 per benefited residence. A sound wall at Bear Lake Estates would meet ODOT's cost-effectiveness criterion. A portion of the sound wall, if constructed, would be located within the 100-year floodplain. The final decision to include a sound wall along I-5 adjacent to Bear Lake Estates would be made during the final design process.

### 3.10.4 Conclusion

The Build Alternative is predicted to result in the same noise impacts to Bear Lake Estates and the Pear Tree RV Resort outdoor use area as the No-Build Alternative. The Build Alternative would also result in an increase of 3 dBA to the Bavarian Inn and other commercial properties along OR 99 compared to the No-Build Alternative. The key difference between the alternatives is that the Build Alternative would result in noise impacts of 2 dBA more to two residences along E. Bolz Road, but these residences would not be considered impacted by noise with the No-Build Alternative. As discussed above, noise mitigation (sound walls) is not recommended for either the residences or the Pear

Tree RV Resort. A decision on whether to build a sound wall adjacent to Bear Lake Estates would be made during final design.

Construction noise would be a short-term, intermittent impact. Although noise levels for the Fern Valley Interchange project would result from normal construction activities, standard specifications for control of noise sources would be implemented to minimize construction noise impacts (e.g., timing restrictions for construction, using sound-control devices on construction equipment, and placement of material to reduce noise). In addition, ODOT would rely on the U.S. Department of Transportation guidelines for acceptable vibration levels from construction activities. If nighttime or weekend construction is anticipated for this proposed project, ODOT or the Contractor would be required to obtain a noise variance from the City of Phoenix or Jackson County may be required prior to proceeding with construction outside the allowable weekday hours. Where needed, mitigation for construction activities that create vibration could include rerouting heavily-loaded trucks away from residential streets, phasing construction activities that create vibration, and avoiding nighttime construction. While project construction would require two years to complete, pile-driving and other very loud equipment would only operate for a brief period within this window.

Based on the noise analysis, the Build Alternative is not anticipated to result in significant noise impacts.

### 3.11 AIR QUALITY

#### 3.11.1 Existing Conditions

State and federal air quality standards have been established for carbon monoxide (CO), ozone (O<sub>3</sub>), sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), lead (Pb), and particulate matter less than 10 and 2.5 microns (PM<sub>10</sub> and) in size.<sup>52</sup> Motor vehicles are a major source of CO and diesel vehicles are an important source of fine particulate matter in urban areas. The Medford region currently meets State and Federal standards for CO and PM<sub>10</sub> and is now designated as a maintenance area. The Medford region had, in the past, exceeded both the CO and PM<sub>10</sub> ambient air quality standards. The project is located within the Rogue Valley (PM<sub>10</sub>) Air Quality Maintenance Area (AQMA), but is outside of Medford Urban Growth Boundary (CO maintenance) Area.

National air quality standards are designed to protect public health and welfare from such effects as visibility reduction, soiling, material damage, and nuisances. Where any of these standards are violated, non-attainment areas are designated for the specific pollutant. For these non-attainment areas, control strategies have been developed that should result in reducing the pollutant so attainment will be achieved by a certain date.

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<sup>52</sup> A description of air quality pollutants are provided in the Air Quality Technical Report.

These control strategies are documented in the State of Oregon Clean Air Act Implementation Plan.<sup>53</sup>

The Oregon Department of Environmental Quality (DEQ) is the governing air pollution control agency for Jackson County. The Medford region has had a history of high CO and particulate levels; however, data from DEQ monitoring has shown substantial reductions in CO and PM<sub>10</sub> concentrations since the mid 1980s. Levels of fine particulate (PM<sub>2.5</sub>) have shown less improvement since monitoring began in 1999, but remain slightly below the 24-hour and annual standards.<sup>54</sup>

The diesel engines of trucks and heavy equipment are a major source of PM, and have come under increasing scrutiny as a major source of hazardous air pollutants. DEQ operates a number of monitors in the Medford area that measure levels of PM<sub>10</sub> and PM<sub>2.5</sub>. The nearest PM<sub>10</sub> monitor to the project area is located at Jackson Street/Welch Drive, almost five miles to the northwest. PM<sub>2.5</sub> is monitored at Grant Street/Belmont Street, about four miles to the northwest.

### 3.11.2 Impacts

#### *Conformity with Air Quality Standards*

**No-Build Alternative.** Based on the predicted traffic volumes for 2010 and 2030, it can be assumed that CO, PM<sub>10</sub> and PM<sub>2.5</sub> would remain below the National Ambient Air Quality Standards (NAAQS) under the No-Build Alternative.

**Build Alternative.** Impacts to air quality from the construction and operation of the Build Alternative are not expected to cause exceedances of State and Federal air quality standards in the future—either at intersections improved by the project or in adjacent neighborhoods. The primary reason for this is the ongoing improvements in engine technology, emission control and vehicle maintenance.

The OR 99/Fern Valley Road intersection is the highest volume and most congested intersection within the project study area. Therefore, this intersection was examined to determine if the traffic volumes associated with the Build Alternative would create exceedances of State and Federal air quality standards. The intersection was found to have traffic volumes too low to cause exceedances of CO or PM<sub>10</sub>.

#### *Regional Conformity*

The Fern Valley project meets regional conformity requirements for the following reason (USDOT conformity determination April 27, 2009): The project is located in the Medford-Ashland PM<sub>10</sub> AQMA and is included as project number 902 (key # 12723) in

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<sup>53</sup> Adopted as the State Implementation Plan (SIP) for the State of Oregon pursuant to the federal Clean Air Act, and last modified on October 17, 2007.

<sup>54</sup> 24-hour standard = 35 micrograms per cubic meter of air; annual standard = 15 micrograms

the current conforming 2034 *Regional Transportation Plan* (see project list in Appendix F) and the amended 2008-2011 *Transportation Improvement Program* (TIP). This project is regionally significant and, because it would affect motor vehicle traffic within a PM<sub>10</sub> maintenance area, a conformity analysis was required. A project is considered “regionally significant” if it is on a facility which serves regional transportation needs and is normally included in the modeling of the metropolitan area’s transportation network. There are no transportation control measures in the *Statewide Improvement Program* (SIP) for controlling PM<sub>10</sub> emissions from motor vehicle traffic, but there are requirements to control road dust. The Air Quality Technical Report provides additional information on conformance with the AQMA SIP.

### *Project Conformity Statement*

The Fern Valley project meets project-level conformity requirements for the following reason: The Build Alternative would meet the Conformity Requirements of the Clean Air Act, Medford-Ashland PM<sub>10</sub> SIP. The project is located in the Medford-Ashland PM<sub>10</sub> AQMA and is included as project number 902 (key # 12723) in the current conforming 2034 *Regional Transportation Plan* and the amended 2008-2011 *Transportation Improvement Program* (TIP). The project is also included in the current conforming 2034 RTP, approved by the U.S. Department of Transportation in April 2009. The Build Alternative would not cause new exceedances of the NAAQS, nor would they worsen any existing air quality conditions or delay attainment of the standards. Particulate matter emissions from transportation projects are regulated by requiring that the project not exceed the ADT thresholds stated in the 2007 Statewide Air Quality Report.

### *Construction Impacts*

The greatest probability for air quality impacts with the Build Alternative is to adjacent land uses during construction. Demolition, earth-moving and paving activities would generate dust, particulate matter, and other pollutants from the use of heavy machinery.

#### 3.11.3 Mobile Source Air Toxics

Mobile source air toxics (MSATS) consist of a wide variety of pollutants emitted by gasoline and diesel-powered motor vehicles.<sup>55</sup> This EA includes a qualitative analysis of the likely MSAT emission impacts of this project. However, technical tools are not yet available to predict project-specific health impacts of the emission changes associated with transportation projects. The Council on Environmental Quality (CEQ) established very clear provisions for treating incomplete or unavailable information, such as the state of knowledge regarding the environmental health effects of air toxics. Section 1502.22 of the CEQ regulation acknowledges that there will be times when the agency cannot fully

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<sup>55</sup> Particularly benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene.

evaluate or disclose environmental impacts because it is lacking complete or available information supported by credible scientific evidence.

### *Information that is Unavailable or Incomplete*

Evaluating the environmental and health impacts from MSATs on a proposed highway project would include modeling to estimate emissions, dispersion (concentrations resulting from the emissions), and exposure (human exposure to the emissions). A final determination of health impacts would be based on the estimated exposure. Each of these is hampered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project. Research into the health impacts of MSATs is ongoing, and the EPA is in the process of assessing the risks of various kinds of exposures to these pollutants.

### *Relevance of Unavailable or Incomplete Information to Evaluate Reasonably Foreseeable Project Impacts*

Because of the uncertainties in evaluating MSATs (described in Appendix F), a quantitative assessment of the effects of air toxic emissions on human health cannot be made at a project level. The amount of MSAT emissions from the Build Alternative and MSAT concentrations or exposures created by the Build Alternative cannot be predicted with enough accuracy to be useful in estimating health impacts. In this EA, FHWA has provided a qualitative analysis of MSAT emissions relative to the Build Alternative, and acknowledges that the Build Alternative may result in increased exposure to MSAT emissions in certain locations; however, the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

### *Qualitative MSAT Analysis*

The purpose of this project is to facilitate traffic flow and safety at the Fern Valley Interchange. This project would add capacity to the interchange and the arterials it serves. Because the total vehicle volumes would be 80,977, which is below 140,000 daily trips,<sup>56</sup> this project would be classified as a “project with low potential MSAT effects,” one that would result in minimal air quality impacts for Clean Air Act pollutants and that has not been linked with any special MSAT concerns. Therefore, this project does not meet the threshold identified for *quantitative analysis* for MSATs.

The Build Alternative would increase ADT approximately 27% compared to the No-Build Alternative. The increase in emissions between 2007 and 2030 due to increased ADT would be offset somewhat by lower MSAT emission rates due to increased speeds. According to EPA, emissions of all of the priority MSATs (except for diesel particulate matter) decrease as speed increases.

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<sup>56</sup> Cited by FHWA as the level where quantitative analysis is warranted.

Regardless of whether the No-Build or Build Alternative is selected, emissions would likely be lower than present levels by 2030 due to reduced emissions from vehicles that use alternative fuels. The extent of MSAT reductions predicted by EPA is so great (even after accounting for the growth in Vehicle Miles Travelled) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

Although the project would bring traffic closer to some residences, thus slightly increasing concentrations of MSATs in the short-term, the ongoing reduction in MSAT emission rates due to technological advances would both reduce the background level of MSATs, as well as the MSAT concentrations from this project.

### 3.11.4 Summary of Proposed Mitigation Measures

The project would adhere to ODOT construction specifications and best construction practices to reduce air quality impacts.

Contractors would be required to comply with air pollution control measures<sup>57</sup> during construction to minimize short-term air quality impacts to adjacent properties—especially near residential areas, sidewalks and bike routes. These measures include: vehicle and equipment idling limitations, burn restrictions, and spraying water to control dust during earthmoving and grading. The construction contractor would be required to submit a pollution control plan to reduce emissions during construction.

No mitigation measures are necessary after construction—during normal traffic operation in the project area; however, the Build Alternative would incorporate the coordination of corridor signal timing for the new traffic signal at OR 99/E. Bolz Road and OR 99/Fern Valley Road to minimize vehicle delay at these closely spaced intersections. This signal coordination information has been shared with the Rogue Valley Council of Governments to be included in their next conformity determination.

### 3.11.5 Conclusion

The Build Alternative is not anticipated to result in exceedances of federal air quality standards. The Build Alternative would meet the conformity requirements of the Clean Air Act, Medford-Ashland PM<sub>10</sub> SIP. The Build Alternative would likely result in a reduction in MSAT emissions by the year 2030. Based on the air quality analysis and associated mitigation measures, the Build Alternative is not anticipated to result in significant air quality impacts.

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<sup>57</sup> Oregon Department of Transportation, 2008. *Standard Specifications for Highway Construction*. Section 290, <http://www.oregon.gov/ODOT/HWY/SPECS>”

## 3.12 VISUAL RESOURCES

### 3.12.1 Existing Conditions

The visual resource analysis describes the visual and aesthetic environment within the Fern Valley Interchange area, and evaluates potential adverse and beneficial visual impacts of the project alternatives.

#### *General Setting*

The valley floor, in which the proposed project is situated, is characterized by low, rolling hills which blend into the surrounding Siskiyou Mountains. The foothills and mountains are visible to varying degrees, primarily depending on the extent of development that blocks views. The foothills are characterized by stands of oak trees separated by fields of grass; more distant hills and higher elevations have denser stands of evergreen conifers. Some snow-capped peaks of taller mountains are visible from certain vantage points.



*Looking north on N. Phoenix Rd.*

I-5 traverses the project area from north to south, roughly parallel to the Bear Creek Greenway, which contains a creek, riparian vegetation (including cottonwood, alder, and willow trees), and an asphalt multi-use path.

The overall area has been undergoing rapid change. The entire Rogue Valley has been experiencing population growth; subdivisions, shopping malls, big box retailers, and parking lots are replacing orchards, farmsteads, and open spaces.

