I-5: Fern Valley Interchange Environmental Assessment

Fern Valley Interchange

Oregon Department of Transportation

Federal Highway Administration

October 2010

Alternative Format Availability: In compliance with the Americans with Disabilities Act, alternative formats of this document will be made available upon request. The Executive Summary is currently available in Spanish.

Oregon
Theodore R. Kulongoski, Governor

Department of Transportation
Region 3
100 Antelope Road
White City, OR 97503
Telephone: 541-774-6299
Fax: 541-774-6349

October 18, 2010

TO THOSE WHO HAVE EXPRESSED INTEREST IN THE:

I-5: Fern Valley Interchange
Environmental Assessment
Jackson County, Oregon
Key No. 12723
Federal Aid Numbers: S001(164) and S001(268) PE

Thank you for your interest in the proposed Fern Valley Interchange project. The Federal Highway Administration and Oregon Department of Transportation have completed the Environmental Assessment (EA) for this proposed project. The EA describes expected environmental impacts and proposed mitigation measures to address those impacts.

In accordance with 23 CFR 771.119(e), comments shall be submitted in writing to the applicant or the Administration within 30 days of the availability of the EA unless the Administration determines, for good cause, that a different period is warranted. Thus we request your reply **within 30 days** of the date at the top of this letter. If no comments are received, it will be assumed that you do not wish to comment on this EA.

Please mail or e-mail your comments to:

Dick Leever
Project Leader, Region 3
Oregon Department of Transportation
100 Antelope Road
White City, OR 97503

Or e-mail to Dick.B.Leever@odot.state.or.us

A public hearing in accordance with 23 CFR 771.111(h) will be held for this project. The location, date, and time for the public hearing are shown on the cover of this document. An Open House, displaying maps and pertinent information to answer your questions about the EA and/or the proposed project, will accompany the public hearing. Opportunities for formal testimony (oral and/or written) will be provided.

Although you are encouraged to attend the public hearing, it is not required. You may submit your comments directly to ODOT as indicated above.

If you have questions or need additional information concerning this proposed project, please contact **Dick Leever or Gary Leaming at (541) 774-6299**. Additional project information is also available at ODOT's website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml.

Thank you for your participation.

Art Anderson, Area Manager

I-5: Fern Valley Interchange
Jackson County, Oregon
Key No. 12723
Federal Aid Numbers S001(164) and S001(268) PE

ENVIRONMENTAL ASSESSMENT

Submitted pursuant to 42 U.S.C. Section 4332(2)(C) and 49 U.S.C. Section 303

U.S. Department of Transportation, Federal Highway Administration and
Oregon Department of Transportation

10-18-10
Date

Mark Usselman, Interim Region Manager, ODOT, Region 3

October 18, 2010
Date

Michelle Eraut, Oregon Division, Federal Highway Administration

The following persons may be contacted for further information. Additional project information is also available at ODOT's website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml

Dick Leever
Project Leader, Region 3
Oregon Dept. of Transportation
100 Antelope Road
White City, OR 97503
(541) 774-6299

Michelle Eraut
Environmental Program Manager
Oregon Division
Federal Highway Administration
530 Center Street N.E., Ste 100
Salem, OR 97301
(503) 587-4716

Art Anderson
Area Manager, Region 3
Oregon Dept. of Transportation
100 Antelope Road
White City, OR 97503
(541) 774-6299

Abstract: The Oregon Department of Transportation proposes to replace the Fern Valley Interchange. A No-Build and a Build Alternative are being evaluated. The Build Alternative would construct a crossing-diamond interchange in about the same location as the existing interchange. The alignment of the Build Alternative west of I-5 is essentially along the existing Fern Valley Road. East of I-5, the Build Alternative turns north and reconnects with existing N. Phoenix Road north of the Phoenix urban growth boundary. The Build Alternative would cost about $72.1 million (2012 dollars). The Build Alternative would improve traffic conditions in the project area; all intersections would meet State volume-to-capacity standards for the year 2030. An Interchange Area Management Plan is included in the Build Alternative to protect the function and capacity of the interchange by limiting high vehicle trip-generating development immediately adjacent to the interchange through trip budgets and infrastructure management. The Build Alternative would displace 2 residences and 4 businesses. Changes to the Bear Creek Greenway would not adversely affect the features, activities, or attributes of the multi-use path. Section 6(f) funds were used for the impacted portion of the Greenway; therefore, replacement sites are being evaluated for the 0.07 acre of impact Section 6(f) properties. The Build Alternative would impact about 7.4 acres of land zoned for Exclusive Farm Use. Critical habitat for the Southern Oregon/Northern California Coast Coho salmon (listed as Threatened under the Endangered Species Act) includes Bear, Coleman and Payne Creeks. Work in Bear Creek would include fish salvage, work area isolation and the use of Best Management Practices to ensure construction impacts would be minimal, short-term, and localized. The Build Alternative would impact about 4 acres of wetlands. Possible wetland mitigation includes purchasing mitigation credits from ODOT's vernal pool wetlands mitigation bank near White City. Federal permit and coordination requirements include: Biological Opinion for SONC coho salmon (National Marine Fisheries Service) and Section 404 and NPDES 1200CA permits (U.S. Army Corps of Engineers).

TABLE OF CONTENTS

EXECUTIVE SUMMARY

CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

1.1 GENERAL SETTING 1-1
1.2 EXISTING ROAD SYSTEM 1-1
1.3 PURPOSE AND NEED STATEMENT 1-4
1.3.1 Purpose of the Proposed Action 1-5
1.3.2 Need for the Proposed Action 1-5
1.4 CRASH HISTORY 1-8
1.4.1 I-5 and Fern Valley Road..... 1-11
1.4.2 OR 99—South Stage Road to 1st Street..... 1-11
1.5 PROJECT GOALS AND OBJECTIVES 1-12
1.6 CRITERIA FOR DETERMINING RANGE OF ALTERNATIVES 1-12
1.6.1 Screening Criteria 1-12
1.6.2 Evaluation Criteria 1-13

CHAPTER 2. PROJECT ALTERNATIVES

2.1 PROJECT ALTERNATIVES 2-1
2.1.1 No-Build Alternative 2-2
2.1.2 Build Alternative 2-2
2.2 INTERCHANGE AREA MANAGEMENT PLAN..... 2-13
2.2.1 Land Use Measures..... 2-15
2.2.2 Transportation System Management Measures..... 2-16
2.2.3 Transportation Demand Management Measures..... 2-17
2.3 ALTERNATIVES CONSIDERED BUT NOT ADVANCED 2-17
2.3.1 Alternative Alignment Concepts..... 2-18
2.3.2 Interchange Types 2-19

CHAPTER 3. ENVIRONMENTAL RESOURCES, IMPACTS AND MITIGATION

3.1 TRANSPORTATION 3-4
3.1.1 Traffic Analysis 3-4
3.1.2 Bicycle and Pedestrian Facilities 3-10
3.1.3 Public Transportation 3-14
3.1.4 Conclusion..... 3-14

3.2 LAND USE 3-15
3.2.1 Existing Conditions 3-15
3.2.2 Land Use Impacts 3-24
3.2.3 Summary of Proposed Mitigation Measures 3-31
3.2.4 Conclusion..... 3-32

3.3 RIGHT OF WAY 3-32
3.3.1 No-Build Alternative..... 3-32

3.3.2 Build Alternative……. 3-32
3.3.3 Housing Availability …….…… 3-37
3.3.4 Business Replacement Sites …….…..... 3-37
3.3.5 Acquisition Process …….…..... 3-37
3.3.6 Summary of Proposed Mitigation Measures …….…… 3-38
3.3.7 Conclusion…….…… 3-39

3.4 SOCIOECONOMICS …….….. 3-39
3.4.1 Population, Housing, Business/Employment …….... 3-40
3.4.2 Environmental Justice, Elderly, and Disabled Populations ……. 3-46
3.4.3 Community Services, Bike and Pedestrian Facilities, Public Transportation …….……..……... 3-54
3.4.4 Community Cohesion and Neighborhoods …….…….. 3-58
3.4.5 Economic and Fiscal Conditions ……..……. 3-60
3.4.6 Cumulative Socioeconomic Impacts …….…… 3-62
3.4.7 Summary of Proposed Mitigation Measures …….…… 3-63
3.4.8 Conclusion…….…… 3-64

3.5 CONSISTENCY WITH APPLICABLE PLANS AND POLICIES, AND LAND USE PERMIT REQUIREMENTS……...….. 3-64
3.5.1 City of Phoenix …….…… 3-65
3.5.2 Jackson County …….…… 3-70
3.5.3 Rogue Valley Regional Transportation Plan …….…….... 3-71
3.5.4 State Plans and Policies …….…….... 3-73
3.5.5 Federal Policies …….…… 3-76
3.5.6 Conclusion…….. 3-76

3.6 PARKS AND RECREATION ……..…… 3-77
3.6.1 Existing and Planned Parks and Recreation Facilities……. 3-77
3.6.2 Impacts to Existing or Planned Parks and Recreation Facilities …… 3-81
3.6.3 Avoidance and Minimization Measures ……..... 3-82
3.6.4 Conclusion……..… 3-83

3.7 CULTURAL RESOURCES……..… 3-83
3.7.1 Historic Resources……..… 3-83
3.7.2 Archaeological Resources ……..... 3-87

3.8 SECTION 4(f)…….…….…. 3-88
3.8.1 Section 4(f) Requirements …….…..... 3-88
3.8.2 Description of 4(f) Resources Within the Immediate Project Area..... 3-88
3.8.3 Section 4(f) Resources……. 3-89
3.8.4 Conclusion……..… 3-90

3.9 SECTION 6(f)(3) OF THE LAND AND WATER CONSERVATION FUND ACT……...…. 3-90
3.9.1 No-Build Alternative……..… 3-90
3.9.2 Build Alternative……. 3-90
3.9.3 Potential Section 6(f) Replacement Properties……..…. 3-91
3.9.4 Record of Coordination…….…… 3-91
3.9.5 Conclusion…….…… 3-93

3.10 NOISE ……..….. 3-93
3.10.1 Methodology ……..… 3-93
3.10.2 Impacts ……... 3-96
3.10.3 Noise Abatement (Mitigation) Measures ……..... 3-99
3.10.4` Conclusion…….……. 3-102

3.11 AIR QUALITY …….… 3-103
3.11.1 Existing Conditions ……... 3-103
3.11.2 Impacts …….…..... 3-104
3.11.3 Mobile Source Air Toxics …….…… 3-105
3.11.4 Summary of Proposed Mitigation Measures …….…… 3-107
3.11.5 Conclusion……..…… 3-107

3.12 VISUAL RESOURCES ……...…. 3-108
3.12.1 Existing Conditions ……..…….…… 3-108
3.12.2 Impacts ……..…….…... 3-108
3.12.3 Summary of Proposed Mitigation Measures ……..…….….. 3-115
3.12.4 Conclusion…….…….… 3-115

3.13 BIOLOGY ……...…….…. 3-116
3.13.1 Existing Conditions ……..…….… 3-116
3.13.2 Impacts ……..……... 3-121
3.13.3 Summary of Coordination Requirements, Proposed Mitigation and Conservation Measures ……..... 3-125
3.13.4 Conclusion……..… 3-127

3.14 WATER RESOURCES …….… 3-128
3.14.1 Existing Conditions ……... 3-128
3.14.2 Impacts ……... 3-129
3.14.3 Summary of Proposed Mitigation Measures …….……. 3-133
3.14.4 Conclusion…….…….. 3-134

3.15 WETLANDS AND WATERS OF THE STATE/U.S. …….……. 3-134
3.15.1 Existing Conditions …….…... 3-134
3.15.2 Impacts …….….. 3-136
3.15.3 Summary of Proposed Mitigation Measures …….…. 3-137
3.15.4 Conclusion…….…… 3-138

3.16 HAZARDOUS MATERIALS ……... 3-138
3.16.1 Existing Conditions ……..... 3-139
3.16.2 Impacts ……... 3-139
3.16.3 Summary of Proposed Mitigation Measures …….……. 3-143
3.16.4 Conclusion…….…….. 3-144

3.17 GEOLOGY …….…... 3-144
3.17.1 Existing Conditions …….…... 3-144
3.17.2 Impacts …….….. 3-145
3.17.3 Summary of Proposed Mitigation Measures …….…. 3-147
3.17.4 Conclusion…….….. 3-147

3.18 UTILITIES …… 3-147
3.18.1 Existing Conditions …… 3-147
3.18.2 Impacts and Coordination …… 3-147
3.18.3 Conclusion…… 3-149

3.19 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS …… 3-149
3.19.1 Greenhouse Gas Impacts and Global Climate Change…… 3-149
3.19.2 Oregon and USDOT Strategies…… 3-150
3.19.3 Conclusion…… 3-150

3.20 PROBABLE PERMITS AND APPROVALS NEEDED …… 3-151

CHAPTER 4. SUMMARY OF PROPOSED MITIGATION AND CONSERVATION MEASURES

CHAPTER 5. PUBLIC INVOLVEMENT AND AGENCY COORDINATION

5.1 PROJECT PARTICIPANTS…… 5-1
5.1.1 Project Management Team…… 5-1
5.1.2 Project Development Team…… 5-2
5.1.3 Collaborative Environmental and Transportation Agreement for Streamlining…… 5-3
5.1.4 Citizens Advisory Committee…… 5-3
5.2 PUBLIC INVOLVEMENT…… 5-6
5.2.1 Public Workshop…… 5-6
5.2.2 Public Open Houses…… 5-7
5.2.3 Outreach to the Phoenix Business Community…… 5-9
5.2.4 Outreach to the Phoenix Hills Neighborhood…… 5-10
5.3 AGENCY COORDINATION…… 5-10
5.3.1 Local and Regional Jurisdictions…… 5-10
5.3.2 State and Federal Agencies…… 5-10
5.4 TRIBAL COORDINATION…… 5-11
5.5 HEARING AND DECISION PROCESS…… 5-11
5.6 PROJECT DEVELOPMENT PROCESS…… 5-12

CHAPTER 6. REFERENCES

LIST OF PREPARERS…… 6-3
TECHNICAL REPORTS PREPARED FOR THIS PROJECT…… 6-8
LIST OF AGENCIES, ORGANIZATIONS AND PERSONS TO WHOM COPIES OF THIS EA WERE SENT…… 6-9
GLOSSARY…… 6-29

FIGURES

Figure 1-1: Project Location ……... 1-2
Figure 1-2: Project Area……..…. 1-3
Figure 1-3: Fern Valley Interchange Quadrants …….…..…… 1-4
Figure 1-4: Locations of Identified Needs……...…… 1-6
Figure 2-1: Build Alternative …….…..…. 2-4
Figure 2-2: Build Alternative (West Detail)…….…… 2-5
Figure 2-3: Build Alternative Changes to Major Intersections (West of I-5)……..…. 2-6
Figure 2-4: Crossing Diamond Interchange Traffic Flow……..... 2-8
Figure 2-5: Build Alternative (East Detail) ……....…. 2-11
Figure 2-6: Build Alternative: Major Intersections and Cross-Sections (East of I-5). 2-12
Figure 2-7: Interchange Management Area…….…… 2-14
Figure 3-1: Funded Regional Transportation Plan Projects in the Project Area……... 3-3
Figure 3-2: Distance to Adjacent Intersections ……..…..…. 3-10
Figure 3-3: Bicycle, Pedestrian and Transit Facilities……..…… 3-11
Figure 3-4: Proposed Pedestrian/Bicycle Facilities Through CDI……...……. 3-12
Figure 3-5: Crossing Diamond Interchange Typical Cross-Section……. 3-13
Figure 3-6: Existing Land Use …….……... 3-16
Figure 3-7: Existing Zoning …… 3-19
Figure 3-8: Comprehensive Plan Designations ……... 3-20
Figure 3-9: Regional Problem Solving Growth Areas near the Proposed Project…… 3-23
Figure 3-10: Build Alternative Impacts on Existing Land Use…….. 3-25
Figure 3-11: Build Alternative Right of Way Impacts: West of Interchange…… 3-34
Figure 3-12: Build Alternative Right of Way Impacts: East of Interchange …… 3-35
Figure 3-13: Census Tracts, Blocks and Minority Populations in the Fern Valley Interchange Project Area…….. 3-49
Figure 3-14: Community Facilities …… 3-55
Figure 3-15: Roadway Ownership and City of Phoenix and Jackson County Functional Classifications ……..... 3-67
Figure 3-16: Build Alternative Impacts to Exclusive Farm Use Zones ….…… 3-72
Figure 3-17: Parks and Recreational Facilities……... 3-78
Figure 3-18: Bear Creek Greenway Multi-Use Path, Central Point to Ashland…..…. 3-79
Figure 3-19: Build Alternative and the Bear Creek Greenway……. 3-80
Figure 3-20: Locations of Historic Resources…… 3-84
Figure 3-21: Build Alternative and Section 6(f) Conversion…….……. 3-92
Figure 3-22: Noise Model Locations ……..…….. 3-94
Figure 3-23: Noise Levels of Common Indoor and Outdoor Activities……..…….. 3-95
Figure 3-24: Fern Valley Interchange Noise Impacts……..…….. 3-98
Figure 3-25: Visual Simulation of Fern Valley Road/S. Phoenix Road Intersection… 3-110
Figure 3-26: Visual Simulation of Extended S. Phoenix Road Looking Southeast….. 3-111
Figure 3-27: Visual Simulation of Extended S. Phoenix Road Looking Northwest…. 3-112
Figure 3-28: Visual Simulation of Grove Way…….. 3-113
Figure 3-29: Visual Simulation of Realigned N. Phoenix Road…… 3-114
Figure 3-30: Surface Water Features …….…... 3-117
Figure 3-31: Habitat Communities in the Build Alternative Impact Area ……..... 3-120
Figure 3-32: Wetlands and Other Waters in the Project Area……..... 3-135

Figure 3-33: Location of Hazardous Materials Sites of Concern within the Project Area ……..…… 3-140

TABLES

Table 1-1: Crash Summary Table (1999 to 2003)……..…. 1-9
Table 3-1: Other Transportation Projects Considered in Cumulative Impact Analysis …….…..... 3-2
Table 3-2: Mobility Standards ……..…. 3-5
Table 3-3: 2004 and Projected Future (2030) Traffic Volumes ……..... 3-6
Table 3-4: V/C Ratios ……..…….. 3-7
Table 3-5: Direct Land Use Impacts of the Build Alternative…… 3-24
Table 3-6: Alternative Comparisons of Distances and Projected 2030 Peak Hour Travel Time to Southeast Interchange Quadrant…….. 3-30
Table 3-7: Estimated Right of Way Requirements ……..…….. 3-33
Table 3-8: Population, Housing, and Employment ……..…….. 3-40
Table 3-9: Comparison of Minority, Low Income, Elderly and Disabled Populations……...…… 3-47
Table 3-10: Roadway Ownership, Functional Classifications and Freight Designations …… 3-66
Table 3-11: City of Phoenix Transportation System Plan Projects Related to the Fern Valley Interchange Project …….…… 3-68
Table 3-12: Noise Impact Guidelines by Land Use ……..... 3-96
Table 3-13: Existing and Predicted Future Exceedances of Noise Abatement Criteria. 3-97
Table 3-14: Acres of Habitat Impacts …….…… 3-123
Table 3-15: Impervious Surface Area and Stormwater Treatment Options for the Build Alternative……. ……..... 3-130
Table 3-16: Hazardous Materials Sites in the Project Area……. 3-141
Table 3-17: Utilities Located Within the Project Area …… 3-148
Table 3-18: Build Alternative, Utility Impact Estimates……..… 3-148
Table 3-19: Permits & Coordination Requirements ……..….. 3-151
Table 4-1: Fern Valley Interchange Summary of Proposed Mitigation and Conservation Measures …….…..... 4-1
Table 5-1: Fern Valley Interchange Project Management Team Members…..…….. 5-1
Table 5-2: Fern Valley Interchange Project Development Team Members…..……. 5-2
Table 5-3: Fern Valley Interchange Citizens Advisory Committee Members...……. 5-4
Table 6-1: Technical Subject Areas and Authors …….……. 6-8

APPENDICES

APPENDIX A: ALTERNATIVES CONSIDERED BUT NOT ADVANCED
APPENDIX B: EXISTING AND FUTURE PREDICTED TRAFFIC QUEUING
APPENDIX C: RIGHT OF WAY INFORMATION
APPENDIX D: FARMLAND CONVERSTION IMPACT RATING FORM
APPENDIX E: CULTURAL RESOURCES SECTION 106 DOCUMENTATION
APPENDIX F: AIR QUALITY
APPENDIX G: BIOLOGICAL RESOURCES ESA DOCUMENTATION
APPENDIX H: ODOT AND U.S. DOT EFFORTS ON CLIMATE CHANGE

ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ADT	Average Daily Traffic
AMStrat	Access Management Strategy
APE	Area of Potential Effect
API	Area of Potential Impact
BA	Biological Assessment
BMP	Best Management Practice
BO	Biological Opinion
CAC	Citizens Advisory Committee
CDI	Crossing Diamond Interchange (aka Diverging Diamond Interchange)
CEQ	Council on Environmental Quality
CETAS	Collaborative Environmental and Transportation Agreement for Streamlining
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
dBA-Leq	Decibels on the A-scale in hourly equivalent sound pressure levels
DEQ	Oregon Department of Environmental Quality
DLCD	Department of Land Conservation and Development
DSL	Oregon Department of State Lands
EA	Environmental Assessment
EFU	Exclusive Farm Use
EJ	Environmental Justice
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FVI	Fern Valley Interchange
GIS	Geographic Information System
GPS	Global Positioning System
I-5	Interstate Highway 5
IAMP	Interchange Area Management Plan
LCDC	Land Conservation and Development Commission
LUST	Leaking Underground Storage Tank
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System

NRHP	National Register of Historic Places
OAR	Oregon Administrative Rules
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
OHWM	Ordinary High Water Mark
OPRD	Oregon Parks and Recreation Department
OR 99	Oregon Highway 99
ORS	Oregon Revised Statues
OTC	Oregon Transportation Commission
PDT	Project Development Team
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter smaller than 2.5 microns in size
PMT	Project Management Team
ROW	Right of way
RPS	Regional Problem Solving
RTP	Regional Transportation Plan
RVCOG	Rogue Valley Council of Governments
RVMPO	Rogue Valley Metropolitan Planning Organization
RVS	Rogue Valley Sewer
RVTD	Rogue Valley Transportation District
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SONC	Southern Oregon/Northern California (refers to coho salmon)
SPIS	Safety Priority Index System
STA	Special Transportation Area
STIP	State Transportation Improvement Program
TAZ	Transportation Analysis Zone
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Load
TPR	Transportation Planning Rule
TDM	Transportation Demand Management
TSM	Transportation System Management
UGB	Urban Growth Boundary
USACE	United States Army Corps of Engineers
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
V/C	Volume-to-Capacity Ratio (traffic)
VMT	Vehicle Miles Traveled

EXECUTIVE SUMMARY

This is a summary of the Environmental Assessment (EA) for the Fern Valley Interchange project. The full EA provides additional details. One Build Alternative and a No-Build Alternative are being considered for this project. Table ES-1 (provided at the end of this summary) summarizes the impacts of the Build Alternative.

PROJECT LOCATION

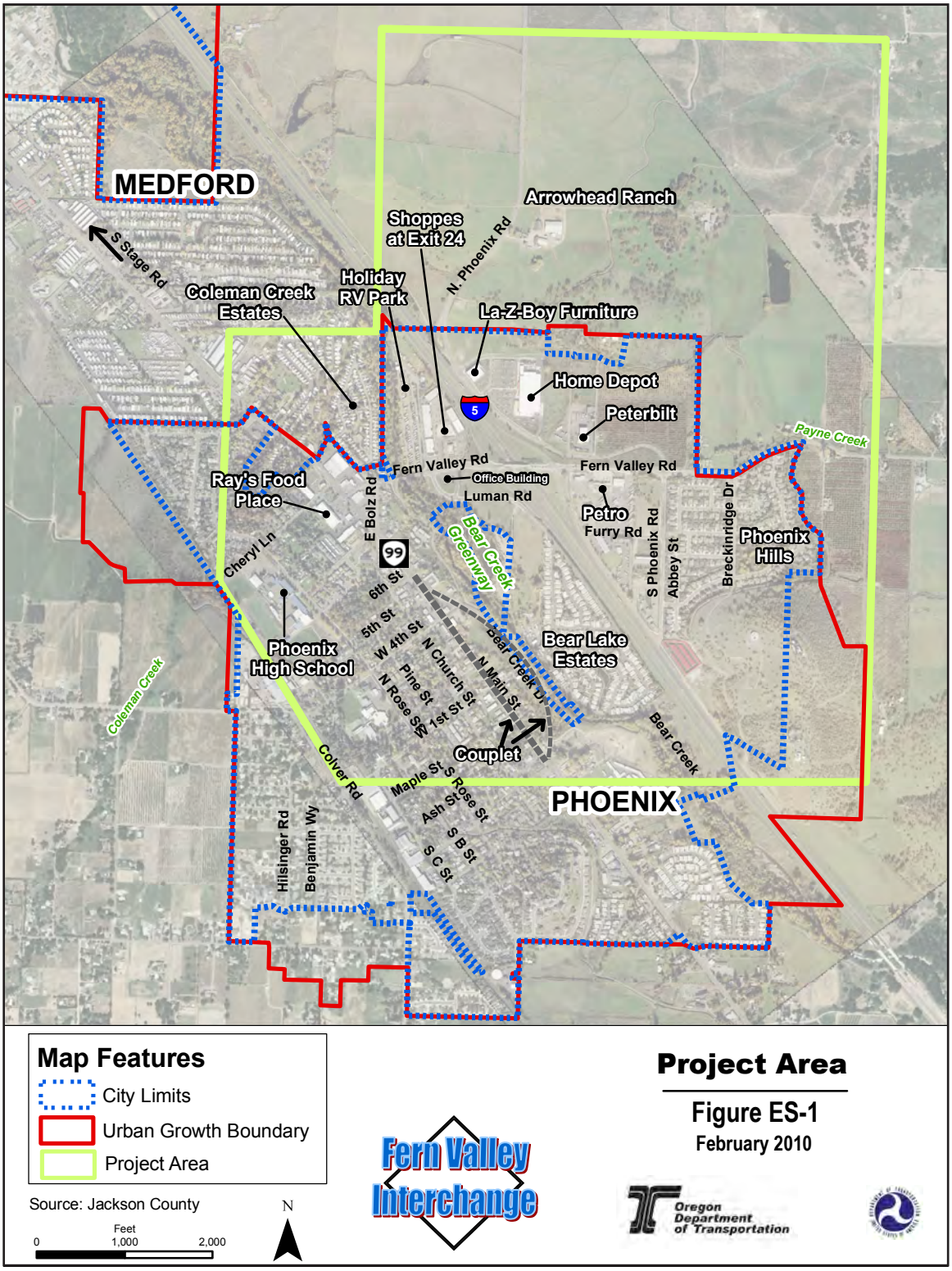
Fern Valley Interchange looking north

The proposed Fern Valley Interchange project is located along I-5 in southwest Oregon. I-5 is the primary north-south transportation facility in Oregon and is part of the Interstate Highway System, is a national defense highway, and is the primary route for freight on the west coast. The Fern Valley Interchange is located east of downtown Phoenix in Jackson County at Mile Post (MP) 24 (see Figure ES-1). Most of the project is located within the Phoenix city limits and urban growth boundary (UGB). The project area extends from west of OR 99[1] at about Colver Road in Phoenix into Jackson County east of the Phoenix UGB, and from just north of Arrowhead Ranch to south of Bear Lake Estates.

PURPOSE AND NEED FOR THE PROJECT

The purpose of the proposed action is to reduce congestion and improve operational conditions at the I-5 interchange with Fern Valley Road, on Fern Valley Road within the City of Phoenix UGB, and on OR 99 near its intersection with Fern Valley Road.

[1] OR 99 is also known as Highway 99, and also as Main Street (including the southbound portion of the couplet) through the City of Phoenix.



Project Area

Figure ES-1

February 2010

The project is needed because:

- Congestion at the interchange is increasing due to continued growth in Phoenix and southeast Medford and increased through traffic on I-5. Increased use of the interchange by local residents, commuters, heavy trucks and regional traffic is causing vehicles to queue on the off-ramps during times of heavy peak hour[2] volumes. The capacity of the interchange is degrading rapidly, and traffic safety remains an ongoing concern. By 2010, vehicles are predicted to queue back on the ramps to I-5 during times of heavy peak hour volumes. By 2030, congestion will increase throughout the project area. The traffic queues on the off-ramps that extend back onto I-5 will do so for a longer period of time each day, increasing the risk of high-speed, rear-end collisions. Seven of the sixteen intersections within the project area are predicted to exceed volume-to-capacity standards. (The volume-to-capacity (v/c) ratio is the ratio between the volume of vehicles that use a facility, such as a roadway or controlled intersection, and the capacity of the facility.) Fern Valley Road would be completely congested, and queuing would spill onto the connecting roadways.
- The Fern Valley Interchange does not meet current interchange design standards. The approaches to the Fern Valley Road overcrossing are steep and limit the visibility of interchange traffic.
- Fern Valley Road has substandard shoulders, does not have dedicated bicycle lanes, and has discontinuous sidewalks, creating safety concerns for bicyclists and pedestrians.
- The Bear Creek Bridge is structurally deficient and functionally obsolete.

PROJECT ALTERNATIVES

No-Build Alternative. The No-Build Alternative is evaluated and documented to provide a basis of comparison with the Build Alternative. The No-Build Alternative means the proposed project would not be built. Routine maintenance would be continued and short-term minor safety improvement activities that support continued operation of the existing roadway would occur.

The No-Build Alternative does not include any substantial land development in the interchange area and to the north between the Phoenix and Medford UGBs. This is because the limited capacity of the existing interchange would mean City of Phoenix and State of Oregon land use laws would strictly limit development.

Citizens Advisory Committee meeting

[2] A rush hour or peak hour is a part of the day during which traffic congestion on roads and crowding on public transport is worst. Normally, this happens twice a day, while people are commuting.

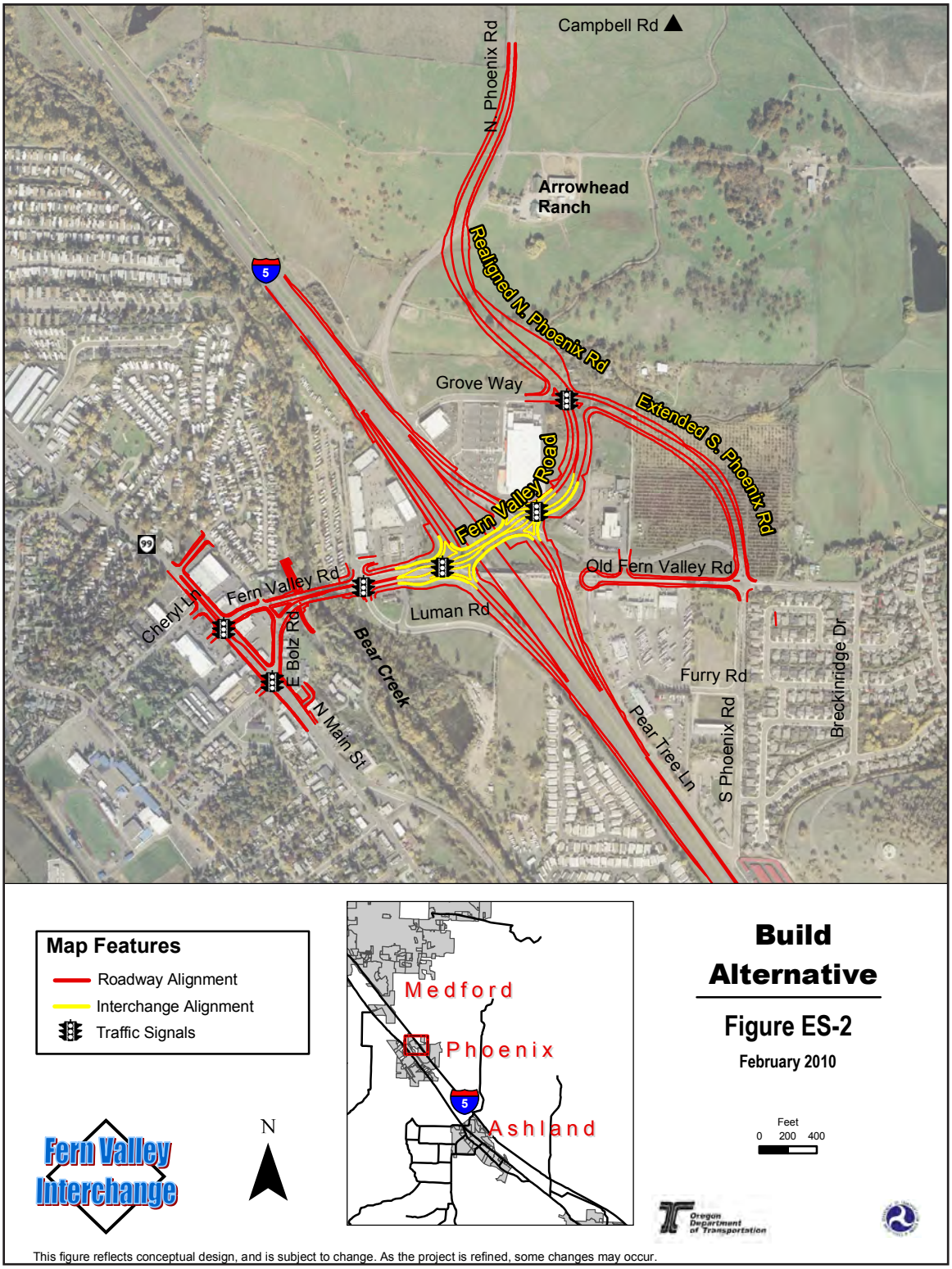
Build Alternative. One Build Alternative (also known as the N. Phoenix Thru Alternative) is evaluated in the EA (see Figure ES-2). The Build Alternative would use a newer interchange design concept, the Crossing Diamond Interchange (CDI). With this type of interchange, drivers are directed to the opposite side of the bridge to cross the interstate. This allows drivers to make "free" left turns, onto the interchange ramps. This design concept is very efficient, and has the advantage of a narrower footprint than the conventional diamond interchange design concept; thus the CDI would result in less right of way impacts. In addition, the CDI is anticipated to result in a significant improvement in safety—up to a 50% reduction in crashes since there are no left turns crossing opposing traffic.

West of I-5, the Build Alternative essentially follows the existing Fern Valley Road alignment, except for a slight shift to the north for the interchange placement. Fern Valley Road would also be two lanes in each direction, but would turn into a one-way road just west of Bear Creek—westbound traffic would follow Fern Valley Road and eastbound traffic would use E. Bolz Road. The 2-lane Bear Creek Bridge (36 feet wide) would be replaced with a 4-lane bridge (100 feet wide). Bikes on Fern Valley Road and E. Bolz Road would be accommodated by 6-foot shoulders that would be designated by pavement markings for bike travel; bikes on OR 99 would be accommodated by 5-foot shoulders. OR 99, Fern Valley Road, and E. Bolz Road would have 6-foot sidewalks on both sides of the roadway.

East of I-5, the Build Alternative would turn north just east of the interchange, and reconnect with existing N. Phoenix Road near Arrowhead Ranch. S. Phoenix Road would be extended directly north of the existing Fern Valley Road/N. Phoenix Road intersection, and turn west to connect with Realigned N. Phoenix Road directly across from Grove Way. Fern Valley Road would become a cul-de-sac, but would be retained as an approach road for adjacent properties. Bikes east of I-5 would be accommodated on 6-foot shoulders that would be designated by pavement markings for bike travel. Pedestrians would be accommodated by 6-foot sidewalks.

The Build Alternative includes an interchange area management plan (IAMP). High traffic volumes can overload an interchange, using up available traffic capacity so the interchange no longer functions effectively. The purpose of the IAMP is to preserve the capacity of the proposed interchange for at least the first 20 years of its design life, and the capacity of Fern Valley Road, OR 99, and N. Phoenix Road in the vicinity of the interchange and to ensure the safe and efficient operation of the interchange and connecting roadways. The IAMP would do this mainly by limiting the extent of land uses that generate high rates of motor vehicle trips affecting the interchange area (e.g., fast-food restaurants and discount club stores); and applying transportation management actions that address the operations of the facility (e.g., bus stop locations or park-and-ride lots) or reduce peak-hour motor vehicle trips (e.g., using alternative modes of traveling at off-peak times).

The Build Alternative is estimated to cost about $72.1 million in 2012 dollars (including construction, right of way and utility costs).


Campbell Rd
N. Phoenix Rd
Arrowhead Ranch
Realigned N. Phoenix Rd
5
Grove Way
Extended S. Phoenix Rd
Fern Valley Road
99
Old Fern Valley Rd
Fern Valley Rd
Luman Rd
Cheryl Ln
E Bolz Rd
Bear Creek
N Main St
Furry Rd
Pear Tree Ln
S Phoenix Rd
Breckinridge Dr
Map Features
Roadway Alignment
Interchange Alignment
Traffic Signals
Medford
Phoenix
Ashland
Build Alternative
Figure ES-2
February 2010
Feet
0 200 400
Fern Valley Interchange
N
Oregon Department of Transportation
This figure reflects conceptual design, and is subject to change. As the project is refined, some changes may occur.

TRANSPORTATION

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. By 2030, average daily traffic is projected to grow substantially, resulting in much heavier traffic congestion than the current conditions. The No-Build Alternative could not effectively handle this additional traffic, and the entire study area system would not function properly. There would be more traffic congestion at major intersections and slower traffic movement through the intersections and within the region. 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. 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. (Table 3-4, in EA Chapter 3, compares the v/c ratios of the No-Build and Build Alternatives. Graphics showing 2030 queues for the alternatives are provided in Appendix B.)