### 3.12.2 Impacts

#### *Direct Impacts*

**No-Build Alternative.** Under the No-Build Alternative, increased congestion would create views of lines of traffic, and cause viewers in cars to experience the surrounding views for longer periods of time. These changes would represent a low degree of visual change and have a low impact on the areas.

**Build Alternative.** The direct visual impacts associated with the Build Alternative include the following:

- The addition of continuous sidewalks along OR 99, thus enhancing the visual cohesiveness of the area;

- The creation of a new approach road to OR 99 from Coleman Creek Estates, affecting both the views to and from some homes in that neighborhood;
- The removal of large shade trees and two houses on the east side of E. Bolz Road, converting the tree-lined, semi-residential street into a busy thoroughfare;
- A new, wider bridge over Bear Creek and new ramps from the road to the Bear Creek Greenway path, resulting in an improvement of existing visual conditions and affecting the views to and from the Greenway;
- Change the visual environment of the northeast interchange quadrant by locating a new highway facility in the orchard and hill contours near the UGB;
- Change in the visual environment of the southeast interchange quadrant by moving the major intersection east of I-5 further away from the Phoenix Hills subdivision and existing businesses; and
- Change to and from I-5 by building a new and wider structure over I-5.

Although a major intersection would be added east of I-5 with the Build Alternative, it would be located further north than the existing Fern Valley Road/N. Phoenix Road intersection. This location would be further away from the Phoenix Hills subdivision in a developing commercial area, which would therefore have less visual impact than under existing conditions. The Build Alternative would change the visual environment of the northeast interchange quadrant in the orchard and hill contours near the UGB.

Figures 3-25 through 3-29 provide photos of views in the project area east of I-5 that represent existing conditions. These views have been overlain with computer-generated visual simulations of how the views are anticipated to change after construction of the Build Alternative.

Construction-related visual impacts associated with the Build Alternative would affect views from nearby properties, vehicles, bikes and pedestrians. These changes would be temporary and of a relatively short duration.

### *Indirect Impacts*

**No-Build Alternative.** With the No-Build Alternative, there would be heavier traffic congestion than under the Build Alternative. Drivers and their passengers would experience views near intersections for longer periods of time while they waited in traffic. Stationary viewers would see an increase in traffic congestion.

**Build Alternative.** Development in the project vicinity could occur more rapidly with the Build Alternative because of increased traffic capacity. However, the IAMP that is incorporated into the Build Alternative would help to manage growth. The indirect visual impacts stemming from this development would be unlikely to be substantially different than those under the No-Build Alternative—but the rate, type and location of development could differ.



# Visual Simulation of Fern Valley Road/S. Phoenix Road Intersection

Figure 3-25  
July 2010



Existing view looking north from south of Fern Valley Road/S. Phoenix Road intersection



Future view looking north from south of Fern Valley Road/S. Phoenix Road intersection with the Build Alternative





## Visual Simulation of Extended S. Phoenix Road Looking Southeast

Figure 3-26

July 2010



Existing view looking southeast from north of Peterbilt



Future view looking southeast from north of Peterbilt with the Build Alternative





## Visual Simulation of Extended S. Phoenix Road Looking Northwest

Figure 3-27

July 2010



Existing view looking northwest from north of Peterbilt toward Home Depot



Future view looking northwest from north of Peterbilt toward Home Depot with the Build Alternative





## Visual Simulation of Grove Way

Figure 3-28

July 2010



Existing view looking east along Grove Way



Future view looking east along Grove Way with the Build Alternative





## Visual Simulation of Realigned N. Phoenix Road

Figure 3-29

July 2010



Existing view looking south toward Arrowhead Ranch



Future view looking south toward Arrowhead Ranch with the Build Alternative



## *Cumulative Impacts*

The cumulative impacts of the No-Build and Build Alternative would be similar. The addition of sidewalks and bike lanes with all of the planned projects anticipated in the area would increase the visual unity of streetscapes by replacing minimal shoulders and gravel pedestrian areas with distinct bicycle and pedestrian facilities.

As other development occurs in the vicinity of the project, the visual nature of the area will change. While the project alternatives would not substantially change the developing urban nature of the area, they would contribute to the change of the visual setting.

### 3.12.3 Summary of Proposed Mitigation Measures

- The bridge over the Bear Creek Greenway would be designed so it would be aesthetically compatible with the Greenway. When selecting materials for the bridge, colors and textures would be compatible with the surrounding environment. A new bridge over the Bear Creek Greenway was recently completed in Talent, a few miles south of the proposed project. This bridge is an example of the minimization strategies of improved path geometry and sightlines. Although the bridge itself is fairly wide, because of the open sightlines and ample path width, the experience of walking or bicycling under it is far more pleasant, comfortable, and safe than the experience under the Bear Creek Bridge in Phoenix.
- Vegetation removal would be minimized as much as feasible. Re-vegetation would be accomplished as soon as feasible after construction.

### 3.12.4 Conclusion

Most impacts to the visual environment associated with the Build Alternative would be positive: the addition of continuous sidewalks, improved aesthetics of the new bridges, and moving a major intersection further away from the Phoenix Hills neighborhood. Other visual impacts include a change of view to and from the new Coleman Estates access road, which would impact a small portion of the neighborhood—and could enhance the entrance; the removal of trees and houses along E. Bolz Road, a transitional commercial area; and realigning N. Phoenix Road in the developing rural area east of I-5. Based on the visual resource analysis and associated mitigation measures, the Build Alternative is not anticipated to result in significant impacts to the visual environment.

## 3.13 BIOLOGY

### 3.13.1 Existing Conditions

#### *Aquatic Habitat and Water Quality*

The proposed Fern Valley Interchange project lies within the Bear Creek watershed in the Klamath Mountain province, and includes three aquatic resources: Bear Creek and two of its tributaries, Coleman Creek and Payne Creek (Figure 3-30). Because of their proximity to I-5 and other urban features, these stream channels and their floodplains have been modified and are generally confined to a narrow meander zone.

The Bear Creek watershed is subject to irrigation diversion, upland and riparian vegetation clearing, and conversion of fields and uplands to impervious surfaces.<sup>58</sup> Increases in impervious surface area result in increased stormwater runoff in the winter and decreased infiltration and groundwater recharge in the summer. As a result, stream flows peak higher during winter storms and are reduced during the summer when groundwater is the primary water source. Flow changes resulting from increased impervious surfaces generally have a negative effect on salmonid habitat.

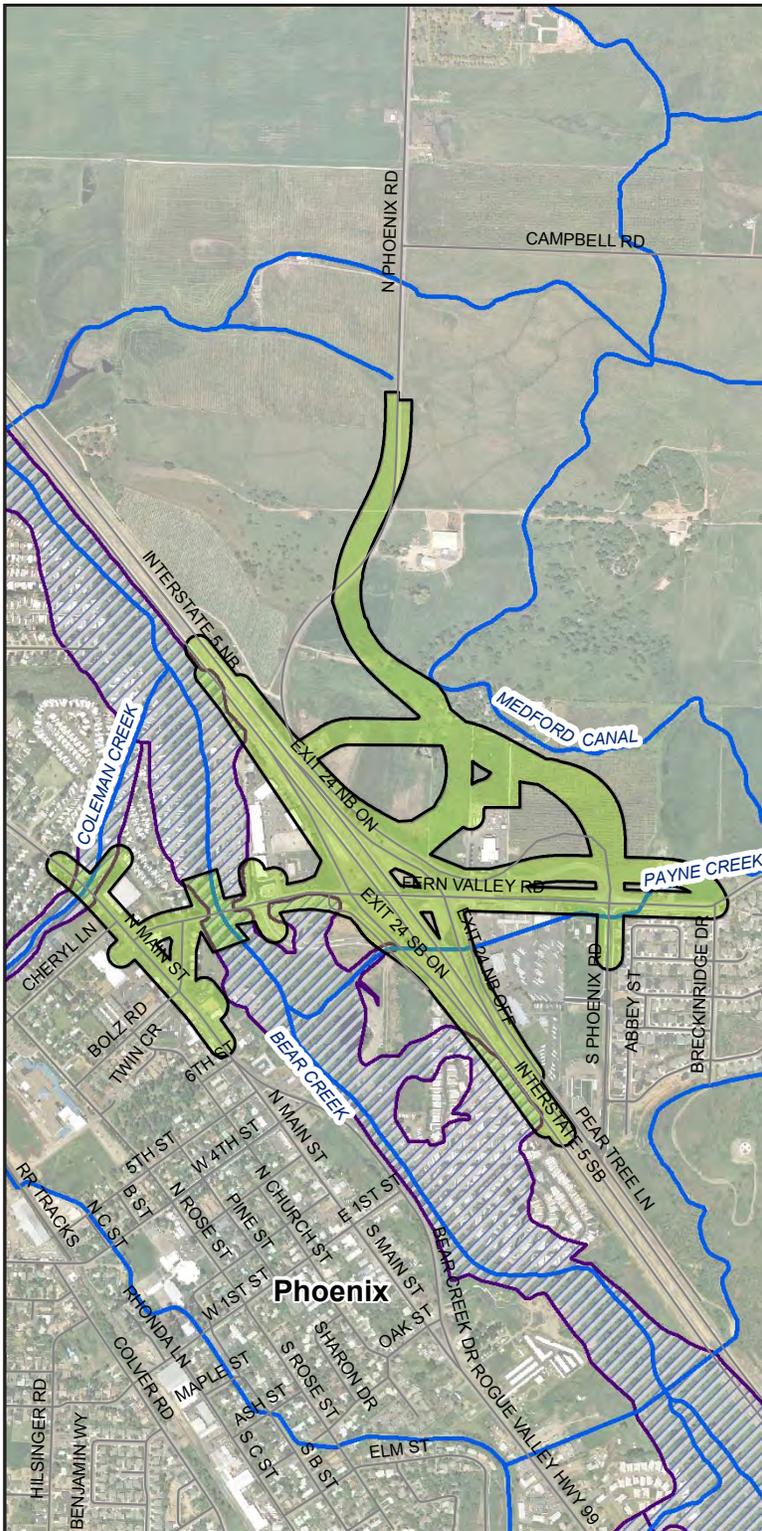
Bear Creek bisects the project, flowing in a northwesterly direction parallel to and approximately 200 feet west of I-5. The uplands of the Bear Creek watershed consist of highly erodible soils that result in high levels of natural sediment. Extensive agriculture and urban development in the watershed add to that sediment load. The result of these processes is poor water quality clouded by sediment, making the creeks less suitable for salmonids.

The existing Bear Creek Bridge does not span the Ordinary High Water Mark (OHWM).<sup>59</sup> Two bridge piers are located below the OHWM. Riparian vegetation zones along the creeks are narrow and degraded. The occurrence of large woody debris in the stream channel was observed to be very low, reflecting degraded riparian conditions throughout the watershed. Shading and other riparian functions are similarly compromised by thin or non-existent riparian buffers. In the project area, the Bear Creek Greenway may serve to provide limited long-term protection of the riparian zone.

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<sup>58</sup> A surface that does not permit passage of a substance (e.g., roadways, parking lots, and buildings that do not allow water to seep through the surface).

<sup>59</sup> The OHWM is a line established along the banks of fresh water features where regular water flows are so common as to create a physical demarcation. State and federal permits are required for construction below the OHWM.



## Surface Water Features

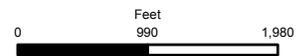
Figure 3-30  
May 2010



### Map Features

- Streets
- Waterways
- 100-Year Flood Plain
- Maximum Project Footprint / Water Resources API

Sources: Jackson County GIS, 2007;  
URS, 2007



In the interchange area, the majority of Payne Creek (over 2,000 feet) is contained within underground pipes and culverts. Payne Creek flows from the northeast, through roadside ditches; under Fern Valley Road, the truck stop and I-5; and outfalls to a channel through a grass field, finally emptying into Bear Creek. These pipes and culverts are a barrier to fish passage upstream in Payne Creek. Water flow in Payne Creek is influenced by irrigation withdrawal and sedimentation has severely limited the quality of pools. Payne Creek routinely exhibits intermittent flows during summer months. In-stream large wood does not occur in Payne Creek within the project area.



*Payne Creek*

Coleman Creek drains the northwestern margins of the project area. The creek flows in an easterly direction and through a culvert under OR 99. It discharges into the mainstem of Bear Creek north of Fern Valley Road. A series of lateral irrigation canals are located along the mainstem of the creek and are heavily affected by agriculture and irrigation diversions.



*Coleman Creek*

Bear, Coleman, and Payne Creeks have had water quality impairments for both temperature and bacteria; however, these are being addressed (see Section 3.14, Water Resources).

### *Fisheries Resources*

Bear Creek and Coleman Creek support several anadromous<sup>60</sup> fish species, including coho salmon,<sup>61</sup> summer steelhead, and fall Chinook. Neither summer steelhead nor fall Chinook is listed under the Endangered Species Act (ESA). Coho salmon (Southern Oregon/Northern California Coast Evolutionary Significant Unit) are currently listed as Threatened under the ESA. Critical habitat for Southern Oregon/Northern California Coast (SONCC) coho has been designated by the National Marine Fisheries Service (NMFS), which includes Bear Creek, Coleman Creek, and Payne Creek.

Payne Creek has historically supported anadromous salmonids (including cutthroat trout, steelhead, and coho salmon). Today, only the lower reach of Payne Creek between the I-5 culvert and the confluence of Bear Creek is known to support salmonids. The absence of fish in Payne Creek is likely due to the presence of barriers that prevent fish from entering the stream.

<sup>60</sup> Anadromous fish primarily live in the sea, but migrate upstream to breed in fresh water.

<sup>61</sup> Southern Oregon/Northern California Coho Evolutionarily Significant Unit

## *Upland Habitat Types*

The project area includes five distinct upland habitat types that have developed in response to the local topography, climatic conditions, and past land use practices (Figure 3-31). Agriculture, utility and highway construction, commercial and residential development, and industry have highly fragmented the vegetative patterns across the landscape. What exists today are developed urban areas, agricultural fields/pastures, riparian forests along Bear and Coleman Creeks, woodlands, and wetlands. Developed urban areas are the most common habitat type. These areas are of limited value to wildlife since such areas are lacking in the diversity of cover and habitat that natural vegetated areas provide. Most of the habitat present in urban areas is provided by building structures and vegetation introduced by landscaping. Multiple wildlife species have adapted to utilize developed habitats in urban areas. Agricultural fields and pastures are located primarily within the project area east of I-5. These open habitat types are characterized by a lack of trees and a history of disturbance.

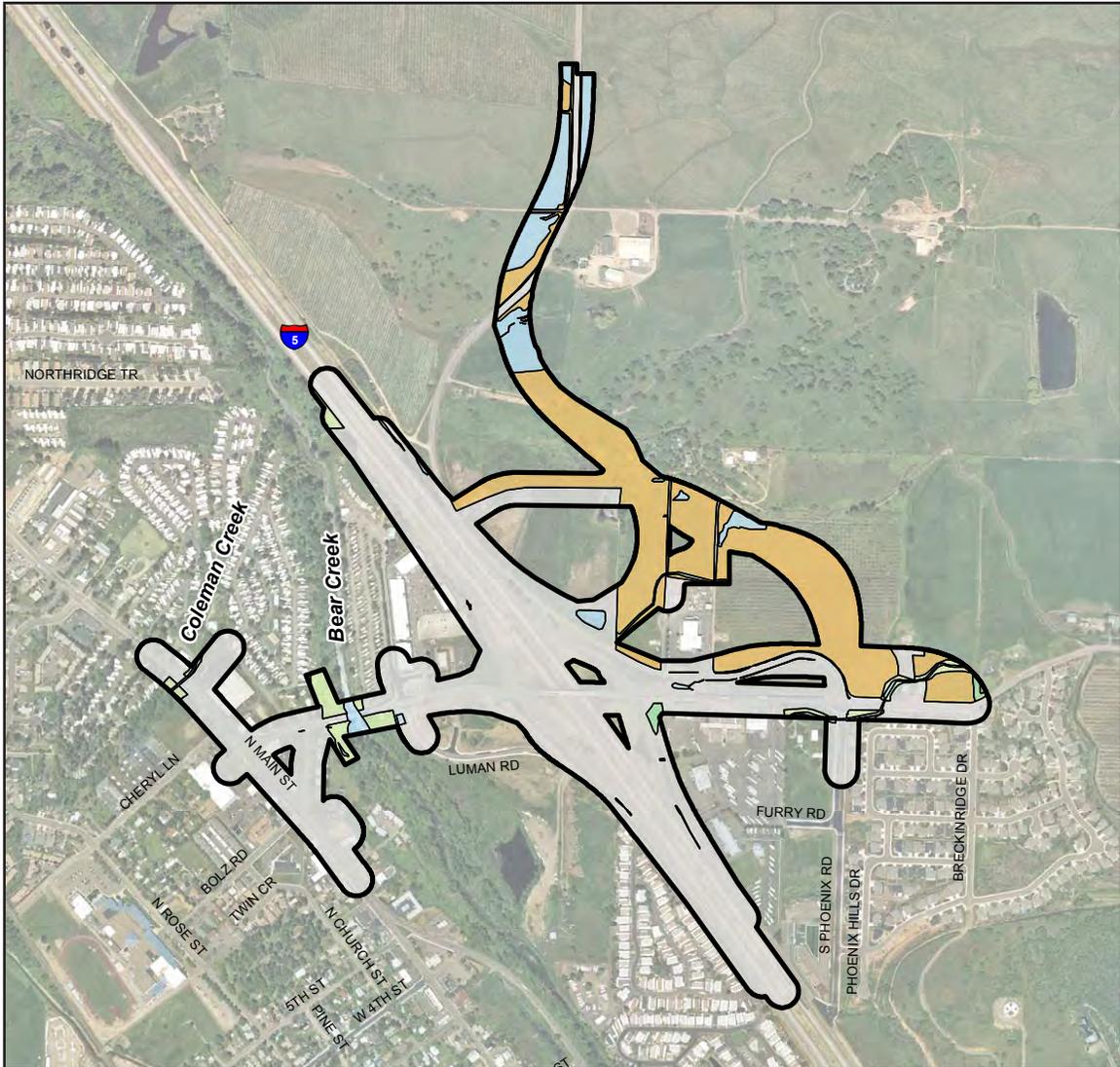
Localized thickets of Himalayan blackberry may provide cover and food sources for small mammals and birds. Wildlife, such as deer, may seek out areas of dense ground cover within the fields for forage. Due to the disturbed and fragmented nature of this habitat, species that frequent these areas are generally adapted to edge habitats and are tolerant of human activity.

The riparian forest corridor along Bear Creek, which forms the Bear Creek Greenway, contains habitat for a variety of animals. Typical riparian trees found along Bear Creek include Oregon ash, cottonwood, white alder, and willow. The vegetated Greenway functions as an important corridor facilitating wildlife movement through an otherwise urbanized area, as well as between forested and non-forested habitats.



*Bear Creek floodplain at  
Coleman Creek confluence*

Woodland areas near the project are relatively small and provide only limited habitat opportunities in upland areas. These areas are vegetated with native species including Oregon white oak, Ponderosa pine, Douglas-fir, Oregon ash, and cottonwood. Wildlife species that typically inhabit woodland areas near the project include common flicker and other woodpeckers, American robin, western kingbird, bushy-tailed woodrat, grey fox, black-tailed deer, southern alligator lizard, western skink, western fence lizard, Pacific tree frog, and black salamander.



- API
- Habitat Communities**
- Agricultural Fields/Pastures
- Developed Urban Area
- Riparian Forest
- Wetlands/Other Waters
- Woodland Areas

**Fern Valley Interchange**



**Habitat Communities in the Build Alternative Impact Area**

**Figure 3-31**  
May 2010

Feet  
0 200 400



## *Wildlife Species and Plants*

One State-protected terrestrial wildlife species was identified in pre-field investigations as having potentially suitable habitat within the project vicinity. The American bald eagle is listed as threatened by the State of Oregon. The bald eagle is also federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Under both laws, the disturbance of eagles, their nests, and eggs is prohibited.

A search of available wildlife databases and discussions with local experts indicated that bald eagles do not normally frequent the project area. No observations of bald eagles or bald eagle nest sites were made during a subsequent field investigation. Based on this effort, it was determined that there are no known locations of bald eagle nest or roost sites within the area affected by the project. The only potential habitat would be in the vicinity of Bear Creek; however, this portion of Bear Creek is bisected by I-5 with very high traffic volumes. In addition, high levels of human disturbance due to nearby commercial areas and residences likely preclude the use of the area by bald eagles. The Oregon Department of Fish and Wildlife (ODFW) was contacted and confirmed that the proposed project would have no potential to affect bald eagles.

No rare plants were identified during database and literature searches or field surveys, but noxious weeds/invasive species (yellow starthistle, Medusahead rye, Himalayan blackberry) are prevalent throughout the project area.

### *Migratory Bird Treaty Act*

The Migratory Bird Treaty Act (MBTA) provides federal protection for migratory birds, their active nests, eggs, and parts from harm, sale, or other injurious actions.<sup>62</sup> The project area provides habitat for migratory birds, including songbirds and birds of prey.

## 3.13.2 Impacts

### *Direct Impacts*

**No-Build Alternative.** Selecting the No-Build Alternative would not result in direct impacts to aquatic or terrestrial habitat.

**Build Alternative.** The following provides a summary of potential direct impacts to biological resources anticipated to result from the Build Alternative. Additional information is provided in the Aquatic Biology Technical Report and the Terrestrial Biology Technical Report.

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<sup>62</sup> Unlike the Endangered Species Act, the MBTA does not give any provisions for taking of species. Therefore, it is important to schedule construction during times of the year that avoid or minimize effects to migratory birds.

**Fisheries.** The Build Alternative would result in temporary adverse impacts to Bear Creek and its protected resources. A Biological Assessment conducted for the proposed project finds that the Build Alternative would result in a “Likely to Adversely Affect” finding for SONCC coho salmon and “may affect, but wouldn’t likely adversely modify the designated critical habitat for SONCC coho salmon”. Standard conservation and mitigation measures are included in the Biological Opinion to minimize potential impacts to aquatic resources.

Potential short-term, construction-related impacts to water quality would be minimized by treating water prior to entering Bear Creek. Potential long-term effects that could impact water quality downstream would be due primarily to the net increase of impervious surface and the potential for untreated run-off.

The potential impacts to Bear and Coleman Creeks from the Build Alternative include:

- Project impacts to Bear Creek include in-water work for removal of the existing Bear Creek Bridge, removal of riparian vegetation associated with construction of the new bridge and the bike/pedestrian ramps from Fern Valley Road to the Bear Creek Greenway multi-use path, and habitat/substrate modifications from temporary work platforms and bridges. It is anticipated that a detour bridge would not be needed during construction. Approximately 20 mature riparian trees would be removed to construct the new, wider Bear Creek Bridge. These trees provide shade for Bear Creek, thus helping to keep temperatures cooler in the summer.
- Temporary impacts could include increased sedimentation and turbidity. There is a potential for construction-related debris to enter the waterway, and for chemical contamination to occur as heavy machinery operates in and near the waterway. Best Management Practices (BMPs) would be implemented to reduce potential temporary impacts.
- The removal of the two piers currently located within the Bear Creek channel below the OHWM would help to restore natural channel conditions.
- The widening of the bridge, and associated increase in impervious surface area, could result in a slight increase in sediment and pollutant loading.
- The proposed replacement Bear Creek Bridge would completely span the wetted channel, with no piers located below the OHWM elevation.
- Construction of a new approach road to Coleman Creek Estates would occur approximately 50 feet from Coleman Creek. All work would be conducted at a distance from the waterway sufficient to assume the potential for impacts would be low.
- The widening of OR 99 near Coleman Creek would require roadwork adjacent to the waterway.

No project actions are expected to affect Payne Creek either west or east of I-5 with the Build Alternative.

With the Build Alternative, all construction activities for the expansion of the northbound off-ramp and the southbound on-ramp would occur in areas where Payne Creek is conveyed in an underground pipe.

**Wildlife and Plants.** The following direct impacts are anticipated as a result of construction of the Build Alternative:

- The Build Alternative would impact the following habitat types: developed urban area, agricultural fields/pastures, riparian forest, woodland, and wetland habitat type (Table 3-14).<sup>63</sup>
- The Build Alternative is not likely to impact ESA-listed terrestrial wildlife or rare plant species due to the amount of existing development, lack of species presence, and minimal and fragmented suitable habitat for these species in the interchange vicinity. A No Effect Memo that covers trust species of the USF&WS is included in Appendix G, Biological Resources ESA Documentation.

The project would have the potential to further spread noxious weeds/invasive species. Noxious weeds were observed scattered throughout the project area. Fill material has the potential to further introduce weedy species that may displace native vegetation, but the project would include measures to prevent the further spread of noxious weeds and invasive species.

<b>TABLE 3-14: ACRES OF HABITAT IMPACTS</b>	
<b>Habitat Type</b>	<b>Build Alternative Habitat Type (Acres)</b>
Developed Urban Area	34
Agricultural Fields/Pastures	12
Riparian Forests	1
Woodland Areas	Less than 0.1
Wetlands	4
Total	<b>51</b>

### *Indirect Impacts*

**No-Build Alternative.** Growth and development are expected to continue in the project area for the foreseeable future even without replacement of the interchange. The associated impacts to biological resources and habitat are expected to continue, although traffic congestion may slow the rate of development near the interchange and delay the rate of conversion of wildlife habitat to urban and commercial uses.

**Build Alternative.** A potential indirect effect of the Build Alternative is to increase the rate of development of the rural areas within the project area. Increased development would result in continued loss of wildlife and plant habitat and increased competition between species and among individuals of the same species for limited resources (such as nesting and denning sites, food resources, and protective cover). However, this area has

<sup>63</sup> The total area analyzed for biological impacts is meant to be used as a worst-case scenario. It exceeds the total impact acreage given for right of way or land use impacts in order to account for project activities during construction and staging that cannot be specified prior to the completion of final design.

experienced and is likely to continue to experience increased development regardless of the construction of the Build Alternative. The primary difference between the Build Alternative and the No-Build Alternative is how quickly the conversion of rural lands adjacent to the interchange occurs.