With the No-Build Alternative, minimal changes to existing bike and pedestrian facilities are anticipated. Specific bike or pedestrian projects could occur, but they would still likely result in intermittent and substandard facilities compared to the 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 improve traffic conditions in the project area. All intersections in the project area would meet State 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. Despite the anticipated congestion at the OR99/Fern Valley intersection, the Build Alternative would still improve traffic conditions over the No-Build Alternative, therefore meeting the purpose and need of the project. 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.

The Build Alternative would improve bike and pedestrian facilities throughout the area directly impacted by the project. Bicycles would generally be accommodated by 6-foot-wide shoulders that would be designated by pavement markings for bike travel, except bike lanes on OR 99, which would be accommodated by 5-foot shoulders. Though not ideal, the 5-foot shoulders would function safely for bicycle travel given the traffic conditions and traffic volumes along OR 99. Pedestrians would generally be accommodated by 6-foot sidewalks. A multi-purpose path 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.

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.

LAND USE AND PLANNING

No-Build Alternative. There would be no direct land use impacts[3] associated with the No-Build Alternative.

The following indirect land use impacts[4] with the No-Build Alternative are anticipated:

- 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 current levels.
- 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.

The No-Build Alternative is incompatible with the City's Transportation System Plan (TSP) because it would not widen the bridge structures over I-5 and Bear Creek. The No-Build Alternative would be incompatible with the Jackson County TSP because the TSP includes the Fern Valley Interchange project.

Build Alternative. The direct land use impacts associated with the Build Alternative would include converting about 22.1 acres of land to roadway use: about 14.5 acres of land zoned for commercial use and about 0.10 acre of land zoned for high-density residential use by the City of Phoenix, and about 7.4 acres of land zoned by Jackson County for Exclusive Farm Use.

The following indirect impacts are anticipated with the Build Alternative:

- By reducing congestion near the interchange, the Build Alternative would substantially improve traffic movement in the interchange area, increasing its attractiveness for development.
- 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

[3] Direct impacts would be caused by the project and occur at the same time and place.
[4] Indirect impacts are caused by the action, but occur later in time or further away in distance.

"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.

- 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.

The Build Alternative would be compatible with the Phoenix TSP, contingent on City adoption of the ordinance outlined in the IAMP as part of the TSP. 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.

RIGHT OF WAY

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

Build Alternative. Right of way needed for the Build Alternative would require the acquisition of about 22.1 acres on 42 parcels. The Build Alternative is estimated to require the following displacements: 2 residential relocations (on E. Bolz Road) and 4 business relocations (a coffee stand, two mobile food vendors, and a restaurant). Property owners would be offered just compensation for the required rights of way. The Build Alternative would cost about $14.4 million for right of way acquisition.

The Build Alternative would affect the approaches to a number of properties:

- 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 rights of access would be allowed) to be located along Extended S. Phoenix Road east of I-5; 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

Reasonable approaches would be provided to each property, or damages (if compensable) would be determined through the right of way process.

The Build Alternative would result in the loss of about 67 off-street parking spaces and the removal of unmarked on-street parking on E. Bolz Road between OR 99 and Bear Creek (primarily used by residents of the homes along the east side of E. Bolz Road and by owners, patrons, or employees at nearby businesses). Off-street parking removal is addressed through the right of way acquisition process; on-street parking removal would not require payment to residential or commercial users because it is publicly owned.

Median barriers would be added to some roadway sections in the project area, limiting some left-turn movements to and from the highway. This restriction is within ODOT's regulatory authority, and such changes are not compensable. Changes in traffic patterns resulting from construction of the Build Alternative would not be compensable.

A portion of the Build Alternative would involve acquisition of small strips of right of way along existing street and highway frontages with impacts 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.

Pamphlets and additional information describing the right of way process 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[5] and provided in Appendix C of the EA.

SOCIOECONOMICS

No-Build Alternative. The following socioeconomic impacts are anticipated as a result of the Build Alternative:

- 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. 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.
- Less commercial development occurring 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.
- 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 bicyclists, pedestrians, the elderly and/or disabled.

[5] ODOT's Right of Way website: http://www.oregon.gov/ODOT/HWY/ROW/

- No changes in bus facilities or services.
- Unchanged routes to public services and community facilities. Congestion would continue to slow the provision of emergency services.
- No direct economic benefits due to construction spending.

Build Alternative. The following socioeconomic impacts are anticipated as a result of the Build Alternative:

- Disruptions to relocated businesses and residents.
- Adverse impacts to adjacent businesses and residences as a result of on-street parking removal on E. Bolz Road
- Adverse impacts due to the loss of off-street parking spaces.
- Better traffic flow to businesses and residences—fewer delays and stops, shorter travel times, and higher speeds; easier routing to the northeast interchange quadrant, but more circuitous routing to the southeast quadrant.
- Restricted left-turn movements and changes in travel patterns due to median installation.
- Improved safety and circulation for vehicles, bicycles and pedestrians. Improved bike and pedestrian facilities that meet or exceed minimum ADA standards would especially benefit the elderly and/or disabled groups.
- Easier travel to community facilities (such as parks, libraries, schools, and churches) due to shorter delays and less congestion.
- Improved response times for fire and police services due to better traffic flow throughout the project area, though some increase in travel time to the southeast interchange quadrant is anticipated.
- No changes in bus facilities anticipated, although park-and-ride locations and bus pull-outs could be considered. Travel time for buses would be improved by reduced congestion.
- Additional spending, income, and jobs associated with construction.
- Direct property tax revenue decreases due to the conversion of private property to public right of way.
- Change in residential property values near the interchange due to traffic flow, less congestion, fewer delays, changes in views, changes in traffic noise, and the proximity of new development.
- No disproportionately high adverse impacts to Environmental Justice (minority and low income) populations.
- Temporary detours and nuisances to businesses and residences located near construction areas.

PARKS AND RECREATION

The Bear Creek Greenway, Blue Heron Park, City Hall Park, the Phoenix Elementary School playground, and the Phoenix High School recreational area are located in the project area. No planned parks or recreational facilities are currently identified in the project area.

No-Build Alternative. 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.

Build Alternative. The Build Alternative would not impact Blue Heron Park, City Hall Park, the Phoenix Elementary School Playground or the Phoenix High School recreational area. 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. Build Alternative impacts to the Bear Creek Greenway are discussed under Section 4(f) below.

HISTORIC RESOURCES

Two historic resources in the project-affected area were determined to be eligible for listing on the National Register of Historic Places: the Medford Canal and Coleman Ranch (now known as Arrowhead Ranch). The No-Build Alternative would not impact these historic resources. The level of effect findings for both properties determined that there would be no historic properties adversely affected by the Build Alternative.

ARCHAEOLOGY

No archaeological resources were identified in the project-affected area; therefore the No-Build and the Build Alternative are not anticipated to result in impacts to known archaeological sites. If archaeological resources are discovered during construction of the project, measures would be taken to ensure their identification and protection.

SECTION 4(f)

No-Build Alternative. Although the No-Build Alternative would not directly use the Bear Creek Greenway Section 4(f) property,[6] 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.[7]

Build Alternative. The Build Alternative would replace an existing two-lane bridge over the Greenway and the multi-use path. It would also realign the ramps from Fern Valley Road to the multi-use path. During construction, there would be temporary, short-term path detours when necessary for safety.

---

[6] Section 4(f) of the 1966 Department of Transportation Act, codified at 23 USC 138 requires that special efforts be made to preserve public park and recreation lands, wildlife and waterfowl refuges, wild and scenic rivers, archaeological resources, and significant historic sites.

[7] The Bear Creek Bridge needs to be replaced due to deterioration. The widening of this bridge associated with the proposed project is due to the need for the bridge to handle existing and future traffic.

The Build Alternative would change the alignment of the Bear Creek Greenway multi-use path and ramps, but this change would not constitute a Section 4(f) use. The path and its 10-foot buffer would be completely spanned by the proposed bridge so there would be no direct use of the 4(f) resource. The path realignment would enhance recreational and commuter activities on the path because it would improve sight lines and eliminate a sharp, blind curve; thus, changes to the Bear Creek Greenway would enhance recreational activities on the multi-use path.

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 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 two tax lots in the Bear Creek Greenway in part with LWCF money.

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 two Jackson County Parks tax lots on the north and south sides of the bridge would be impacted. The Build Alternative impacts to Section 6(f)(3) protected recreational properties would be relatively minor—about 0.07 acre.

Coordination between ODOT, Oregon Parks and Recreation Department, 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. ODOT and Jackson County are currently discussing three tax lots 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 multiuse path, would provide the same recreational functions as the properties that are proposed to be impacted by replacement of the Bear Creek Bridge.

NOISE

Existing noise levels were measured on-site at 20 locations within the project area. The results of the evaluation indicated traffic noise levels at The Bavarian Inn and 36 residences within Bear Lake Estates currently exceed ODOT's noise abatement criteria (provided in the EA in Chapter 3, Table 3-12).

No-Build Alternative. With the No-Build Alternative, the Bavarian Inn, 36 residences within Bear Lake Estates, and the Pear Tree RV Resort outdoor use area (pool) are predicted to meet or exceed ODOT's noise abatement criteria.

Build Alternative. By the year 2030, the Build Alternative is predicted to meet or exceed ODOT's noise abatement criteria at the same properties as the No-Build Alternative. In addition, two residences along E. Bolz Road would exceed ODOT's noise abatement criteria. Also, properties adjacent to the construction zone would experience short-term noise impacts.

With the Build Alternative, sound walls would be considered for properties that meet or exceed ODOT's noise abatement criteria. Both the Bavarian Inn and Pear Tree RV Resort are commercial properties. 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. With the two E. Bolz Road residences, a sound wall would not be effective in reducing the noise levels at least 5 dB due to openings in the wall to accommodate driveways; therefore a sound wall in this location would not meet ODOT's reasonable and feasible criteria (provided in Section 3.10.3 in the EA. A sound wall for Bear Lake Estates meets ODOT's reasonable and feasible criteria and would be considered. The final decision on this sound wall would be made during the final design process.

Standard noise abatement measures, such as restrictions on construction at night and during holidays, would be used to minimize construction noise impacts (see Section 3.10.3 of the EA). The City of Phoenix requires a noise variance if construction would occur outside the hours of 7:00 a.m. to 7:00 p.m. on weekdays or if weekend construction is required.

AIR QUALITY

No-Build Alternative. Based on the predicted traffic volumes for 2010 and 2030, it can be assumed that carbon monoxide (CO), PM_{10} (particulate matter less than 10 microns in size), and $PM_{2.5}$ 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 Build Alternative would meet regional conformity requirements because the project is located in the Medford-Ashland PM_{10} Air Quality Maintenance Area and is included in the current conforming 2034 *Regional Transportation Plan* and the amended 2008-2011 *Transportation Improvement Program* (TIP).

The Fern Valley project would meet project-level conformity requirements because the Build Alternative would meet the Conformity Requirements of the Clean Air Act,

Medford-Ashland PM_{10} *Statewide Improvement Program*. The project is located in the Medford-Ashland PM_{10} AQMA and is included in the current conforming 2034 *Regional Transportation Plan* and the amended 2008-2011 *Transportation Improvement Program.* 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.

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 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.

VISUAL RESOURCES

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 Build Alternative would result in the following visual impacts:

- 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.

Computer-generated visual simulations of how the views are anticipated to change after construction of the Build Alternative are provided in Chapter 3, Section 3.12.2, of the EA.

BIOLOGY

Bear and Coleman Creeks support several anadromous[8] fish species, including coho salmon, 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. No protected terrestrial wildlife species or rare plants were determined to be present in the project-affected area.

The Build Alternative would result in the following biological impacts:

- 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.
- Removal of riparian vegetation to construct the new bridge and bike/pedestrian ramps from Fern Valley Road to the Bear Creek Greenway multi-use path.
- Temporary in-water impacts, including increased sedimentation and turbidity.
- Slight increase in sediment and pollutant loading due to increased impervious surface area.
- Restoration of the natural channel following removal of the two piers currently located within the Bear Creek channel below the Ordinary High Water Mark (OHWM).[9]

The Build Alternative is not likely to impact Endangered Species Act 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. Fill material has the potential to further introduce noxious weeds that may displace native vegetation.

Standard conservation and mitigation measures are included in the Biological Assessment and Biological Opinion to avoid, minimize and mitigate potential impacts to aquatic resources. Conservation measures would be implemented to avoid and/or minimize potential temporary and long-term environmental impacts to ESA-listed fish and

[8] Anadromous fish primarily live in the sea, but migrate upstream to breed in fresh water. Many species of salmon are anadromous.

[9] 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. The OHWM is delineated based upon one or more indicators, such as changes in vegetation, mineral staining, and/or soil scour. The OHWM is used to determine the regulated boundary of fresh water features such as rivers and lakes. Construction below the OHWM has the potential to impact water quality and associated aquatic species. State and federal permits are required for construction below the OHWM.

terrestrial species and/or critical habitat. Best management practices, such as fish exclusion measures (to isolate fish from construction) and construction erosion and sediment controls, would be included in the project specifications to avoid or minimize potential temporary and long-term environmental impacts to aquatic and terrestrial species and habitats, and to prevent the further spread of noxious weeds.

WATER RESOURCES

Flood zone designations have been assigned to Bear Creek, Coleman Creek, and Payne Creek. Bear, Coleman, and Payne Creeks were identified by the Department of Environmental Quality in the Bear Creek Total Maximum Daily Load (TMDL)[10] document as having water quality impairments for both temperature and bacteria.

No-Build Alternative. With the No-Build Alternative, there would be no change associated with the Bear Creek Bridge regarding floodways. 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. There would be no adverse floodway impacts from the project because the design of the replacement bridge would result in similar or slightly improved water conveyance.

With the Build Alternative, impervious surface area would increase over existing conditions.[11] The Build Alternative would result in about 27.7 acres total future impervious surface area and about 11.2 acres net new impervious surface area. Net new impervious surface is defined as the difference between the total future impervious surface and the total existing and any removed impervious surface.

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. 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.

[10] TMDL is the amount of a particular pollutant that a particular stream, lake, estuary or other water body can handle without violating state water quality standards. TMDL documents provide strategies to correct pollutant problems for a particular water body.

[11] Water quality impacts to creeks in the project area occur based on the amount of additional impervious surface and the degree of stormwater treatment which the impervious surface receives. Higher traffic volumes also result in higher pollutant loads. Increased runoff volumes can increase sediment transport in receiving waters.

Neither temperature nor bacteria levels in Bear Creek would be substantially affected by the pollutants typically found in highway runoff. The Build Alternative would not result in violations of in-stream water quality standards in Bear Creek.

The Build Alternative would require relocation of the existing Home Depot stormwater treatment pond in order to construct the new roadway alignment; however, this would not be expected to result in any change in stormwater discharge quality from this site.

Stormwater detention facilities would be included in the project to address water quality issues and manage runoff affected by the project. 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. Required stormwater facilities would be placed within ODOT's right of way.

WETLANDS

West of I-5, 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. The Build Alternative would result in an estimated four acres of fill in wetlands and less than 0.25 acre of fill and removal in other waters. Anticipated impacts to high quality wetlands[12] would be negligible (less than 0.01 acre).

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 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 the Department of State Lands (DSL) for the Fern Valley Bridge replacement and has received concurrence. If the Build Alternative is selected, the remainder of the project area east of I-5 would be delineated, and the delineation report submitted to the DSL for concurrence and to the U.S. Army Corps of Engineers 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.

[12] 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.

HAZARDOUS MATERIALS

The Build Alternative would impact (or be close to) three sites of high concern that may contain hazardous materials: residences (potential asbestos), truck stop, and orchard; and three sites of moderate concern (gas station and farm buildings).

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. 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.

GEOLOGY

The project area has minimal potential for geologic hazards (seismic hazards, slope stability/landslide hazards, and soil erosion) and is not expected to require substantive hazard mitigation measures. The Bear Creek Bridge and the existing I-5 overpass were not constructed to current seismic standards. With the Build Alternative, these structures 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.

UTILITIES

Utilities in the project area include: water/irrigation canals, water, sanitary sewer, storm sewer, storm drains, natural gas, electricity, and phone/communication lines. Utility modifications and relocations would be coordinated with the utility owners. Every effort would be made to reduce disruptions to utilities during construction.

CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

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. As of May 2010, there are no federal laws specifically requiring GHG emissions analyses in project-level NEPA documents.

Federal and state strategies for addressing climate change at the national and state levels are described in Chapter 3, Section 3.19.2 in the EA.

TABLE ES-1: IMPACT SUMMARY

Category	Criteria	Build Alternative
Air Quality	Regional increase in ozone or particulate matter	None
Archaeology	Resources impacted	No impacts expected
Biology (Aquatic)	Impacts to critical habitat and species, Southern Oregon/Northern California Coast coho. Includes Bear Creek, Coleman Creek, and Payne Creek	° Removal of riparian vegetation and habitat modifications from Bear Creek Bridge construction ° Removal of existing bridge piers that impact Bear Creek channel ° Temporary in-water impacts during construction ° Slight increase in sediment and pollutant loading due to increased impervious surface area.
Biology (Terrestrial)	Habitat impacts (acres) [Note: The total area analyzed for biological impacts is a worst-case scenario.]	51
	Impacts to individual ESA-listed terrestrial habitats or species	None
Costs (estimated)	Construction costs (2012 dollars)	$56.2 million
	Right of way costs (2011 dollars)	$14.4 million
	Utility costs (2012 dollars)	$1.5 million
	Total project costs	$72.1 million
Geology	Fill requirements (cubic yards)	250,000
	Structures constructed to seismic standards	Yes
Hazardous Materials	Sites of moderate concern	3
	Sites of high concern	3
Historic Resources	Resources impacted	None

TABLE ES-1: IMPACT SUMMARY		
Category	**Criteria**	**Build Alternative**
Land Use & Planning	Land zoned Exclusive Farm Use required (acres)	7.4
	Approvals for the following Development Code requirements: Riparian Setbacks section, flood damage prevention regulations, and Bear Creek Greenway zoning district regulations	Required
	Type 2 (site development review) permit from Jackson County.	Required
	Adoption of IAMP	Required
Noise	Traffic noise impacts	4 locations: ° Bavarian Inn ° Some commercial properties along OR 99 ° Bear Lake Estates (36 residences) ° Pear Tree RV Resort pool area ° Two residences along E. Bolz Road
Right of Way	Right of way acquisition (acres)	22.1
	Number of potential residential relocations	2
	Number of potential business relocations	4
	Number of parcels impacted	42
	Access control for realigned or new segments of roadway east of I-5	Yes
Section 4(f)	Interferes with the features, activities or attributes of the Bear Creek Greenway recreational activities on Greenway property	Changes to Bear Creek Greenway would not adversely affect the features, activities or attributes of the multi-use path, and therefore the changes would not constitute a Section 4(f) use
Section 6(f)	Uses LWCF park land; replacement property required	Yes--about 0.07 acre
Socioeconomic	Disproportionate adverse impacts to low income or minority populations.	No
	Loss of parking spaces	67 off-street parking spaces, plus removal of on-street parking on E. Bolz Road
	Construction impacts	Temporary benefit of jobs, income, and spending related to construction; disruptions such as noise, dust, and detours.

TABLE ES-1: IMPACT SUMMARY		
Category	**Criteria**	**Build Alternative**
	Better traffic flow improves travel to businesses and residences	Yes
	Decrease in permanent annual property tax revenue for Jackson County	$174,000
Traffic & Transportation	Average travel time/distance per vehicle for Fern Valley Road from OR 99 to S. Phoenix Road (Note: No-Build = 10.4 minutes/0.70 mile)	3.1 min /1.1 mile
	Pedestrian and bike travel and safety	Benefit
Utilities	Modifications or relocations required	Yes
Visual Resources	Improves visual setting of Bear Creek Greenway adjacent to bridge	Yes
	Improves visual conditions associated with new I-5 structure	Yes
	New major intersection just north/close to Phoenix Hills subdivision	No
Water Quality	Increase in net new impervious surface area affecting stormwater runoff volumes (acres)	11.2
	Floodway impacts	Improved conveyance
Wetlands and Other Waters	Total wetlands impacted (acres)	Less than 4
	Total other waters impacted (acres)	Less than 0.25
	Total high quality wetlands impacted (acres)	Less than 0.01

[Page intentionally left blank.]

CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

1.1 GENERAL SETTING

The proposed Fern Valley Interchange project is located along I-5 in southwest Oregon (Figure 1-1). I-5 is the primary north-south transportation facility in Oregon, and is part of the Interstate Highway System, is a national defense highway, and is the primary route for freight on the west coast.

The Fern Valley Interchange is located east of downtown Phoenix in Jackson County, at Mile Post (MP) 24 (Figure 1-2). Most of the project is located within the Phoenix city limits and urban growth boundary (UGB).[1] The project area extends from west of OR 99[2] at about Colver Road in Phoenix into Jackson County east of the Phoenix UGB, and from just north of Arrowhead Ranch to south of Bear Lake Estates.

Fern Valley Interchange looking north

The project area west of the interchange is primarily developed urban area, except for the Bear Creek Greenway (a narrow corridor of publicly-owned land along Bear Creek) and partially developed land in the southwest interchange quadrant (Figure 1-3). The project area northeast of the interchange is primarily located on undeveloped land that is experiencing increased pressure for development. The southeast interchange quadrant contains commercial development and a neighborhood east of S. Phoenix Road. (Additional detail on land use is provided in Chapter 3, Environmental Resources, Impacts, and Mitigation.)

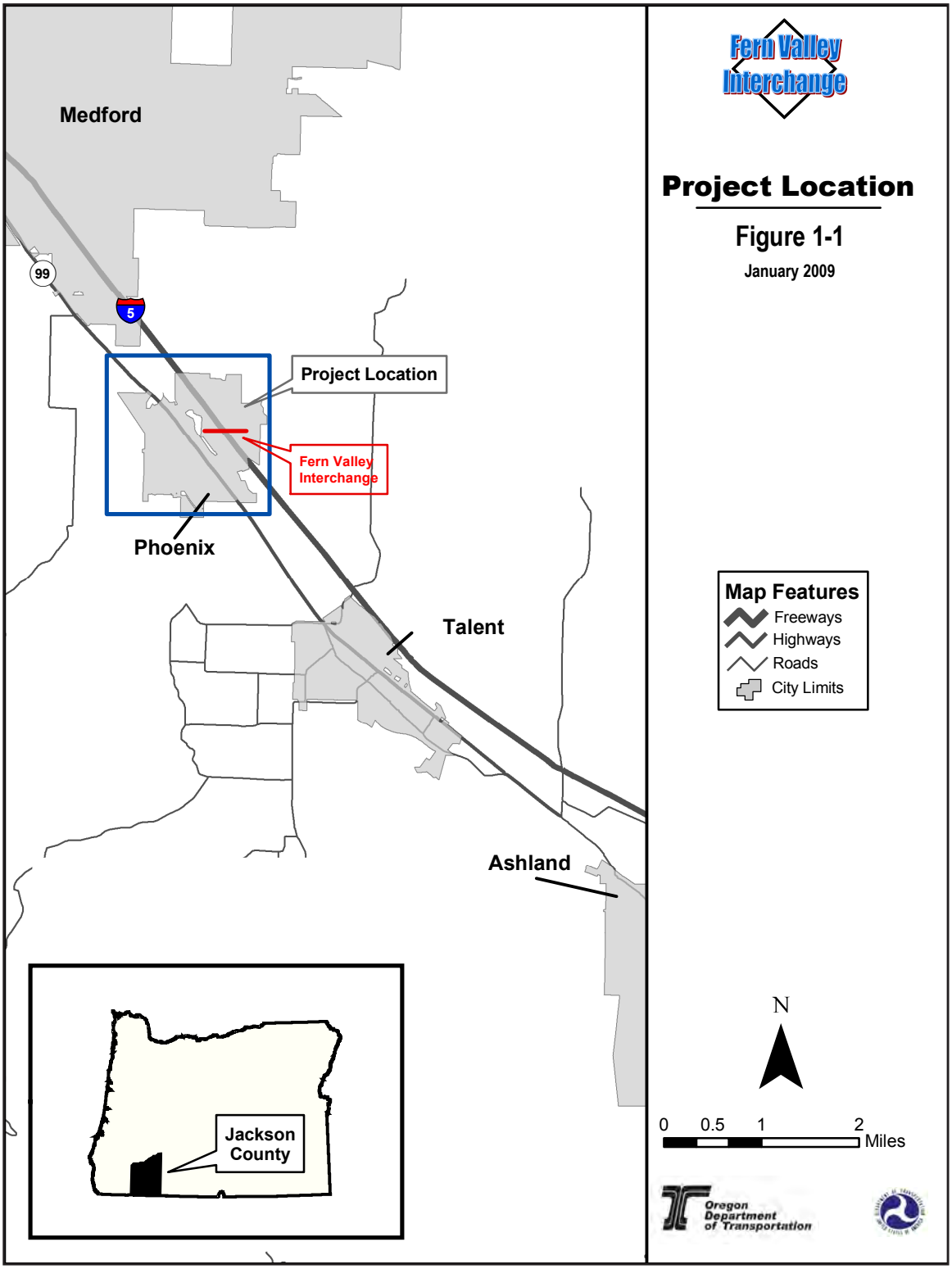
1.2 EXISTING ROAD SYSTEM

I-5, at the Fern Valley Interchange, is entered via Fern Valley Road, which connects OR 99 in Phoenix with the Jackson County road system east of I-5. West of I-5, OR 99 is the major north-south arterial serving traffic within and going through the city of Phoenix. OR 99 connects Phoenix with Medford to the north and Ashland to the south. East of I-5, N. Phoenix Road connects Phoenix with southeast Medford, to the north. (Additional information on the roadway system and functional classifications is provided in Chapter 3, Section 3.5, Consistency with Applicable Plans and Policies, and Land Use Permit Requirements).

---

[1] In Oregon, urban growth boundaries separate urban from rural land. Outside urban growth boundaries, urban land uses are not allowed and urban-level roads are intended to serve only inter-city transportation needs.

[2] OR 99 is also known as Highway 99, and also as Main Street (including the southbound portion of the couplet) through the City of Phoenix.


Fern Valley Interchange
Project Location
Figure 1-1
January 2009
Medford
99
5
Project Location
Fern Valley Interchange
Phoenix
Talent
Ashland
Jackson County
Map Features
Freeways
Highways
Roads
City Limits
N
0 0.5 1 2 Miles
Oregon Department of Transportation

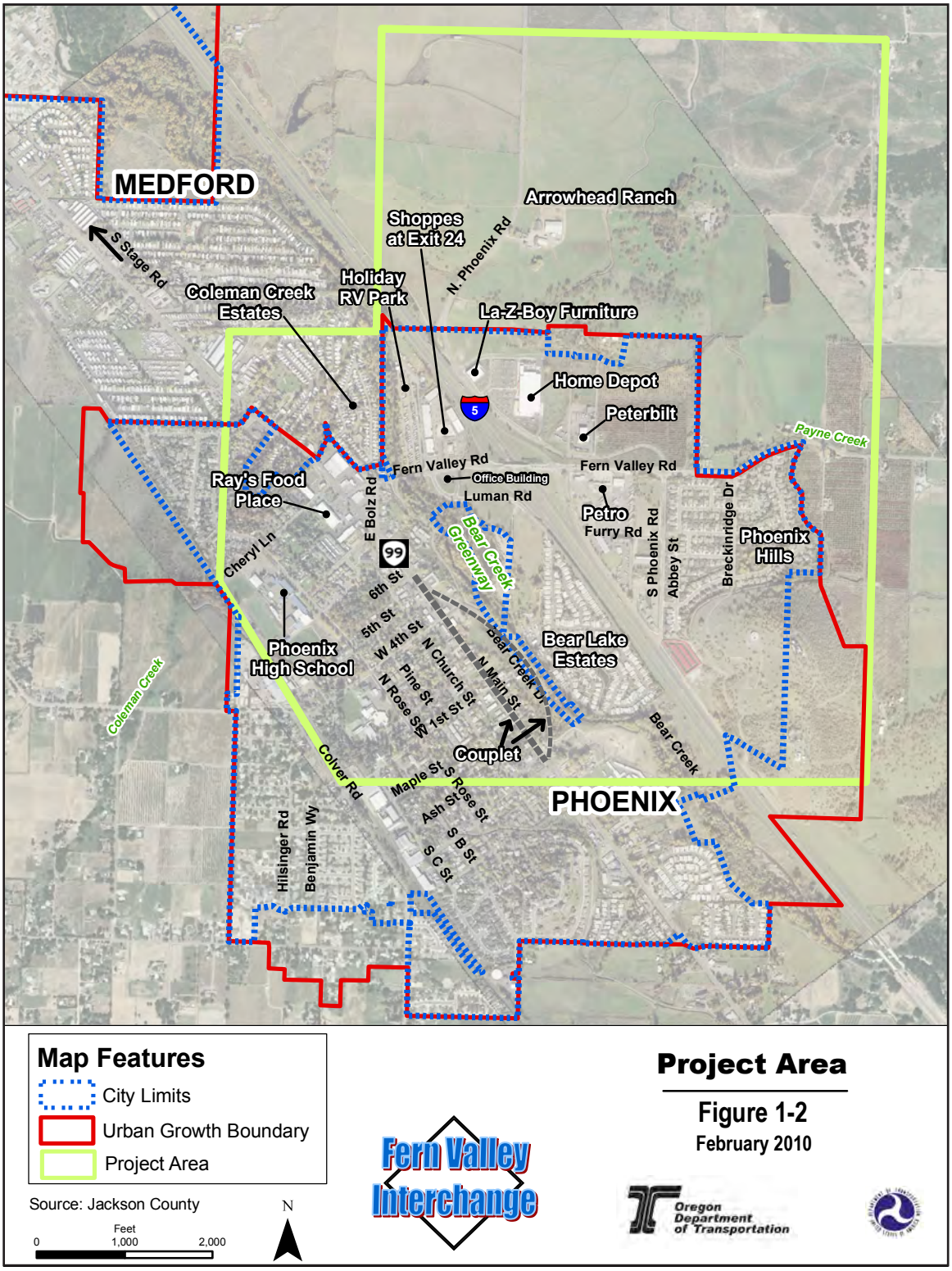

MEDFORD
S Stage Rd
Coleman Creek Estates
Holiday RV Park
Shoppes at Exit 24
N. Phoenix Rd
Arrowhead Ranch
La-Z-Boy Furniture
Home Depot
Peterbilt
5
Payne Creek
Fern Valley Rd
Office Building
Luman Rd
Fern Valley Rd
Ray's Food Place
E Bolz Rd
Petro
Furry Rd
S Phoenix Rd
Abbey St
Breckinridge Dr
Phoenix Hills
Cheryl Ln
99
Bear Creek Greenway
6th St
5th St
W 4th St
N Church St
Pine St
N Rose St
1st St
N Main St
Bear Creek Dr
Bear Lake Estates
Phoenix High School
Coleman Creek
Couplet
Bear Creek
Colver Rd
Maple St
S Rose St
Ash St
S B St
S C St
PHOENIX
Hilsinger Rd
Benjamin Wy
Map Features
City Limits
Urban Growth Boundary
Project Area
Source: Jackson County
Feet
0
1,000
2,000
N
Fern Valley Interchange
Project Area
Figure 1-2
February 2010
Oregon Department of Transportation

Figure 1-3
Fern Valley Interchange Quadrants

Two bridge structures are included in this project: the Fern Valley Road overcrossing of I-5 and the Bear Creek Bridge. The I-5 overcrossing is steep, limits visibility, and does not meet current interchange design standards. The Bear Creek Bridge is narrow, structurally deficient, and cannot adequately handle the existing traffic volumes. (Specific design issues are discussed in Section 1.3, Purpose and Need Statement below.)

1.3 PURPOSE AND NEED STATEMENT

The following purpose and need statement was developed for the proposed Fern Valley Interchange project. Any build alternative analyzed in this environmental assessment (EA) must meet the project's purpose and need.

1.3.1 Purpose of the Proposed Action

The purpose of the proposed action is to reduce congestion and improve operational conditions at the I-5 interchange with Fern Valley Road, on Fern Valley Road within the City of Phoenix[3] UGB, and on OR 99 near its intersection with Fern Valley Road. The proposed project does not focus on Fern Valley Road outside the UGB because the road is a rural county road with low traffic volumes and would not be affected by the proposed project. In addition, the Bear Creek Bridge is structurally deficient and functionally obsolete.

1.3.2 Need for the Proposed Action

The locations of the key areas of congestion and safety considered for this project are provided in Figure 1-4. The Fern Valley Interchange is experiencing increasing congestion due to continued growth in Phoenix and southeast Medford and increased through traffic on I-5. Increased use of the interchange by local residents, commuters, heavy trucks and regional traffic is causing vehicles to queue on the off-ramps during times of heavy peak hour[4] volumes. The capacity of the interchange is degrading rapidly, and traffic safety remains an ongoing concern. There are no other large projects planned for the area that could address this capacity issue. Although OR 99 is an alternate parallel facility, travelers are likely to use the most attractive facility available and I-5 is likely to be that facility.

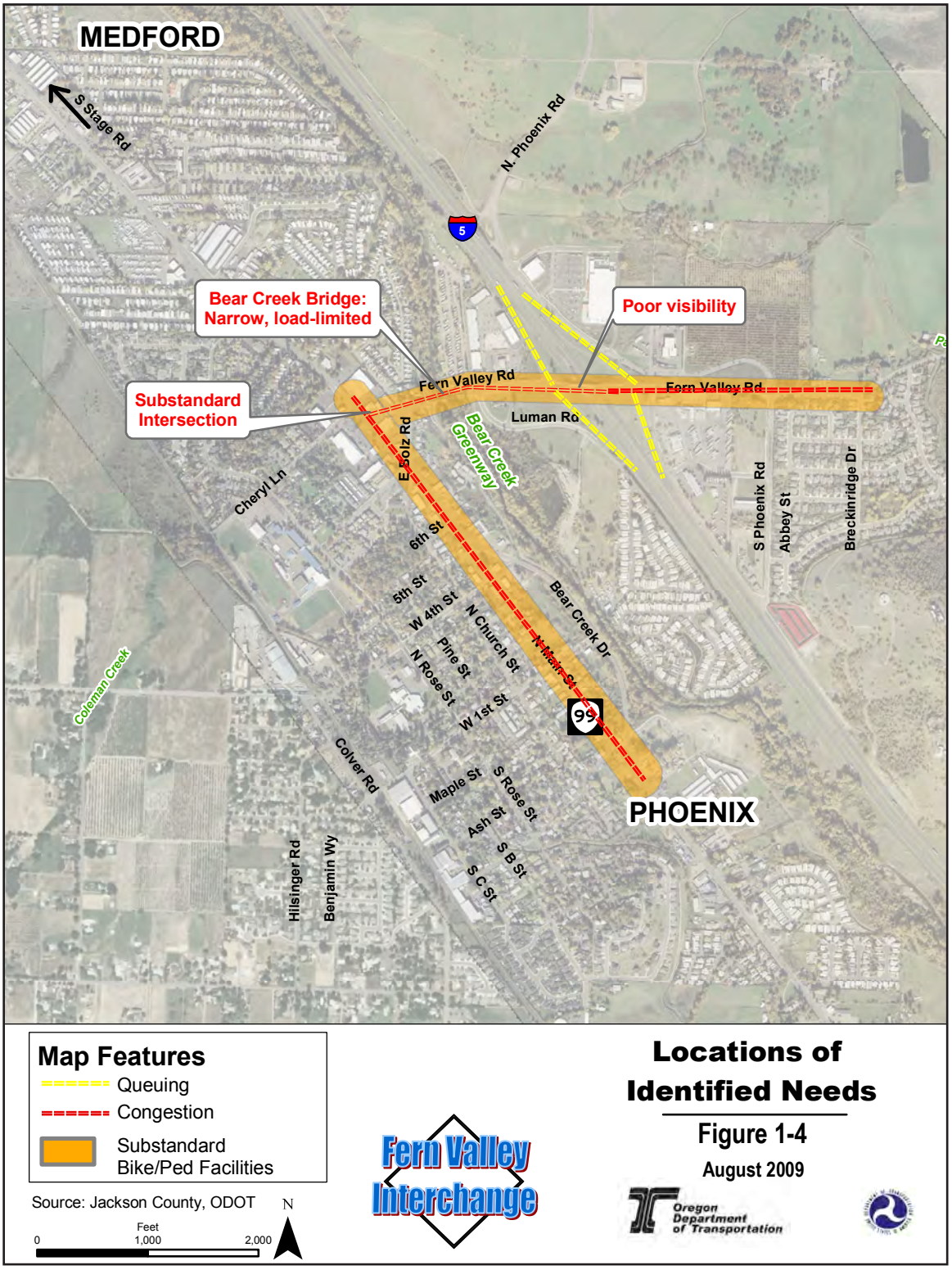
By 2010, the northbound off-ramp terminal intersection will exceed mobility standards; vehicles are predicted to queue back on the ramps to I-5 during times of heavy peak hour volumes. Mobility standards, which measure how well a road functions, are discussed in Chapter 3, Section 3.1.1, Traffic Analysis. Long overlapping queues, originating from the OR 99/Fern Valley Road intersection, will create nearly continuous queuing along the Fern Valley Road corridor. Some turn bays at the ramp terminals would be blocked for substantial portions of the peak traffic hour. Substantial queues would exist at the Fern Valley Road/N. Phoenix Road intersection. Congestion on OR 99 will result from stopped and slow-moving queues. The affected area will stretch from approximately 175 feet north of Cheryl Lane to approximately 100 feet south of Bolz Road.

By 2030, the following traffic conditions are predicted:

- With the increase in traffic volumes, congestion will increase throughout the project area. All of the issues that existed in 2010 will still be present in 2030 and will have gotten worse. The traffic queues on the off-ramps that extend back onto I-5 will do so for a longer period of time each day, increasing the risk of high-speed, rear-end collisions.

[3] "City of Phoenix" and "City" are used interchangeably in this document.

[4] A rush hour or peak hour is a part of the day during which traffic congestion on roads and crowding on public transport is worst. Normally, this happens twice a day, while people are commuting.