No indirect impacts to ESA-listed wildlife or plant species would be expected to occur as a result of construction of the Build Alternative.

### *Cumulative Impacts*

**No-Build Alternative.** The Bear Creek watershed has been heavily altered by past and ongoing urbanization and agricultural activities. Bear Creek is subject to irrigation withdraws, stormwater pollutant inputs, and loss of floodplains due to road building and diking. The watershed has lost much of its riparian zone vegetation to development and agricultural conversion. The riparian zones have been narrowed and/or degraded so that shading and other riparian functions are compromised system-wide.

Population growth, development, urbanization, and agricultural activities are expected to continue in the Bear Creek watershed for the foreseeable future. These actions are expected to further degrade the biological systems in the Bear Creek watershed and would continue to convert wildlife habitat to other uses. These future impacts are likely to occur whether or not the existing interchange is replaced.

In general, urbanization in the surrounding vicinity would likely cause loss of habitat and increased habitat fragmentation from additional impervious surface and land clearing, and result in the potential for increased introduction of non-native or invasive weeds.

**Build Alternative.** The following cumulative biological impacts are anticipated with construction of the Build Alternative. For more information on projects included in evaluating cumulative impacts, see page 3-1.

The cumulative effect of all past, present and future actions on the Bear Creek watershed has been, and will continue to be, substantial. Bear Creek has been degraded by past and ongoing development, irrigation, land use, and other actions in the watershed area. The watershed has been and will continue to be subject to irrigation diversion, upland and riparian vegetation clearing, and the addition of impervious surface resulting in substantial changes to natural flow regimes and habitat quality.

Through avoidance, minimization and mitigation measures, the Build Alternative would not further degrade the Bear Creek watershed. Reconstruction of a bridge in its existing location substantially reduces impacts compared to a new crossing located elsewhere. Impacts to riparian habitat would be mitigated through tree planting and landscaping within the watershed, currently proposed for areas just upstream of the crossing in areas where the riparian width is insufficient or non-existent. Removal of the existing Bear Creek Bridge piers from the stream channel would improve long-term aquatic habitat conditions. Stormwater runoff from roadway facilities would be treated to remove pollutants and moderate flows prior to entering Bear Creek and its tributaries. Loss of

wetland acres and wetland functions would be mitigated either on-site, or at another site within the Bear Creek watershed.

As with the No-Build Alternative, urbanization in the surrounding vicinity would likely cause loss of habitat and increased habitat fragmentation from additional impervious surface and land clearing, and result in the potential for increased introduction of non-native or invasive weeds. Best management practices would be used during construction to avoid and minimize removal of native vegetation and to avoid introducing and/or spreading non-native invasive species.

### 3.13.3 Summary of Coordination Requirements, Proposed Mitigation and Conservation Measures

The presence of SONCC coho salmon in Bear Creek and its tributaries (Coleman and Payne Creeks) require an ESA Section 7 consultation with NMFS to determine to what extent the Build Alternative may affect SONCC coho salmon and their designated critical habitat. Because Bear Creek is also designated as Essential Fisheries Habitat (EFH) for Chinook and coho salmon under the Magnuson–Stevens Act (MSA),<sup>64</sup> the proposed Build Alternative would require an EFH consultation with NMFS for potential impacts to salmon EFH under Sections 305(b)(2) and 305(b)(4) of the MSA. The MSA requires federal entities to evaluate potential impacts to EFH (including substrate, water column, and streambanks of habitats supporting MSA-regulated species) for commercially harvested species in a manner similar to the ESA. Because NMFS has regulatory authority over both the ESA and MSA, evaluations are typically submitted in one document (the Biological Assessment) and review for each law is conducted concurrently.

A Biological Opinion (June 17, 2010) issued by NMFS for the proposed project finds that the Build Alternative would result in a “May Affect, Likely to Adversely Affect” finding for SONCC coho salmon and “may affect, but not likely to adversely modify designated critical habitat for SONCC coho salmon”. Standard conservation and mitigation measures are included in the Biological Assessment and Biological Opinion to avoid, minimize and mitigate potential impacts to aquatic resources. Further, the Biological Assessment and Biological Opinion included evaluation of EFH, in compliance with the MSA, concluding that the project would affect EFH for Pacific Salmon (coho and Chinook), but such effects would not permanently impair EFH or retard habitat recovery. The Biological Opinion stated that the proposed action is not likely to jeopardize the continued existence of SONCC coho salmon nor result in the destruction or adverse modification of critical habitat designated for SONCC coho salmon.

Conservation measures would be implemented to avoid and/or minimize potential temporary and long-term environmental impacts to ESA-listed fish and terrestrial species and/or critical habitat. Conservation measures would follow practices outlined in

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<sup>64</sup> 16 U.S.C. §§ 1855(b)(2): Requirement for action agencies to consult with NOAA Fisheries under the Magnuson-Stevens Fisheries Conservation and Management Act (MSA) for project's that may affect "Essential Fish Habitat."

ODOT's *Standard Specifications for Highway Construction*. Conservation measures would be applied to actions taking place in, or adjacent to, Bear, Coleman, and Payne Creeks.

Conservation and mitigation measures submitted in the Biological Assessment for reducing impacts to species and habitat include the following:

- Containing potential pollutants and sediments to prevent them from entering creeks.
- Treating stormwater from roadways to remove pollutants and moderate peak/base flows prior to allowing the water to reach Bear Creek or its tributary streams.
- Avoiding and minimizing the removal of native vegetation and impacts to wetlands and streams.
- Replanting riparian trees and shrubs to replace up to 0.79 acre of vegetation removed for construction activities. These would be replanted at a 1:1 ratio within proximity to the project area. The trees replanted along Bear Creek could be expected to provide shade within one or two decades. The impact of removing the trees is not likely to result in a detectable change in water temperature given the small acreage, stream orientation to the project location, and height and extent of existing riparian vegetation.
- Mitigating any impacts to wetlands to ensure no net loss of wetland habitat or functions.
- Constructing the Bear Creek Bridge to fully span Bear Creek, with no piers below the Ordinary High Water elevation.
- Removal of two existing bridge piers in the Bear Creek stream channel. In-water work to remove these piers would include work area isolation measures (e.g., isolating piers from streamflow) to avoid and/or minimize impacts to fish species and habitat and stream channel restoration, following removal.
- Avoiding and minimizing the spread of invasive weeds. Prior to construction, ODOT would require that the contractor clean construction equipment to avoid importing and tracking weed seed into the project area. Construction specifications would require that all imported soil, fill, and erosion control materials are either certified weed free or inspected by ODOT to insure the source is weed free.
- Restricting bridge demolition to the non-nesting season or preventing birds from nesting on the structure until demolition of the existing bridge is completed.

Removal of the existing bridge may require the installation of piles to support a demolition/containment platform and a temporary work bridge. All work would be conducted during the ODFW preferred in-water work period (June 15 to September 15),<sup>65</sup> or other time as approved by ODFW, Department of State Lands (DSL), Corps of Engineers and NMFS. Work would be conducted within approved in-water work

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<sup>65</sup> Oregon Department of Fish and Wildlife, 2008. Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources  
[http://www.dfw.state.or.us/lands/inwater/Oregon\\_Guidelines\\_for\\_Timing\\_of\\_%20InWater\\_Work2008.pdf](http://www.dfw.state.or.us/lands/inwater/Oregon_Guidelines_for_Timing_of_%20InWater_Work2008.pdf)

isolation areas. Upon project completion, all temporary piles and platforms would be removed.

Construction activities such as vegetation removal have the potential to directly and indirectly affect migratory birds. However, potentially negative impacts to migratory birds can be minimized or avoided by avoiding or limiting construction activities during the most sensitive portion of the breeding season (early March through July). If seasonal restrictions are not practicable, a pre-construction survey to identify active nests would be conducted by an ODOT-qualified biologist prior to any disturbance activities and measures implemented to prevent nesting or use of the structure during the construction period.

### 3.13.4 Conclusion

Because no terrestrial wildlife species, plant species, or designated critical habitat for terrestrial species protected under the ESA have been identified as occurring within the area potentially disturbed by the Build Alternative, an ESA Finding of No Effect on listed terrestrial species and designated critical habitat has been prepared (see Appendix G).

A Biological Assessment to address potential Build Alternative impacts to SONCC coho salmon and its designated critical habitat that occur in Bear Creek was submitted to NMFS August 24, 2009. The findings conclude that the Build Alternative “may affect, [and is] likely to adversely affect” SONCC coho salmon and “may affect, but wouldn’t likely adversely modify the designated critical habitat for SONCC coho salmon”. In addition the findings state that the proposed action may temporarily impair the functioning of EFH for Pacific Salmon during construction. Included in the Biological Assessment are avoidance and minimization measures proposed to reduce potential impacts to ESA (and by extension, MSA) regulated species and habitats. A Biological Opinion was issued on June 17, 2010; it stated that the proposed action is not likely to jeopardize the continued existence of SONCC coho salmon nor result in the destruction or adverse modification of critical habitat designated for SONCC coho salmon (see Appendix G for NMFS Biological Opinion cover letter). The Biological Opinion contains an “incidental take permit” in event of incidental take of SONCC coho during project construction. Additionally, NMFS provided “reasonable and prudent measures” to be considered to further reduce potential project effects.

Based on the ESA Finding of No Effect for USF&WS trust species, and the analysis and associated mitigation measures and conservation measures presented in the Biological Assessment for NMFS trust species, it was determined that the Build Alternative would result in minor, temporary effects to listed aquatic species and a minor loss of 0.79 acres of riparian habitat that would be mitigated at a 1:1 ratio off-site, but within proximity to the project area. Based on this documentation, the Build Alternative is not anticipated to result in significant impacts to biological resources.

## 3.14 WATER RESOURCES

### 3.14.1 Existing Conditions

The major waterways and the 100-year floodplain in the project area are shown on Figure 3-30 in Section 3.13, Biology. Descriptions of the Bear Creek watershed, including the Coleman Creek and Payne Creek tributaries, are also provided in the Biology section.

#### *Flooding and Floodways*

There have been 14 floods during the period from 1916 through 2006. Both Bear Lake Estates and Coleman Creek Estates (manufactured home parks in the project area) are vulnerable to flooding. Extensive irrigation diversion, vegetation clearing, and the addition of impervious surface have occurred, resulting in substantial changes to natural flow levels for this watershed. The Bear Creek sub-basin is water-deficient, primarily due to seasonal rainfall patterns and the demand for surface water supplies for irrigation and urban uses.

Flood zone designations in the project area have been assigned to Bear Creek, Coleman Creek, and Payne Creek. The City of Phoenix requires a flood development permit for any structures placed within the 100-year flood zone (or 100-year floodplain). The Federal Emergency Management Agency (FEMA) identifies the 100-year floodplain as a “Special Flood Hazard Area (SFHA)” and defines the SFHA as the area of land that would be inundated by a flood having a 1-percent chance of occurring in any given year (also referred to as the base flood or 100-year flood). There are specific design and construction standards for development within a floodplain or the floodway (defined as the stream channel plus the portion of the overbanks that must be kept free from encroachment in order to discharge the 1-percent-annual chance flood without increasing flood levels by more than one foot). Encroachments within the floodway, including fill, new construction, and substantial improvements are prohibited unless demonstrated through hydrologic and hydraulic analysis that the proposed encroachment will not increase flood levels. Construction within the floodplain requires evaluation and demonstration that the cumulative impact of development will not increase the water surface elevation of the base flood by more than one foot at any point.

The Bear Creek Bridge currently causes a backwater rise<sup>66</sup> during periods of high stream flows in Bear Creek. This rise ranges from approximately 0.1 feet during the 2-year flood event to approximately 1.2 feet during a 100-year flood event.

#### *Water Quality—Receiving Waters*

Bear, Coleman, and Payne Creeks were identified by DEQ in the Bear Creek Total Maximum Daily Load (TMDL)<sup>67</sup> document as having water quality impairments for both

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<sup>66</sup> Backwater refers to a rise in water surface elevation immediately upstream of the bridge.

temperature and bacteria. In general, for these creeks, exceedance of bacteria criteria is moderate, and summer temperatures are approximately 5° F higher than the temperature standard.

Ambient water quality monitoring in Bear Creek includes total suspended solids (TSS) and total dissolved solids (TDS). Elevated concentrations of TSS, which can transport other pollutants and impact aquatic life, have been found in Bear Creek, and have occasionally exceeded statewide criterion. The elevated TDS concentration at Bear Creek likely reflects raised pollutant and sediment loads in the creek.

The TMDL document that has been developed for Bear Creek to help meet water quality standards does not place requirements on highway projects. However, temperature and bacteria can be elevated in highway runoff. Mitigation measures to address these potential impacts are discussed in the Summary of Proposed Mitigation Measures below.

### *Stormwater*

The existing roads in the project area are almost all curbed, with inlets to storm drains. The only exceptions are the I-5 on- and off- ramps, which have roadside ditches with varying amounts of vegetation. Therefore, infiltration of existing stormwater runoff is limited. A stormwater detention pond is located at the southwest corner of the Fern Valley Road/Luman Road intersection. This detention pond was constructed by ODOT, but is currently maintained by the City of Phoenix. A stormwater treatment pond is also located at the southeast corner of Home Depot.

The most common contaminants in highway runoff are heavy metals, inorganic silts, aromatic hydrocarbons and suspended solids. Vehicles also contribute rubber particles, oil and grease, rust and hydrocarbons to the highway surface and subsequent highway runoff.

#### 3.14.2 Impacts

Water resource impacts are related to potential impacts to floodway conveyance, stormwater runoff from areas of site disturbance during construction, and stormwater runoff from new impervious surfaces that would be added by construction of the Build Alternative.

Potential impacts to Bear Creek from stormwater discharges occur based on the amount of impervious surface within the project area, and the degree of treatment which the stormwater receives prior to reaching Bear Creek. Pollutant loads from roadway surfaces are a function of traffic volumes. Higher traffic volumes result in increased pollutant concentrations in stormwater runoff. Increased volumes of stormwater runoff can also

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<sup>67</sup> A TMDL document is developed to determine the amount of a particular pollutant that a specific stream, lake, estuary or other water body can handle without violating state water quality standards. TMDL documents provide load and wasteload allocations to various pollutant sources in an effort to correct excessive pollutant loading for a designated water body.

increase sediment loads in receiving streams and alter stream channel morphology<sup>68</sup> and hydraulics.<sup>69</sup>

Impervious surface areas used in analyzing water resource impacts were documented prior to the new stormwater guidance (ODOT Stormwater Management Guidelines<sup>70</sup>) requiring assessment of the “contributing area.” The project area is relatively flat, thus the “contributing” impervious surface area is not expected to differ much from what is documented.

### *Direct Impacts*

**No-Build Alternative.** With the No-Build Alternative, there would be no change associated with the Bear Creek Bridge regarding floodways.

With the No-Build Alternative, no additional stormwater treatment would be installed by ODOT within the project area. Stormwater would continue to be collected in gutters and ditches, and flow directly into Bear Creek. Stormwater pollutant concentrations would increase as additional development occurs on vacant lands near the interchange. Stormwater runoff peaks and volumes would also increase as more lands in the project area are developed in the future.

**Build Alternative.** The design of the replacement bridge for the Build Alternative would result in similar or slightly improved hydraulic conveyance, in compliance with the FEMA’s no-net rise criteria established for floodways. Therefore, there would be no adverse floodway impacts from the project.

Increased runoff volumes associated with the Build Alternative may increase pollutant loading in stormwater runoff, while projected increases in impervious surface area would increase runoff volumes and peak flood flows in Bear Creek. The existing, future, and net new impervious surface areas associated with the Build Alternative are shown in Table 3-15. For the Build Alternative, impervious surface area would increase over existing conditions—resulting in about 11.2 acres of net new impervious surface area.

<b>TABLE 3-15: IMPERVIOUS SURFACE AREA AND STORMWATER TREATMENT OPTIONS FOR THE BUILD ALTERNATIVE</b>				
	<b>Existing Impervious Surface Area (acres)</b>	<b>Net New Impervious Surface Area (acres)</b>	<b>Total Future Impervious Surface Area (acres)</b>	<b>Conceptual Stormwater Treatment Approach</b>
Build Alternative	16.5	11.2	27.7	Extended detention ponds, bioswales, water quality manholes

<sup>68</sup> Morphology relates to the structure or form of the channel.

<sup>69</sup> Hydraulics deals with the effects of flow of a liquid in motion.

<sup>70</sup> ODOT. 2009. Technical Bulletin GE09-02(B) – Stormwater Management Program. January 27, 2009.

Stormwater runoff volumes would double due to increased impervious surface and reduced infiltration potential, with a corresponding decrease in baseflow.<sup>71</sup> Stormwater runoff from the total contributing impervious surface for the Build Alternative (which includes any ODOT stormwater generated outside of the project area that discharges to the project area) would be treated to remove pollutants prior to reaching streams, and would be detained to slow the rate of runoff from roadway surfaces reaching streams during heavy rain events. With mitigation measures, the direct impacts to Bear Creek from changes in stormwater runoff would not be detectable. The final combination of stormwater treatment and detention measures has not been determined at this time, but would be selected in accordance with the latest ODOT Stormwater Management Guidelines during final design if the Build Alternative is selected. The Build Alternative includes adequate right of way to accommodate stormwater facilities.

Neither temperature nor bacteria levels in Bear Creek would be substantially affected by the pollutants typically found in highway runoff. Instead, the pollutants of greatest concern in Bear Creek relative to the Build Alternative would be suspended sediment and copper, particularly dissolved copper. Both of these can impair aquatic habitat quality at concentrations below state water quality standards. Although the pollutant concentrations have the potential to be more with the Build Alternative than with the No-Build Alternative, the Build Alternative would not result in violations of in-stream water quality standards in Bear Creek. Additionally, installation of required stormwater treatment measures would reduce the concentration of sediment and copper in stormwater runoff.

Water quality treatment would be required for the total contributing impervious area associated with the project, including any other ODOT roadway surface area that discharges into the project area in accordance with the most recent ODOT Stormwater Management Guidance document. No roadway stormwater runoff would be permitted to drain directly from the bridge into the stream. Stormwater runoff would be channeled to the ends of the bridge for treatment, prior to entering Bear Creek.

The Build Alternative would require the existing Home Depot stormwater treatment pond to be removed in order to construct the new roadway alignment. As a result, the associated flow would have to be managed in conjunction with construction of the Build Alternative. However, this would not be expected to result in any change in stormwater quality from this site as removal of the existing detention pond would be mitigated through the use of additional treatment and detention, which would be located within the proposed right of way

### *Indirect Impacts*

**No-Build Alternative.** As new development occurs, pollutant loads from roadway surfaces increase with corresponding increases in traffic. Within the City of Phoenix and

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<sup>71</sup> Baseflow is the portion of streamflow that comes from groundwater and not runoff.

some adjoining portions of Jackson County, most of the water quality impacts could be reduced by including stormwater treatment facilities as requirements for new development, or the use of low impact development approaches<sup>72</sup> in site design.

**Build Alternative.** Indirect impacts from the Build Alternative would primarily be related to the anticipated increase in stormwater runoff from new residential and commercial/industrial development that could occur following the improvement of transportation facilities. New traffic capacity provided by the Build Alternative would allow for additional growth and development opportunities. These impacts could include moderately high suspended sediment during high intensity storms, discharges of dissolved metals, and discharges of pollutants (e.g., bacteria) not otherwise well-controlled by stormwater treatment. However, the use of stormwater treatment facilities and low impact development techniques in accordance with ODOT and the Rogue Valley Sewer Services design standards could reduce the impacts of additional runoff from any new impervious surface areas. The amount of new impervious surface area that could be produced within the project footprint is small relative to the size of the Bear Creek watershed, so it is not expected to be detectable within Bear Creek. The Coleman Creek watershed in the project area is nearly fully built out, so increased runoff volumes from new impervious surface areas are likely to be small. Payne Creek is potentially the most vulnerable drainage to impacts from additional impervious surface area. However, since Payne Creek is primarily piped from well upstream of I-5 to Bear Creek, protection of this pipe infrastructure would require the treatment and detention of runoff volumes from new impervious surfaces.

### *Cumulative Impacts*

**No-Build Alternative.** The overall water quality conditions in the Bear Creek Watershed have been substantially degraded due to past and ongoing urbanization, road building and agricultural practices. Population growth and development are expected to continue in the Bear Creek watershed with the No-Build Alternative, but development activities would occur at a slower rate than expected with the Build Alternative due to current zoning limitations. Therefore, with the No-Build Alternative, pollutant loads generated from roadway surfaces would increase with corresponding increases in traffic, but would increase at a slower rate than expected with the Build Alternative.

Future development and road construction would be subject to Rogue Valley Sewer Services (RVSS) requirements for stormwater treatment or DEQ requirements for stormwater treatment and flow control. Increased impervious surface that remains connected to surface water systems would be treated where regulatory permit requirements apply. Stormwater treatment measures that may be used include vegetated bioswales, filter strips, planter boxes, and extended detention basins.

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<sup>72</sup> Per the Technical Bulletin GE09-02(B), examples of LID approaches applicable to roadway applications would include minimization and disconnection of impervious cover and mimicking of natural drainage patterns (i.e., sheet flow, natural attenuation, dispersion and infiltration, and open channel retrofit and conveyance).

**Build Alternative.** The cumulative impacts of the Build Alternative would not be detectably greater than those associated with the No-Build Alternative. As a result of the Build Alternative, population growth and development are expected to continue in the Bear Creek watershed at a higher rate than expected under the No-Build Alternative, due to zoning modifications and associated development potential. However, increases in stormwater flows and volumes would be mitigated in accordance with RVSS requirements for stormwater treatment or DEQ requirements for stormwater treatment and flow control. Implementation of stormwater mitigation measures would occur in conjunction with the new development activities.

### *Construction Impacts*

**No-Build Alternative.** There would be no construction impacts with the No-Build Alternative.

**Build Alternative.** The area that would be disturbed during construction of the Build Alternative would be about 50 acres.

Construction activities adjacent to Bear Creek and Payne Creek could result in short-term increases in turbidity and sedimentation. Limited in-stream work would be required to remove the two existing bridge piers from Bear Creek and install temporary piles for a work bridge. Pollution control measures would be developed and implemented with the Build Alternative to avoid and minimize adverse impacts to water quality while the project is being constructed.

ODOT will follow the requirements of their regional construction stormwater general permit (1200-CA) and the conservation measures in the Fern Valley Biological Assessment. Stormwater pollutant control measures and practices for construction activities are identified in the Water Resources Technical Report and would be included in the environmental permits issued for this project. Such measures and practices include the installation of erosion control blankets and vegetation to stabilize exposed soils, the installation of perimeter controls, the timing of construction activities to minimize impacts, and continued inspection and maintenance of installed structural control measures. With the stormwater pollutant control measures in place and properly functioning, there should be no adverse impacts to water quality from construction of the Build Alternative.

### 3.14.3 Summary of Proposed Mitigation Measures

- As required by FEMA regulations, the Bear Creek Bridge would be designed to pass the 100-year flood event with no more than a one foot backwater rise upstream of the structure.
- Stormwater pollutant loads (particularly sediment and dissolved copper) and stormwater runoff rates would be reduced through a combination of detention ponds, treatment swales, vegetated ditches or other water quality treatment methods. Per the new ODOT stormwater standards, low impact development

(LID) practices are to be implemented first, as they would reduce the flows and volumes needed to be managed with treatment and infiltration. Examples of LID include the minimizing impervious area and mimicking natural drainage patterns (i.e., allowing runoff to flow off the side of the road instead of being conveyed by traditional piped methods).

- The infiltration capacity of stormwater treatment facilities would be enhanced with suitable vegetation or substrate filters where possible.
- Stormwater treatment would be provided for all ODOT contributing impervious surface that drains to the project area.
- Stormwater would not be allowed to drain directly from bridges or roadway into streams without treatment.
- To reduce the potential for elevated water temperature and bacteria from highway runoff, mitigation measures such as structural stormwater BMPs (e.g., swales, vegetated ditches, and infiltration systems) would also be included.