MEDFORD
S Stage Rd
N. Phoenix Rd
5
Bear Creek Bridge: Narrow, load-limited
Poor visibility
Substandard Intersection
Fern Valley Rd
Fern Valley Rd
Luman Rd
E Solz Rd
Bear Creek Greenway
Cheryl Ln
6th St
5th St
W 4th St
N Church St
Pine St
N Rose St
W 1st St
N Main St
Bear Creek Dr
S Phoenix Rd
Abbey St
Breckinridge Dr
Coleman Creek
Colver Rd
Maple St
S Rose St
Ash St
S B St
S C St
Hilsinger Rd
Benjamin Wy
99
PHOENIX
Map Features
Queuing
Congestion
Substandard Bike/Ped Facilities
Source: Jackson County, ODOT
N
Feet
0
1,000
2,000
Fern Valley Interchange
Locations of Identified Needs
Figure 1-4
August 2009
Oregon Department of Transportation

- Seven of the 16 intersections within the project area are predicted to exceed v/c[5] standards,[6] and many would be over-capacity (v/c ratio greater than 1.0). The Fern Valley Road intersection with OR 99, the two ramp terminal intersections, and the southbound OR 99/1st Street intersection would all exceed v/c standards. The Fern Valley Road and N. Phoenix Road intersection would be just below the maximum v/c standard in 2030, but would start having major problems after 2030.
- Fern Valley Road would be completely congested, and queuing would spill onto the connecting roadways.
- The congestion on Fern Valley Road would cause northbound queues on OR 99 to extend south beyond 1st Street.

The Fern Valley Interchange does not meet current interchange design standards. The approaches to the Fern Valley Road overcrossing are steep and limit the visibility of interchange traffic. In addition, the length of the I-5 ramp tapers and acceleration lanes are substandard (425 feet vs. the ODOT standard of 580 feet), which results in short stopping and acceleration distances.

Fern Valley Road has substandard shoulders (4-foot shoulders on the overcrossing and 6-foot shoulders on the approaches vs. the ODOT standard of 8 feet) and does not have dedicated bicycle lanes. Sidewalks are discontinuous along Fern Valley Road, creating safety concerns for pedestrians. This poses particular problems on the I-5 overcrossing and from Bear Creek Bridge to OR 99, where there are no sidewalks, but where pedestrians need to be accommodated.

Fern Valley Road crosses Bear Creek between the I-5 interchange and OR 99. This narrow (36-foot-wide), 2-lane bridge creates a bottleneck on Fern Valley Road. In addition, the bridge was built in 1951 and is now structurally deficient and functionally obsolete. Bridge inspection (in July 2007) resulted in a bridge sufficiency rating of 6 out of 100, with 100 being the best rating possible. Due to cracks and spalling (corrosion of the reinforcing steel, which can cause concrete to fall off), the bridge is now limited to loads less than 80,000 pounds. Even if the interchange were to be completely rebuilt, the two-lane bridge would still cause long queues to occur on Fern Valley Road, eventually impacting the ramp terminals and the function of the interchange.

The OR 99/Fern Valley Road intersection is substandard—the western leg of the intersection is a retail business parking lot rather than another roadway. There are numerous driveways close to the intersection creating safety issues. In addition, OR 99 has no dedicated bike lanes or shoulders; it has 14-foot outside lanes where bikes share the roadway. The center-turn median is 14 feet vs. the ODOT standard of 16 feet. There are no sidewalks on OR 99 north of Fern Valley Road except intermittently on business frontages.

---

[5] The volume-to-capacity (v/c) ratio is the ratio between the volume (v) of vehicles that use a facility, such as a roadway or controlled intersection, and the capacity (c) of the facility.

[6] The *1999 Oregon Highway Plan* (OHP) mobility standards are used when evaluating maximum acceptable volume-to-capacity (v/c) ratios for existing and future No-Build conditions.

In summary, the proposed project is intended to address traffic congestion issues, meet mobility standards over the 20-year project timeframe, correct safety concerns associated with the I-5 overcrossing and the Bear Creek Bridge.

1.4 CRASH HISTORY

OR 99 looking towards Fern Valley Rd

Crash data was available for the I-5 Fern Valley Road interchange and for OR 99 from South Stage Road to 1st Street at the downtown couplet (see Table 1-1). The sections below provide a summary of the crash analysis in these areas. Additional detail is provided in the Traffic Analysis Report (*Fern Valley Interchange Unit 2A Environmental Assessment Project, Pacific Highway #1 Traffic Analysis MP 24.00 to MP 25.00*—December 2007). The Traffic Analysis Report is available on ODOT's Region 3 website[7] or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503 (541-774-6299). The Build Alternative contains the following measures to help improve safety conditions in these areas:

- A raised median would be installed on OR 99 from Ray's Market driveway to Bolz to prevent left turns.
- An additional signal would be provided at Bolz Road.
- Turn lanes would be provided at OR 99/Fern Valley Road, OR 99/Bolz, and the new Realigned N. Phoenix Road/Extended S. Phoenix Road/Grove Way intersection.
- Several driveways along OR 99, Fern Valley Road, and Bolz that are too close together would either be consolidated or moved.
- The interchange would be upgraded to reduce congestion and thus help reduce rear-end collisions.
- Intersection spacing east of I-5 would be increased to allow for more efficient operation.
- The Crossing Diamond Interchange (CDI) would provide for unimpeded turning movements (see Chapter 2, Section 2.1.2, Build Alternative, for a description of this newer type of interchange).
- An Access Management Strategy (AMStrat) has been developed for the interchange area. Regardless of whether the Build or No-Build Alternative is selected, this AMStrat will help ODOT move in the direction of better access spacing in the area.

[7] ODOT's Region 3 website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml

TABLE 1-1: CRASH SUMMARY TABLE (1999 to 2003)						
Intersection	**Total # of Crashes**	**% and Types of Crashes**	**Injuries and Fatalities**	**Other**	**Causes**	**Potential Solutions**
I-5/Fern Valley Interchange	40	40% rear-end collisions 20% turn-movement related 15% fixed object collisions	0 fatalities 35% injury crashes	• 65% occurred on Fern Valley Road and the ramp connections • Large jump in number of crashes in 2003. • No particular pattern to I-5 crashes.	• Rear-end collisions in this area often caused by motorists following too close or traveling too fast. Long queues increase potential for rear-end collisions. • Turning movement collisions often caused by motorists taking improper gaps in the traffic stream; heavy traffic limits appropriate gaps for turns. • Increased crashes in 2003 assumed to be result of newly installed traffic signals at ramp terminals. Signalized intersections tend to result in more rear-end collisions, which tend to be more minor in terms of injury and property damage. Prior to signal installation, more severe, but less frequent angle collisions occurred.	Rear-end Collisions • Limit or increase street access spacing • Add turn lanes or medians Turning Movement Collisions • Change signal phasing to allow protected turns • Add turn lanes
OR 99, South Stage Rd to 1st St	157	43% turn-movement related 38% rear-end collisions	50% injury crashes 2 fatalities on OR 99—a pedestrian trying to cross OR 99 and a fixed collision at northbound OR 99/1st St. 9 crashes involving pedestrians—the result of people attempting to cross OR 99 mid-block	• Rear-end collisions often located near traffic signals.	• Rear-end collisions in this area often increased by offset driveways and close intersection spacing, which create numerous conflict points. Long queues also cause an increase in rear end collisions. • Turning movement collisions often caused by motorists taking improper gaps in the traffic stream; heavy traffic limits appropriate gaps for turns. • Pedestrian collisions due to people attempting to cross mid-block rather than signals; primarily occurred in the section between South Stage Road and Fern Valley Road.	Rear-end Collisions • Limit or increase street access spacing • Add turn lanes or medians • Install additional signals to decrease the distance between signals. Turning Movement Collisions • Change signal phasing to allow protected turns • Add turn lanes • Close and/or consolidate driveways. • Install a raised median from Cheryl to Bolz to prevent left turns • Lower the speed limit • Make the signal more visible by removing distractions • Increase intersection and access point spacing Pedestrian Collisions • Install additional signals to provide more opportunities for pedestrians to cross OR 99.

[Page intentionally left blank]

1.4.1 I-5 and Fern Valley Road

The number of crashes on Fern Valley Road and I-5 in this area increased between 1999 and 2003. The majority of the crashes (65%) occurred on Fern Valley Road and at the ramp terminal intersections. There were 40 total crashes in this time period, with a rate of 0.15 crashes per million vehicle-miles traveled (VMT). This crash rate is less than the statewide average rate of 0.61 crashes per VMT for similar roadways (in 2002). None of the crashes at the interchange during this time period was fatal.

Rear-end collisions in this area were often caused by motorists following too close or traveling too fast on the ramps and on Fern Valley Road. About 20% of crashes on Fern Valley Road and at the ramp terminals were turning movement collisions. Heavy traffic on Fern Valley Road is limiting available gaps in traffic, thus contributing to drivers pulling onto the roadway without enough space to enter safely. The crashes on the I-5 mainline do not follow any particular crash pattern or type.

1.4.2 OR 99—South Stage Road to 1st Street

There were a total of 143 crashes on OR 99 between South Stage Road and W. 1st Street between the years 1999 and 2003, including two fatal crashes (a pedestrian crossing OR 99 near South Stage and Glenwood Roads, and a fixed object collision on OR 99 at 1st Street). Nine crashes involved pedestrians. Generally the result of people attempting to cross mid-block because there is no good location between the signals to cross, and because the signals are more than a mile apart, it is not convenient to walk to the nearest signal. The proportion of fatal/injury crashes is slowly increasing over time.

The number of crashes on OR 99 was relatively consistent over the five-year period, varying between 30 and 35 crashes per year. Most of the turning movement problems were to/from the Ray's Food Place driveway. There were 17 crashes at Cheryl Lane, most caused by motorists taking improper gaps, resulting in turning movement collisions. A large portion of the crashes were either related to turning movements or rear-end collisions, which is typical for an urban section with considerable traffic. Offset driveways and close intersection spacing create numerous conflict points. In addition, appropriate gaps for turning movements are limited because of heavy traffic, combined with closely spaced streets and driveways. The rear-end collisions are occurring throughout the project area on OR 99, especially near the traffic signals. Long queues extending along OR 99 from the OR 99/Fern Valley Road intersection also contribute to the number of rear-end collisions in this area. The section of OR 99 between the north city limits and Bolz Road is a Safety Priority Index Site (SPIS). The SPIS is a system used by ODOT to identify high crash locations on state highways. The crash rate for this section of OR 99 is more than double the 2003 statewide average rate for similar roadways. All other sections within the project area are below the statewide average.

1.5 PROJECT GOALS AND OBJECTIVES

Based on the purpose and need of the project, eight goals with objectives were developed to help meet community interests for the project. The goals are:

- Ensure the project is compatible with the long-term land use plans.
- Ensure project facilities provide for safe and efficient movement of emergency vehicles, school buses and freight.
- Provide safe facilities that encourage alternative modes of transportation.
- Provide for easy and/or safe circulation to existing and planned businesses and residences in the study area.
- Ensure the design of the project will not be such as to make its implementation cost-prohibitive.
- Enhance community livability and quality of life.
- Protect and enhance the natural environment.
- Protect the integrity of the Bear Creek Greenway Trail.

A description of the goals and objectives and their relationship to the screening and evaluation criteria are provided in Appendix A, Alternatives Considered But Not Advanced.

1.6 CRITERIA FOR DETERMINING RANGE OF ALTERNATIVES

Screening and evaluation criteria were developed to determine which alternatives best meet the project's purpose and need and goals and objectives—and therefore to determine which alternatives to forward into the EA for further analysis (see Appendix A, Alternatives Considered But Not Advanced).

1.6.1 Screening Criteria

The Project Development Team (PDT)[8] developed screening criteria to determine whether alternative concepts would meet the proposed project's purpose and need. An alternative must meet these criteria in order to be included in the EA. Alternatives sometimes require design exceptions to meet key screening criteria. Alternatives can be forwarded into the EA with design exceptions—providing that the alternative design concept does not compromise safety or its ability to function. The following key criteria focus on important transportation design and safety issues:

- Would the alternative meet capacity (v/c ratio) standards at key locations for the 20-year design period, as measured by the governing jurisdictions' standards? (Key locations include the following intersections on Fern Valley Road: the interchange ramps, OR 99, and N. Phoenix Road.)

[8] A description of this team and its role in the Fern Valley Interchange project is provided in Chapter 5, Section 5.1.2, Project Development Team.

- Would the alternative meet roadway design, spacing standards and spacing requirements described in the Oregon Highway Plan, Highway Design Manual, or applicable jurisdictions' standards?
- Would the alternative provide standard bike and pedestrian facilities?
- Would the alternative be consistent with the Statewide Planning Goals?
- Would the alternative address off-system improvements to reduce interchange congestion (if needed)?
- Would the alternative improve safety within the project area? (improved sight distances, access management, etc.)
- Would the alternative replace the existing Bear Creek Bridge?

The Build Alternative analyzed in this EA meets these screening criteria.

1.6.2 Evaluation Criteria

The CAC and PDT developed evaluation criteria based on the goals and objectives recommended for the proposed project. The project alternatives were not required to meet these evaluation criteria. These criteria were used to help the individual CAC, PDT and other appropriate stakeholders evaluate the alternatives. However, consensus on how closely an alternative met these criteria was not required, and committee members often differed in their opinions on which alternative best met the various criteria. A list of the evaluation criteria developed for these goals and objectives is provided in Appendix A, Alternatives Considered But Not Advanced.

[Page intentionally left blank.]

CHAPTER 2
PROJECT ALTERNATIVES

This chapter includes the following information regarding alternative development for the Fern Valley Interchange project:

- A description of the alternatives advanced for analysis in this EA; and
- A summary of the alternatives and options considered, but not advanced for further analysis.

Several groups have played key roles in helping to develop the Fern Valley Interchange project alternatives: the Project Management Team (PMT), Project Development Team (PDT), the Collaborative Environmental and Transportation Agreement for Streamlining (CETAS), Citizens Advisory Committee (CAC), and stakeholders (such as the general public and Tribal representatives). Their roles and membership are described in Chapter 5, Public Involvement and Agency Coordination.

In determining which alternatives to advance for this project, early concepts were considered at a general level to determine basic alignment, engineering, traffic and environmental considerations. The concepts most likely to solve the problem, have the least environmental and socioeconomic impacts, and meet conceptual design and traffic requirements were advanced for further consideration. Throughout the alternative development process, alternatives were evaluated in terms of how well they met the project's purpose and need, goals and objectives, and evaluation criteria. The process for developing these alternatives is described in Chapter 5, Public Involvement and Agency Coordination.

2.1 PROJECT ALTERNATIVES

Two alternatives are evaluated in this document: a No-Build Alternative and a Build Alternative. The proposed Build Alternative description is based on preliminary design concepts only. Projects normally have design changes during the final design phase—after the environmental process is complete and prior to construction.

State highway projects must be designed, constructed, operated, and maintained in accordance with State and Federal regulations, directives, safety standards, design standards, and construction standards. ODOT must meet applicable standards for alternative design (e.g., lane width, distance between intersections, signal locations, and traffic capacity). Exceptions to design standards are allowed as long as safety and the function of the facility are not compromised. Design exceptions are normally granted in situations where the design is close to standard (e.g., 2.8 miles between interchanges instead of the 3.0 miles required by the Oregon Highway Plan), but not in situations where the design is much further from meeting standard (e.g., 1.2 miles between interchanges instead of the 3.0-mile standard). These design exceptions help to provide flexibility in designing transportation facilities, are evaluated by design and traffic

engineers, and must be approved during final design if the Build Alternative is selected for construction. Design exceptions needed for the Build Alternative are specified under Section 2.1.2, Build Alternative.

2.1.1 No-Build Alternative

The No-Build Alternative is evaluated and documented to provide a basis for comparison with the Build Alternative. The No-Build Alternative means the proposed project would not be built. Routine maintenance would be continued and short-term minor safety improvement activities that support continued operation of the existing roadway would occur. Other projects in the area that are planned and programmed would be built.

The following projects, included in the fiscally constrained Regional Transportation Plan, would be built regardless of whether or not the Fern Valley Interchange is rebuilt:

- Realigning the OR 99/Fern Valley Road and Cheryl Lane intersections and upgrading the signal;
- Installing a new signal at the Fern Valley Road/N. Phoenix Road intersection;
- Widening the Bear Creek Bridge;
- Installing a new signal at the Fern Valley Road/Luman Road intersection;
- Providing bike lanes and sidewalks on 1st Street (Rose Street to OR 99 southbound), on 4th Street (Rose Street to Colver Road), on Bolz Road (OR 99 to Fern Valley Road), and on Colver Road (1st Street to the Phoenix southern UGB);
- Providing bike lanes on 4th Street (OR 99 southbound to OR 99 northbound), and on Rose Street (1st Street to 5th Street); and
- Constructing new streets with bike lanes and sidewalks on 3rd Street (existing terminus to OR 99 northbound) and Parking Street (OR 99 northbound to 3rd Street).

Additional information on the projects identified is listed in Chapter 3, Table 3-1, Other Transportation Projects Considered in Cumulative Impact Analysis.

The No-Build Alternative does not include any substantial land development in the interchange area and to the north between the Phoenix and Medford UGBs. This is because the limited capacity of the existing interchange would mean City of Phoenix and State of Oregon land use laws would strictly limit development. Section 3.2.2, Land Use Impacts, explains how City and State laws would constrain development. Regional growth would occur in the parts of the region where the roadway system has capacity to accommodate it.

2.1.2 Build Alternative

The Build Alternative being evaluated in this document is also known as the N. Phoenix Thru Alternative (see Figure 2-1). The Build Alternative generally follows a more north-south orientation than existing conditions. The Build Alternative is estimated to cost about $72.1 million in 2012 dollars (including construction, right of way and utility

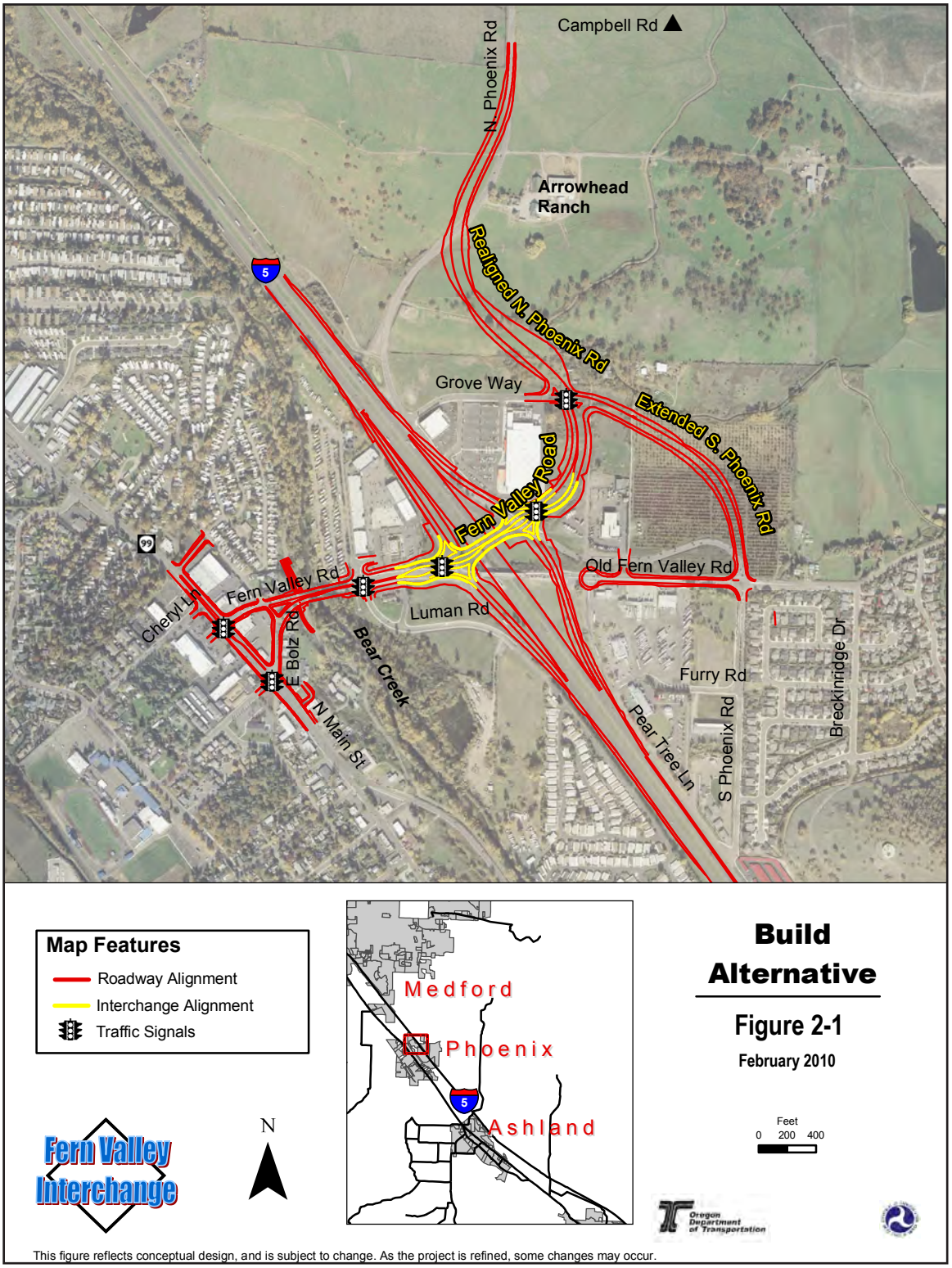
costs). The following description of the Build Alternative is divided in three parts: west of the interchange, the interchange, and east of the interchange.

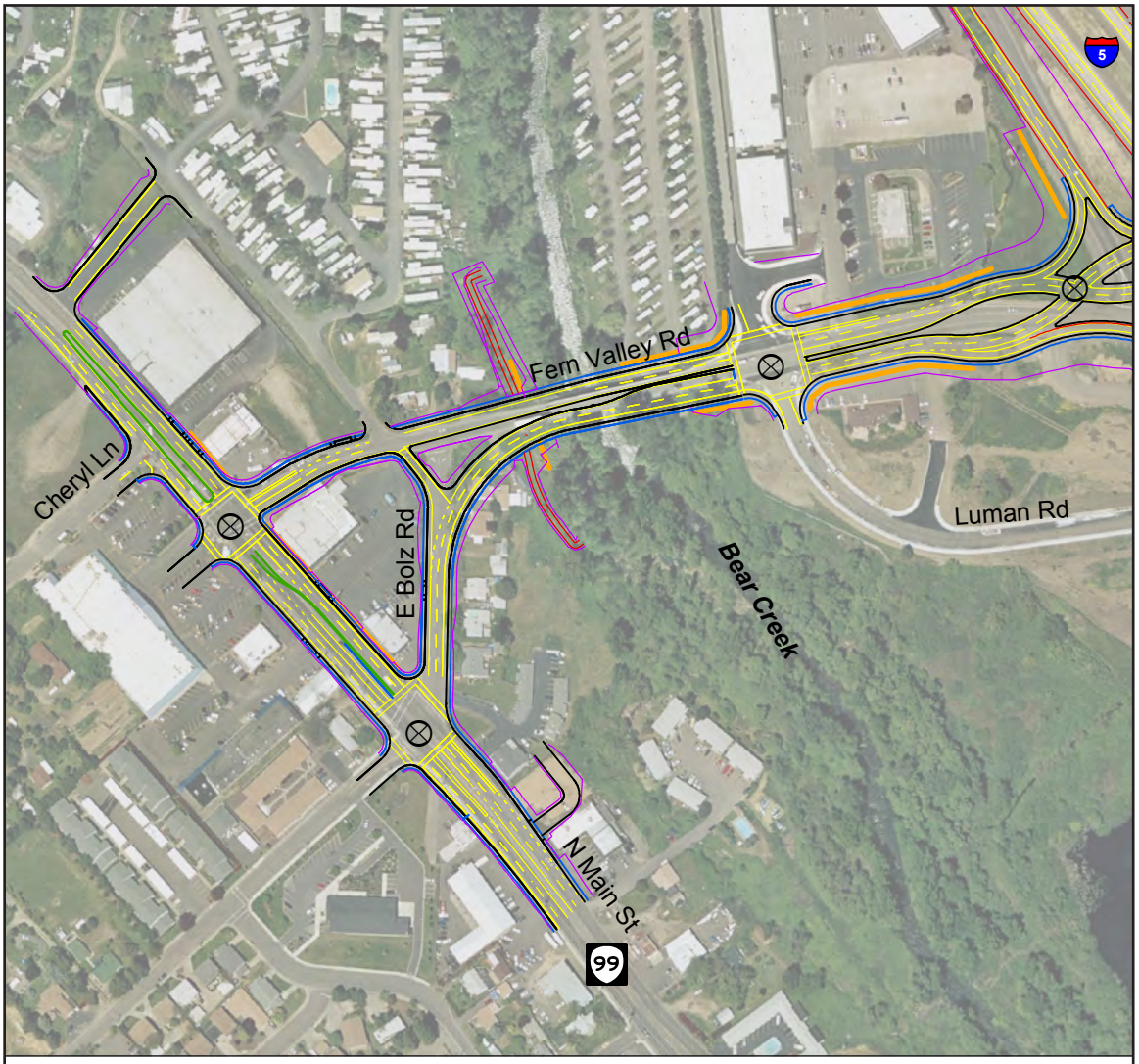
West of Interchange

Figure 2-2 shows a more detailed view of the Build Alternative west of I-5. The key elements are provided in the bullets below.

- From MP 11.07 to MP 11.34, OR 99 would be two lanes in each direction (except at intersections). Fern Valley Road would also be two lanes in each direction, but would turn into a one-way road just west of Bear Creek—westbound traffic would follow Fern Valley Road and eastbound traffic would use E. Bolz Road. Turn-lane configurations at the major intersections are shown in Figure 2-3.
- To avoid extensive right of way impacts to adjacent properties, travel lane widths on OR 99 in the project area would be reduced to 11 feet to help accommodate dual left-turn lanes at the OR 99/E. Bolz Road intersection. In addition, 5-foot shoulder widths and 1-foot shy distance[1] on OR 99 are proposed.
- The 2-lane Bear Creek Bridge (36 feet wide) would be replaced with a 4-lane bridge (100 feet wide).
- Bikes on Fern Valley Road and E. Bolz Road would be accommodated by 6-foot shoulders that would be designated by pavement markings for bike travel. Shoulder widths on OR 99 and in transition areas (e.g., when a 4-lane roadway transitions to a 2-lane roadway) would normally be five feet wide.
- OR 99, Fern Valley Road, and E. Bolz Road would have 6-foot sidewalks on both sides of the roadway.
- Coleman Creek Mobile Estates would have a new approach road from OR 99 (located northeast of Cheryl Lane), in addition to the existing approach road from Fern Valley Road (which would be used by westbound traffic).
- Bavarian Motel (located southeast of the OR 99/E. Bolz Road intersection) would have a new approach road south of its existing driveway.
- When the final design for the alternative is developed, some existing pavement may no longer be needed, and would therefore be removed upon completion of the project. Minimal pavement removal is anticipated west of I-5.

[1] "Shy distance" is the off-set distance required between a roadway barrier (e.g., curbs, medians, guardrail, concrete barrier) and the travel lane. This distance compensates for the users' instinctive tendency to avoid the roadway directly adjacent to the barrier. This distance typically increases with the speed of adjacent vehicles and is required in addition to the standard width specified for the roadway shoulder or turn lane.


Campbell Rd
N. Phoenix Rd
Arrowhead Ranch
Realigned N. Phoenix Rd
5
Grove Way
Extended S. Phoenix Rd
Fern Valley Road
99
Old Fern Valley Rd
Fern Valley Rd
Luman Rd
Cheryl Ln
E Bolz Rd
Bear Creek
N Main St
Furry Rd
Pear Tree Ln
S Phoenix Rd
Breckinridge Dr
Map Features
Roadway Alignment
Interchange Alignment
Traffic Signals
Medford
Phoenix
Ashland
Build Alternative
Figure 2-1
February 2010
Feet
0 200 400
Fern Valley Interchange
N
Oregon Department of Transportation
This figure reflects conceptual design, and is subject to change. As the project is refined, some changes may occur.

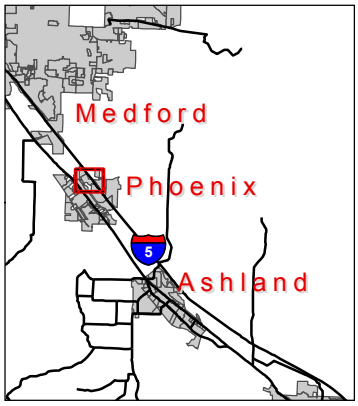


Map Features

- Median
- Striping
- Sidewalk
- Slope
- Edge of Asphalt
- Curb
- Retaining Wall (locations are approximate)
- Traffic Signal

Fern Valley Interchange

N



Build Alternative (West Detail)

Figure 2-2

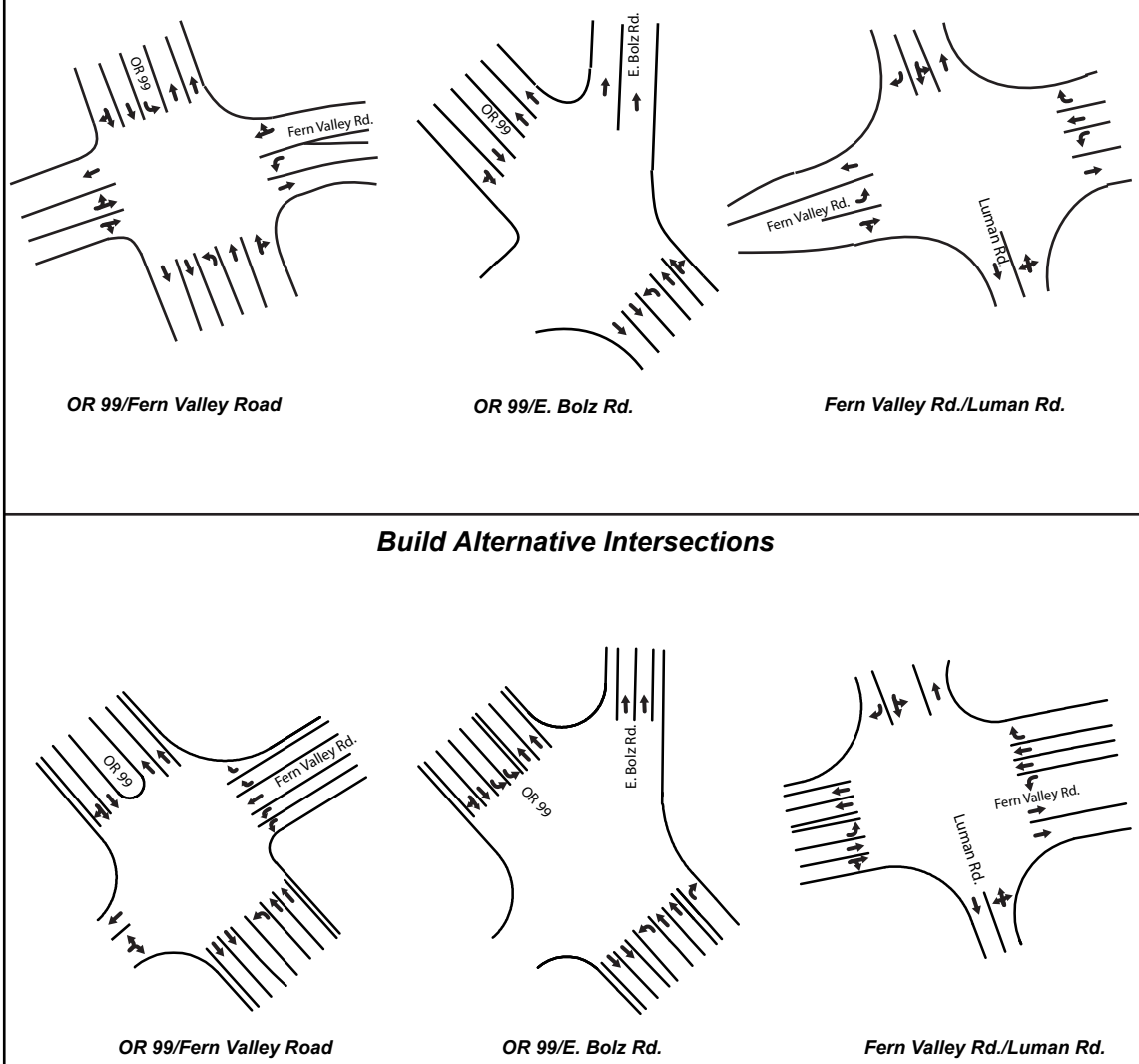
December 2009

Feet
0 200 400

Oregon Department of Transportation

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

Figure 2-3
Build Alternative Changes to Major Intersections (West of I-5)



Retaining walls may be installed at the following locations (see Figure 2-2; length and height are approximate):

- Along the east side of OR 99 to avoid slope impacts to businesses (500 feet long and one to four feet high)
- At the west end of the Bear Creek Bridge to avoid slope impacts to the multi-use path (190 feet long and 22 feet high)
- At the northeast corner of the Bear Creek Bridge to avoid slope impacts to the RV park (200 feet long and 22 feet high)
- At the southeast corner of the Bear Creek Bridge to avoid slope impacts to the riparian area (100 feet long and 22 feet high)
- At the northeast corner of Fern Valley Road and Luman Road to avoid slope impacts to the mall parking lot (450 feet long and 15 feet high)
- At the southeast corner of Fern Valley Road and Luman Road to avoid slope impacts to the parking lot (300 feet long and 11 feet high)
- At the west end of the I-5 structure (375 feet long and 30 feet high) to avoid impacts to the Bear Creek Greenway

The Build Alternative west of I-5 would require design exceptions for the following:

- Reduced interchange spacing distance (2.8 miles instead of the 3-mile standard)
- Reduced shoulder width on OR 99 (5 feet instead of the 6-foot standard);
- Reduced shy distance to the median curb on OR 99 (1 foot instead of the 2-foot standard); and
- Substandard dual left-turn lane width on OR 99 (22 feet instead of the 24-foot standard)

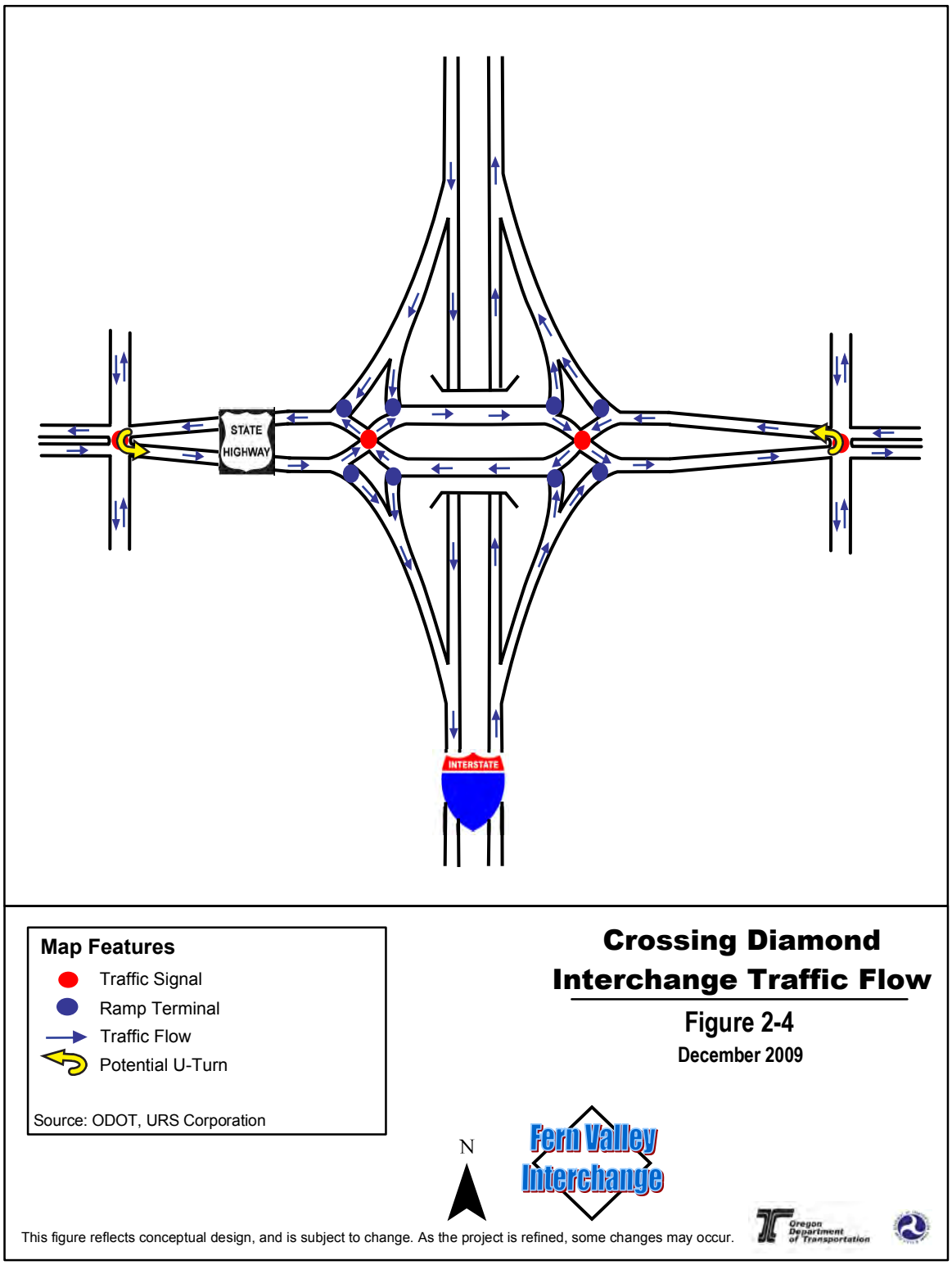
Minimum lane widths are being used on OR 99 in order to minimize impacts to adjacent development. This design exception would be requested from ODOT's Traffic/Roadway Section during final design of the Build Alternative, if selected for construction.