### 3.14.4 Conclusion

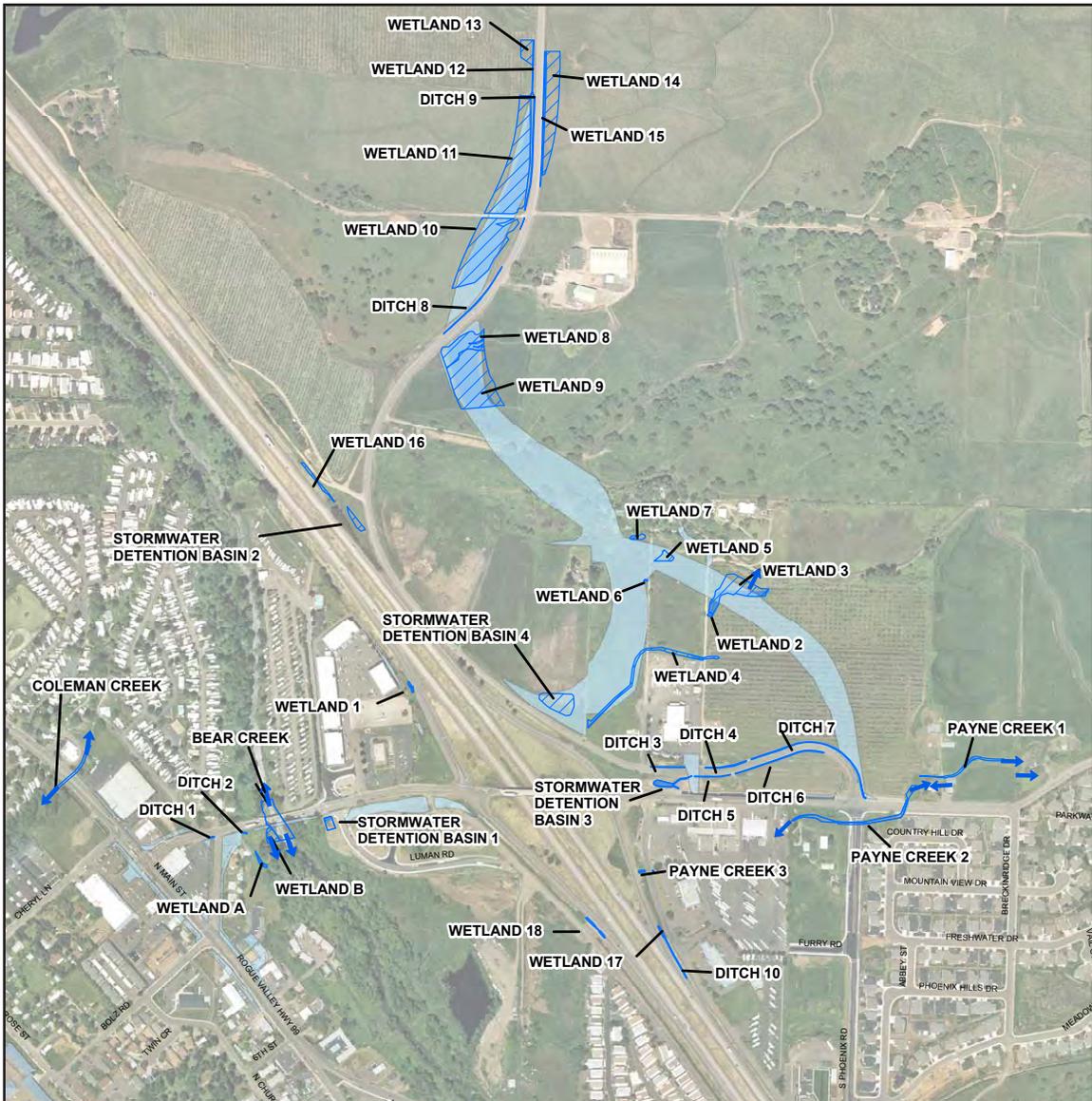
Potential effects to water resources associated with floodway conveyance and future stormwater quality and flow rates were analyzed for the Build Alternative. Design of the replacement bridge that would be constructed under the Build Alternative would result in similar or slightly improved hydraulic conveyance, and thus there are no adverse floodway impacts associated with the Build Alternative.

As a result of the increased impervious surface associated with the Build Alternative, there would be an increase in runoff rates and volumes and pollutant load. Based on the water resource analysis conducted for this project, no violations of in-stream water quality standards are anticipated as a result of the Build Alternative. In addition, mitigation measures, including LID, stormwater treatment, and stormwater detention would be implemented in accordance with the new ODOT stormwater standards to reduce the overall stormwater runoff volume (through infiltration), remove typical pollutants (sediment and copper) found in stormwater runoff, and detain runoff to manage the increase in peak flow rates. Thus, the Build Alternative is not anticipated to result in significant stormwater impacts.

## 3.15 WETLANDS AND WATERS OF THE STATE/U.S.

### 3.15.1 Existing Conditions

Wetlands and other surface waters located in the project-affected area are shown on Figure 3-32. West of the interchange, there are 4 wetlands, 2 ditches, 1 stormwater detention basin, Bear Creek, Coleman Creek, and a small portion of Payne Creek. East of I-5, there are 16 wetlands, 8 ditches, 3 stormwater detention basins, and Payne Creek.



### Wetlands and Other Waters in the Project Area

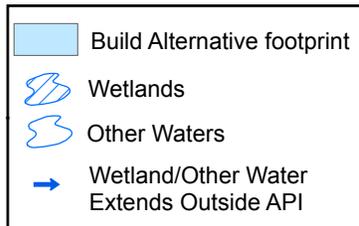


Figure 3-32  
May 2010



Water resources within the project-affected area have typically been impacted by increased urbanization and agricultural activity. Wetlands are generally low to moderate functioning due to proximity to existing roads, developed areas, and ongoing agricultural practices. The only exception is Wetland B, which provides moderately high wetland functions due to its provision of riparian functions (thermoregulation, woody debris production, flood attenuation, etc.) along Bear Creek. Increased development in the project area has resulted in increased impervious surfaces, altering hydrology by decreasing infiltration and increasing stormwater runoff into Bear, Coleman, and Payne Creeks, thereby affecting water quality and modifying stream morphology.

### 3.15.2 Impacts

#### *Direct Impacts*

**No-Build Alternative.** No direct impacts to wetlands or other waters are associated with the No-Build Alternative.

**Build Alternative.** The Build Alternative would result in less than four acres of fill in wetlands and less than 0.25 acre of fill and removal in other surface waters of the State/U.S. Anticipated impacts to high quality wetlands,<sup>73</sup> Wetland B, would be negligible (less than 0.01 acre). All other impacted wetlands are of low to moderate quality. The Bear Creek Bridge replacement would remove both existing bridge piers below the OHWM (a footprint of less than 0.01 acre, about eight square feet), resulting in a net benefit to the creek.

#### *Indirect Impacts*

**No-Build Alternative.** Indirect impacts due to the No-Build Alternative could potentially include the deterioration of the bridge structure over Bear Creek and erosion of adjacent supporting embankments. This erosion could, over time, result in higher sediment loads in Bear Creek, affecting associated wetland areas.

**Build Alternative.** The Build Alternative would provide improved circulation to developing areas, thus facilitating population growth and development in the eastern portion of the alignment along N. Phoenix Road. State and federal law would require future development and road projects in the area to mitigate for impacts to wetlands by creating or restoring additional wetlands.

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<sup>73</sup> High quality wetlands are those that score highly (0.7-1.0) for more than one functional category, as determined by a wetland functional assessment. More information is provided in the Fern Valley Interchange Wetland Technical Report, available online at ODOT's Region 3 website (<http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>) or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299.

## *Cumulative Impacts*

**No-Build Alternative.** Wetlands and other surface waters in the Bear Creek watershed have been heavily altered by past and ongoing urbanization and agricultural activities. Floodplain wetlands have been lost due to development, road building, and diking. Bear Creek and its tributaries, Coleman and Payne Creeks, are subject to irrigation withdraws and stormwater pollutant inputs. The watershed has lost much of its riparian zone vegetation to development and agricultural conversion. The riparian zones have been narrowed and/or degraded so that shading and other riparian functions are compromised system-wide.

Population growth, development, urbanization, and agricultural activities are expected to continue in the Bear Creek watershed for the foreseeable future. These actions are expected to further degrade the water resources in the Bear Creek watershed. These future impacts are likely to occur whether or not the existing interchange is replaced. State and federal law would require future development and road projects in the area to mitigate for impacts to wetlands by creating or restoring additional wetlands. Therefore, the long-term quality and area of wetlands in the project area is likely to remain similar to the current condition.

**Build Alternative.** Local projects and continued commercial and residential development northeast of the Fern Valley Interchange, together with the Build Alternative, may incrementally increase the impacts to water resources in the vicinity of the project. Mitigation requirements for loss of wetlands would be a part of each of these future foreseeable actions. ODOT would fully mitigate for wetlands impacted by the Build Alternative, resulting in no additional cumulative loss of wetlands in the Bear Creek watershed as a result of replacement of this interchange. For this reason, cumulative impacts to wetlands associated with the Build Alternative are assumed to be negligible.

## *Construction Impacts*

**Build Alternative.** Construction of the Bear Creek Bridge and roadway construction could result in temporary impacts to wetlands and surface waters. In general, this may include: vegetation loss; potential sedimentation from soil erosion during construction; and possible construction materials, fuels and lubricants, and/or litter entering the wetlands and other surface waters.

### 3.15.3 Summary of Proposed Mitigation Measures

Standard construction measures would be undertaken to avoid temporary impacts to wetlands (e.g., contain contaminants minimize use of heavy equipment in wetlands flag no-work areas, and use of protective geotextile material to minimize erosion).

When wetland impacts cannot be avoided, ODOT is required to mitigate for the loss of wetland functions and area. This is typically done by restoring, creating, or enhancing

wetlands. A variety of mitigation options exist for compensating for the four acres of wetland impacts anticipated with the Build Alternative; these options include creating or enhancing wetlands on-site (e.g., modifying Payne Creek, creating wetlands in agricultural fields, or enhancing wetlands at Arrowhead Ranch) or off-site (e.g., purchasing mitigation credits from ODOT's vernal pool wetlands bank near White City).

A wetland delineation report was prepared and submitted to DSL for the Fern Valley Bridge replacement and has received concurrence. Upon selection of the preferred alternative, the remaining area east of I-5 would be delineated. Specifically, this area consists of the properties where Extended S. Phoenix Road and N. Phoenix Road would be realigned--including the orchard property and the Arrowhead Ranch property. The delineation report would be submitted to the DSL for concurrence and to the USACE for an approved jurisdictional determination. It is anticipated that much of the irrigated wetland pasture would be exempt from state or federal regulation, which would reduce the total area of wetland impacts.

### 3.15.4 Conclusion

Less than 4 acres of wetlands and less than 0.25 acre of other waters would be impacted by the Build Alternative. Impacts to high quality wetlands would be less than 0.01 acre. The loss of wetlands impacted by the Build Alternative would be fully mitigated. Because wetlands that would be impacted by the Build Alternative are primarily low quality, disturbed/farmed wetlands and because opportunities exist to mitigate wetland impacts such that there would be a net ecological gain within the Bear Creek watershed, the Build Alternative is not anticipated to result in significant impacts to wetlands. The Bear Creek Bridge replacement would remove both existing bridge piers below the OHWM (a footprint of less than 0.01 acre, about eight square feet), resulting in a net benefit to the creek.

## 3.16 HAZARDOUS MATERIALS

A hazardous materials investigation was conducted to discover and identify the current and past hazardous materials operations in the project vicinity. All obvious and suspected properties were surveyed and assessed. EPA, DEQ, the State Fire Marshal, local fire department and other resources were contacted and records reviewed to determine hazardous material facilities, disposal sites, and accidental releases in the project area.

An on-site survey was conducted to visually inspect the properties on which hazardous materials may be located. The survey primarily included commercial and residential properties in the proposed right of way and adjacent to the project. The on-site survey did not reveal any additional hazardous material sites that were located within the Build Alternative alignment.

### 3.16.1 Existing Conditions

#### *Sites of Concern*

There are 25 “sites of concern” identified in the project area that have been impacted by or may contain hazardous materials and/or hazardous waste that may impact the project. The locations of the 25 sites of concern are shown on Figure 3-33 and described in Table 3-16. Specific properties identified as sites of concern are discussed in the Hazardous Materials Technical Report. Fifteen of these sites are in the immediate project area; six of these fifteen sites are considered to be of moderate or high concern.<sup>74</sup> One additional site of concern (#23) is shown on Figure 3-33, but would not be impacted by the Build Alternative.

#### *Hazardous Material Transport*

Hazardous materials are transported on Oregon’s highways. Flammable liquids and gases, primarily gasoline, make up the largest portion of the loads. The level of danger posed by the materials varies. Flammable gases and liquids could cause explosions or fires. Other substances pose no risk unless they come into physical contact with people or water supplies.

Most of the hazardous material transport in Jackson County travels over I-5, OR 99, and OR 140. Hazardous material spills have been documented on OR 99, and those relevant to the project area identified as sites of concern. Three hazardous material spills have been documented on I-5 in the project area; all were located at the Fern Valley Interchange. These were not identified as hazardous material sites of concern because they were very small spills associated with cars (gas, motor oil and anti-freeze).

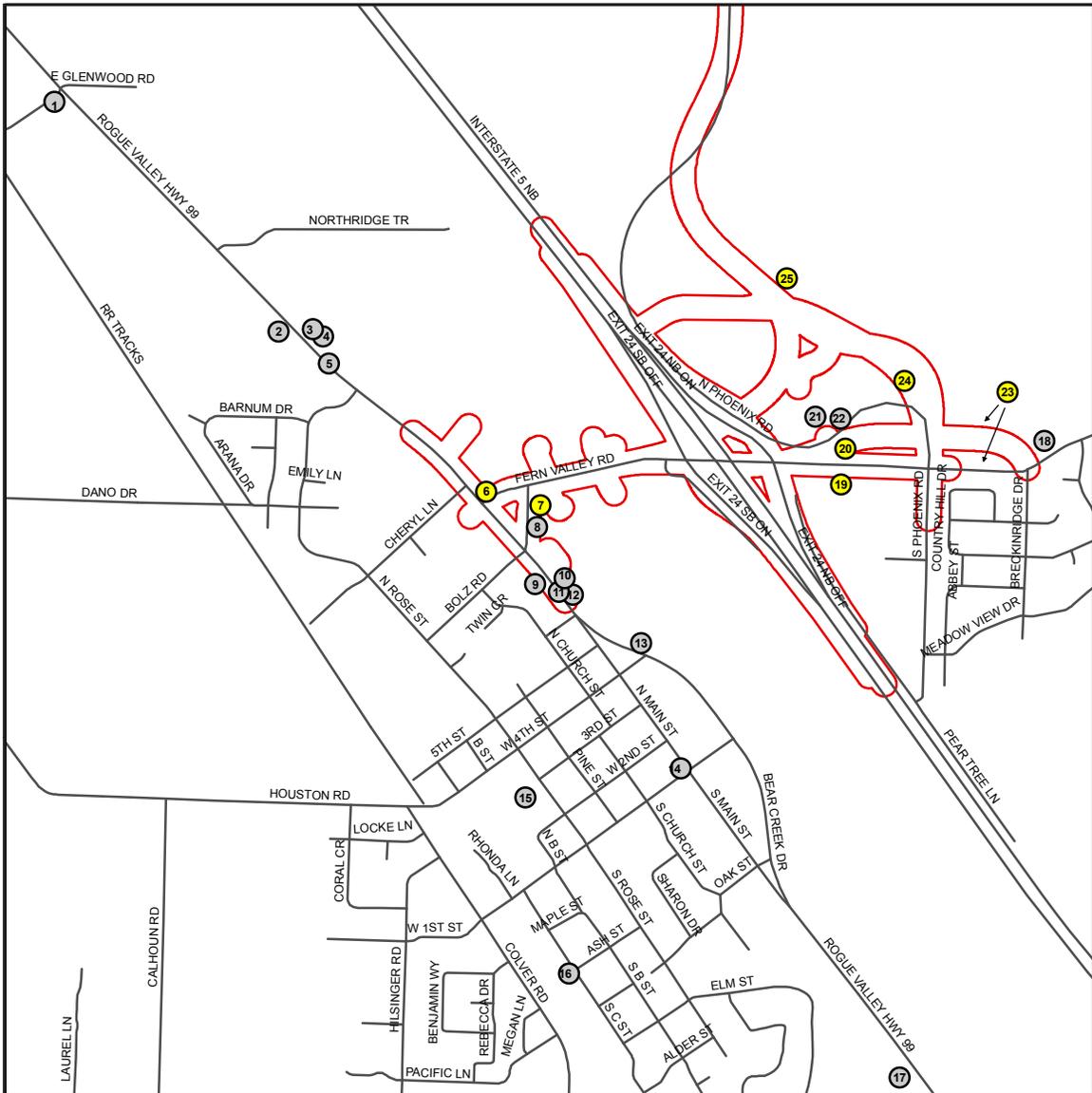
### 3.16.2 Impacts

#### *Direct Impacts*

Below is a summary of the number of sites of concern that pose a low, moderate, or high potential to impact the proposed Build Alternative. Details on each site of concern are provided in the Hazardous Materials Technical Report.

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<sup>74</sup> Each site of concern was evaluated to identify the level of concern (anticipated risk) it poses. A low concern indicates the potential for hazardous materials to impact the soil and groundwater beneath the alternative is insignificant, and no further action is needed. A moderate concern indicates the potential for hazardous materials to impact the alternative is present, and further action is recommended. A moderate ranking is also assigned to sites that have not been fully investigated, or limited information was available for review. A high concern indicates hazardous materials have a high potential to impact the alternative, and further action is recommended.



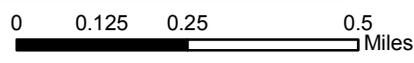
**Map Features**

- Sites of High/Moderate Concern
- Sites of Low Concern
- Area of Potential Impact

Source: URS, ODOT

**Location of Hazardous Materials Sites of Concern within the Project Area**

**Figure 3-33**  
May 2010



**TABLE 3-16: HAZARDOUS MATERIALS SITES IN THE PROJECT AREA**

Site #	Site Name	Information and Status*	Level of Concern
<b>Sites Located West of I-5</b>			
1	Glenwood Business Park	NFA (29 Dec 06)	Low
2	D & S Harley Davidson Inc.	Gasoline AST; One decommissioned UST	Low
3	Western Mechanical Inc.	One decommissioned UST	Low
4	Bear Creek Valley Sanitary Authority	One decommissioned UST	Low
5	OR HAZMAT Release	Possible residential drug laboratory discovered (29 Apr 92)	Low
6	Phoenix Circle K / ConocoPhillips #162 (Former Phoenix Exxon #9290)	Three active USTs and five decommissioned USTs; LUST: NFA issued (14 Aug 01); truck being towed spilled motor oil (1 Jul 93). No additional information available	Moderate
7	Residences	Possible hazardous building materials and heating oil USTs associated with two residences	High
8	OR HAZMAT Release	Small spill of a chemical when a saddle tank on a tractor was overfilled (27 July 93). Spill cleaned up	Low
9	Phoenix Automotive Center	Used oil AST	Low
10	R C Auto Parts Inc.	Sodium hydroxide AST	Low
11	OR HAZMAT Release	Phoenix Fire Department was notified of a green liquid present in Bear Creek (4 Apr 05). Samples were collected, and a test indicated 99.98 percent water.	Low
12	Phoenix Discount Gas / Bi-Mor Stations, Inc. #2	Two active USTs; LUST: Cleanup started (7 Dec 98), but an NFA has not been issued	Low
13	OR HAZMAT Release	Paint spilled in the roadway (24 Oct 94). No additional information was available.	Low
14	Ken's Automotive	LUST: NFA issued (6 Mar 89)	Low
15	Phoenix Elementary School: Heating Oil Tank	LUST: Cleanup started (13 May 95), but an NFA has not been issued.	Low
16	Former Special Products of Oregon	No RCRA violations found; ECSI: NFA issued for an on-site oil spill	Low
17	Lindvig Machine Shop	DEQ recommends that further assessment of the site is necessary as adequate soil and groundwater sampling have not been conducted	Low
<b>Sites Located East of I-5</b>			
18	OR SPILLS Release	One quart of crankcase oil was spilled when a backhoe tipped over (22 Apr 94)	Low
19	PETRO Truck Stop and Shopping Center	Eight OR HAZMAT, two LUST, and five OR SPILLS incidences are listed for the site. The most significant releases occurred on 4 Nov 95 (OR SPILL #95-2202 & LUST #15-94-0058) and 23 Nov 03 (OR SPILL #03-2607 & LUST #15-03-2468). In 1995, a 3-inch diesel fuel pipe was severed by a contractor, and 8,970-gallons were released to the subsurface. Then in 2003, an additional spill occurred when a product pipe leaked approximately	High

**TABLE 3-16: HAZARDOUS MATERIALS SITES IN THE PROJECT AREA**

Site #	Site Name	Information and Status*	Level of Concern
		2,900 gallons diesel to the subsurface. The two LUST listings resulted from the two releases. The OR HAZMAT and remaining three OR SPILLS incidences were related to small surface spills. LUST #15-94-0058: Cleanup started on 10 Jan 95; NFA issued on 18 Aug 03; LUST #15-03-2468: Cleanup started on 23 Nov 03, but an NFA has not been issued; UST #8182: 6 active USTs and 9 decommissioned USTs; UST #11615: 3 active USTs	
20	Former Giant Cardlock Station	Three decommissioned USTs; TPH allowed remaining on-site at a maximum concentration of 3,135 mg/kg; LUST: NFA issued (15 Jul 91)—moderate concern	Moderate
21	DSU Peterbilt & GMC Inc.	Used oil AST, No RCRA violations found	Low
22	Arrowhead Comice Orchard - UST	One decommissioned UST; LUST: NFA issued (22 Mar 99)	Low
23	Farm Buildings	Possible heating oil and fuel oil UST associated with the farm buildings—but Build Alternative would not impact these buildings	High
24	Orchard Field	Possible elevated concentrations of herbicide and pesticides in the surface soil	High
25	Farm Buildings	Possible heating oil and fuel oil UST and hazardous building materials associated with the farm buildings	Moderate
<ul style="list-style-type: none"> <li>• AST = aboveground storage tank</li> <li>• ESCI = Environmental Cleanup Site Information</li> <li>• LUST = leaking underground storage tank</li> <li>• NFA = No further action</li> <li>• OR HAZMAT = Hazardous Material Incidents</li> <li>• OR SPILLS = Spill data</li> <li>• RCRA = Resource Conservation and Recovery Act</li> <li>• TPH = Total Petroleum Hydrocarbons</li> <li>• UST = underground storage tank</li> </ul>			

**No-Build Alternative.** The No-Build Alternative would leave the current road system in place. Any soil or groundwater contamination from the listed sites would still be present.

**Build Alternative.** The Build Alternative would be close to three sites of high concern: residences (potential asbestos), truck stop, and orchard; and three sites of moderate concern (gas station and farm buildings).

*Indirect Impacts*

**No-Build Alternative.** No indirect impacts to potential hazardous material sites of concern are anticipated as a result of the No-Build Alternative.

**Build Alternative.** The Build Alternative could result in possible changes in groundwater flow direction and velocity due to excavation during construction. In the short-term, these changes may cause groundwater to flow along new preferential pathways, such as within utility corridors, exacerbating existing contamination in soil and/or groundwater. This also has the potential to influence clean-up of existing contamination over the long-term since this could potentially cause existing contamination to impact new areas, which would then need to be identified and studied.

### *Cumulative Impacts*

**No-Build Alternative.** There would be no cumulative impacts associated with the No-Build Alternative.

**Build Alternative.** Numerous projects and development north and east of the Phoenix UGB, when combined with the Build Alternative, could potentially have beneficial and non-beneficial cumulative effects, both during and after construction. The potential cumulative effects include:

- Improved public and environmental safety as a result of subsurface investigations and site-remediation actions necessary for construction activities and risk-based site closures.
- Better understanding of existing hazardous materials located above and below the ground surface.
- Enhanced understanding of existing geologic conditions due to subsurface investigations and excavations.
- Potential increased use of hazardous materials as a result of possible increased commercial and industrial development and activity.
- Potential increased cumulative demand for impacted soil disposal facilities.

### *Construction Impacts*

The Build Alternative could result in discovering hazardous materials during construction activities. Mitigation measures would be included with the project to avoid and minimize possible short-term exposure to the public and environment during project construction. Contamination from hazardous materials discovered during construction would be removed, thus increasing public safety as well as improving the understanding of existing subsurface conditions.

### 3.16.3 Summary of Proposed Mitigation Measures

Extensive mitigation measures, described in the Hazardous Materials Technical Report, would be included in project specifications to reduce potential exposure to hazardous materials. Mitigation for each of the listed sites could vary based on the different site conditions and/or levels of contamination or suspected contamination within the soil and/or groundwater. For example, for all buildings to be relocated or demolished, DEQ would be notified. Prior to building removal, the structures would be inspected by an

accredited asbestos inspector or consultant. If asbestos is detected in buildings that would be demolished or removed, the contractor and method of removing, handling, and disposal of the materials would be approved by DEQ through permits. Standard specifications include procedures for acquiring land with potential hazardous materials, emergency response mitigation, and addressing contamination discovered during construction. ODOT would comply with all applicable federal, state, and local laws and regulations as they pertain to the storage, handling, management, transportation, disposal and documentation of hazardous substances.

### 3.16.4 Conclusion

Although three sites of high concern and three sites of moderate concern could be impacted by the Build Alternative, extensive standard mitigation measures would be utilized to decrease potential short-term exposure to hazardous materials. Additionally the removal of impacted materials in the construction area would provide long-term clean-up benefits due to removal of the source of contamination. Changes in groundwater flow due to construction could also be prevented using specific construction techniques designed to minimize groundwater movement along new potential preferential pathways, thus minimizing the short and long-term impacts of changes in groundwater flow direction and velocity. Based on the hazardous materials analysis and associated mitigation measures, the Build Alternative is not anticipated to result in significant hazardous materials impacts.

## 3.17 GEOLOGY

### 3.17.1 Existing Conditions

#### *General Geology and Soils*

The project site is located within the Oregon Klamath Mountains province. The project site is relatively flat, with slopes to the east. A relatively small amount of the natural landscape exists in the vicinity of the site. The general geology of the project site consists of Quaternary alluvium (unconsolidated gravel, sand, silt and clay) overlying formations of Eocene Aged Umpqua and Payne Cliffs (buff sandstone, mudstone and conglomerate), and Upper Cretaceous Hornbrook (sandstone with layers of conglomerate consisting of pebbles of quartz, diorite, gneiss, and greenstone).

The existing roadway embankment fill where the project is located consists mainly of sandy gravel to gravelly sand. West of I-5, alluvial soils consist of mainly sand, sandy silt, and silty sand with some gravel. East of I-5, alluvial soils consist mainly of gravelly to clayey sand with some silt.

## *Geologic Hazards*

Geologic hazards include seismic hazards, slope stability (landslide) hazards, and soil erosion hazards.