ODOT sometimes grants design exceptions for minor variances from applicable engineering standards, provided that the exception would not compromise safety or system operations. The design exceptions for the Build Alternative were determined to fall into this category. If alternatives would require design exceptions, but would compromise safety or system operations, they were not advanced for further consideration. Further explanation of these design exceptions is provided in Appendix A, Alternatives Considered But Not Advanced.

Interchange

The interchange would be a newer interchange design concept, the Crossing Diamond Interchange (CDI) (also known as the Diverging Diamond Interchange).[2] With this type of interchange, drivers are directed to the opposite side of the bridge to cross the interstate (see Figure 2-4). This allows drivers to make "free" left turns, without stopping, onto the interchange ramps. The experience is similar to driving on a one-way street.

[2] This is a newer interchange design, and would be the second CDI in the U.S. and the first CDI in Oregon.



Crossing Diamond Interchange Traffic Flow

Figure 2-4

December 2009

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

This design concept is very efficient, and has the advantage of a narrower width than the conventional diamond interchange design concept; thus the CDI would result in less right of way impacts. CDIs move traffic more quickly than other interchanges because CDIs reduce the number of places where traffic stops; with a CDI, there are only two places where traffic stops compared with three or more stops required with other interchange types). In some cases, the CDI cuts the volume-to-capacity (v/c) ratio in half.

In addition, the CDI is anticipated to result in a significant improvement in safety—up to a 50% reduction in crashes since there are no left turns crossing opposing traffic.

Bikes would be safely accommodated on the CDI by 6-foot shoulders at most locations; the shoulders would be designated by pavement markings for bike travel (Some locations in transition areas may include 5- to 8-foot shoulders.) Bikes would travel on the shoulders adjacent to traffic using the same travel patterns as vehicular traffic. Pedestrian movement on the CDI would be on 6-foot sidewalks up to the signals at the ramp terminals. At the signals, pedestrians would cross the ramps and Fern Valley Road in designated crosswalks which lead to the center of the CDI, where the pedestrians would be protected by barriers while crossing over the structure.

The new interchange would generally follow the existing alignment of Fern Valley Road, except at the east end, where the alignment would be shifted slightly to the north. Signals would be located at both the west and east interchange ramp terminals. The CDI contains large median areas to safely separate opposing traffic lanes. There would be two lanes in each direction for the CDI.

A deviation from *Oregon Highway Plan* (OHP) spacing standards would be required for the new interchange ramp terminals because the spacing distance between the ramp terminals and the first local roads (both west and east of the interchange) is substandard. The design standard for the distance from the ramp terminals to the first roadway connection is 1,320 feet. With the Build Alternative, the western ramp terminal would be about 540 feet to the nearest roadway west of I-5 (Luman Road)—780 feet less than standard. The eastern ramp terminal would be 850 feet to the nearest roadway east of I-5 (Grove Way/Extended S. Phoenix Road)—about 470 feet less than standard. These exceptions would not adversely affect the operational and safety intent of the applicable standards. While not the ideal configuration, traffic analysis has shown that this configuration would still function within standards in the design year. These exceptions would be requested from ODOT during final design of the Build Alternative, if selected for construction.

The Build Alternative would require design exceptions to the *Highway Design Manual* Interstate v/c standard (0.75) for the following highway sections:

- Southbound I-5 mainline north of the Fern Valley Interchange (v/c = 0.76)
- Southbound I-5 mainline south of the interchange (v/c = 0.77)
- Northbound I-5 mainline south of the interchange (v/c = 0.80)
- Southbound on-ramp merge (v/c = 0.81)
- Southbound off-ramp diverge (v/c = 0.81)
- Northbound off-ramp diverge (v/c = 0.82)

East of Interchange

Figure 2-5 shows a more detailed view of the Build Alternative east of I-5. The key elements are described in the bullets below.

- East of I-5, the Build Alternative would turn north just east of the interchange, and reconnect with existing N. Phoenix Road near Campbell Road. S. Phoenix Road would be extended directly north of the existing Fern Valley Road/N. Phoenix Road intersection, and turn west to connect with Realigned N. Phoenix Road directly across from Grove Way.
- Realigned N. Phoenix Road would be two lanes in each direction until it tapers to reconnect to existing N. Phoenix Road near Campbell Road. Existing Fern Valley Road would be one lane in each direction. Extended S. Phoenix Road would be one lane in each direction with a center turn lane. Grove Way would be one lane in each direction with a center turn lane at the intersection with Realigned N. Phoenix Road. Turn-lane configurations at the major intersections east of I-5 and the Extended S. Phoenix Road cross-section for the Build Alternative are shown in Figure 2-6.
- Bikes on Realigned N. Phoenix Road, Extended S. Phoenix Road, and existing Fern Valley Road would be accommodated on 6-foot shoulders that would be designated by pavement markings for bike travel. (Some locations in transition areas may include 5 to 8-foot shoulders.)
- All roads affected by the project east of the interchange would have 6-foot sidewalks on both sides of the roads.
- Most properties along existing N. Phoenix Road (west of the new alignment) would use a new approach road via Grove Way. Properties east of I-5 in the project area currently use Fern Valley Road and N. Phoenix Road as their approach road.
- Approach roads to developable properties north of Fern Valley Road would be via Extended S. Phoenix Road.
- Short sections of pavement may be removed from existing N. Phoenix Road north of the urban growth boundary (UGB), where not needed for approach roads.
- Retaining walls may be installed at the following locations (see Figure 2-5; length and height are approximate):
    - At the east end of the I-5 structure (325 feet long and 30 feet high)
    - On the north side of the northbound on-ramp to avoid impacts to the Home Depot parking lot (900 feet long and 20 feet high)

Build Alternative (East Detail)

Figure 2-5

December 2009

Map Features

- Median
- Striping
- Sidewalk
- Slope
- Edge of Asphalt
- Curb
- Retaining wall (locations are approximate)
- Traffic Signal
- Urban Growth Boundary

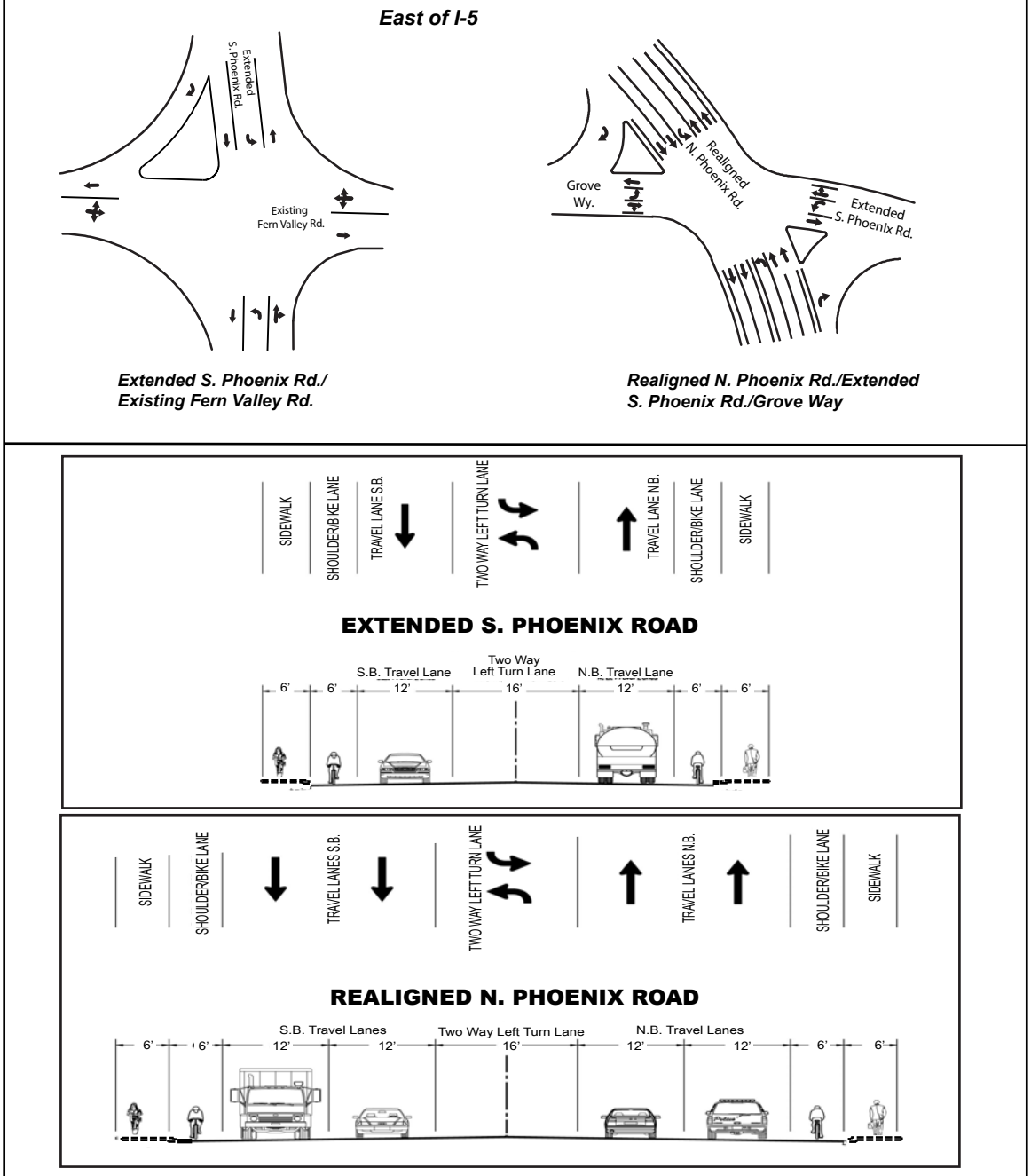
Feet 0 200 400

N

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

Figure 2-6

Build Alternative: Major Intersections and Cross-Sections (East of I-5)



2.2 Interchange Area Management Plan

High traffic volumes can overload an interchange, using up available traffic capacity so the interchange no longer functions effectively. In order to ensure interchanges function as long as possible, state administrative rules require development of an Interchange Area Management Plan (IAMP) when there would be a major modification to an existing interchange—which is the case for the Fern Valley Interchange project.[3] IAMPs include tools to help manage traffic and traffic-generating land uses in developing areas.

The Build Alternative includes an IAMP, which ODOT developed in cooperation with the City of Phoenix (see the IAMP boundaries in Figure 2-7). The IAMP is intended to:

- Preserve the capacity of the proposed interchange for at least the first 20 years of its design life, and the capacity of Fern Valley Road, OR 99, and N. Phoenix Road in the vicinity of the interchange.
- Ensure the safe and efficient operation of the interchange and connecting roadways, and protect the function of the interchange in the transportation system.

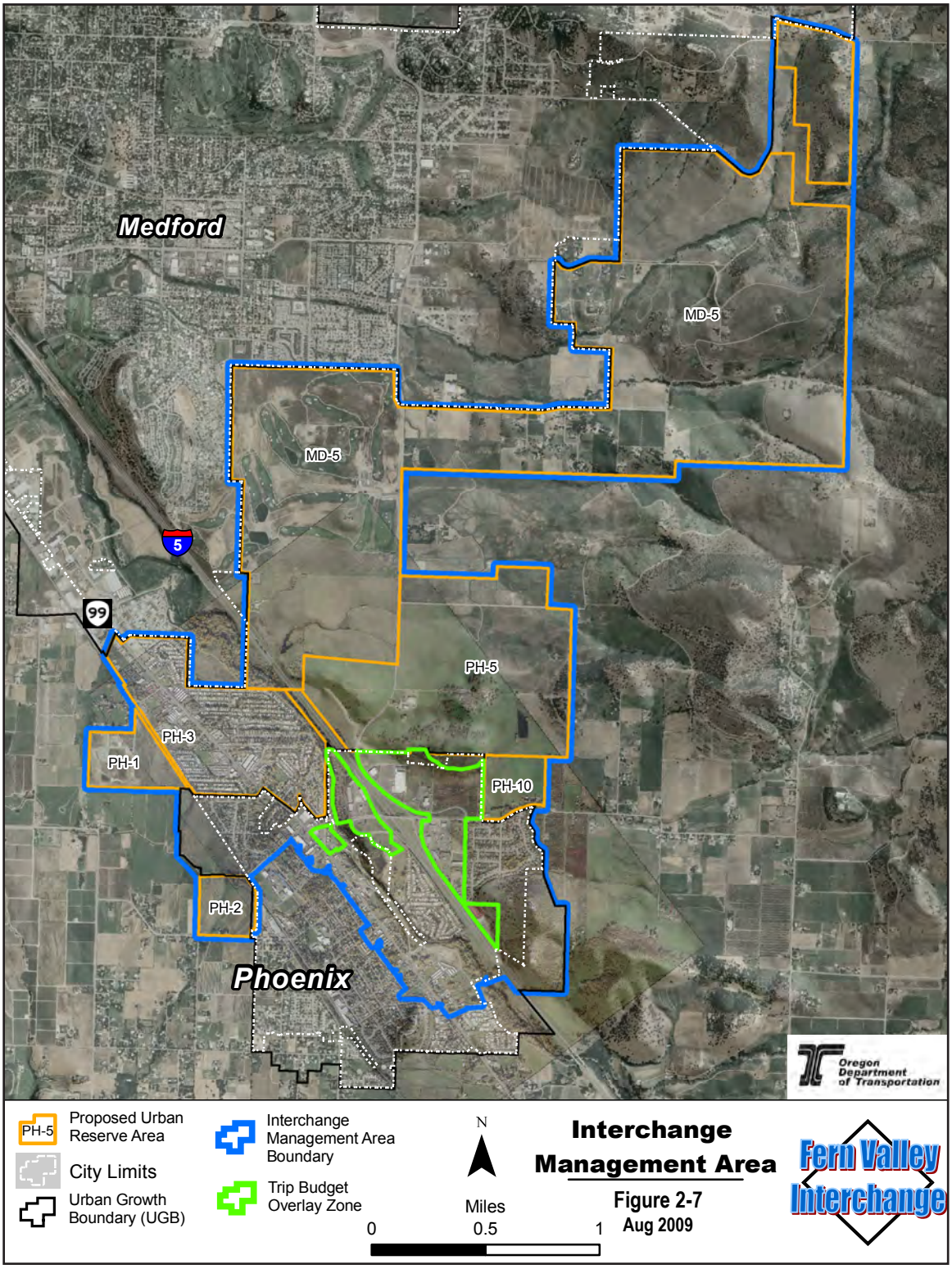
Although specific measures to be included in the IAMP have not been adopted in final form, the measures being considered are intended to:

- Limit the extent of land uses that generate high rates of motor vehicle trips in the interchange area (e.g., fast-food restaurants, discount club stores, and discount "superstores").
- Apply specific transportation system management (TSM) actions and transportation demand management (TDM) actions. TSM addresses the operation of the roadway system, transit system, and facilities for bicycles and pedestrians. TDM seeks to reduce peak-hour motor vehicle trips by encouraging people to make trips using alternatives to single-occupant motor vehicles or during off-peak times.
- Limit trip generation outside the interchange area if necessary to meet mobility performance standards and preserve interchange capacity.

ODOT worked with the City of Phoenix to develop measures that would be acceptable to the community and meet the obligation of IAMPs to protect interchange performance. ODOT is seeking City of Phoenix adoption of the IAMP because only the City (and not ODOT) could implement most of the management measures proposed in the IAMP. The Oregon Transportation Commission would then adopt the IAMP into the *Oregon Highway Plan* (OHP). Below are the principal measures proposed in the IAMP. These measures may be altered or dropped and other measures added prior to final adoption. The Phoenix Planning Commission has recommended adoption of the IAMP, and the City Council is formally considering the IAMP for adoption.

The IAMP includes the measures listed below in Section 2.2.1 Land Use Measures; Section 2.2.2 Transportation System Management Measures; and Section 2.2.3 Transportation Demand Management Measures.

[3] Oregon Administrative Rule (OAR) 734-051-0155(7)


Medford
MD-5
MD-5
5
99
PH-5
PH-3
PH-1
PH-10
PH-2
Phoenix
Oregon Department of Transportation
PH-5
Proposed Urban Reserve Area
City Limits
Urban Growth Boundary (UGB)
Interchange Management Area Boundary
Trip Budget Overlay Zone
N
Miles
0
0.5
1
Interchange Management Area
Figure 2-7
Aug 2009
Fern Valley Interchange

2.2.1 Land Use Measures

Trip Budget Overlay Zone

This measure would allow no more than 2,219 new motor vehicle trips[4] to be generated by new development in the overlay zone (shown in Figure 2-7). This is the number of additional trips new development could add without causing traffic volumes at the OR 99/Fern Valley Road intersection to exceed the applicable v/c standard. The IAMP would allocate these trips to land parcels in the overlay zone proportionately to each parcel's net area available for development. In combination with trips generated by existing development on a parcel, these allocations equal each parcel's "parcel budget." Development or redevelopment on each parcel would not be allowed to generate more motor vehicle trips than in its parcel budget. Parcels subject to the overlay zone trip budget may transfer trips to another parcel within the overlay zone, if the transferring parcel does not use its full allocation of trips.

Capacity Expansion and Retention

The purpose of this measure is to reduce the extent to which limitations on land development are necessary to prevent traffic volumes from exceeding applicable performance standards. As part of the Build Alternative, ODOT will retain the southbound right-turn lane at the S. Phoenix Road/Fern Valley Road intersection. The City will require as a condition of planning approval that land developers pay to implement the traffic capacity expansions below when traffic impact studies indicate that they are needed to meet applicable performance standards during the planning period. Without these capacity expansions, traffic volumes are forecasted to violate applicable mobility performance standards within the planning period.

- A second westbound left-turn lane at the intersection of N. Phoenix Road and S. Phoenix Road Extension
- A four-way stop at the intersection of Fern Valley Road and S. Phoenix Road

The City of Phoenix or ODOT may require land developers to pay for or both pay for and implement capacity expansions in addition to the ones listed above.

ODOT Adoption of Plan and Code Components

ODOT would adopt key components of the *Jackson County Comprehensive Plan* and *Jackson County Land Development Ordinance* as part of the IAMP. This would enhance ODOT's ability to work with Jackson County to avoid plan or ordinance amendments that would cause violations of mobility standards at the OR 99/Fern Valley Road intersection or other intersections in the interchange area.

[4] "Motor vehicle trips" here means trips between 4 p.m. to 5 p.m. on weekdays.

South Valley Transportation Strategy

The City of Phoenix and ODOT would commit to working with Jackson County and the Cities of Medford, Talent, and Ashland to formulate a strategy to avoid traffic from outside Phoenix causing congestion on the interchange, N. Phoenix Road, Fern Valley Road, and OR 99.

Alternative Mobility Standard at I-5 Ramp Terminal Intersections

ODOT would apply a stricter mobility performance standard to the ramp terminal intersections if traffic is caused by commercial or residential development rather than if caused by industrial or export service development. Export service development means facilities for the provision of services to customers or clients primarily located outside the region. The reason the stricter mobility performance standards would apply to commercial or residential development is because of these uses tend to generate higher volumes of traffic. Mobility standards would be applied at the time of a land use change (i.e., change in zoning/plan designation). Land use changes could occur without mitigation up to a v/c of 0.75. Between a v/c or 0.75 and 0.85, only changes to industrial land use would be allowed without mitigation. With a v/c 0.86 and above, mitigation would be required for all land use changes. For example, if the v/c reached the 0.75 threshold (the v/c for residential/commercial land uses), then no additional land use changes could be made without additional improvements to the interchange. The only land use changes that could occur otherwise would be to industrial uses.

Building Setback Requirements on OR 99

The City of Phoenix would require new buildings along OR 99 north of the couplet to the city limits to be set back 15 feet from the right of way. This would reduce cost and disruption if OR 99 needs to be widened in the future. The Jackson County Land Development Ordinance already requires a 20-foot setback north of the city limits.

2.2.2 Transportation System Management Measures

Future Bus Transfer Sites and Bus Stop Locations

ODOT and Phoenix would work with the Rogue Valley Transit District (RVTD) to identify bus transfer sites and bus stop locations. RVTD currently uses OR 99 as its route through Phoenix; RVTD does not have a route that traverses Fern Valley Road or N. Phoenix Road. RVTD does not have specific, near-term plans for the additional lines or bus stops. These would be part of a second tier priority in its 10-year capital plan and could be considered in the future if funding becomes available. The design for potential transfer sites has not been completed. If additional land is available from right of way

acquired for this project, RVTD and ODOT could evaluate those properties for future bus transfer sites.

Shared Park-and-Ride Lots

ODOT and Phoenix would help RVTD identify and secure shared park-and-ride lots near the interchange. At shared park-and-ride lots, a property owner allows bus riders to park. Such properties are often churches or shopping centers that have excess parking capacity between commute hours. As with bus transfer site locations, RVTD and ODOT could evaluate additional land available from right of way acquired for this project to determine whether those properties would be suitable for park-and-ride lots.

Other Transportation System Management Measures

The following transportation system management measures are also incorporated into the Build Alternative:

- One-way streets (Fern Valley Road to be westbound only from the Fern Valley Road/E. Bolz Road intersection to OR 99, and E. Bolz Road to be eastbound only)
- Signal synchronization (to be developed during final design)
- Parking removal along E. Bolz Road

2.2.3 Transportation Demand Management Measures

Motor Vehicle Trip Reduction Requirements and Programs

Through the IAMP adoption, the City of Phoenix would require that commitments to reduce motor vehicle trips in applications for amendments to the comprehensive plan and zoning map and for partitions, subdivisions, site design approvals, and conditional use permits be made conditions of approval. Examples would be preferred parking for employee carpools, support for employee telecommuting, bicycle parking facilities, and off-peak shift times.

2.3 ALTERNATIVES CONSIDERED BUT NOT ADVANCED

A wide variety of interchange types, connecting roadway alignments, and highway cross-sections were evaluated throughout the alternative development process. About 30 design concepts were considered—some with mix-and-match options. A summary of the project development process is provided in Chapter 5, Public Involvement and Agency Coordination. The following discussion summarizes the general types of alternatives considered and the key reasons for not advancing these alternatives for further study in

this EA. Detailed descriptions and maps of the alternatives considered throughout the process, and the reasons they were not advanced, are provided in Appendix A.

2.3.1 Alternative Alignment Concepts

As indicated in Chapter 1, Purpose of and Need for Action (Section 1.6, Criteria for Determining Range of Alternatives), potential alternatives went through a two-level evaluation process based on criteria developed by the project teams. If an alternative did not meet the Purpose and Need, it was not advanced for further evaluation. Alternatives that met the screening criteria were considered to meet the project Purpose and Need and were then further evaluated using the evaluation criteria outlined below. Those alternatives that did not meet the following screening criteria were considered to not meet the project Purpose and Need and were dismissed from further consideration.

- **Screening criteria:** Each alternative concept was first evaluated through the filter of screening criteria. Screening criteria are intended to determine if alternatives would meet the Purpose and Need for the proposed project. These screening criteria focus on important transportation design, traffic, safety, and land use criteria that must be met for an alternative to be considered feasible. An alternative must meet these criteria to be considered feasible; however, alternatives that came very close to meeting the screening criteria were considered feasible if they could obtain approvals for minor deviations from the applicable criteria. These approvals (design exceptions) are discussed in Appendix A, Alternatives Considered But Not Advanced. The following screening criteria, discussed in Appendix A, were applied to each alternative under consideration:
    - ***Meet capacity (v/c ratio) standards at key locations for the 20-year design period.*** This criterion is focused on reducing congestion and improving operational conditions in the project area.
    - ***Meet roadway design standards and spacing requirements.*** Roadway and interchange design standards (including spacing requirements) are specified in the *Oregon Highway Plan*, *Highway Design Manual*, and applicable jurisdictional standards. Design standards help to ensure safety and the efficient operation of the transportation system.
    - ***Provide standard bike and pedestrian facilities.*** Bike facilities are considered acceptable if they provide 5-foot minimum width.
    - ***Improve safety within the project area.*** Safety is best met by ensuring close adherence to design and spacing standards; minimizing traffic, pedestrian, bicycle and transit conflicts; and reducing congestion.
    - ***Be consistent with the Statewide Planning Goals.*** Alternatives were evaluated to determine if the alternative would require exceptions to Oregon's Statewide Planning Goals. There are 19 Statewide Planning Goals, which address a range of planning, environmental, economic, and social values. State of Oregon administrative rules (OAR 660-012) establish standards for when urban-level transportation improvements outside UGBs are exempt from goal exceptions and what must be demonstrated to qualify for exceptions. For this project, some alternatives impacted EFU property outside the UGB, potentially requiring an

exception to Statewide Planning goal #3, Agriculture (OAR660-012-0070). These alternatives were analyzed and dismissed if they had a greater impact on EFU versus other alternatives that met the Purpose and Need of the project.

- ***Address off-system improvements to reduce interchange congestion, if needed.***
- ***Include a safe crossing of Bear Creek that can handle anticipated traffic capacity.***

Nineteen alternative concepts did not meet the project's Purpose and Need as identified through the screening criteria.

- **Evaluation criteria**, the second filter, were derived from the goals and objectives developed for the project. An alternative did not have to meet all of these criteria, but the criteria helped to evaluate how alternatives compared to each other in terms of potential impacts and benefits. The evaluation criteria generally fall into two categories: environmental impacts and social and economic impacts. Environmental criteria included the alternative's impacts to wetlands, riparian habitat, historic properties and air quality. Social and economic criteria included impacts to existing residences and businesses, impacts to the Bear Creek Greenway, and providing efficient movement of freight and school buses. The evaluation criteria are discussed in Appendix A, Alternatives Considered But Not Advanced.

  Ten alternative concepts would have resulted in high levels of adverse impacts and were not advanced because the Build Alternative met the Purpose and Need, but had fewer adverse impacts.

2.3.2 Interchange Types

Five major interchange types were considered in developing the project alternatives: single point urban interchanges (SPUI), split diamond interchanges, regular diamond interchanges, diamond interchanges with loop ramps (partial cloverleaf interchanges), and crossing diamond interchanges (CDI). The interchange types are described below to provide a basic understanding of the types of interchanges considered throughout the process. The reasons for dismissal of particular alternatives are provided in Appendix A.

- Nine SPUI alternatives were considered; none were advanced into this EA. SPUI interchanges have ramps that are very close together with one traffic signal controlling all traffic movements, thus enabling concurrent opposing left turns, which increases the capacity of the interchange. The SPUI interchange design was created to help move large volumes of traffic through limited amounts of space safely and efficiently. SPUI interchanges would have minimized the interchange footprint, but were associated with wider cross-sections (more travel lanes) on the interchange connections with state, county and local roads. Major impacts to adjacent businesses would have occurred because SPUIs would have required widening OR 99 in order to accommodate the higher traffic volumes that these types of interchanges can handle.

Single Point Urban Interchange

- One split diamond interchange was evaluated. This type of interchange would have provided northbound on-ramps and southbound off-ramps separated from the northbound off-ramps and southbound on-ramps by an extensive system of frontage roads. This type of interchange provides a good system of approach connections to businesses and residential areas, but requires a large amount of right of way to accommodate what is essentially two interchanges.

Split Diamond Interchange

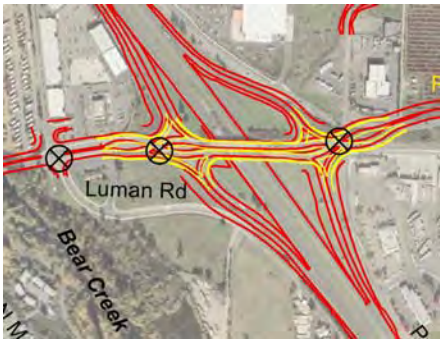
- Fourteen regular diamond interchanges were considered. These types of interchanges typically require a substantial amount of right of way and, as with other interchange styles, can result in road connections that have substantial impacts to existing or developable properties and to traffic issues these road connections create in the local transportation system. In most cases, this interchange type did not adequately handle anticipated traffic volumes.

Regular Diamond Interchange

- Five diamond interchanges with various loop ramp configurations were considered. These result in similar impacts compared with the regular diamond interchanges, but require even more right of way in order to construct.

Loop Ramp Configurations

- Two Crossing Diamond Interchanges (CDIs) were considered. One CDI was forwarded into the EA as the Build Alternative and one CDI was not advanced due to statewide goal exception issues. CDIs provide for minimal disruption to traffic flow because turning movements do not cross traffic. Although both CDIs would not have fully met spacing standards from the ramp terminal to the next intersections east and west of I-5, both alternatives would have met applicable operational and safety design standards. The CDI interchange type is discussed in Section 2.1.2, Build Alternative, in this chapter.



Crossing Diamond Interchange

[Page intentionally left blank.]

CHAPTER 3
ENVIRONMENTAL RESOURCES, IMPACTS AND MITIGATION

This chapter identifies the physical, biological, social and economic setting (existing conditions[1]) 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).[2] 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*,[3] (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;

[1] Existing conditions may also be referred to as "affected environment."

[2] 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)

[3] 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*,[4] 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.

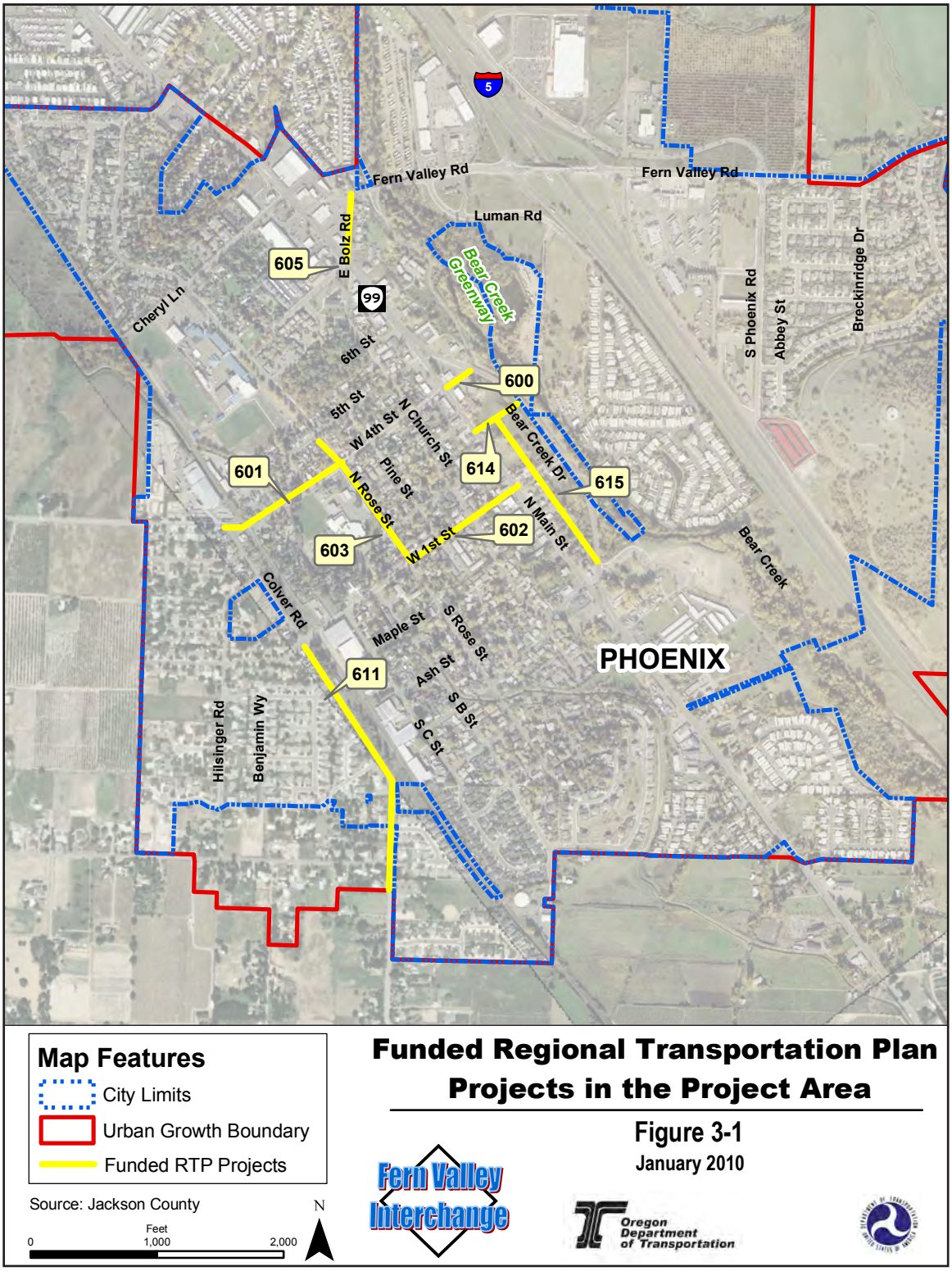
TABLE 3-1: OTHER TRANSPORTATION PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

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., 1st St. to 5th 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., 1st 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 3rd 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,"[5] 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.

[4] Rogue Valley Council of Governments, Greater Bear Creek Valley Regional Plan, Draft, October 2008, http://rvcog.org/mn.asp?pg=rps_regional_plan.
[5] 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



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[6] 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

[6] 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.

TABLE 3-2: MOBILITY STANDARDS[1]

Type of Roadway	Project Area Roadway	No-Build Alternative (Oregon Highway Plan V/C Standards)[2]	Build Alternative (Highway Design Manual V/C Standards)[2]
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[7] 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)[8] 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

[7] 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.

[8] 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.)

TABLE 3-3: 2004 AND PROJECTED FUTURE (2030) TRAFFIC VOLUMES			
Roadway	**2004**	**2030 No-Build Alternative**	**2030 Build Alternative**
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[1]

		NO-BUILD		BUILD ALTERNATIVE	
Intersection	**2004**	**2010**	**2030**	**2010**	**2030**
I-5 North at Fern Valley Road	1.06[2]	0.87	1.38	0.32	0.52
I-5 South at Fern Valley Road	0.99[2]	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[2]	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[2]	0.54	0.88	N/A[3]	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

[1] 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.
[2] 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.
[3] 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

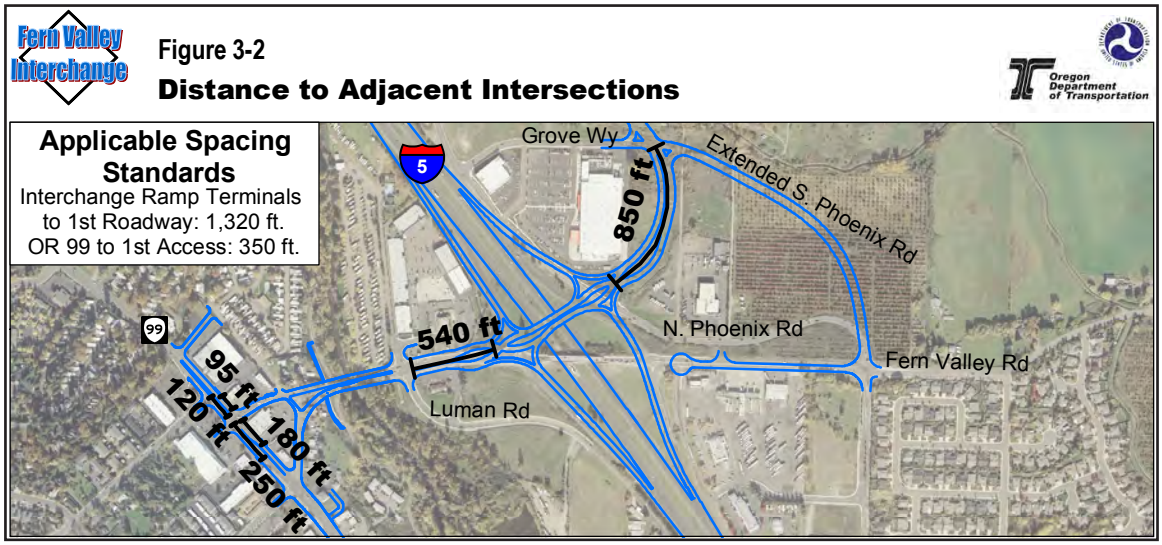
adjacent roadways and private approaches that are under their jurisdiction. The specific distance is typically determined by a combination of roadway type (functional classification), traffic volume, traffic control (i.e., signalized vs. stop-sign controlled), posted speed, and adjacent land use characteristics. 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.



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).

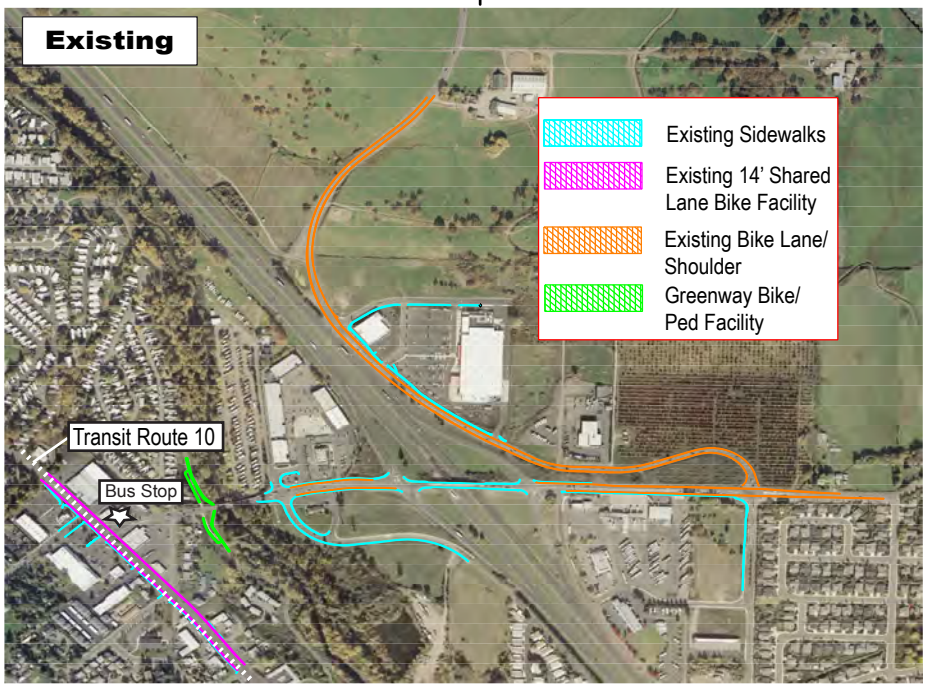
Discontinuous and narrow sidewalks in the project area currently create safety concerns for pedestrians. There are no sidewalks on OR 99 north of Fern Valley Road except intermittently on business frontages. Sidewalks are also discontinuous along Fern Valley Road, posing problems on the I-5 overcrossing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

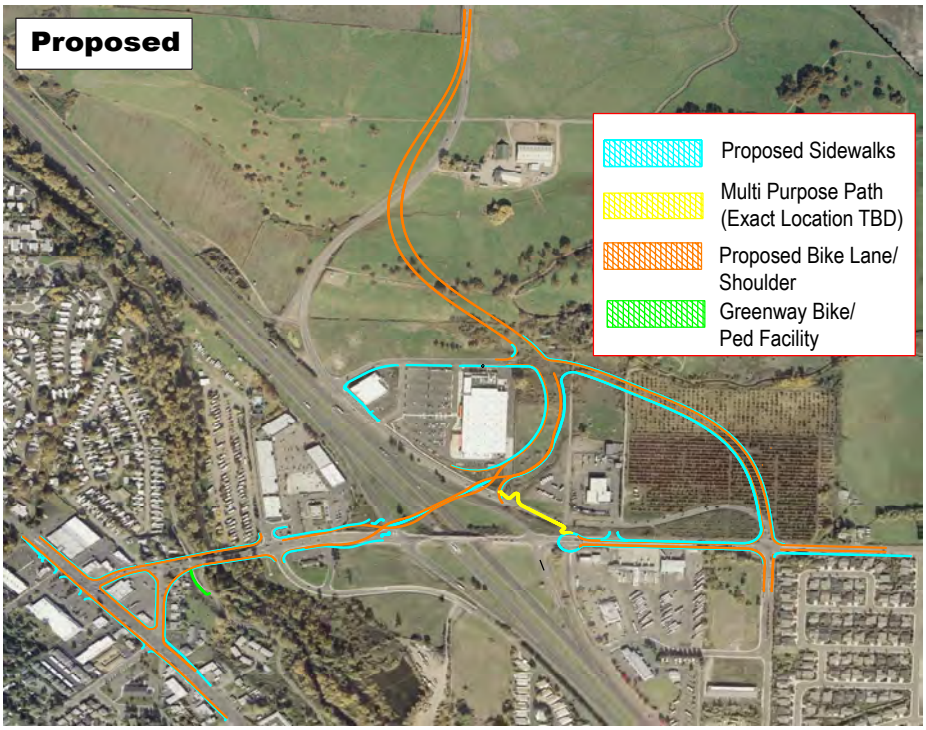
Fern Valley Interchange

Bicycle, Pedestrian, and Transit Facilities

Figure 3-3
January 2010

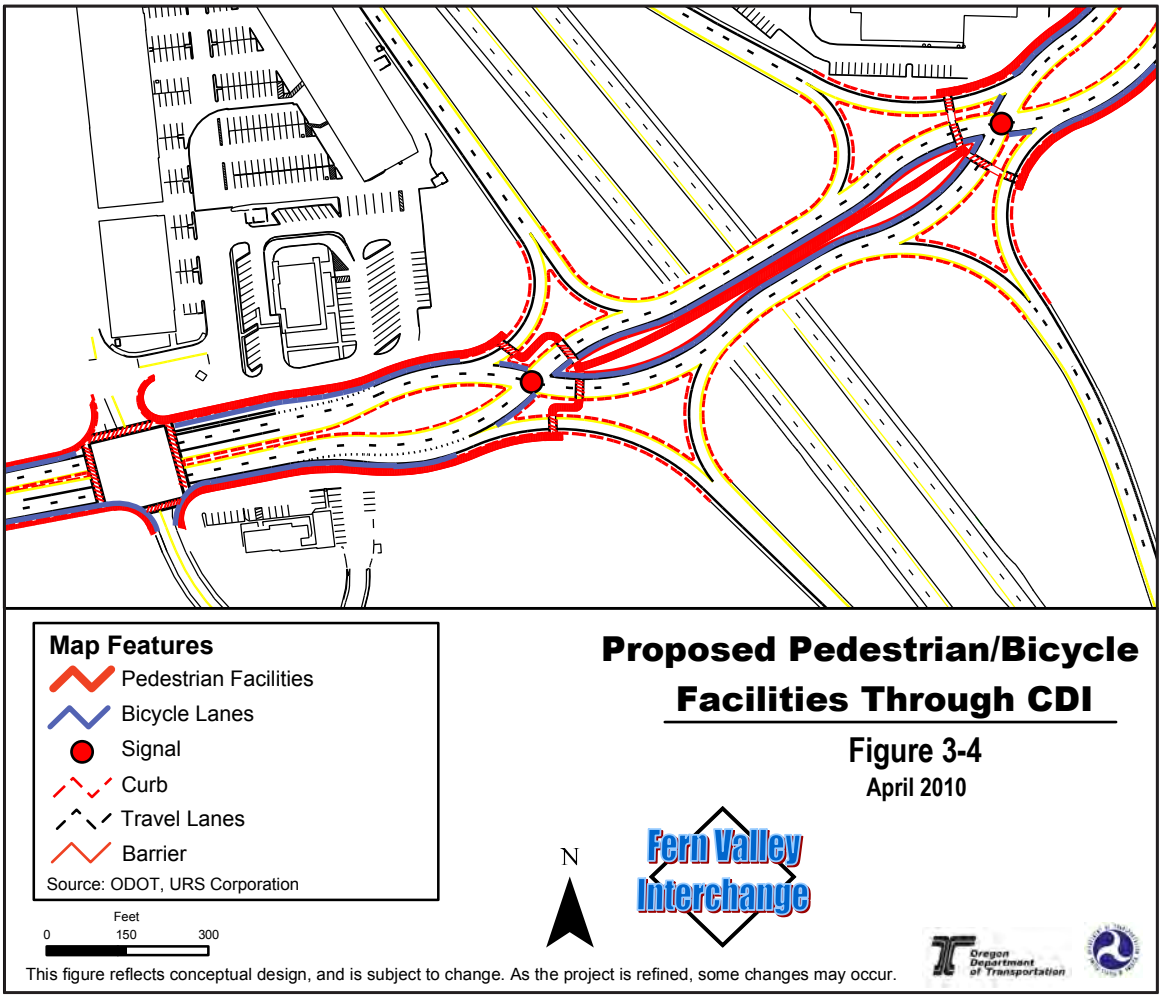
Oregon Department of Transportation





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.



Proposed Pedestrian/Bicycle Facilities Through CDI

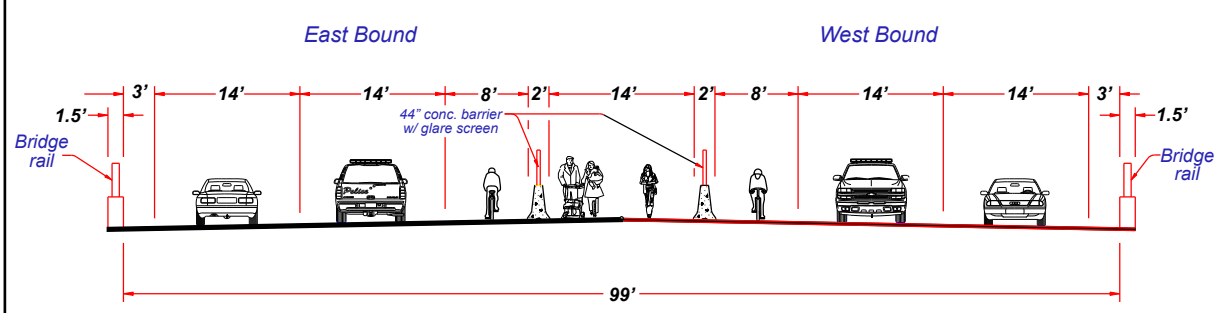
Figure 3-4
April 2010

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.

Figure 3-5
Crossing Diamond Interchange
Typical Cross-Section



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 than 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

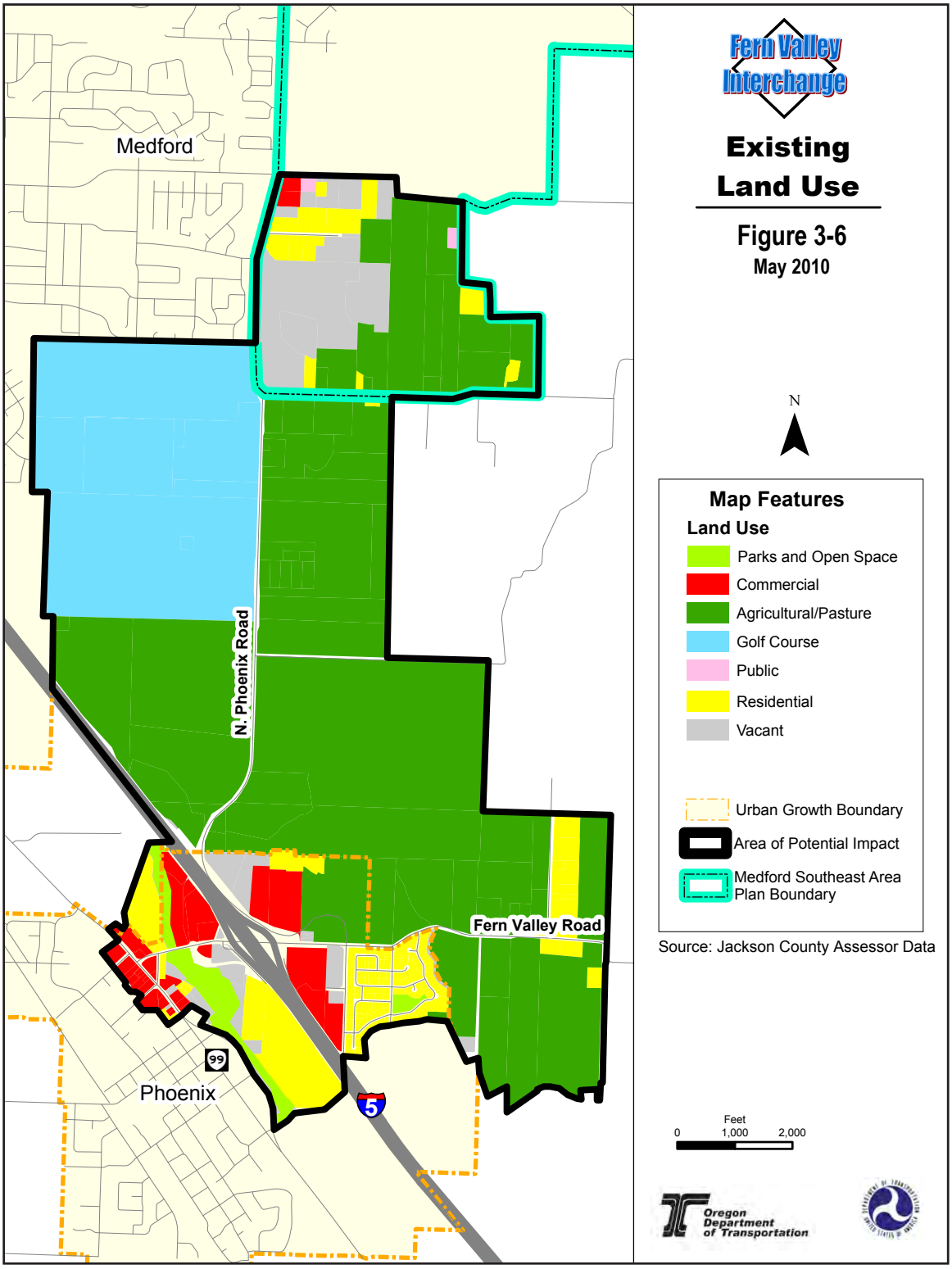
Existing Land Use

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.


Fern Valley Interchange
Existing Land Use
Figure 3-6
May 2010
N
Map Features
Land Use
Parks and Open Space
Commercial
Agricultural/Pasture
Golf Course
Public
Residential
Vacant
Urban Growth Boundary
Area of Potential Impact
Medford Southeast Area Plan Boundary
Source: Jackson County Assessor Data
Feet
0
1,000
2,000
Medford
N. Phoenix Road
Fern Valley Road
Phoenix
99
5
Oregon Department of Transportation

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.[9] 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[10] 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.[11] Other plan designations near the interchange include Bear Creek Greenway, Low and High Density Residential, and Farm Residential.

---

[9] 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)."

[10] ODOT's Region 3 website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml

[11] 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.

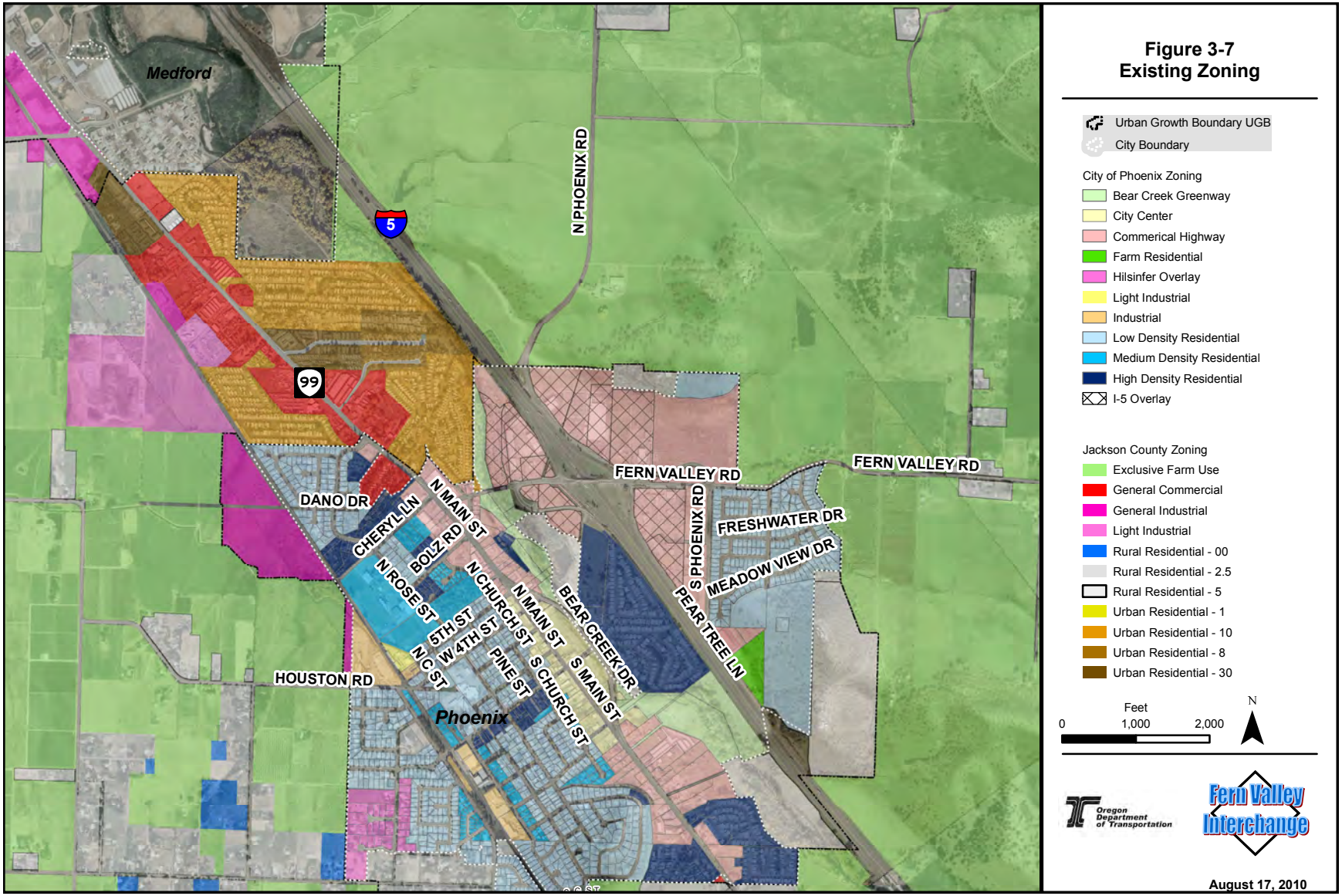
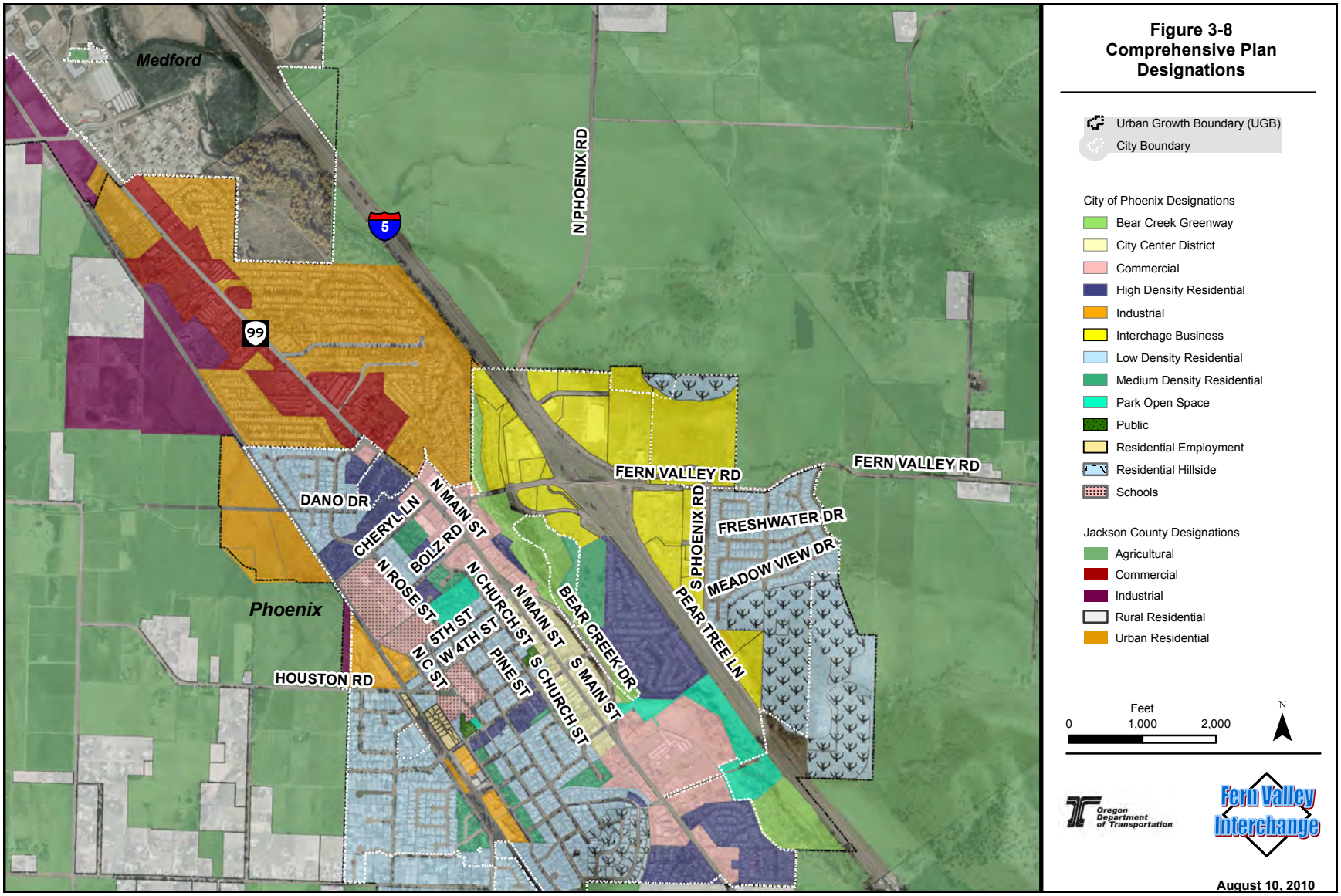


Figure 3-7
Existing Zoning
Urban Growth Boundary UGB
City Boundary
City of Phoenix Zoning
Bear Creek Greenway
City Center
Commerical Highway
Farm Residential
Hilsinfer Overlay
Light Industrial
Industrial
Low Density Residential
Medium Density Residential
High Density Residential
I-5 Overlay
Jackson County Zoning
Exclusive Farm Use
General Commercial
General Industrial
Light Industrial
Rural Residential - 00
Rural Residential - 2.5
Rural Residential - 5
Urban Residential - 1
Urban Residential - 10
Urban Residential - 8
Urban Residential - 30
Feet
0
1,000
2,000
N
Oregon Department of Transportation
Fern Valley Interchange
August 17, 2010
Medford
Phoenix
5
99
N PHOENIX RD
S PHOENIX RD
FERN VALLEY RD
FERN VALLEY RD
FRESHWATER DR
MEADOW VIEW DR
PEAR TREE LN
BEAR CREEK DR
S MAIN ST
S CHURCH ST
N MAIN ST
N CHURCH ST
PINE ST
W 4TH ST
5TH ST
N C ST
N ROSE ST
BOLZ RD
N MAIN ST
CHERYL LN
DANO DR
HOUSTON RD


Medford
Phoenix
5
99
N PHOENIX RD
FERN VALLEY RD
FERN VALLEY RD
DANO DR
CHERYL LN
N MAIN ST
BOLZ RD
N ROSE ST
5TH ST
W 4TH ST
N C ST
N CHURCH ST
PINE ST
N MAIN ST
S CHURCH ST
S MAIN ST
BEAR CREEK DR
S PHOENIX RD
PEAR TREE LN
FRESHWATER DR
MEADOW VIEW DR
HOUSTON RD
Figure 3-8
Comprehensive Plan
Designations
Urban Growth Boundary (UGB)
City Boundary
City of Phoenix Designations
Bear Creek Greenway
City Center District
Commercial
High Density Residential
Industrial
Interchage Business
Low Density Residential
Medium Density Residential
Park Open Space
Public
Residential Employment
Residential Hillside
Schools
Jackson County Designations
Agricultural
Commercial
Industrial
Rural Residential
Urban Residential
Feet
0
1,000
2,000
N
Oregon Department of Transportation
Fern Valley Interchange
August 10, 2010

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),[12] 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[13] 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.

Fern Valley Road/Luman Road intersection looking east

- 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

[12] The *Southeast Plan*, City of Medford, was initially adopted in 1998 and revised in December 2004.
[13] 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,[14] will be needed to avoid severe traffic congestion as development occurs in this area.

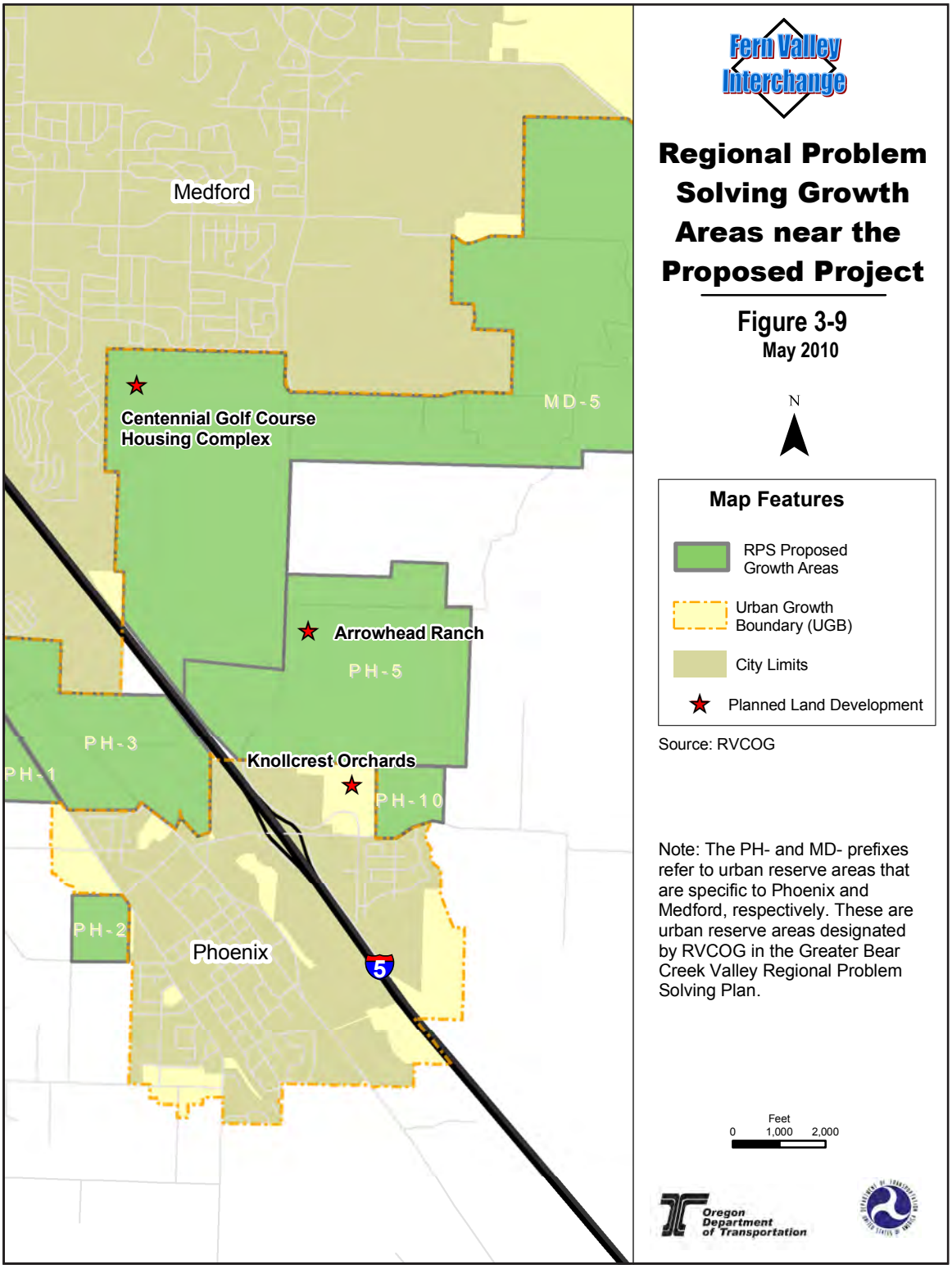
Regional Problem Solving and the Greater Bear Creek Valley Regional Plan

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.

[14] 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.


Medford
Centennial Golf Course
Housing Complex
MD-5
Arrowhead Ranch
PH-5
PH-3
PH-1
Knollcrest Orchards
PH-10
PH-2
Phoenix
5
Fern Valley Interchange
Regional Problem Solving Growth Areas near the Proposed Project
Figure 3-9
May 2010
N
Map Features
RPS Proposed Growth Areas
Urban Growth Boundary (UGB)
City Limits
Planned Land Development
Source: RVCOG
Note: The PH- and MD- prefixes refer to urban reserve areas that are specific to Phoenix and Medford, respectively. These are urban reserve areas designated by RVCOG in the Greater Bear Creek Valley Regional Problem Solving Plan.
Feet
0 1,000 2,000
Oregon Department of Transportation

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

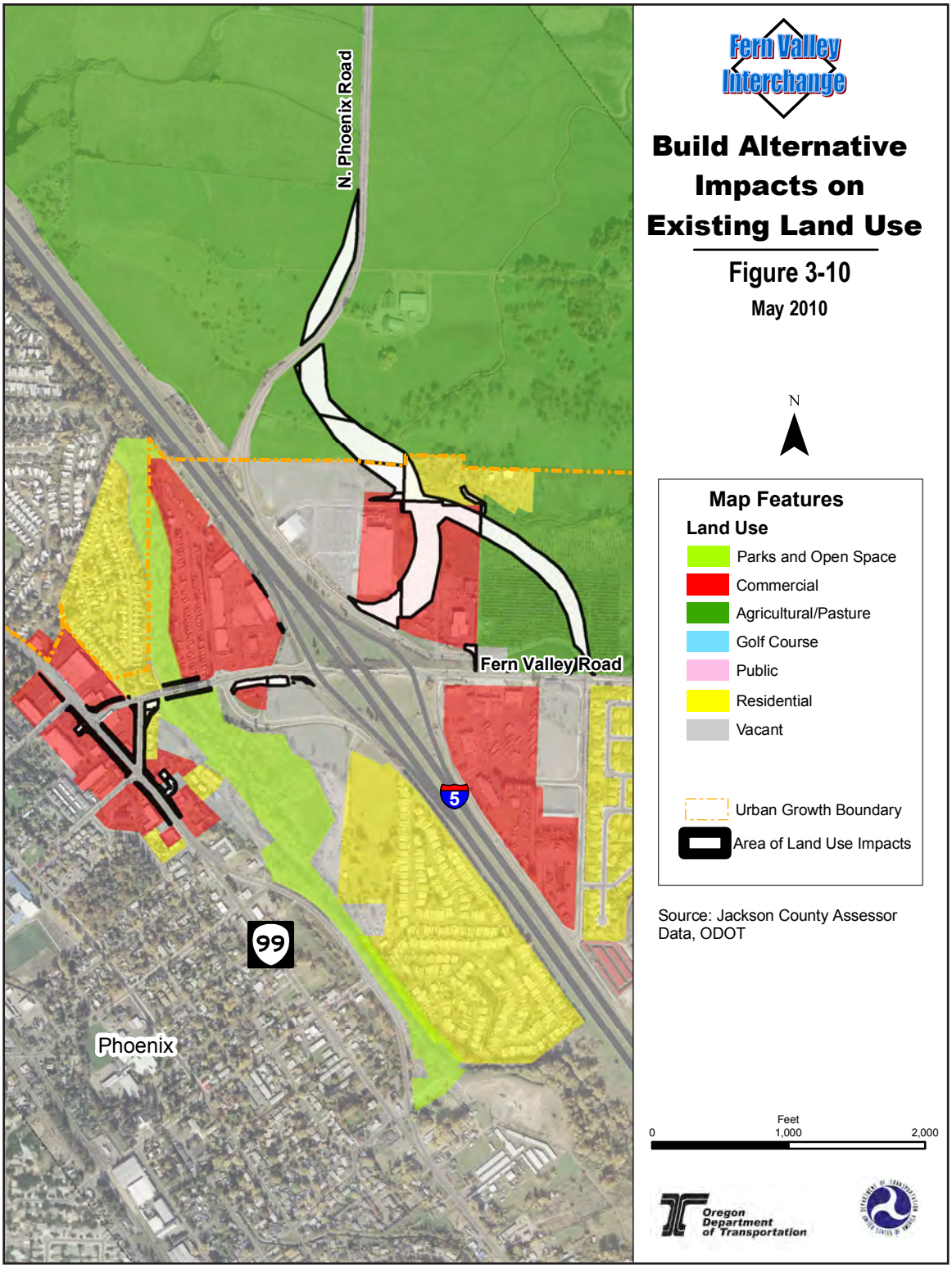
No-Build Alternative. The No-Build Alternative would not have direct land use impacts because land would not be taken out of its existing use for transportation use. There are some local improvement projects identified in local plans that contain elements of the Build Alternative, and that may be constructed 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.

TABLE 3-5: DIRECT LAND USE IMPACTS OF THE BUILD ALTERNATIVE
(City of Phoenix, Except Where Noted)

Category	Build Alternative (acres[1])
Existing Use	
Total area impacted (acres)	**22.1**
Residential	2.3
Commercial	8.1
Farmland[2] (partial Jackson County)	9.7
Vacant/Open space	2.0
Zoning	
Total area impacted (acres)	**22.1**
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
Comprehensive Plan Designation	
Total area impacted (acres)	**22.1**
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

[1] 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.
[2] 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.


N. Phoenix Road
Fern Valley Road
5
99
Phoenix
Fern Valley Interchange
Build Alternative Impacts on Existing Land Use
Figure 3-10
May 2010
N
Map Features
Land Use
Parks and Open Space
Commercial
Agricultural/Pasture
Golf Course
Public
Residential
Vacant
Urban Growth Boundary
Area of Land Use Impacts
Source: Jackson County Assessor Data, ODOT
Feet
0
1,000
2,000
Oregon Department of Transportation

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.[15]
- 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).[16]

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.[17] 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:

---

[15] 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.

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

[17] 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.

Northeast from N. Phoenix Rd to Arrowhead Ranch

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.

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).[18] 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

[18] Rogue Valley Council of Governments, Greater Bear Creek Valley Regional Plan, Draft, October 2008, 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.

TABLE 3-6: ALTERNATIVE COMPARISONS OF DISTANCES AND PROJECTED 2030 PEAK HOUR TRAVEL TIME[1] TO SOUTHEAST INTERCHANGE QUADRANT

Location	No-Build Alternative	Build Alternative
NB[2] I-5 TERMINAL – S. PHOENIX ROAD	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
SB[3] I-5 TERMINAL – S. PHOENIX ROAD	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
NB I-5 TERMINAL – PETRO	0.09 mile (500 feet) to Petro 0.34 mile (1,980 feet) from Petro[4]	0.75 mile (3,960 feet) to Petro 0.69 mile (3,620 feet) from Petro[4]
NB off-ramp terminal to Petro	0:30	1:25
Petro to NB on-ramp terminal	6:00	1:57
SB I-5 TERMINAL – PETRO	0.17 mile (900 feet) to Petro 0.51 mile (2,680 feet) from Petro[4]	0.51 mile (4,730 feet) to Petro 0.83 mile (4,390 feet) from Petro[4]
SB off-ramp terminal to Petro	1:24	1:40
Petro to SB on-ramp terminal	7:40	2:40
OR 99 -- S. PHOENIX ROAD	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

[1] 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.
[2] NB = northbound
[3] SB = southbound
[4] 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.

TABLE 3-7: ESTIMATED RIGHT OF WAY REQUIREMENTS	
Criteria	**Build Alternative**
Number of parcels impacted[1]	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
[1] 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.	

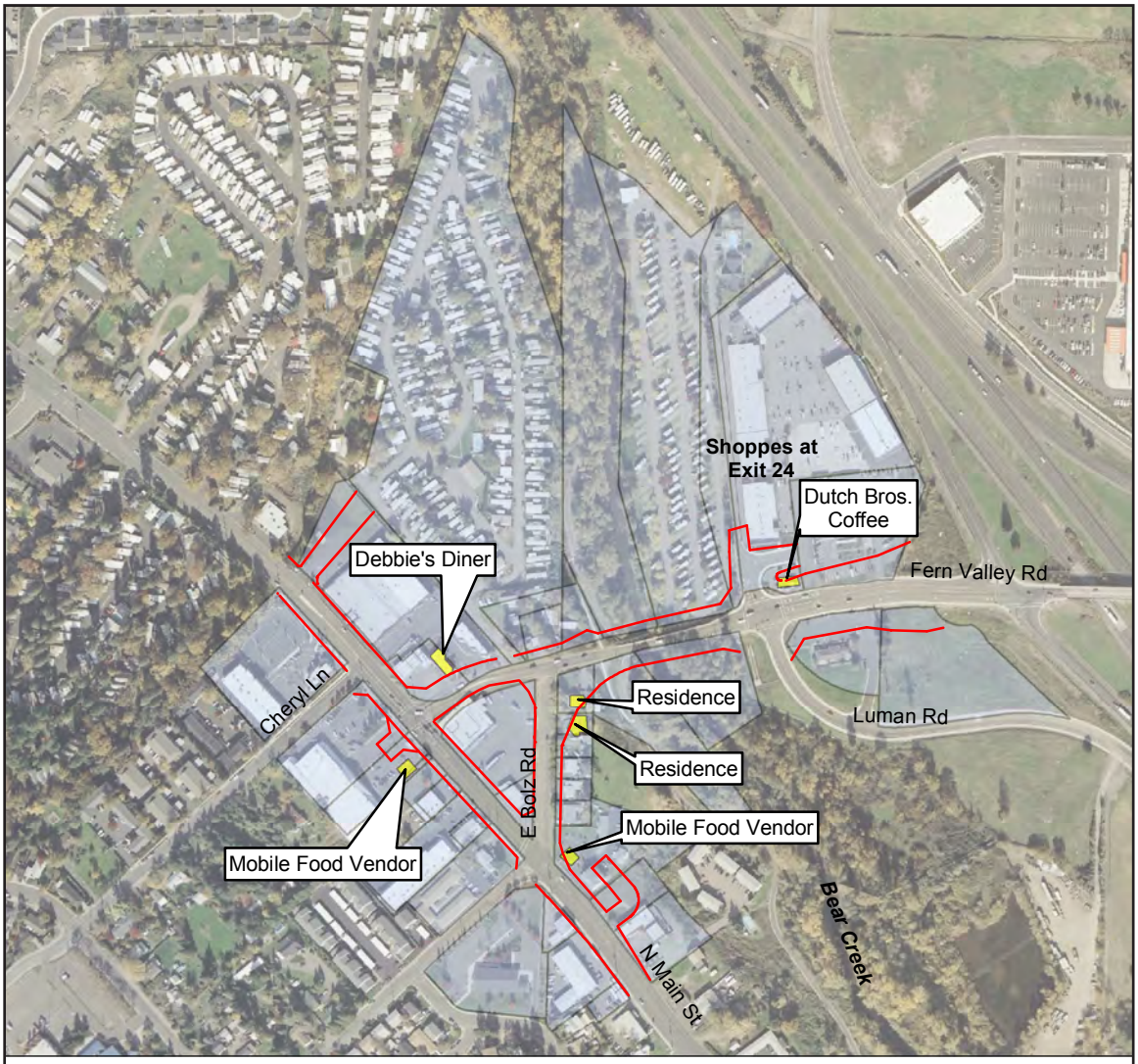
Figures 3-11 and 3-12 show the approximate right of way required for the Build Alternative. The Build Alternative would impact about 42 parcels of land, primarily affecting properties zoned and improved as commercial, residential, and farm use.