**Seismic Hazards.** Seismic hazards can include the primary effects of an earthquake such as surface rupture or ground shaking, as well as secondary responses such as liquefaction or seismically-induced landslides. There have been no historical damaging earthquakes recorded in the project vicinity. However, several large-magnitude subduction zone earthquakes are believed to have occurred in the past few thousands years. Ground shaking from earthquake sources originating elsewhere may have been felt in the past, but the seismic record for the region does not indicate any damage caused by historic earthquakes. Several faults are located within ten miles of the project site; however, none of these faults is considered potentially active. No faults are mapped beneath the project site.

The existing Bear Creek Bridge and the Fern Valley Interchange overpass structure do not meet the current seismic code/standards.

**Slope Stability Hazards.** Slope stability hazards common to the Pacific Northwest include rock fall, rotational-translational slides, earthflows, debris slides, and debris flows. The project area is relatively flat with the exception of the banks of Bear Creek and the northern portion of the proposed N. Phoenix Road realignment. The banks of Bear Creek, cut slopes along the northern N. Phoenix Road realignment, and fill slopes associated with roadway construction are the only areas of the project with enough topographic relief for slope instability to be a consideration.

**Soil Erosion Hazards.** Soil erosion can occur during intense and/or prolonged rain or rain-on-snow events and during elevated flow events along creeks and rivers. Based on limited subsurface information and the National Resource Conservation Survey, Soil Survey of Jackson County, the soils in the project area have low to moderate susceptibility to soil erosion.

**Groundwater.** Groundwater levels were recorded during the subsurface investigation conducted by ODOT in late summer and early fall of 2001. Depth to groundwater ranged from approximately 6 feet to 12 feet and generally matched the flow elevations of the adjacent water ways (Payne Creek and Bear Creek). Higher groundwater levels and soil moistures can be anticipated during winter and spring months.

### 3.17.2 Impacts

#### *Direct Impacts*

**General Geology and Soils.** There would be no direct geologic or soil impacts associated with the No-Build Alternative.

Some portions of the proposed construction would traverse areas that could potentially be used as sources of aggregate or for agricultural uses. Construction of the project may reduce the potential for these other uses.

The proposed cuts and fills required for the Build Alternative could potentially create temporary slope instability during construction of road cuts and retaining walls (see Geologic Hazards below). In addition, permanent cut and fill slopes may be susceptible to erosion.

Based on preliminary estimates, approximately 250,000 cubic yards would be imported with the Build Alternative. Transport of this material would require from 15,000 to 25,000 dump truck loads (depending on truck capacity). More accurate amounts would be refined during final design of the Build Alternative.

**Geologic Hazards.** The No-Build Alternative would allow the substandard bridges to remain in place and deteriorate over time. The existing bridge structures expose the public to an elevated risk from failure during a seismic event.

With the Build Alternative, the following impacts could be anticipated:

- The Bear Creek Bridge and the I-5 interchange structure would minimize the potential for failure during an earthquake because they would be constructed to current seismic standards.
- The proposed cuts and fills required could potentially create temporary slope instability during construction of road cuts and retaining walls.
- Permanent cut and fill slopes may be susceptible to erosion. Proposed road cuts along the northern portion of the N. Phoenix Road realignment would create slopes that are steeper than the existing topography. The steeper slopes would be more susceptible to erosion prior to the reestablishment of vegetation, especially during the early life of the project.
- Elevated groundwater levels could impact construction of the Build Alternative elements that require subgrade excavation, such as bridge and/or wall foundations. To minimize impacts of elevated groundwater and soil moistures, it is recommended that construction of such project elements occur during the dryer summer and early fall months.

### *Indirect Impacts*

Permanent cut and fill slopes may be susceptible to erosion over time. Temporary and permanent slopes would be designed to minimize the likelihood of instability or susceptibility to erosive forces. No indirect or cumulative geologic hazard impacts are anticipated.

No cumulative geologic impacts are anticipated with the Build Alternative.

### 3.17.3 Summary of Proposed Mitigation Measures

The Bear Creek Bridge and I-5 interchange structure would be designed and constructed to meet all current seismic standards.

All proposed retaining walls, embankment fills, cut slopes, and bridges would be designed and constructed with appropriate temporary and permanent erosion and/or scour control measures to minimize the potential for erosion and slope instability in accordance with ODOT, American Association of State Highway and Transportation Officials (AASHTO), and FHWA guidelines. This would include erosion and scour protection of bridge abutments and wall systems at the proposed Bear Creek Bridge. Based on existing subsurface information and site reconnaissance, it appears that the project can be designed and constructed without detrimental effects on slope stability along the proposed alignments.

### 3.17.4 Conclusion

The impacts of the Build Alternative on slope stability and groundwater during and after construction would be addressed by standard mitigation measures. Both the Fern Valley Road structure over I-5 and the Bear Creek Bridge would be constructed to current seismic standards, which would result in a substantial increase in safety. Based on the geological analysis and associated mitigation measures, the Build Alternative is not anticipated to result in significant geologic impacts.

## 3.18 UTILITIES

### 3.18.1 Existing Conditions

Relocation of utilities affects the cost of the project, and must be considered carefully to ensure continuation of service during construction. Utilities located within the project area are included in Table 3-17.

### 3.18.2 Impacts and Coordination

Utilities located within ODOT's right of way that have to be moved in association with the Build Alternative are not compensable. Utilities located outside ODOT's right of way that must be moved for construction are compensable. Required permits are the responsibility of the utility.

The total estimated cost for utility relocations to be paid by ODOT would be about \$1.5 million for the Build Alternative (estimate rounded). Anticipated costs for utility relocations are provided in Table 3-18. Specific impacts to the various utilities are provided in the Utility Assessment report developed for this project (available online at

ODOT's Region 3 website<sup>75</sup> or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

<b>TABLE 3-17: UTILITIES LOCATED WITHIN THE PROJECT AREA</b>	
<b>Owner</b>	<b>Type</b>
AT&T	Fiber Optics
Sprint	Fiber Optics
Avista Corp.	Natural Gas
Qwest	Communications/Cable TV
Pacificorp	Electric
Charter Communications	Communications/Cable TV
Hunter Communications	Communications/Fiber Optics
Medford Irrigation District	Irrigation Water
City of Phoenix	Water
City of Phoenix	Storm Drain Facilities
Rogue Valley Sewer Services	Sanitary Sewer
Medford Water Commission	Water

<b>TABLE 3-18: BUILD ALTERNATIVE, UTILITY IMPACT ESTIMATES</b>		
<b>Utility</b>	<b>Estimated Cost</b>	<b>State Reimbursable</b>
AT&T	136,900	
Sprint	78,200	
Avista	301,500	5,400 (1)
Qwest	600,000	10,000 (1)
Pacificorp	676,000	40,000 (1)
Charter Communication	10,000	
Medford Irrigation District	975,000	975,000 (2)
City of Phoenix Water	17,700	
City of Phoenix Storm	Not estimated (3)	
Rogue Valley Sewer	17,400	
<b>Construction Subtotal</b>	<b>\$2,812,700</b>	<b>\$1,030,400</b>
Engineering/taxes/contingency (25%)	\$703,300	\$259,600
<b>Total Estimated Utility Cost</b>	<b>\$3,516,000</b>	<b>\$1,290,000</b>

(1) Located within the Home Depot Easement (prior rights)  
 (2) Utility has prior rights.  
 (3) Impacted storm drain facilities are considered part of the ODOT roadway design.

<sup>75</sup> ODOT's Region 3 website: <http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml>

ODOT would continue to coordinate with the utility owners during the design phase to avoid disruption of service. Some utilities have requested survey staking prior to commencing construction in order to allow them time to install critical infrastructure elements.

### 3.18.3 Conclusion

Addressing utility relocation is standard practice during road and bridge construction. No major utility facilities (e.g., electric substations) would be affected by the Build Alternative. Costs would be incurred both by the utility companies and by ODOT for utility relocation. Based on the utility analysis and associated mitigation measures, the Build Alternative is not anticipated to result in significant impacts to utilities.

## 3.19 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

### 3.19.1 Greenhouse Gas Impacts and Global Climate Change

The issue of greenhouse gas (GHG) emissions and global climate change is an important national and global concern that is being addressed by various state and federal agencies, including ODOT and FHWA, even though no national regulatory thresholds for GHG emissions or concentrations have been established through law or regulation.

Since the context for GHG emissions is a global scale, it is virtually impossible to perform a meaningful analysis of most local transportation projects. GHG emissions analyses are more informative at regional, state, or national levels and should be accomplished during local and regional land use planning processes when more capable modeling tools are developed. While it still may be possible to quantify GHG emissions associated with a proposed transportation project, tools have not been developed for how to translate those emissions into effects on climate change on any scale. ODOT's recent land use and transportation modeling efforts have shown that land use patterns have a much greater effect on all emissions than do highway expansions. Further, the needs for most highway projects are typically a result of land use changes, development, growth, and other local and regional changing trends. Therefore, to best inform decision making, GHG emissions estimation needs to be done during the transportation system and land use planning processes.

As of May 2010, there are no federal laws specifically requiring GHG emissions analyses in project-level NEPA documents. NEPA requires federal agencies to scope and address the significant issues of any proposal and to concentrate on the analyses of issues that can be truly meaningful to the consideration of and comparison between project alternatives. In the absence of federal regulations and a regional or national framework for considering the implications of project-level GHG analyses, FHWA concludes that GHG emissions cannot be usefully evaluated in the same way that other vehicle emissions are within a local project-level context and that such an attempted analysis would not inform project decision-making in any meaningful way.

Strategies for addressing climate change at the national and state levels are described below.

### 3.19.2 Oregon and USDOT Strategies

Greenhouse gas (GHG) emissions are currently not regulated in the state of Oregon. However, there are numerous goals for states and the nation to meet, and strategies to reduce GHG emissions are currently being addressed by ODOT and other state agencies throughout Oregon. On August 7, 2007 the Climate Change Integration Act came into effect with the passage of Oregon House Bill 3543. The Act creates GHG emissions reduction goals for the State of Oregon, which aim to reduce the emissions 10 percent below 1990 levels by 2020 and achieve a 75% reduction below the 1990 levels by 2050. Oregon HB 3543 also created the Oregon Global Warming Commission which is responsible for recommending policies to state and local governments to reduce GHG emissions. The Commission is expected to promulgate rules to direct agencies on how to regulate and enforce the act.

Intelligent transportation systems (ITS) and land use planning policies will be among several strategies necessary to meet the state's goal of reducing GHG emissions. To accomplish this, the Oregon Global Warming Commission has formed a Land Use and Transportation Committee. The scope and function of the committee is to work with state agencies including ODOT and the Oregon Department of Land Conservation and Development (DLC) to integrate GHG reduction goals into state transportation planning and land use policies currently under development. Transportation and land use policies will be designed to stop the growth of GHG emissions, and then reduce over time, according to the specific goals set out by the Oregon Legislature.

Research is also underway to develop more capable models for measuring, analyzing, evaluating, and reporting on GHG emissions. ODOT is coordinating with other state and federal agencies (DOE, DEQ, FHWA, EPA) to determine appropriate contexts for measuring impacts from transportation and land use changes.

ODOT and USDOT specific strategies regarding climate change efforts are summarized in Appendix H.

### 3.19.3 Conclusion

Climate change and Greenhouse gas emissions are global issues occurring on a mega-scale. No single transportation project is sufficiently large to have an effect on these global issues; therefore, the Build Alternative is not anticipated to result in significant impacts to climate change issues. ODOT is pursuing these issues on a statewide basis, while USDOT pursues these issues on a national basis.

### 3.20 PROBABLE PERMITS AND APPROVALS NEEDED

This project would require further coordination, permits, and clearances from the agencies/jurisdictions. These are identified in Table 3-19.

<b>TABLE 3-19: PERMIT &amp; COORDINATION REQUIREMENTS</b>	
<b>Agency</b>	<b>Requirements</b>
<b>FEDERAL AGENCIES</b>	
National Parks Service	<ul style="list-style-type: none"> <li>• Section 6(f) conversion</li> </ul>
U.S. Army Corps of Engineers	<ul style="list-style-type: none"> <li>• 404 permit</li> </ul>
<b>STATE OF OREGON AGENCIES</b>	
Department of Environmental Quality	<ul style="list-style-type: none"> <li>• Asbestos-containing building materials and Section 401</li> </ul>
Department of Fish and Wildlife	<ul style="list-style-type: none"> <li>• Fish Passage Plan</li> </ul>
Department of State Lands	<ul style="list-style-type: none"> <li>• Removal/fill permit</li> </ul>
<b>JACKSON COUNTY</b>	
	<ul style="list-style-type: none"> <li>• Section 6(f) conversion for impacts to the Bear Creek Greenway</li> <li>• Bridge and stream crossings: compliance with Section 7.1.2, Floodplain Overlay, of the Jackson County Land Development Ordinance</li> </ul>
<b>CITY OF PHOENIX</b>	
	<ul style="list-style-type: none"> <li>• Comprehensive plan amendment for change to Plan Map, road reclassification and adding project to TSP, Tier 1 project list</li> <li>• Conditional use permit for new bridge in Bear Creek Greenway Zoning District</li> </ul>

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