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

Source: ODOT
URS Corporation

N

Fern Valley Interchange

Build Alternative Right of Way Impacts: West of Interchange

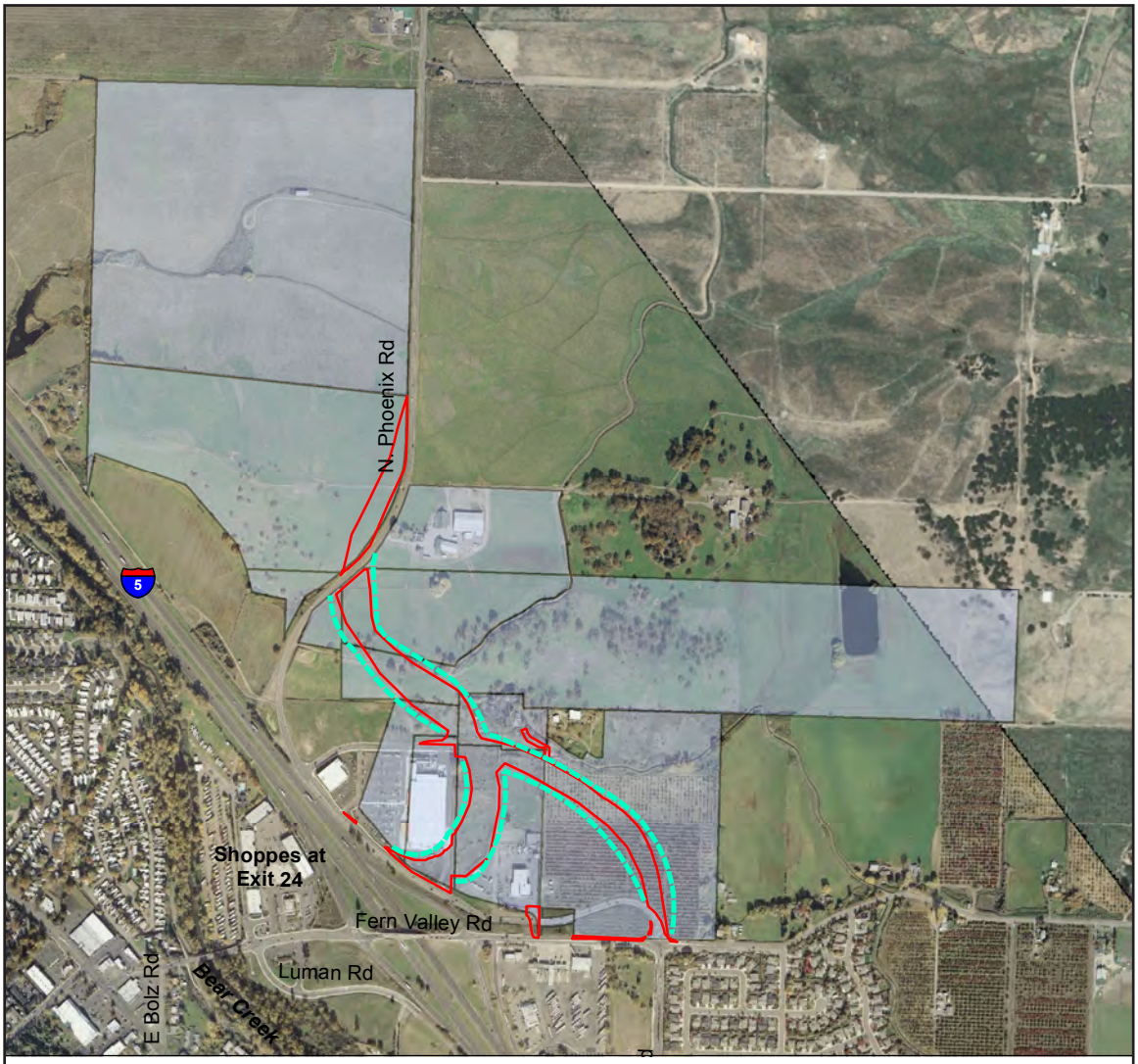
Figure 3-11

May 2010

Feet
0 200 400 600

Oregon Department of Transportation

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

N

Fern Valley Interchange

Feet
0 200 400 600

Oregon Department of Transportation

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)[19]
  - 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

[19] 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[20] 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

[20] 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).[21] 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.[22]

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

[21] This brochure is also available in Spanish.
[22] 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.

TABLE 3-8: POPULATION, HOUSING, AND EMPLOYMENT

Measure (Year)	State of Oregon	Jackson County	City of Medford	City of Phoenix
Population				
Total (2008)	3,791,075	205,305	76,850	4,855
Growth rate[1] (2000-2008)	1.2%	1.5%	2.4%	2.2%
Projected (2040)	5,425,408	297,496	N/A[3]	N/A
Growth rate (2010-2040)	1.2%	1.2%	N/A	N/A
Housing				
No. of housing units (2009)	1,636,460	88,143	30,495	2,006
Value of owner-occupied units[2] (2009)	$240,278	$247,147	$241,691	$172,852
Percent vacant housing (2009)	8.6%	7.0%	5.8%	7.1%
Employment				
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

[1] Annual Average Rate of Growth
[2] Median value of specified owner-occupied units
[3] 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[5]
Percent of population that is minority (2000)[1]	17	11	13	16
Percent of population that is minority (2006-2008)[2]	20	14	N/A[6]	N/A
Percent of residents speaking a language other than English	14[3]	9[3]	10[4]	N/A
Percent of population living below poverty level	14[3]	13[3]	12[4]	10[4]
Percent of population age 65 and over	13	16	21[1]	N/A
Percent of population classified as disabled	19	20	22[1]	N/A

[1] For the year 2000.
[2] Three-year estimates for the period 2006-2008.
[3] For the time period from 2005 to 2007.
[4] 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.
[5] 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.
[6] 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,[23] 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.

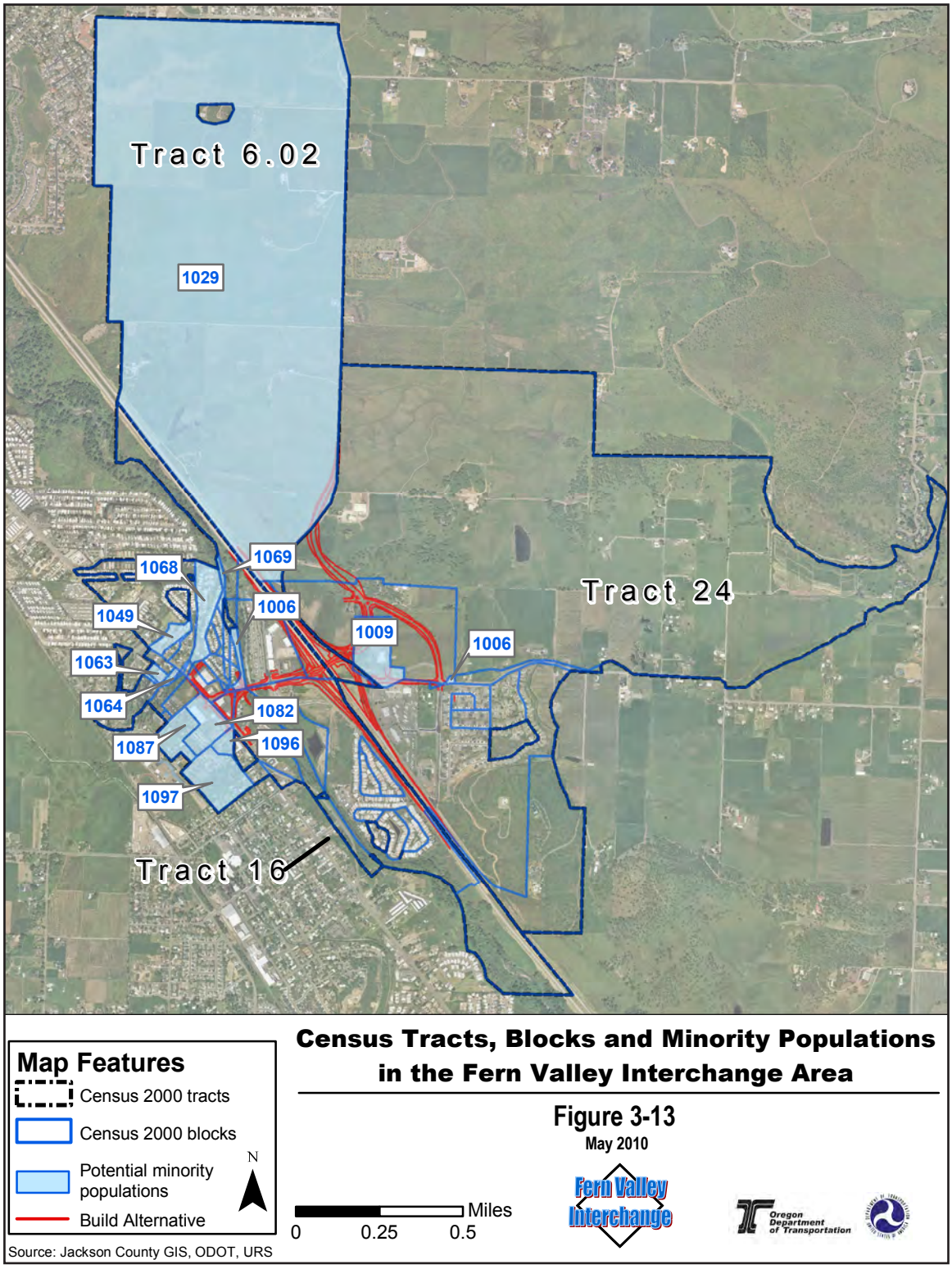
Although direct comparison is not possible because recent poverty statistics are not available for the City of Phoenix, it appears that the percentage of population living below poverty level in the City of Phoenix was lower in comparison with Jackson County and the State or Oregon.

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

[23] 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.



Census Tracts, Blocks and Minority Populations in the Fern Valley Interchange Area

Figure 3-13
May 2010

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[24] or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

[24] 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

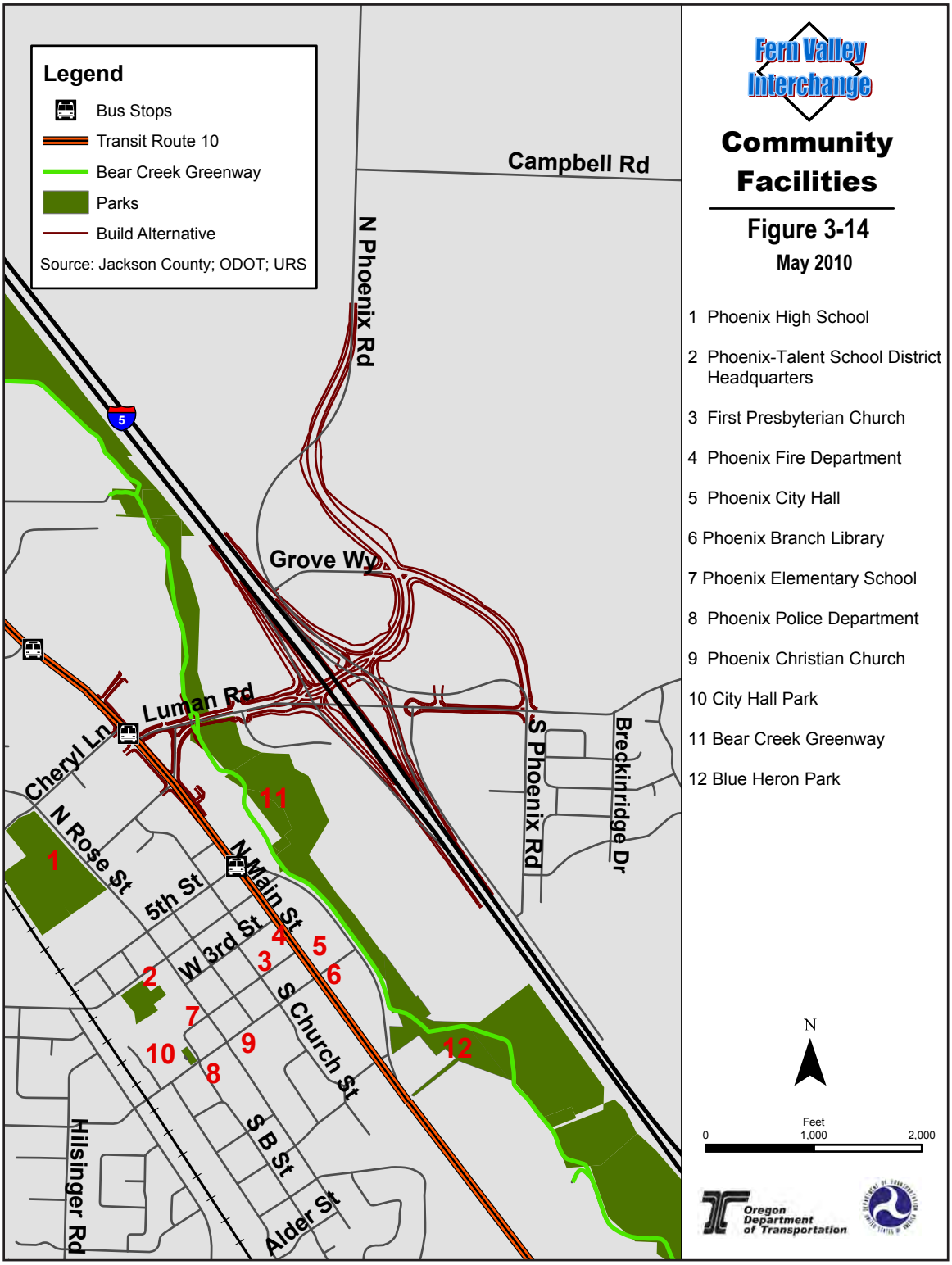
Construction would result in temporary detours and nuisances to businesses and residences located near construction areas, which could include protected populations, but these would not be disproportionately high adverse impacts. These impacts include: noise and dust from construction equipment and machinery, 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. 2nd 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. 1st Street, about 0.9 mile south of the project. The Jackson County Sheriff's Office is headquartered on W. 8th Street in Medford, about five miles northwest of the project.


Legend
Bus Stops
Transit Route 10
Bear Creek Greenway
Parks
Build Alternative
Source: Jackson County; ODOT; URS
Campbell Rd
N Phoenix Rd
Grove Wy
Luman Rd
Cheryl Ln
N Rose St
5th St
W 3rd St
N Main St
S Church St
S B St
Alder St
Hilsinger Rd
S Phoenix Rd
Breckinridge Dr
5
1
2
3
4
5
6
7
8
9
10
11
12
Fern Valley Interchange
Community Facilities
Figure 3-14
May 2010
1 Phoenix High School
2 Phoenix-Talent School District Headquarters
3 First Presbyterian Church
4 Phoenix Fire Department
5 Phoenix City Hall
6 Phoenix Branch Library
7 Phoenix Elementary School
8 Phoenix Police Department
9 Phoenix Christian Church
10 City Hall Park
11 Bear Creek Greenway
12 Blue Heron Park
N
Feet
0
1,000
2,000
Oregon Department of Transportation

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. RVTD 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 RVTD 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.

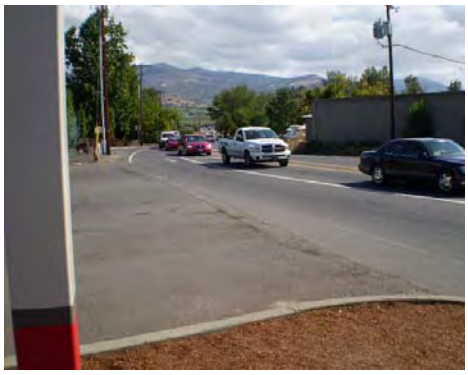
There would be no change to the existing intermittent pedestrian and bicycle facilities in the project area, with the exception of possible future small projects to add improvements. Safety would not be improved because adequate, standard bike lanes and sidewalks would not be provided.

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[25] 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).

[25] 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),[26] 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.

---

[26] 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.[27] 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.

---

[27] 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[28] 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*[29] (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.[30]

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."[31] 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.

---

[28] ODOT's Region 3 website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml
[29] As updated in March 2003.
[30] ODOT projects must be compatible with local plans. See ORS 197.180 and OAR 660-012-0015(1)(b), part of the TPR.
[31] 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)[1]
	OR 99 north of couplet	District Highway (in OHP)[1] Arterial (in RTP)[2]
	Fern Valley Road west side of interchange to N. Phoenix Rd.	District Highway (in OHP)[1]
	N. Phoenix Road to 0.66 mi. north of Fern Valley Road	District Highway (in OHP)[1] Collector (within UGB in City of Phoenix Transportation System Plan)[4]
Jackson County	Fern Valley Road ° From OR 99 to east side of Bear Creek Br. ° Outside the UGB	 Arterial[3] Minor Collector[3]
	N. Phoenix Road outside the UGB	Arterial[3]
City of Phoenix	OR 99/Bear Creek Drive couplet	Arterial[4]
	Fern Valley Road ° From east side of Bear Creek Bridge to west side of interchange ° From N. Phoenix Rd to UGB	 Arterial[4] Collector[4]
	E. Bolz Road	Arterial[4]

[1] 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.

[2] The *Regional Transportation Plan* does not contain a definition of arterials or a description of their function or management.

[3] 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.

[4] 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.

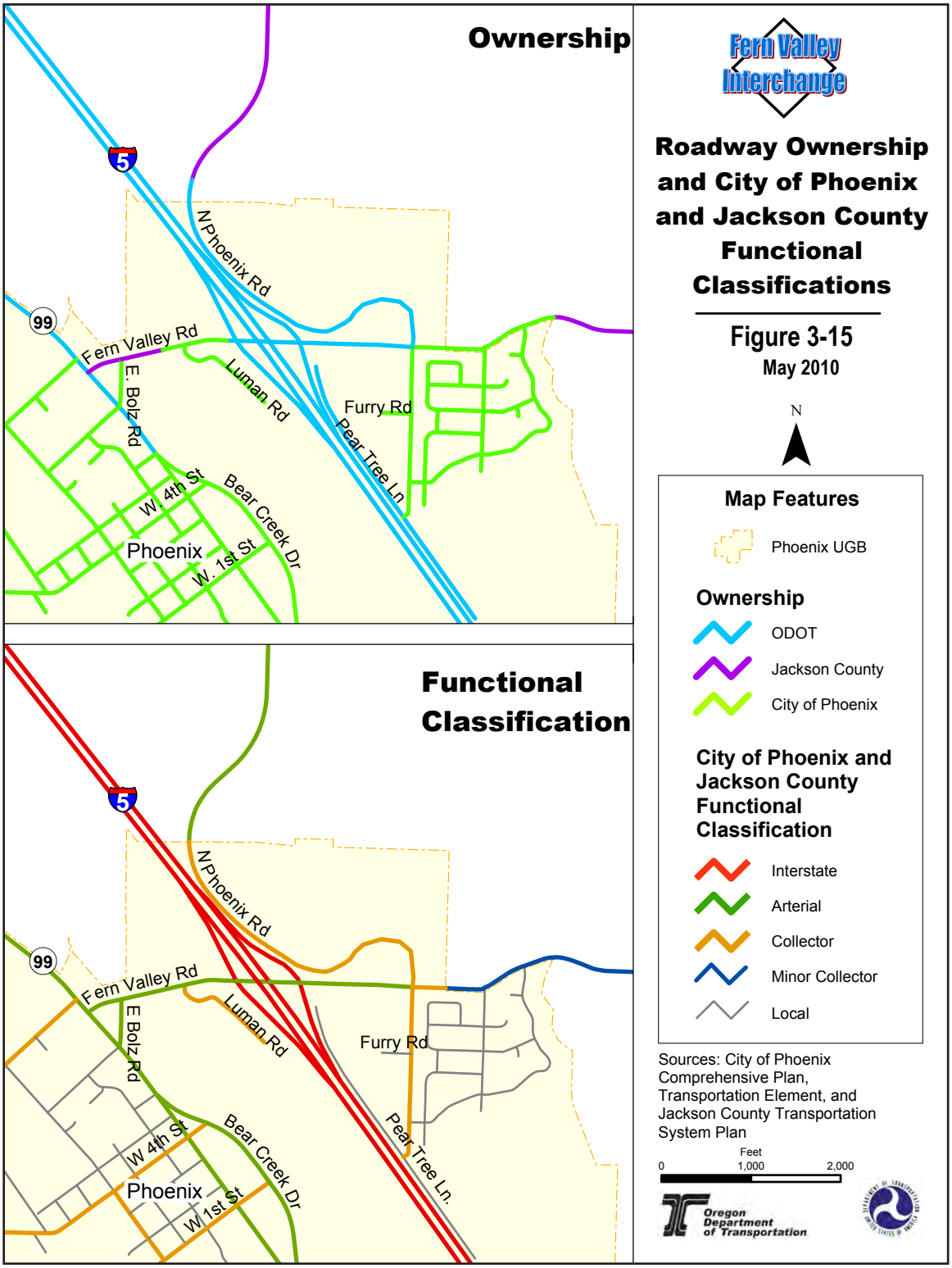

Ownership
Functional Classification
Fern Valley Interchange
Roadway Ownership and City of Phoenix and Jackson County Functional Classifications
Figure 3-15
May 2010
N
Map Features
Phoenix UGB
Ownership
ODOT
Jackson County
City of Phoenix
City of Phoenix and Jackson County Functional Classification
Interstate
Arterial
Collector
Minor Collector
Local
Sources: City of Phoenix Comprehensive Plan, Transportation Element, and Jackson County Transportation System Plan
Feet
0
1,000
2,000
Oregon Department of Transportation
5
99
N Phoenix Rd
Fern Valley Rd
E. Bolz Rd
Luman Rd
Furry Rd
Pear Tree Ln
W. 4th St.
Bear Creek Dr
Phoenix
W. 1st St.

TABLE 3-11: CITY OF PHOENIX TRANSPORTATION SYSTEM PLAN PROJECTS RELATED TO THE FERN VALLEY INTERCHANGE PROJECT		
Jurisdiction/ Priority	**Project**	**Description**
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."[32] 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

[32] 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.[33]

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.[34]

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.

[33] Ibid., p. 36.
[34] 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."[35] 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

[35] 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.[36] 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.[37]

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.

[36] The TPR is implemented through OAR 660, Division 12.
[37] Rogue Valley Metropolitan Planning Organization, 2009-2034 Regional Transportation Plan, Chapter 5.6, p. 2.

Legend

UGB

Build Alternative

Source: ODOT, URS Corporation

Fern Valley Interchange

N

Build Alternative Impacts to Exclusive Farm Use Zones

Figure 3-16

May 2010

Feet
0 200 400

Oregon Department of Transportation

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, RVTD, and local jurisdictions could identify potential future locations for bus pullouts along these routes. At this time, RVTD 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.[38] 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.[39]

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[40] 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[41] 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[42] 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.

[38] Oregon Administrative Rules Chapter 731, Division 15.
[39] See OAR 731-015-0075(3) and (6). This does not include land use permits, per OAR 731-015-0075(8).
[40] ODOT Transportation Planning Unit's website: http://www.oregon.gov/ODOT/TD/TP/ortransplanupdate.shtml
[41] ODOT Transportation Planning Unit's website: http://www.oregon.gov/ODOT/TD/TP/orhwyplan.shtml
[42] 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[43] 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

[43] 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."[44]

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

[44] 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

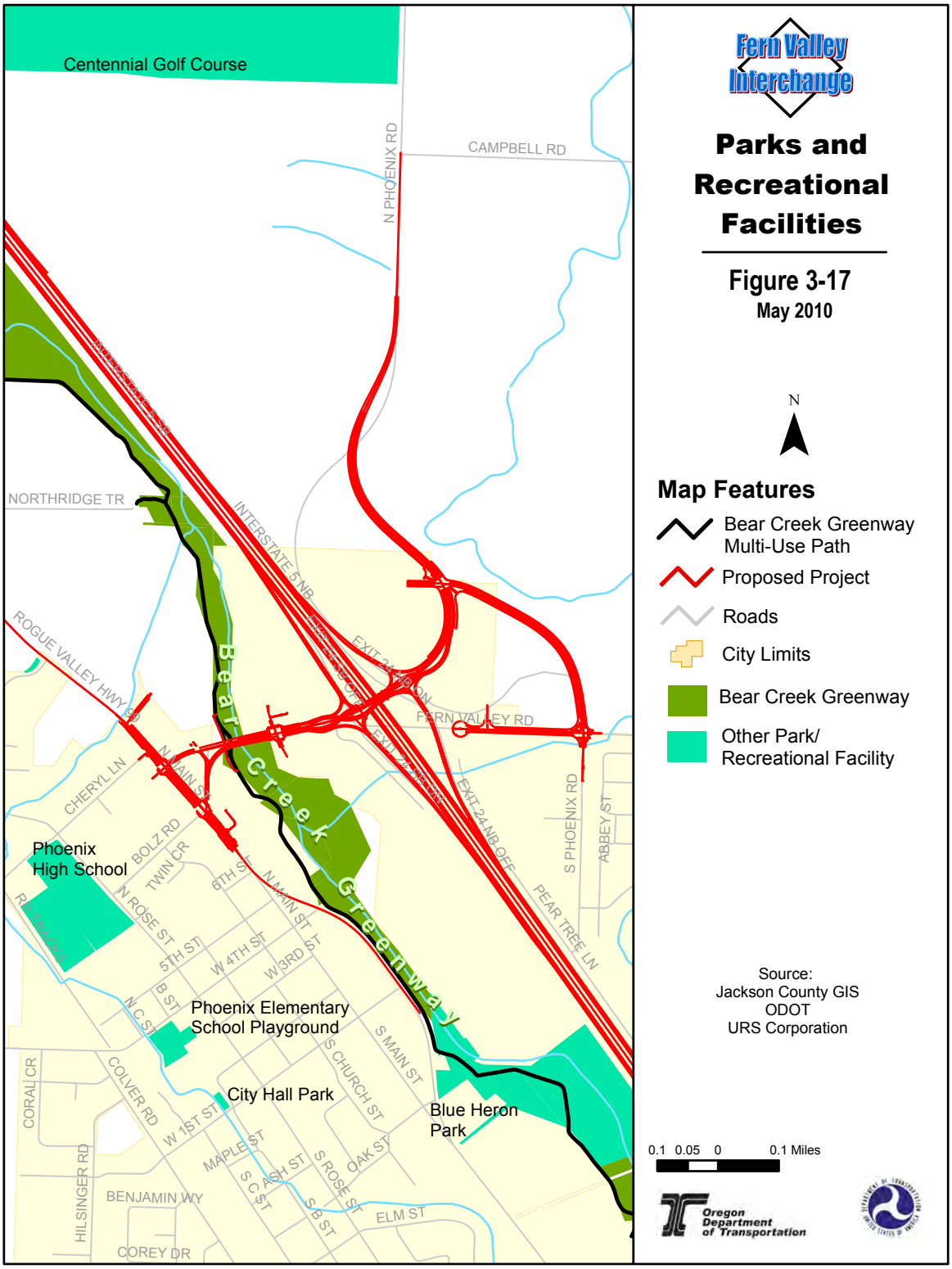
Parks and recreational facilities in the project vicinity are shown in Figure 3-17. These parks and recreational facilities include Blue Heron Park, located along Bear Creek south of the proposed project; City Hall Park, located in downtown Phoenix, the Phoenix Elementary School playground, also located 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.

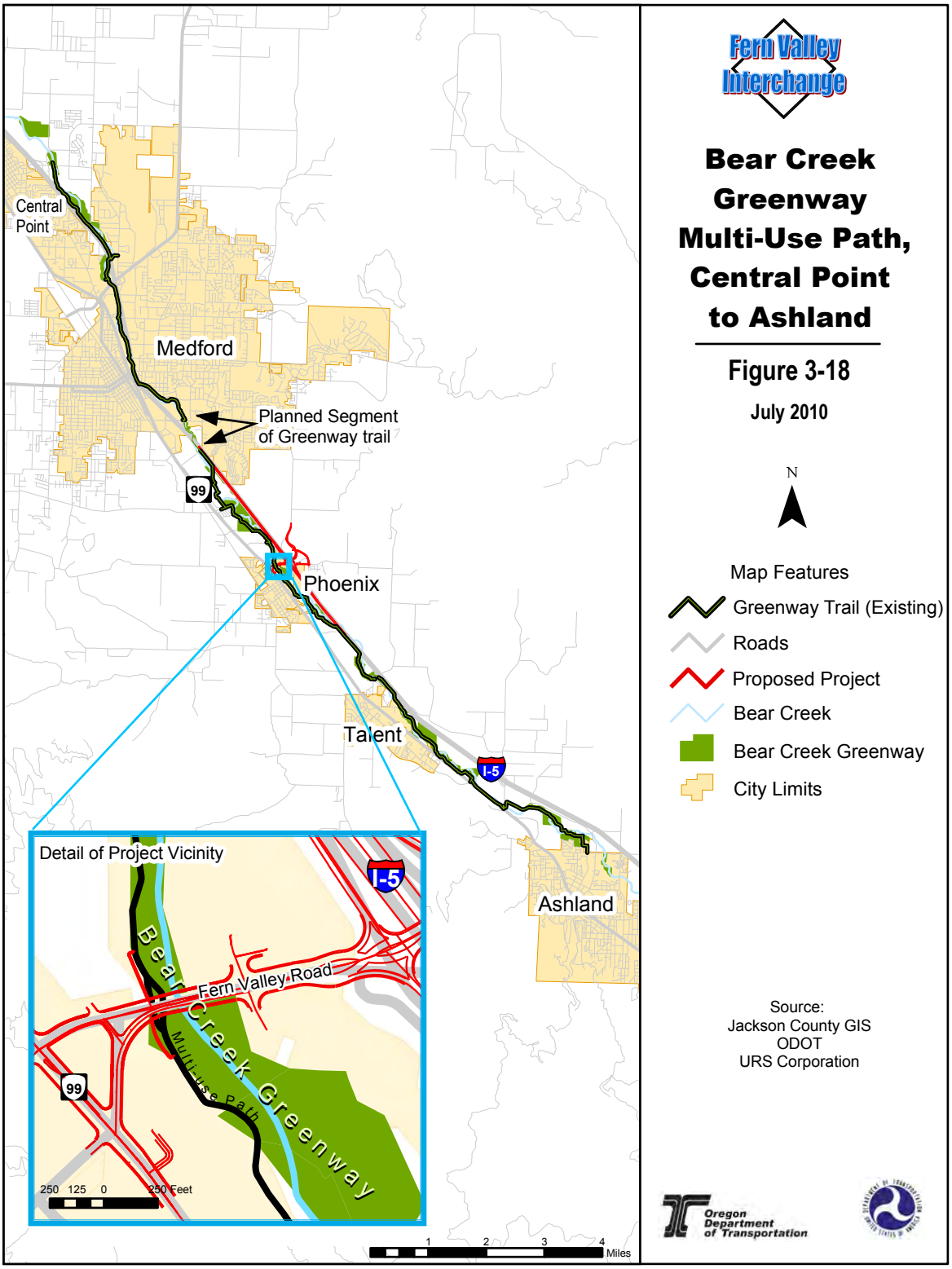
The Bear Creek Greenway is the only park located within the immediate project area. It is a linear park with a multi-use path approximately 17.3 miles long, extending from Ashland nearly to Central Point (see Figure 3-18). The Greenway is managed collaboratively by Jackson County, the five local governments 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.

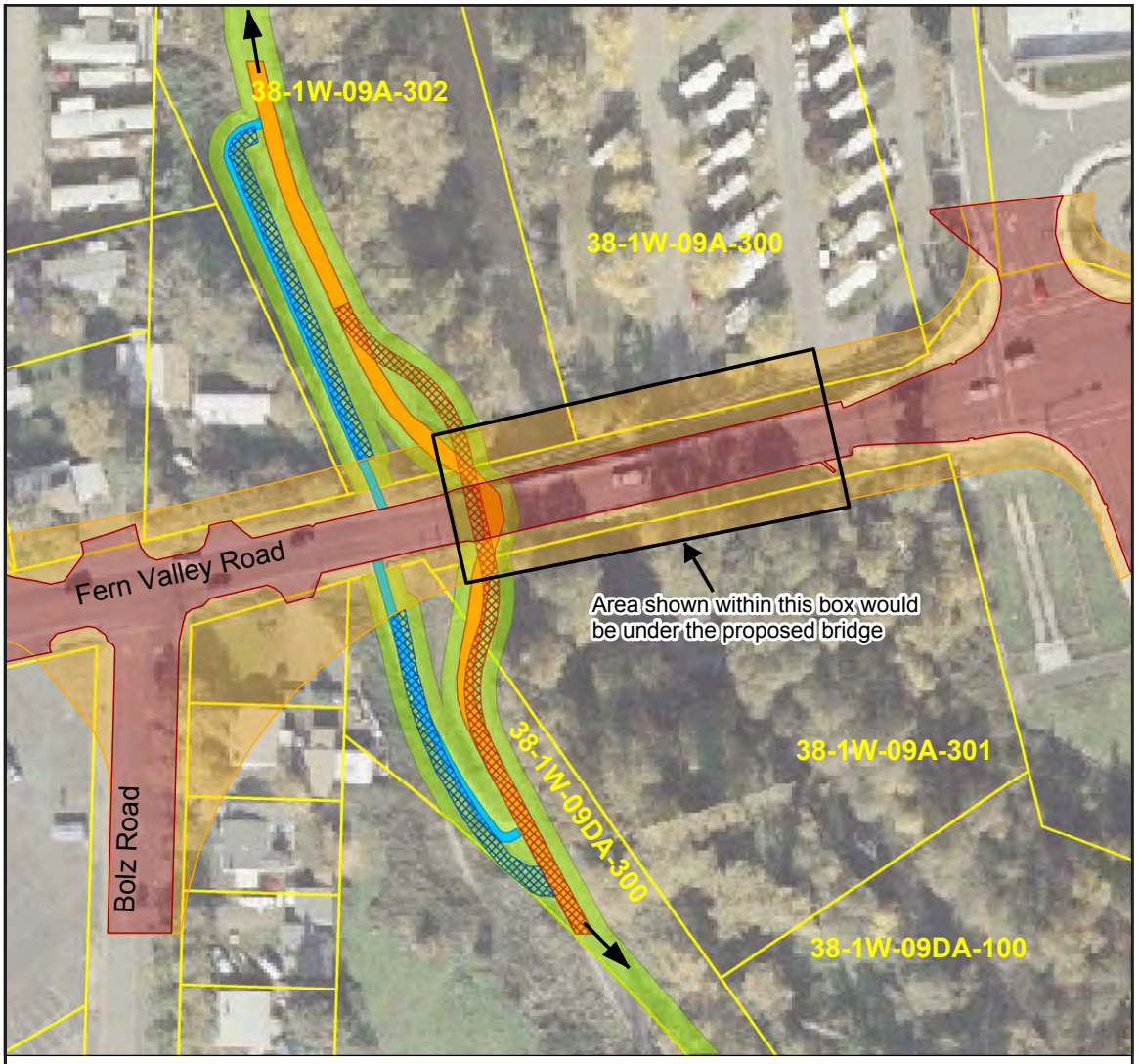
Within the project area, the multi-use path is approximately 12 feet wide. It is located on the west side of Bear Creek and crosses under Fern Valley Road at the Bear Creek Bridge (Ferns Bridge No. 10). Where the path crosses under the bridge, it narrows and makes a sharp turn around the bridge support, 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.


Fern Valley Interchange
Parks and Recreational Facilities
Figure 3-17
May 2010
N
Map Features
Bear Creek Greenway Multi-Use Path
Proposed Project
Roads
City Limits
Bear Creek Greenway
Other Park/ Recreational Facility
Source:
Jackson County GIS
ODOT
URS Corporation
0.1 0.05 0 0.1 Miles
Oregon Department of Transportation
Centennial Golf Course
CAMPBELL RD
N PHOENIX RD
NORTHRIDGE TR
INTERSTATE 5 NB
INTERSTATE 5 SB
EXIT 24 NB ON
EXIT 24 NB OFF
EXIT 24 SB ON
EXIT 24 SB OFF
FERN VALLEY RD
ROGUE VALLEY HWY 99
CHERYL LN
N MAIN ST
BOLZ RD
TWIN CR
Phoenix High School
N ROSE ST
6TH ST
5TH ST
W 4TH ST
W 3RD ST
B ST
N C ST
Phoenix Elementary School Playground
Bear Creek Greenway
S PHOENIX RD
ABBEY ST
PEAR TREE LN
S MAIN ST
S CHURCH ST
City Hall Park
Blue Heron Park
CORAL CR
COLVER RD
W 1ST ST
MAPLE ST
S ASH ST
S ROSE ST
OAK ST
S C ST
S B ST
ELM ST
HILSINGER RD
BENJAMIN WY
COREY DR


Central Point
Medford
Planned Segment of Greenway trail
99
Phoenix
Talent
I-5
Ashland
Detail of Project Vicinity
I-5
Bear Creek Greenway
Fern Valley Road
Multi-Use Path
99
250 125 0 250 Feet
1 2 3 4 Miles
Fern Valley Interchange
Bear Creek Greenway Multi-Use Path, Central Point to Ashland
Figure 3-18
July 2010
N
Map Features
Greenway Trail (Existing)
Roads
Proposed Project
Bear Creek
Bear Creek Greenway
City Limits
Source:
Jackson County GIS
ODOT
URS Corporation
Oregon Department of Transportation



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

Feet 0 100 200

N

Fern Valley Interchange

Oregon Department of Transportation

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.

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

- Vegetation removal will be minimized as much as feasible. Re-vegetation will be accomplished as soon as feasible after construction.

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

Coleman (Arrowhead) Ranch residence

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).

Medford Canal

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,[45] 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.

[45] "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

Feet
0 200 400

N

Fern Valley Interchange

Locations of Historic Resources

Figure 3-20

July 2010

Oregon Department of Transportation

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.[46] 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.

---

[46] 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)[47] 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)[48] 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.

[47] The estimates regarding distance may change as the design is further refined.
[48] 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).

Looking south on the Bear Creek Greenway path

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.

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

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.

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 460l-4 through 460l-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.

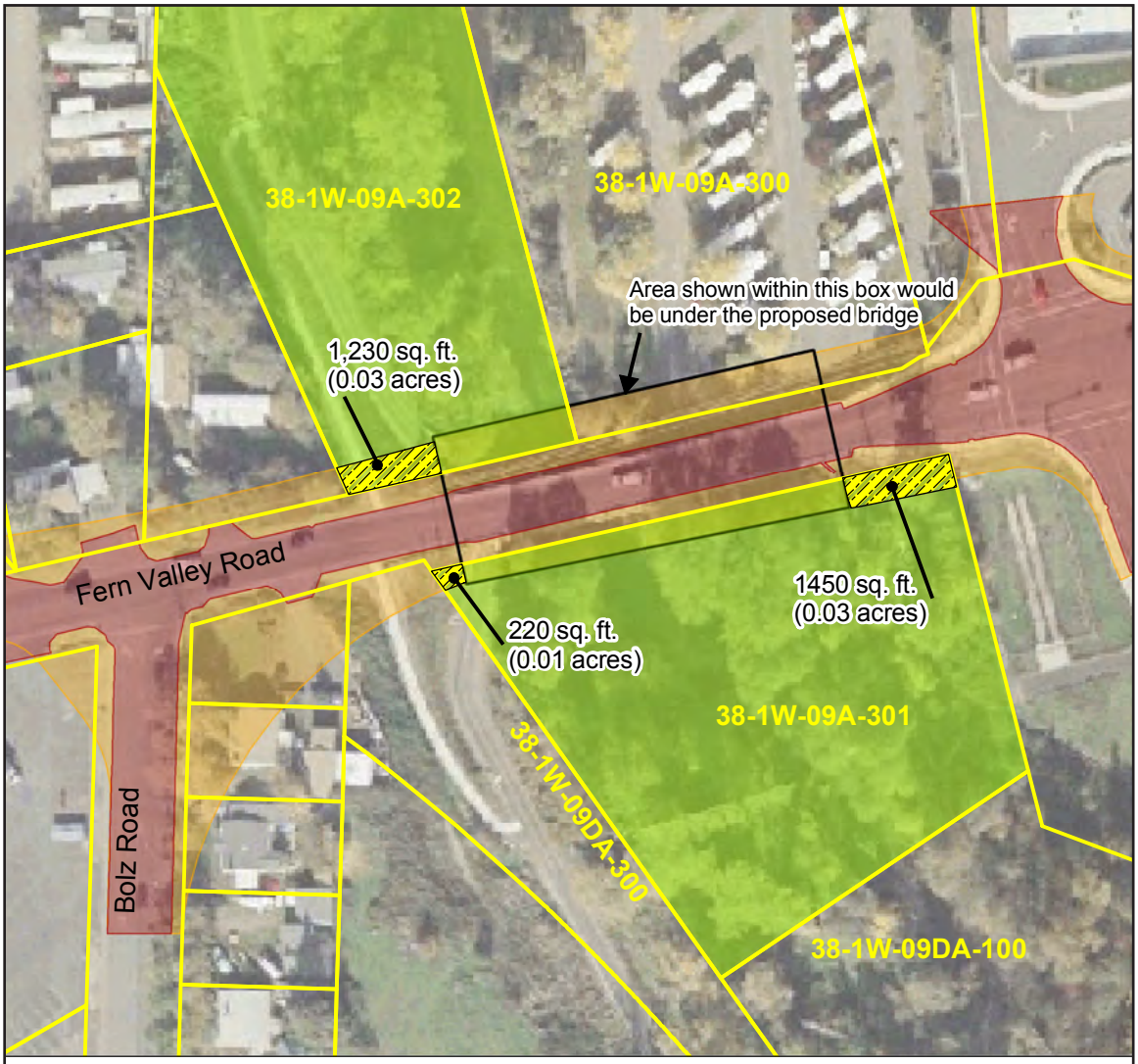
If the Build Alternative is selected, ODOT would coordinate with Jackson County, Oregon Parks and Recreation Department (OPRD) and NPS to ensure Section 6(f) conversion requirements are met.

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

Feet 0 100 200

N

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

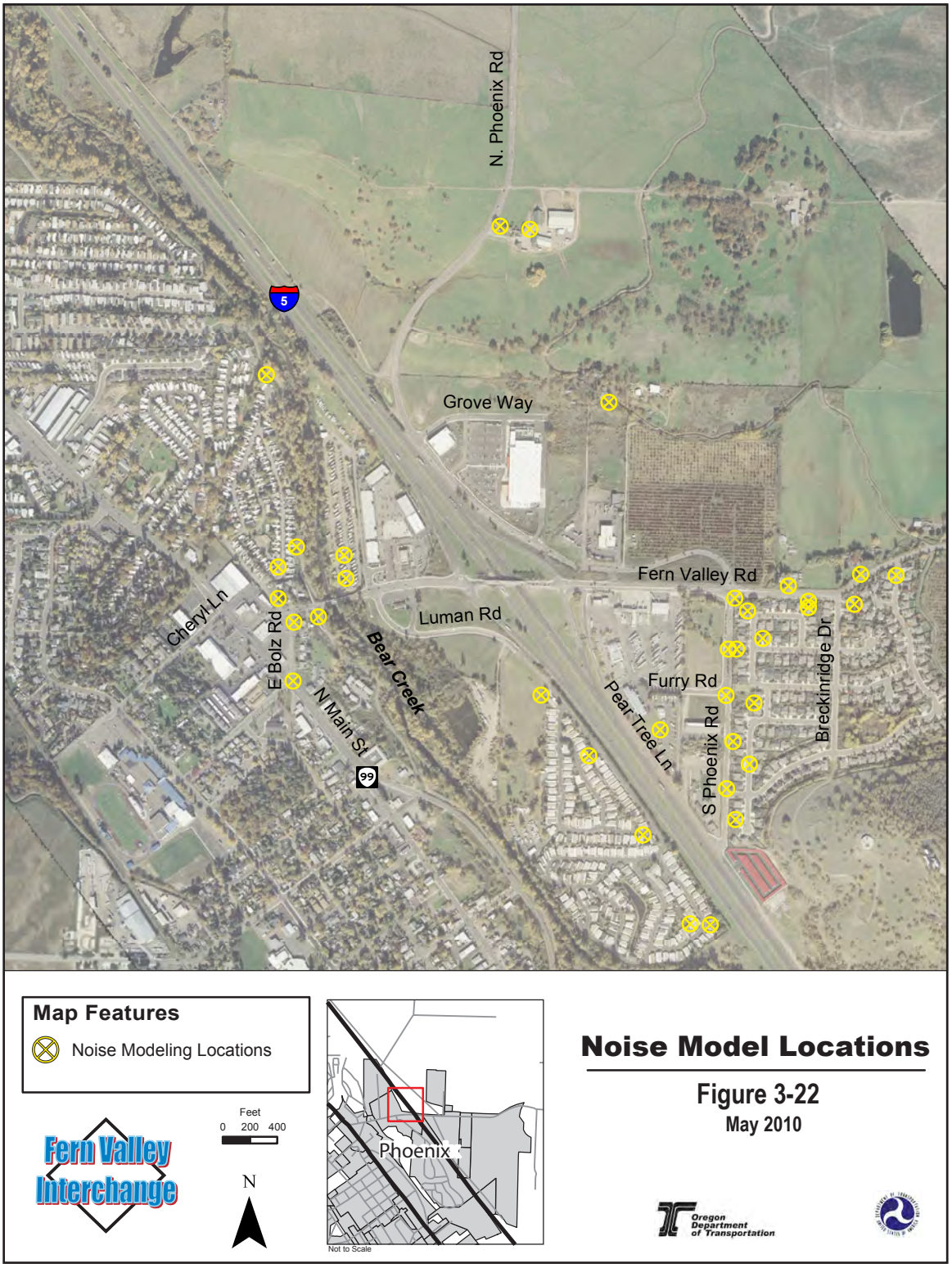
Noise levels and impacts associated with this proposed project were determined by the use of Traffic Noise Model (TNM version 2.5). Existing noise levels and other data (e.g., topography that affects how noise is transmitted) were used to ensure the accuracy of the model. Existing noise levels were measured 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}).[49] 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[50] or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

[49] dBA-L_{eq} = decibels on the A-scale in hourly equivalent sound pressure levels.
[50] ODOT's Region 3 website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml



Noise Model Locations

Figure 3-22

May 2010

Fern Valley Interchange

Figure 3-23

Noise Levels of Common Indoor and Outdoor Activities

Oregon Department of Transportation

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Fly-over at 300m (1000 ft)		
	100	
Gas Lawn Mower at 1 m (3 ft)		
	90	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)		Food Blender at 1 m (3 ft)
	80	Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime		
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		
	30	Library
Quiet Rural Nighttime		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[51]—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.

[51] 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	**69**	**70**	**73**
Commercial properties along OR 99	70	69	**70**	**73**
Bear Lake Estates (fronting I-5)	65	**66 to 72**	**68 to 74**	**68 to 74**
Two residences along E. Bolz Road	65	61	63	**65**
Pear Tree RV Resort outdoor use area	65	64	**65**	**65**
*** 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

N

0 250 500 Feet

***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

Fern Valley Interchange

Oregon Department of Transportation

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_3), sulphur dioxide (SO_2), nitrogen dioxide (NO2), lead (Pb), and particulate matter less than 10 and 2.5 microns (PM_{10} and) in size.[52] 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_{10} and is now designated as a maintenance area. The Medford region had, in the past, exceeded both the CO and PM_{10} ambient air quality standards. The project is located within the Rogue Valley (PM_{10}) 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.

[52] 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.[53]

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_{10} concentrations since the mid 1980s. Levels of fine particulate ($PM_{2.5}$) have shown less improvement since monitoring began in 1999, but remain slightly below the 24-hour and annual standards.[54]

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_{10} and $PM_{2.5}$. The nearest PM_{10} monitor to the project area is located at Jackson Street/Welch Drive, almost five miles to the northwest. $PM_{2.5}$ 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_{10} and $PM_{2.5}$ 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_{10}.

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_{10} AQMA and is included as project number 902 (key # 12723) in

[53] 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.
[54] 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_{10} 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_{10} 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_{10} SIP. The project is located in the Medford-Ashland PM_{10} 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.[55] 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

[55] 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,[56] 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.

[56] 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[57] 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_{10} 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.

[57] 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.

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

Fern Valley Interchange

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

Figure 3-25

July 2010

Oregon Department of Transportation

Existing view looking southeast from north of Peterbilt

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

Fern Valley Interchange

Visual Simulation of Extended S. Phoenix Road Looking Southeast

Figure 3-26

July 2010

Oregon Department of Transportation

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

Fern Valley Interchange

Visual Simulation of Extended S. Phoenix Road Looking Northwest

Figure 3-27

July 2010

Oregon Department of Transportation

Existing view looking east along Grove Way

Future view looking east along Grove Way with the Build Alternative

Fern Valley Interchange

Visual Simulation of Grove Way

Figure 3-28

July 2010

Oregon Department of Transportation

Existing view looking south toward Arrowhead Ranch

Future view looking south toward Arrowhead Ranch with the Build Alternative

Fern Valley Interchange

Visual Simulation of Realigned N. Phoenix Road

Figure 3-29

July 2010

Oregon Department of Transportation

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.[58] 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.

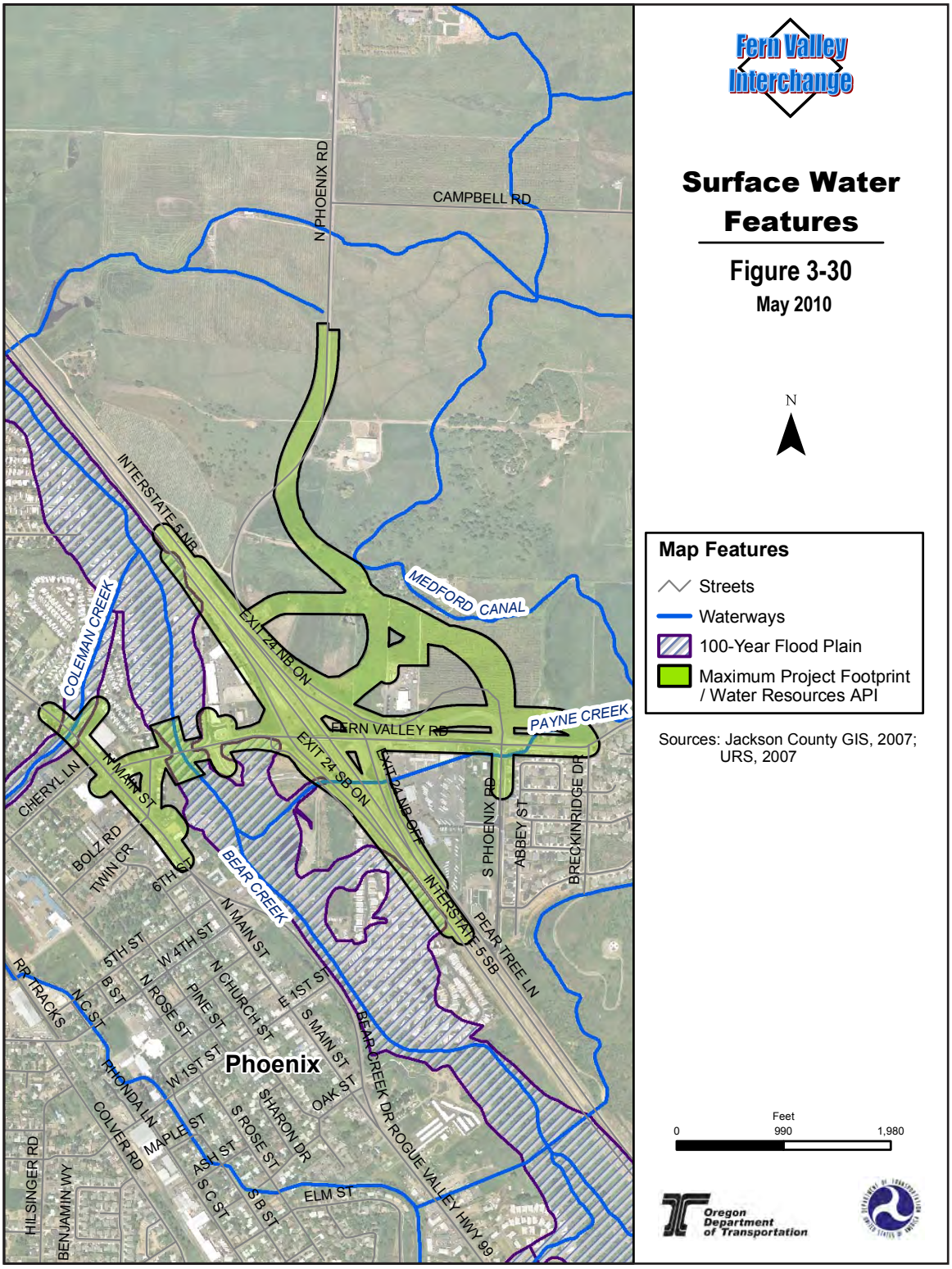
Bear Creek bisects the project, flowing in a northwesterly direction parallel to and approximately 200 feet west of I-5. The uplands of the Bear Creek watershed consist of highly erodible soils that result in high levels of natural sediment. Extensive agriculture and urban development in the watershed 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).[59] 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.

---

[58] 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).

[59] 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.


Fern Valley Interchange
Surface Water Features
Figure 3-30
May 2010
N
Map Features
Streets
Waterways
100-Year Flood Plain
Maximum Project Footprint / Water Resources API
Sources: Jackson County GIS, 2007; URS, 2007
Feet
0
990
1,980
Oregon Department of Transportation
N PHOENIX RD
CAMPBELL RD
INTERSTATE 5 NB
MEDFORD CANAL
COLEMAN CREEK
EXIT 24 NB ON
FERN VALLEY RD
PAYNE CREEK
EXIT 24 SB ON
EXIT 24 NB OFF
INTERSTATE 5 SB
S PHOENIX RD
ABBEY ST
BRECKINRIDGE DR
PEAR TREE LN
CHERYL LN
N MAIN ST
BOLZ RD
TWIN CR
6TH ST
BEAR CREEK
5TH ST
W 4TH ST
N MAIN ST
RR TRACKS
N C ST
B ST
N ROSE ST
PINE ST
N CHURCH ST
E 1ST ST
S MAIN ST
BEAR CREEK DR
ROGUE VALLEY HWY 99
Phoenix
W 1ST ST
RHONDA LN
COLVER RD
MAPLE ST
S ROSE ST
SHARON DR
OAK ST
ASH ST
S C ST
S B ST
ELM ST
HILSINGER RD
BENJAMIN WY

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[60] fish species, including coho salmon,[61] 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.

[60] Anadromous fish primarily live in the sea, but migrate upstream to breed in fresh water.
[61] Southern Oregon/Northern California Coho Evolutionarily Significant Unit

Upland Habitat Types

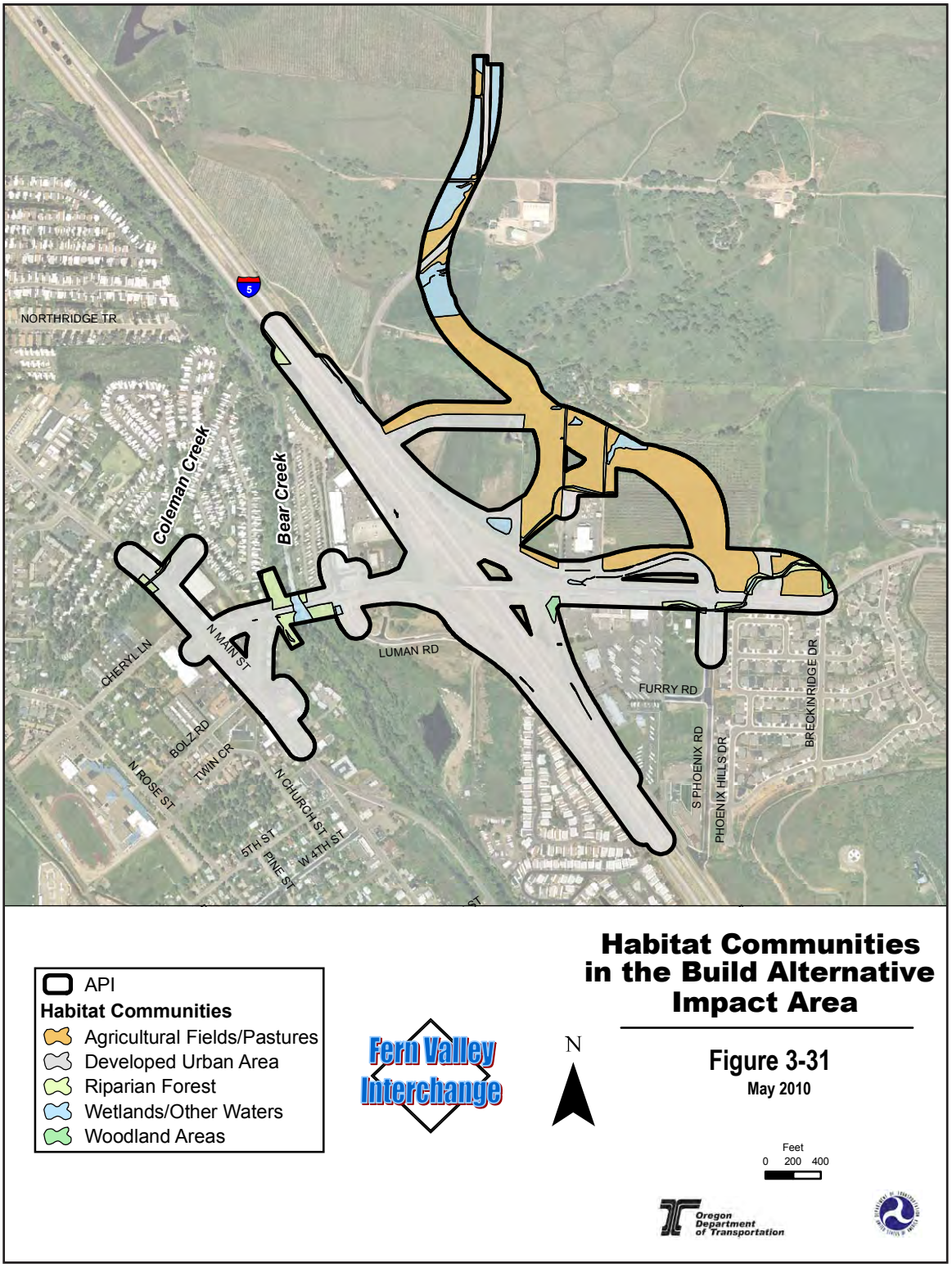
The project area includes five distinct upland habitat types that have developed in response to the local topography, climatic conditions, and past land use practices (Figure 3-31). Agriculture, utility and highway construction, commercial and residential development, and industry have highly fragmented 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.


NORTHRIDGE TR
5
Coleman Creek
Bear Creek
N MAIN ST
CHERYL LN
LUMAN RD
FURRY RD
BOLZ RD
TWIN CR
N ROSE ST
N CHURCH ST
5TH ST
PINE ST
W 4TH ST
S PHOENIX RD
PHOENIX HILLS DR
BRECKINRIDGE DR
API
Habitat Communities
Agricultural Fields/Pastures
Developed Urban Area
Riparian Forest
Wetlands/Other Waters
Woodland Areas
Fern Valley Interchange
N
Habitat Communities in the Build Alternative Impact Area
Figure 3-31
May 2010
Feet
0 200 400
Oregon Department of Transportation

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.[62] 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.

[62] 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).[63]
- 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.

TABLE 3-14: ACRES OF HABITAT IMPACTS

Habitat Type	Build Alternative Habitat Type (Acres)
Developed Urban Area	34
Agricultural Fields/Pastures	12
Riparian Forests	1
Woodland Areas	Less than 0.1
Wetlands	4
Total	**51**

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

[63] 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),[64] 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

[64] 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),[65] 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

[65] 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

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[66] 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)[67] document as having water quality impairments for both

[66] 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

[67] 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[68] and hydraulics.[69]

Impervious surface areas used in analyzing water resource impacts were documented prior to the new stormwater guidance (ODOT Stormwater Management Guidelines[70]) 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.

TABLE 3-15: IMPERVIOUS SURFACE AREA AND STORMWATER TREATMENT OPTIONS FOR THE BUILD ALTERNATIVE

	Existing Impervious Surface Area (acres)	Net New Impervious Surface Area (acres)	Total Future Impervious Surface Area (acres)	Conceptual Stormwater Treatment Approach
Build Alternative	16.5	11.2	27.7	Extended detention ponds, bioswales, water quality manholes

[68] Morphology relates to the structure or form of the channel.
[69] Hydraulics deals with the effects of flow of a liquid in motion.
[70] 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.[71] 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

[71] 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[72] 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 then 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 then 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.

---

[72] 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

Build Alternative footprint

Wetlands

Other Waters

Wetland/Other Water Extends Outside API

N

Feet
0 200 400

Fern Valley Interchange

Figure 3-32

May 2010

Oregon Department of Transportation

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,[73] 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.

---

[73] 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.[74] 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.

[74] 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.

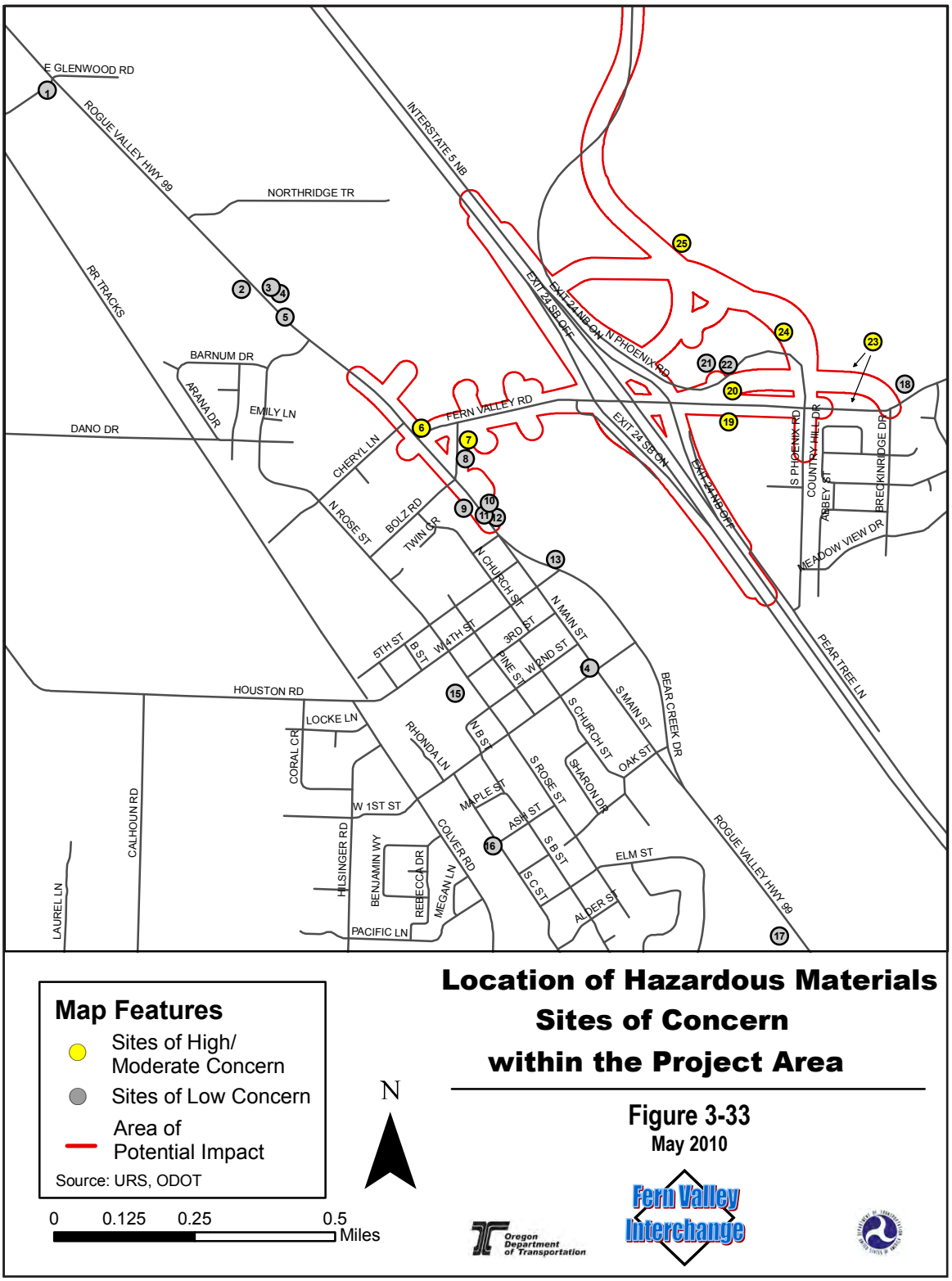

E GLENWOOD RD
ROGUE VALLEY HWY 99
INTERSTATE 5 NB
NORTHRIDGE TR
RR TRACKS
BARNUM DR
ARANA DR
EMILY LN
DANO DR
FERN VALLEY RD
EXIT 24 SB OFF
EXIT 24 NB ON
N PHOENIX RD
EXIT 24 SB ON
EXIT 24 NB OFF
S PHOENIX RD
COUNTRY HILL DR
ABBEY ST
BRECKINRIDGE DR
MEADOW VIEW DR
PEAR TREE LN
CHERYL LN
N ROSE ST
BOLZ RD
TWIN CR
N CHURCH ST
N MAIN ST
5TH ST
B ST
W 4TH ST
3RD ST
PINE ST
W 2ND ST
HOUSTON RD
LOCKE LN
CORAL CR
RHONDA LN
N B ST
S CHURCH ST
S MAIN ST
BEAR CREEK DR
OAK ST
S ROSE ST
SHARON DR
MAPLE ST
W 1ST ST
ASH ST
COLVER RD
S B ST
ELM ST
ROGUE VALLEY HWY 99
CALHOUN RD
HILSINGER RD
BENJAMIN WY
REBECCA DR
MEGAN LN
S C ST
ALDER ST
LAUREL LN
PACIFIC LN
Map Features
Sites of High/ Moderate Concern
Sites of Low Concern
Area of Potential Impact
Source: URS, ODOT
0 0.125 0.25 0.5 Miles
N
Location of Hazardous Materials Sites of Concern within the Project Area
Figure 3-33
May 2010
Oregon Department of Transportation
Fern Valley Interchange

TABLE 3-16: HAZARDOUS MATERIALS SITES IN THE PROJECT AREA			
Site #	**Site Name**	**Information and Status***	**Level of Concern**
Sites Located West of I-5			
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
Sites Located East of I-5			
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

- AST = aboveground storage tank
- ESCI = Environmental Cleanup Site Information
- LUST = leaking underground storage tank
- NFA = No further action
- OR HAZMAT = Hazardous Material Incidents
- OR SPILLS = Spill data
- RCRA = Resource Conservation and Recovery Act
- TPH = Total Petroleum Hydrocarbons
- UST = underground storage tank

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 utilitized 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[75] or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

TABLE 3-17: UTILITIES LOCATED WITHIN THE PROJECT AREA

Owner	Type
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

TABLE 3-18: BUILD ALTERNATIVE, UTILITY IMPACT ESTIMATES

Utility	Estimated Cost	State Reimbursable
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	
Construction Subtotal	$2,812,700	$1,030,400
Engineering/taxes/contingency (25%)	$703,300	$259,600
Total Estimated Utility Cost	**$3,516,000**	**$1,290,000**

(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.

[75] 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 (DLCD) 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.

TABLE 3-19: PERMIT & COORDINATION REQUIREMENTS

Agency	Requirements
FEDERAL AGENCIES	
National Parks Service	• Section 6(f) conversion
U.S. Army Corps of Engineers	• 404 permit
STATE OF OREGON AGENCIES	
Department of Environmental Quality	• Asbestos-containing building materials and Section 401
Department of Fish and Wildlife	• Fish Passage Plan
Department of State Lands	• Removal/fill permit
JACKSON COUNTY	
	• Section 6(f) conversion for impacts to the Bear Creek Greenway • Bridge and stream crossings: compliance with Section 7.1.2, Floodplain Overlay, of the Jackson County Land Development Ordinance
CITY OF PHOENIX	
	• Comprehensive plan amendment for change to Plan Map, road reclassification and adding project to TSP, Tier 1 project list • Conditional use permit for new bridge in Bear Creek Greenway Zoning District

[Page intentionally left blank.]

CHAPTER 4
SUMMARY OF PROPOSED MITIGATION AND CONSERVATION MEASURES

The following provides a brief summary of the proposed mitigation and conservation measures to offset impacts associated with the proposed Fern Valley Interchange project.

TABLE 4-1: FERN VALLEY INTERCHANGE SUMMARY OF PROPOSED MITIGATION AND CONSERVATION MEASURES

Subject	Measures
Air quality	• Air pollution control measures, such as vehicle and equipment idling limitations, dust control, and burn restrictions • Coordination of corridor signal timing for new traffic signal at OR 99/E. Bolz Road and OR 99/Fern Valley Road to minimize vehicle delay
Archaeology	• Measures to address potential archaeological sites inadvertently discovered during construction, such as ceasing work at site of discovery if potential archaeological sites are discovered during construction, and contacting appropriate responsible agencies and/or jurisdictional authorities if a human burial is found during construction • Archaeological monitoring along Payne and Bear Creeks during construction
Biology	• Standard specifications, special provisions, and in-water work timing to minimize impacts to listed fish and aquatic habitat in Bear, Coleman and Payne Creeks—includes containing pollutants and sediments and treating stormwater from roadways • Adherence to in-water work period restrictions • Conservation measures to reduce impacts to species and habitat, minimize vegetation removal, and avoid spreading non-native invasive species • Avoiding, minimizing, and mitigating potential impacts to wetlands and streams • Removal of existing bridge piers located within the Bear Creek stream channel • ODOT standard specifications for demolishing and removing bridges and over-water work • Restricting bridge demolition to the non-nesting season or preventing birds from nesting on structure until demolition of bridge is complete • Constructing the replacement Fern Valley Bridge to fully span Bear Creek, with no piers below the Ordinary High Water elevation • Replacing 15 to 20 riparian trees if removed along Bear Creek, replanting trees and shrubs using native tree species, and monitoring to ensure survival of replanted trees and shrubs

TABLE 4-1: FERN VALLEY INTERCHANGE SUMMARY OF PROPOSED MITIGATION AND CONSERVATION MEASURES	
Geology	• Standard specifications for geotechnical designs; retaining walls, bridges, subgrade compaction and erosion protection • Design and construction of Bear Creek Bridge and I-5 structure to meet all current seismic standards • Design and construction of proposed retaining walls, embankment fills, cut slopes, and bridges with appropriate temporary and permanent erosion and/or scour control measures to minimize erosion potential and slope instability
Hazardous materials	• Standard specifications for acquiring land with potential hazardous materials, emergency response procedures, and addressing contamination discovered during construction • Compliance with all applicable federal, state, and local laws and regulations pertaining to the storage, handling, management transportation, disposal and documentation of hazardous substances
Noise	• Standard construction noise abatement measures, including construction restrictions on weekends and at night, use of sound-control devices, compliance with U.S. Environmental Protection Agency standards for equipment, restrictions on timing of pile driving or blasting operations, and placement of stockpiles for noise reduction • During final design, ODOT will consider a noise wall for the Bear Lake Estates. • Implementation of noise abatement measures in response to noise impact complaints
Parks and Recreation, Bear Creek Greenway	• Mitigation of temporary impacts to air quality using standard dust control measures • Constructing bridge footings with appropriate shape and placement to straighten Greenway multi-use path • Installing protective enclosure or other safety measures to minimize the need for path closure during construction (alternate path will be available during any path closure events via the access ramps to the Bear Creek Greenway) • Design of Bear Creek Greenway bridge to be aesthetically compatible with the Greenway • Minimizing vegetation removal • Providing Section 6(f) replacement property for about 8,200 square-foot impact to Greenway
Right of way	• Right of way purchased in compliance with standard acquisition and relocation assistance procedures • Compensable damages to be paid in accordance with right of way acquisition requirements • Ensuring dequate, decent, safe and sanitary replacement housing is available or providing housing under the provisions of the Last Resort Housing Program
Socioeconomics	• Manage traffic to maintain traffic flow during construction as much as possible • Incorporate signage and coordinate with businesses to keep connections to businesses open during construction • Maintain emergency vehicle travel at all times • Use noise abatement measures to minimize temporary impacts to due construction • Use standard construction practices, such as spraying water to control dust, in order to minimize air quality impacts to adjacent land uses during construction

TABLE 4-1: FERN VALLEY INTERCHANGE SUMMARY OF PROPOSED MITIGATION AND CONSERVATION MEASURES	
Traffic	• Strategically place signing and provide construction schedules to help reduce adverse effects on travel patterns--indicate changes in traffic circulation, connections or detours • Construction phasing to minimize impacts on travel patterns
Visual resources	• Design of Bear Creek Greenway bridge to be aesthetically compatible with the Greenway • Minimizing vegetation removal
Water resources	• Standard mitigation and conservation measures for in-water work (see Biology) • Design bridge to pass the 100-year flood event with no more than a one-foot backwater rise upstream of the structure • Standard specifications to reduce stormwater pollutant loads and reduce runoff rates; use stormwater low impact practices • Infiltration capacity of stormwater treatment facilities enhanced with suitable vegetation or substrate filters • Restricting stormwater from draining directly from bridges or roadways into streams without treatment • Stormwater quality treatment of all existing and new ODOT roadway surface area in the project limits, as well as any ODOT roadway surface area that drains into the project area (OR 99)
Wetlands	• Standard construction avoidance of temporary impacts to wetlands e.g., contain contaminants, minimize use of heavy equipment in wetlands, flag no-work areas, use of protective geotextile material to minimize erosion • 4 acres of wetland mitigation. ODOT's preferred mitigation approach is to purchase wetland mitigation credits from ODOT's vernal pool mitigation bank located near White City

[Page intentionally left blank]

CHAPTER 5
PUBLIC INVOLVEMENT AND AGENCY COORDINATION

Public involvement and agency coordination efforts for the Fern Valley Interchange project are intended to ensure that timely and accurate information (such as project activities and solution concepts) is provided to stakeholders, and that sufficient opportunities are available for stakeholder input into the project development process. The alternatives analyzed in this Environmental Assessment are the result of over four years of meetings in the Phoenix community. This chapter includes a description of project teams and participants involved in developing this project, and a summary of the process used to develop the alternatives currently being considered for this project.

5.1 PROJECT PARTICIPANTS

5.1.1 Project Management Team

The Project Management Team (PMT) is responsible for keeping the project moving through the project development process. Their responsibilities include setting up Project Development Team (PDT) and Citizens Advisory Committee (CAC) meetings, providing background materials, documenting issues and decisions, responding to public concerns, and helping the PDT and CAC work through problems associated with developing the alternatives. The PMT for the Fern Valley Interchange project consists of the individuals listed in Table 5-1.

TABLE 5-1: FERN VALLEY INTERCHANGE PROJECT MANAGEMENT TEAM MEMBERS

Current Members	Position
Dick Leever	ODOT Project Leader
Anna Henson	ODOT Environmental Project Manager
Brian Sheadel	ODOT Roadway Designer
Peter Schuytema	ODOT Transportation Planning and Analysis Unit
Christina Fera-Thomas	ODOT Transportation Planning and Analysis Unit
Gary Leaming	ODOT Project Information
John McDonald	ODOT Region Planner (IAMP)
Nancy Reynolds	URS Consultant Environmental Project Manager
Pat Foley	Rogue Valley Council of Governments, Public Involvement Specialist
Previous Members	**Position**
Debbie Timms	ODOT Project Leader
John Raasch	ODOT Environmental Project Manager
Jerry Marmon	ODOT Environmental Project Manager
Greg Holthoff	ODOT Environmental Project Manager
Vicki Guarino	Rogue Valley Council of Governments, Public Involvement Specialist
John Morrison	Rogue Valley Council of Governments, Public Involvement Specialist

5.1.2 Project Development Team

The PDT makes final recommendations on the project alternatives; these recommendations are subject to approval by ODOT management and the Federal Highway Administration. Representatives on this team include ODOT, the City of Phoenix, Jackson County and the Rogue Valley Metropolitan Planning Organization (MPO). An FHWA representative was present at most PDT meetings to provide guidance

PDT membership for this project includes technical experts, such as roadway designers and traffic engineers. Their expertise helped to quickly evaluate the high number of project concepts to identify which alternatives would be technically acceptable. A full technical team of additional designers, traffic and transportation experts, environmental specialists, and public involvement specialists were available to the PDT as their expertise was needed. Current and past PDT membership includes the individuals listed in Table 5-2.

TABLE 5-2: FERN VALLEY INTERCHANGE PROJECT DEVELOPMENT TEAM* MEMBERS

Members	Representing
Joe Strahl	City of Phoenix
Mike Kuntz	Jackson County
Vicki Guarino	Rogue Valley Metropolitan Planning Organization
Anna Henson	ODOT
Brian Sheadel	ODOT
Peter Schuytema	ODOT
Ad Hoc Member	**Representing**
Nick Fortey	Federal Highway Administration
Previous Members	**Representing**
Bruce Sophie	City of Phoenix
Murray LaHue	City of Phoenix
Bob Lewis	City of Phoenix
Denis Murray	City of Phoenix
Stan Bartell	City of Phoenix
Jim Wear	City of Phoenix
Dale Petrasek	Jackson County
Dan Moore	Rogue Valley Metropolitan Planning Organization
Jerry Marmon	ODOT
John Raasch	ODOT

* In the early stages of developing this project, this team was referred to as the Solution Team

The PDT has held 23 meetings (including ten joint PDT/CAC meetings); these began in March 2004, and will continue throughout the life of the project. All PDT meetings were open to the public. PDT meeting minutes are available online at ODOT's website[1] and or upon request upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299.

[1] ODOT's Region 3 website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml

All aspects of the project are discussed at PDT meetings, and CAC and public comments are considered. The PDT developed the project's purpose and need, provided technical support to the CAC, managed the alternative development and environmental processes, evaluated alternatives based on the purpose and need and goals and objectives; discussed public and technical concerns raised throughout the process and how these concerns could best be addressed. PDT recommendations to ODOT made throughout the project development process are subject to FHWA approval.

5.1.3 Collaborative Environmental and Transportation Agreement for Streamlining

The Collaborative Environmental and Transportation Agreement for Streamlining (CETAS) group was formed to foster collaboration between participating regulatory agencies in an effort to streamline the environmental process, and to ensure environmental regulations and planning requirements are met. The intent of CETAS is to implement a safe and efficient transportation system as well as meet agency responsibilities for environmental stewardship. CETAS concurrence is requested in the development of transportation projects at several key approval points: purpose and need, evaluation criteria, range of alternatives considered, and selection of the preferred alternative. The following agencies are represented on the CETAS group.

- Oregon Department of Transportation
- Federal Highway Administration
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Land Conservation and Development
- Oregon Department of State Lands
- Oregon State Historic Preservation Office
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- National Marine Fisheries Service
- U.S. Environmental Protection Agency

CETAS has concurred with the project's purpose and need, evaluation criteria, and range of alternatives considered. Their final concurrence will be requested on the Preferred Alternative for this project.

Citizens Advisory Committee meeting

5.1.4 Citizens Advisory Committee

The CAC advises the PDT throughout the EA process. The CAC's role is strictly advisory—and provides a forum for the public to raise concerns and discuss issues to help ODOT develop a project that supports community, as

well as address statewide and regional interests. As indicated above, the PDT makes the final recommendations regarding project alternatives, and FHWA makes the final decisions on the project alternatives. CAC members are volunteers, and represent various community interests such as businesses, property owners, low income populations, freight, bicyclists, pedestrians and neighborhoods. CAC membership changed occasionally due to the lengthy project development process and to adequately represent public concerns. Current and previous CAC members for the Fern Valley Interchange project are listed in Table 5-3. In addition to those listed below, a liaison from Bear Lake Estates attended CAC meetings to help keep residents informed on project actions that could impact that neighborhood.

TABLE 5-3: FERN VALLEY INTERCHANGE CITIZENS ADVISORY COMMITTEE MEMBERS

Current Members	Representing
Dack Doggett*	Large Business
Mark Gibson*	Freight / Trucking
Joan Haukom	Neighborhoods, Residents and Minorities
Pauly Hinesly*	Community Leader
Bob Korfhage	Bicycle-Pedestrian
David Lewin*	Neighborhoods, Seniors
David Lowry*	Property Owners
Lenny Neimark*	Developer
Harry Page	Education
Laurel Prairie-Kuntz	City of Phoenix
Madison Taylor	Residents and Low Income
Tani Wouters*	Small Business
Previous Members	**Representing**
Lee Carrau	City of Phoenix
George Cota	Developer
Terry Helfrich*	City of Phoenix
Mike McKey*	City of Phoenix
Wendie Nichols	Residents and Low Income
Bill Rombach	Small Business
Dan Sauro	Bear Lake Estates, Seniors

* Indicates these CAC members are/were also members for the IAMP CAC

The CAC held 26 meetings (including ten joint CAC/PDT meetings) to discuss project issues and alternatives, and to provide recommendations to the PDT. All CAC meetings are open to the public, and all were announced in either the local media or online at ODOT's website. The CAC helped develop the goals and objectives for the project to help address community interests (see Chapter 1, Purpose of and Need for Action). The major issues raised through the CAC meetings were similar to those raised through public open house meetings (described below). CAC meeting minutes are available online at

ODOT's Region 3 website[2] or upon request from ODOT Region 3, 100 Antelope Road, White City, OR 97503, 541-774-6299).

The CAC formed a Bicycle/Pedestrian Subcommittee to address concerns raised about how bicycle and pedestrian facilities would be accommodated with this proposed project. This subcommittee included representatives from the bike/pedestrian community, OR 99 business interests, and the City of Phoenix. The following people volunteered to serve on this subcommittee (their special interest for this committee is provided in parenthesis):

- Bob Korfhage (bike/pedestrian)
- Chris Haynes (bike/pedestrian)
- Edgar Hee (bike/pedestrian)
- Craig Anderson (bike/pedestrian)
- Carolyn Bartell (business)
- Pat Folger (business)
- Terry Rombach (business)
- Brian King (business)
- Jim Wear (City of Phoenix)

Two Bike/Pedestrian Subcommittee meetings were held, primarily to discuss the roadway cross-section on OR 99 and the potential impacts to businesses if wider bike lanes and sidewalks were provided. The initial project designs for OR 99 included 6-foot sidewalks and 14-foot outside travel lanes to be shared with bicycles. Two conflicting concerns were the focus of this discussion. While the 14-foot outside shared travel/bike lanes would be adequate for skilled bike riders, they would not be adequate for those with less experience (especially children). However, if the road were widened to include full standard travel lanes, bike lanes and sidewalks, it would result in substantial impacts to adjacent 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.

A CAC subcommittee was also formed to help develop the Interchange Area Management Plan (IAMP). The IAMP subcommittee included most of the CAC members (see Table 5-2), plus Mark Kellenbeck (business owner) and Lisa Sandrock (resident). IAMP CAC Subcommittee membership reflected various community interests (primarily business, property owners and City of Phoenix). The IAMP CAC held six (6) joint meetings with the PDT. Issues raised during these meetings include: accuracy of population projections, future zoning densities, traffic generation, integration with Regional Problem Solving (RPS) planning efforts, lack of updated comprehensive plans, and floodplain restrictions. The IAMP meetings resulted in a list of land use and management actions to protect the function, operations and safety of the interchange. These actions were incorporated into the Build Alternative and must be adopted by the City of Phoenix.

[2] ODOT's Region 3 website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml

5.2 PUBLIC INVOLVEMENT

The PDT sought and considered public comments and concerns throughout the alternative development process. Public issues were raised through various forums: by local representatives on the PDT, through the CAC and public meetings, from ODOT's website, and by various phone calls, letters and emails received from the public. All PDT and CAC meetings were open to the public and opportunities for public comments and questions were provided. The public involvement process, issues raised at PDT and CAC meetings, and a list of issues raised at public meetings are available on ODOT's website[3] or upon request (see Interested Parties letter at the front of this document for contact information).

ODOT provided information about the project through newsletters sent to individuals on the project mailing list (which grew to over 560 people interested in receiving information about the project), press releases, ODOT's website, the publication of reports (e.g., technical traffic and environmental reports posted on ODOT's website), and individual contacts.

General project and alternative information was provided through group presentations to the local Chamber of Commerce, the Medford Rotary Club, the Rogue Valley Metropolitan Planning Organization's (RVMPO) Public Advisory Committee and the local Transportation Advocacy Committee (TRADCO).

5.2.1 Public Workshop

A CAC workshop in June 2004 was used to develop initial alternatives. One of the tables at that workshop was specifically provided for members of the public to generate alternative concepts.

CAC public workshop, June 2004

The major issues raised through the CAC meetings were similar to those raised through public open house meetings (described below). Several issues were raised by Bear Lake Estates (the Luman Road connection), the Phoenix Hills neighborhood (traffic, noise, air quality, and visual impacts to the neighborhood), and the Phoenix Association of Business and Property Owners (PABPO) (impacts to existing businesses west and east of I-5, and developable property east of I-5).

[3] ODOT's Region 3 website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml

5.2.2 Public Open Houses

Three public open house meetings were conducted to provide additional opportunities for public comments on the alternatives being considered for the Fern Valley Interchange project. These activities were advertised in area newspapers; through paid display newspaper advertisements, press releases to media contacts and organizations; and, for critical meetings, newsletter mailings were sent to property owners, interested citizens and organizations announcing the event and describing the project.

Open House #1

Open house, March 2004

The first open house was held in March 30, 2004 at the Phoenix City Council Chambers. About 35 people attended the meeting. The purpose of this open house was to discuss the process involved in developing alternatives that would address the long-term traffic and development needs at the Fern Valley Interchange. Members of the public were encouraged to identify issues of concern and traffic problems they have experienced in the area of the interchange. Issues and suggestions raised by the public included the following:

- There are long traffic delays in peak hours.
- Consider existing businesses in the planning and construction of the interchange.
- Avoid moving interchange ramps closer to neighborhoods.
- Need bicycle and pedestrian facilities.
- Reduce the dependence on the automobile and single-occupant driver; consider park-and-ride lots or ride share programs.
- Synchronize the traffic signals.
- Fern Valley Road needs more lanes.
- Keep traffic off Cheryl Lane and Rose Street as much as possible because of the high school.
- Left turns are very difficult from 4th Street onto OR 99.
- Move the interchange further east to provide more spacing between the interchange and OR 99.
- The concrete barrier on Fern Valley Road east of I-5 is a problem.
- Turning movements are difficult at N. Phoenix Road; fire trucks can't make the turn. U-turns are also a problem at N. Phoenix Road.
- Add a signal at the Fern Valley Road/S. Phoenix Road intersection.
- Need a right-turn lane only on Pear Tree Lane so trucks going to the truck stop can avoid going on S. Phoenix Road.
- Consider an additional interchange in south Phoenix.

Open House #2

The second open house was held September 1, 2005 at the Phoenix City Hall to obtain public perspectives on four project alternatives. About 108 people (including City of Phoenix elected and appointed officials and members of the CAC and PDT) attended. Comment forms were handed out to everyone as they signed in, and people were asked to fill out the forms during the open house or mail them later. Respondents were also asked to rank each alternative as "acceptable," "neutral," or "unacceptable." A total of 28 comment forms were received. The Single Point Urban Diamond Interchange (SPUI) received the most support. Issues and suggestions raised by the public included:

Open house, September 2005

- Minimize disruption to existing businesses.
- Minimize property impacts.
- Improve traffic flow.
- Provide good truck movement.
- Provide improved access.
- Reduce the complexity and confusion designed into some alternative concepts.
- Retain Fern Valley Road as the major through street.
- Build a noise wall along I-5 at Bear Lake Estates; keep only one approach road to Bear Lake Estates (retain Luman Road in its current location).
- Provide full access to The Shoppes at Exit 24.
- Provide additional information about impacts to Bolz Road.
- Provide signal at Bolz Road.
- Add a turn lane at N. Phoenix Road.
- Move alternatives further away from the Phoenix Hills neighborhood.

Open House #3

On March 1, 2006, an open house meeting was held at Phoenix High School to provide the public an opportunity to review the alternative development process; to see the alternatives that had been considered throughout the process to that point; and to voice their concerns and make suggestions on alternatives they would like to see considered. Technical expertise in design, traffic and environmental areas was available to provide additional information. More than 100 people attended this meeting. Most of the issues raised by the public at this meeting focused on potential impacts to OR 99 with the SPUI alternative. Comments included:

Open house, March 2006

- Protect commercial and residential property.
- Focus on the simplest and least costly improvements.
- Avoid widening OR 99, with its major impact on adjacent businesses.
- Do not place median on OR 99.
- Reduce impacts by moving the approach to Ray's Market behind the store.
- Provide right-in/right-out access on OR 99 at Bolz Road.
- Reduce speeds through Phoenix to 25 or 30 mph.
- Use the current Fern Valley Road alignment; widen the bridge to four lanes; make small alignment adjustments to N. Phoenix Road.
- Leave existing Bear Creek Bridge in place.
- Improve pedestrian, bike and disabled access to/from Bear Creek Greenway and on OR 99. Keep the Bear Creek Greenway open throughout construction.
- Provide easy access to Pear Tree Lane, Petro, and the Phoenix Hills neighborhood.
- Move N. Phoenix Road away from interchange so freeway headlights do not cause confusion when traveling on N. Phoenix Road.
- Keep access open for Fern Valley Road going east.
- Widen Fern Valley Road to the north on the east side of the interchange.
- Construct an interchange at South Stage Road.

5.2.3 Outreach to the Phoenix Business Community

ODOT personnel met several times with representatives from PABPO to discuss design issues and potential adjustments to alternatives being considered. Issues raised by PABPO helped to resolve several concerns associated with the proposed project:

- The alternative cross-section designs for OR 99 were reduced to minimize impacts to adjacent businesses.
- The use of one-way streets at the west end of Fern Valley Road (westbound) and E. Bolz Road (eastbound) was added to the design concepts to help minimize business impacts.
- East of I-5, additional design adjustments were made to minimize impacts to existing and planned developments.
- Concerns regarding potential development and increased ability to accommodate additional growth were addressed by including the capacity improvements associated with the Crossing Diamond Interchange, which can more efficiently handle existing and future traffic needs.

In response to concerns voiced by Phoenix businesses and citizens, a special project meeting was held on February 15, 2006. This meeting was intended specifically to discuss issues raised by the local business community, which formed the Phoenix Association of Business and Property Owners (PABPO) in opposition to the alternatives under consideration at the time. More than 105 people attended this meeting. The primary concerns identified by PABPO focused on an alternative under consideration at the time. This alternative, which was not advanced, would have had wide cross-sections on OR 99, an 8-lane facility entering Phoenix at the north end of the downtown couplet, and substantial right of way impacts that would have resulted in major changes to the

community of Phoenix. As indicated in the bullets above, these impacts were addressed by the Build Alternative, which received support from PABPO due to reduced impacts to Phoenix.

5.2.4 Outreach to the Phoenix Hills Neighborhood

Currently, traffic to and from the Phoenix Hills neighborhood is routed via Fern Valley Road (designated as a minor collector at the Fern Valley Road/Breckinridge Drive intersection) or S. Phoenix Road (designated as a collector). Traffic circulation within Phoenix Hills is via local roads intended for low volume traffic. Many residents of the Phoenix Hills neighborhood initially identified concerns with any alternative or option located south of Phoenix Hills. Their concerns were raised because these alternatives and options would require traffic traveling to and from the interchange east of I-5 to use Breckinridge Drive or S. Phoenix Road, resulting in the use of these streets as major arterials—and widening to accommodate the increased traffic. The use of Breckinridge Drive for major traffic movements would bisect the neighborhood; the use of S. Phoenix Road would result in increased traffic directly adjacent to the neighborhood. In response, all of the early design concepts that included these traffic movements were dismissed from further consideration. As the project progressed, ODOT continued to meet with the Phoenix Hills neighborhood group to discuss potential design modifications and the alternative selection process. All of the concerns of this neighborhood were addressed by the Build Alternative being considered in this EA. The Build Alternative is located further away from the Phoenix Hills neighborhood and does not require traffic from the interchange to travel in or immediately adjacent to the neighborhood.

5.3 AGENCY COORDINATION

5.3.1 Local and Regional Jurisdictions

The City of Phoenix, Jackson County, and the Rogue Valley Metropolitan Planning Organization were represented by members on the Project Development Team. The City of Phoenix was also represented on the CAC. ODOT met numerous times with the City Council and with individual members of the City Council.

ODOT discussed the proposed project and Build Alternative at workshops with the Jackson County Commissioners. In addition, ODOT met with the Jackson County Planning Department to discuss the proposed project and the potential consistency of the Build Alternative with the Jackson County Comprehensive Plan.

Short updates of the project were also provided by ODOT to the Medford City Council.

5.3.2 State and Federal Agencies

Personnel from the Federal Highway Administration (FHWA) were invited, and attended many of the PDT and CAC meetings.

The CETAS group, listed above, was formed to foster collaboration between participating agencies in an effort to streamline the environmental process, and to ensure the complexities of environmental regulations and planning requirements are met. The project was formally presented three times to CETAS: to determine if CETAS would like to track the project (February 2004), to obtain concurrence for the purpose and need and alternative evaluation criteria (March 2005), and to obtain support for the range of alternatives to be evaluated in the EA (June 2007). CETAS was informed by FHWA in December 2009 that only one build alternative (the N. Phoenix Thru Build Alternative) would be evaluated in the EA. As the project progresses, CETAS concurrence will also be requested on the preferred alternative to be recommended for FHWA approval.

Copies (either on CD or hard copy) of the EA were sent to all of the jurisdictional agencies shown in Chapter 6 (References, List of Agencies, Organizations and Persons to Whom Copies of the EA Were Sent). Direct contacts were made with many of these agencies in order to obtain technical information. Examples include: sending a farmland conversion impact rating form to the U.S. Department of Agriculture; contacting the State Fire Marshal and Oregon State Police Department to identify safety issues, and obtaining detailed property ownership information from the Jackson County Assessor's Office.

5.4 TRIBAL COORDINATION

This proposed project was discussed at ODOT 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. ODOT met with the Confederated Tribes of the Grand Ronde in April, June and December 2006; June and November 2007; and May 2008. ODOT met with the Confederated Tribes of Siletz in November 2005, 2006 and 2007. Neither Tribe indicated concerns regarding the project. ODOT met with the Cow Creek Band of the Umpqua Tribe of Indians in November 2005, May 2006, September 2006, January 2007, and June 2007. The Cow Creek Band of the Umpqua Tribe of Indians deemed this project to be outside their area of interest. All three Tribes will receive copies of clearance documents sent to the State Historic Preservation Office and copies of the final archaeological technical report.

5.5 HEARING AND DECISION PROCESS

Following the release of this document and during the 30-day review period, a formal public hearing/open house will be held at which the public will be invited to express a preference for the Build Alternative or the No-Build Alternative, and to identify any concerns relating to the proposed project. Written comments will be received for 15 days following the hearing. All substantive comments that are received will be evaluated and addressed in the final environmental document. Substantive recommendations may lead to changes in the proposed alternatives and analysis of the environmental consequences. Following review and recommendation of a Preferred Alternative by the PDT, a Recommendation Document will be prepared. This document will identify the alternative recommended by the PDT, and answer questions raised at the public hearing/open house. Following completion of the Recommendation Document, the project will be evaluated to

determine whether a Revised (final) Environmental Assessment will be completed, if a Finding of No Significant Impact (FONSI) is applicable, or if preparation of an Environmental Impact Statement (EIS) is required. FHWA will then make the final decision on which alternative to advance for the proposed project.

5.6 PROJECT DEVELOPMENT PROCESS

The intent of the project development process used for the Fern Valley Interchange is to find a successful solution that can be supported by ODOT, the City of Phoenix, Jackson County, the local community, and the regulatory agencies. The following provides a general description of that process.

One of the first steps taken by the PDT was to develop the purpose and need for the project (see Chapter 1, Purpose of and Need for the Project). Based on the purpose and need, goals and objectives were developed by the PDT and CAC to help address community concerns. Screening and evaluation criteria were developed to use as tools to help assess the alternatives and determine which alternatives should be advanced for further study. Alternative concepts that did not meet the purpose and need reflected in the screening criteria were not advanced for further consideration. Alternative concepts that had other fatal flaws (e.g., major impacts to Exclusive Farm Use zones outside the City's urban growth boundary) were also not advanced.

Initial alternatives were general concepts. The level of design detail developed for each alternative was determined by the level of detail needed to make a decision on whether to forward the alternative in the process. In some cases, this level of design can be at a very conceptual level; in some cases (e.g., determining the cross-section for OR 99), considerable detail and sometimes survey information was required.

The general study area (Area of Potential Impact) was identified. This area was studied at a reconnaissance (baseline) level[4] to identify the location of potential environmental constraints, social concerns, and economic issues that could impact alternative alignments.

Throughout the project development process, potential alternatives and options were evaluated based on:

- How well they met the project's purpose and need (using the screening criteria listed in Chapter 1, Purpose of and Need for the Project);
- How well they met the project's goals and objectives (using the evaluation criteria listed in Chapter 1, Purpose of and Need for the Project);
- How well they addressed issues of concern that were raised in the process;
- Whether the alignments avoided known environment, social and economic impacts; and

[4] Reconnaissance reports are conducted very early in the project development process. These reports are normally based on information that can be obtained from databases and other information that are readily available. A site visit may be performed for some subject areas to verify data that have been compiled. Where appropriate, maps are provided to identify known areas to avoid in developing alternatives.

- Whether the alignments could be made to avoid and/or minimize potential environmental, social and economic impacts.

The intent throughout the alternative development process is to try to meet engineering standards, avoid environmental impacts, address regulatory restrictions, and support community interests as much as possible. Early in the process, less information is available for initial alternative concepts that appear to solve the problem; as alternatives are refined, more information becomes available to help evaluate the alternatives. As more information is obtained (including public and agency comments), additional changes to alternative concepts are made. This cycle continues until the alternatives and options are refined to a point that an extensive evaluation of the alternatives occurs in the form of an environmental document. Throughout the process, alternatives are adjusted and improved; therefore, additional minor changes can always be anticipated.

Initially, the PDT, CAC and the general public identified a large number of alternative concepts by placing lines on maps. All of these concepts were evaluated to determine if they appeared to have fatal flaws (e.g., not meeting safety or engineering requirements or not having been deemed acceptable as determined by the design exception process; requiring major commercial or residential displacements; destroying parks; or requiring major excavation of a hillside). The concepts that appeared most feasible evolved into more detailed design refinements; traffic impacts were predicted; local concerns were discussed; and potential social, economic, and environmental impacts were identified. With each feasible alternative concept, the PDT and CAC tried to find ways to improve the concept—based on design concerns, safety, public input, environmental impacts, and its ability to handle traffic and future growth. New alternative concepts or alignment adjustments continued to be generated by the PDT, CAC and the public throughout the process, and those that appeared feasible went through the same evaluation.

Additional information on the alternatives considered during this process, including reasons that alternatives were not advanced is provided in Chapter 2, Project Alternatives.

[Page intentionally left blank.]

CHAPTER 6
REFERENCES

[Page intentionally left blank]

LIST OF PREPARERS

OREGON DEPARTMENT OF TRANSPORTATION

PROJECT MANAGEMENT

Henson, Anna. Environmental Project Manager. B.S., Microbiology. Experience in environmental work since 1989.

Leever, Dick. Project Leader, OPMA. B.S., Civil Engineering Technology. M. S., Construction Engineering Management. Experience in construction engineering and management since 1980.

Marmon, Jerry. Environmental Project Manager. B.S., Environmental Science/Aquatic Biology. M.A., Environmental Planning. Experience in environmental planning and natural resources since 1996.

Raasch, John. Environmental Project Manager. B.S., Fisheries Science. B.S., Wildlife Science. Experience in environmental and natural resources work since 1998.

Timms, Debbie. Project Leader. B.S., Political Science. Experience in NEPA and planning since 1989.

ENVIRONMENTAL RESEARCH AND REVIEW

Baker, Mike. Principal Transportation Planner. B.S., Regional Planning. Experience in transportation planning since 1996.

Bottman, Tobin, RPA. Archaeologist. B.A., M.S., Anthropology. Experience in archaeology since 2001.

Cannon, Ken. Biologist. B.S., Zoology. Experience in fish and wildlife management, propagation and research since 1984. ESA experience since 2001.

Carmichael, Bruce. Water Quality Specialist. B.S., Civil Engineering, M.S., Environmental Engineering. Experience in hydraulics since 2001.

Dorrell, W. Dan, P.E. Region Traffic Engineer. B.S., Civil Engineering. Experience in traffic engineering, development review, access management, contract administration and bridge construction since 1989.

Goodwin, Dave. Senior Acoustical Specialist. Engineering experience since 1969. Environmental experience since 1985.

Hughes, Ron, P.E. Region 3 Access Management Engineer. B.S., Civil Engineering. Experience in civil engineering since 1968. Experience in access management since 2000.

Fera-Thomas, Christina. Transportation Analyst. B.S., Civil Engineering. Experience in transportation analysis since 2003.

Frasier, Jody. Professional Land Surveyor. Experience in ODOT surveying since 1979.

McDonald, John. Senior Transportation Planner. B.S. Social Sciences, J.D.

McMurry, Alex. Cultural Resources Specialist. B.S., Architecture, M.S., Historic Preservation. Experience in historic resources since 1999.

Norval, Douglas, P.E. Transportation Analysis Engineer. B.S., Civil Engineering. Experience in transportation engineering since 1982.

Orlando, Marina. ODOT Air Quality Program Coordinator. A.S. Civil-Structural Engineering. Experience in Environmental and Traffic Engineering since 1983.

Raker, Dan. R.G., C.E.G. ODOT Project Geologist. B.S., Geology. Experience in engineering geology since 1991.

Schuytema, Peter, P.E. Senior Transportation Analyst. B.S., Civil Engineering. Experience in transportation analysis since 1991.

Squire, Joe, P.E. B.S., Geology, M.S., Hydrogeology. Experience with natural resources and environmental investigations, characterizations, and evaluations since 1983.

FEDERAL HIGHWAY ADMINISTRATION

Eraut, Michelle. Environmental Program Manager, MPA, FHWA Oregon Division. Experience with FHWA since 2000.

Fortey, Nick, P.E. Region 3 Liaison Engineer, FHWA Oregon Division, M.S. Civil Engineering. Experience with FHWA since 1988.

URS TEAM

PROJECT MANAGEMENT

Reynolds, Nancy. Principal Transportation Planner. B.A., Secondary Education. Experience in environmental impact analysis and planning since 1974.

Lyman, Kate. Transportation Planner. B.A., Sociology. M.A., Urban and Regional Planning. Experience in transportation planning since 2006.

Rauscher, Norm, Quality Assurance/Quality Control. MBA, M.S. Atmospheric Physics. Environmental experience since 1988.

ENVIRONMENTAL RESEARCH

Ausland, Andy, PLS. Project Surveyor and Team Lead. Experience in surveying since 1997.

Bloom, Carl. Task Manager. Air Quality Analysis, Michael Minor & Associates, Inc. Experience in air quality assessment and modeling since 1988.

Brown, Angela. Professional Engineer. B.S., M.S., Civil/Water Resources Engineering. Experience in stormwater and water quality analysis since 2001.

Carlsson, Heather. Wetland Specialist. M.S., Environmental Science and Engineering. Experience in wetland surveys and permitting since 2001.

Carroz, Katie. Economist and Planner. Carroz Consulting LLC. M.A., Economics (Natural Resources). Experience in socioeconomic analysis, environmental justice, and regional economic impact analysis since 1997.

Cullerton, John. Senior Transportation Planner. B.S., Geography. Experience in traffic analysis, alternatives analysis, metropolitan area planning, multi-modal corridor planning, and transit systems since 1980.

Dial, Jake. Civil Engineer, EIT. B.S., Civil Engineering. Experience in civil engineering since 2007.

Gallant, Seth. Transportation Planner. B.A., Sociology, M.A., Urban and Regional Planning. Experience in transportation planning since 2003.

Gottipatti, Lalitha. Engineer-In-Training. B.S., M.S. Civil/Water Resources Engineering. Experience in stormwater and hydraulic analysis since 2006.

Greenfield, Mark. Land Use Consultant. Member of the Oregon Bar. J.D. Experience with Oregon's land use planning program, the statewide planning goals, and transportation planning since 1977.

Herlocker, Noah. Professional Wetland Scientist. B.S., Ecology/Botany. Experience in wetland surveys and permitting since 2000.

Jordan, Lee. Project Manager. Experience in project management and civil engineering since 1970.

Kelly, John. Principal Land Use Planner. M.A., City and Regional Planning. Experience in land use planning since 1973.

Kelly, Mike, RPA. Principal Archaeologist. B.A., M.A., Anthropology. Experience in archaeology since 1984.

Kling, Louise. Senior Biologist. ODOT BA-certified. B.S., Ecology. Experience in aquatic and terrestrial ecology since 1999.

Logan, Miles, PLS. Project Surveyor. Experience in surveying since 2000.

Mangan, Erica. Geotechnical Engineer in Training. B.S., Civil Engineering. Experience in geotechnical engineering analysis since 2003.

McDaniel, Sarah, RPA. Archaeologist. M.A., Anthropology. Experience in cultural resources management and archaeology since 2000.

MacDonald, Anne. Certified Engineering Geologist, Senior Project Scientist. B.S., Geological Sciences. Experience in fluvial geomorphology, geology, and water resources since 1978.

Minor, Michael. President and Senior Sound and Vibration Consultant, Michael Minor & Associates, Inc. Experience in noise vibration studies for major transportation projects since 1988.

Meier, Dan. Senior Project Geologist. Certified Engineering Geologist, B.S., Geology. Experience in engineering geology since 1988.

Moody, Nicky. B.A., Biology/Environmental Science. Environmental Scientist. Biology/Environmental Science. Experience in hazardous materials since 1999.

Newman, Nicki. Wildlife Biologist. B.S., General Ecology, B.A. English. Experience in ecology and environmental planning since 1999.

Patrouch, John, P.E. Experience in site and utility design since 1982.

Pearson, Dautis. Environmental Task Lead. B.S., Biology. Experience in transportation and environmental planning, NEPA, ESA, and agency coordination since 1990.

Rauscher, Norm. Environmental Project Consultant. M.B.A., M.S. Atmospheric Physics. Environmental experience since 1998.

Rawls, Brad. Environmental Scientist. M.S., Environmental Science & Resource Management. Experience in aquatic ecology, fisheries biology, and environmental planning (NEPA, ESA, and 404/401 Permitting) since 1992.

Renninger, Jennifer. Senior Environmental Scientist. B.A., Communication, M.A., Water Resources Administration. Experience in hazardous materials since 2002.

Richards, Martha. Cultural Resources Specialist. M.A., Historic Preservation Planning. Experience in architectural history, cultural resources, and land use planning since 2000.

Roll, Howard. Senior Transportation Engineer. B.S., Earth Sciences, M.S., Engineering. Experience in transportation planning and traffic operations for corridor studies of urban and rural arterials, highways and freeways since 1986.

Shaff, Gary. Principal Planner. B.S., Economics. Experience in land use and transportation planning since 1976.

Talich, Carla. Professional Engineer. B.S., M.S. Civil/Water Resources Engineering. Experience in stormwater and water quality analysis since 2001.

Whitaker, Roger. Registered Professional Acoustical Engineer, Michael Minor & Associates, Inc. Experience in noise vibration studies for major transportation projects since 1990.

Williams, Shawn. Senior Project Manager. Experience in hazardous materials since 1985.

Willman, Brian. Ph.D., P.E. Geotechnical Engineering. Experience in engineering consulting, forensic engineering and academic research since 1989.

TECHNICAL REPORTS PREPARED FOR THIS PROJECT

This Environmental Assessment contains information summarized from the following technical reports, memoranda, and files (Table 6-1):

TABLE 6-1. TECHNICAL SUBJECT AREAS AND AUTHORS

Subject Area	Author (Firm/ODOT Section)
Air Quality	Michael Minor, Carl Bloom (Michael Minor & Associates)
Archaeology*	Sarah McDaniel (URS)
Access Management	Howard Roll, John Cullerton (URS)
Aquatic Biology	Louise Kling, Dautis Pearson (URS)
Terrestrial Biology	Nicki Newman, Dautis Pearson (URS)
Geology	Erica Mangan, Dan Meier, Brian Willman (URS)
Historic Resources	Martha Richards (URS)
Hazardous Materials	Nicky Moody, Jennifer Renninger, Shawn Williams (URS)
Land Use and Planning	John Kelly (URS), Nancy Reynolds (URS), Gary Shaff (Gary Shaff & Associates)
Noise	Michael Minor, Roger Whitaker (Michael Minor & Associates)
Right of Way	Susan Landis (ODOT Region 3 Right of Way)
Section 4f/6f	Martha Richards (URS)
Socioeconomics	Katie Carroz (Katie Carroz LLC)
Traffic and Transportation	Christina Fera-Thomas, Peter Schuytema, Douglas Norval (ODOT Transportation Planning and Analysis Unit)
Utilities	John Patrouch, Lee Jordan (URS)
Visual	Martha Richards (URS)
Water Resources	Angela Brown, Anne MacDonald (URS)
Wetlands	Heather Carlsson, Noah Herlocker, Dautis Pearson (URS)

These documents are available upon request, except those marked with an asterisk (*), which contain confidential information. Requests should be directed to:

Oregon Department of Transportation, Region 3
100 Antelope Road, White City, OR 97503
(541) 774-6299
or see ODOT's website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml

LIST OF AGENCIES, ORGANIZATIONS AND PERSONS TO WHOM COPIES OF THIS EA WERE SENT

FEDERAL AGENCIES

Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW, Suite 803
Old Post Office Building
Washington, DC 20004

Bureau of Indian Affairs
Siletz Agency
Attn: Mike Pond
P.O. Box 569
Siletz, OR 97380

Environmental Protection Agency
(Portland and Seattle)
Region X
Attn : Michelle Pirzadeh
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Federal Aviation Administration
Northwest Mountain Region
Attn: Donna Taylor
1601 Lind Avenue Southwest
Renton, WA 98057

Federal Emergency Management Agency
Federal Regional Center
Attn: Dennis Hunsinger
130 228th Street, Southwest
Bothell, WA 98021-8627

Federal Highway Administration
Oregon Division
Attn: Michelle Eraut
530 Center Street N.E.
Salem, OR 97301

National Marine Fisheries Service
Northwest Regional Office
Attn: Tom Loynes
7600 Sand Point Way NE
Seattle, WA 98115-0070

Pacific West Regional Office
National Park Service
Attn: Jack Williams
One Jackson Center
1111 Jackson Center, Suite 700
Oakland, CA 94607

U.S. Army Corps of Engineers
Portland District
Attn: Jaimee W. Davis
P.O. Box 2946
Portland, OR 97208-2946

U.S. Department of Agriculture
U.S. Forest Service
Pacific Northwest Region
Attn: Tom Burkert
P.O. Box 3623
333 SW 1st Avenue
Portland OR 97208-3623

U.S. Fish and Wildlife Service
Oregon Office
Attn: Jim Thrailkill
2900 N.W. Stewart Parkway
Roseburg, OR 97471

STATE OF OREGON AGENCIES

Oregon Economic and Community Development
Attn: Jim Zelenka
775 Summer St. NE, Suite 200
Salem, OR 97301-1280

Department of Agriculture
Attn: Randy Jaindl
635 Capitol St. NE
Salem, OR 97301-2532

Department of Environmental Quality
Atten: L. Alexandra Cyril
2020 SW 4th Avenue
Portland, OR 97201

Department of Fish and Wildlife
Attn: Jim Muck
3406 Cherry Avenue N.E.
Salem, OR 97303

Department of Forestry
Attn: Dan Thorpe
Southwest Oregon District
5286 Table Rock Road
Central Point, OR 97502

Department of Geology and Mineral Industries
Attn: Tom Wiley
800 NE Oregon Street #28, Suite 965
Portland, OR 97232

Department of Land Conservation and Development
Atten: John Renz
P.O. Box 3275
155 N. First St.
Central Point, OR 97502

Department of State Lands
Attn: Russ Klassen
775 Summer St. NE Suite 100
Salem, OR 97301-1279

Parks and Recreation Department
Historic Preservation Office
Heritage Programs
Attn: Matthew Diederick
725 Summer St NE, Suite C
Salem, OR 97301

Public Utilities Commission
Attn: Consumer Services Division
550 Capitol St NE #215
PO Box 2148
Salem, OR 97308-2148

State of Oregon Library
Attn: Jey Wann
250 Winter St NE
Salem OR 97301-3950

Water Resources Department
Attn: Kris Byrd
725 Summer St. NE, Suite A
Salem OR 97301

CITIES, COUNTY, REGIONAL

City of Phoenix City Hall
Attn: Jane Turner, City Manager/Recorder
112 W 2nd Street
PO Box 330
Phoenix, OR 97535

City of Phoenix Police Department
Attn: Derek Bowker, Police Chief
114 West 2nd Street
PO Box 330
Phoenix, OR 97535

City of Phoenix Planning and Building Department
Attn: Laurel Prairie-Kuntz, Planning Director
112 2nd Street
Phoenix, OR 97535

City of Phoenix Public Works Department
Attn: Joe Strahl
1000 South "B" Street
Phoenix, OR 97535

City of Medford
Attn: Michael Dyal, City Manager
411 W 8th St. #312
Medford, OR 97501

City of Medford Irrigation District
Attn: Carol Bradford, Manager
P.O. Box 70
Jacksonville, OR 97530

City of Medford Planning Department
Attn: Jim Huber, Planning Director
200 South Ivy Street, Lausmann Annex, Room 240
Medford, OR 97501

City of Talent
Attn: Jay Henry, City Manager
110 East Main Street
P.O. Box 445
Talent, OR 97540

Jackson County Library Services, Phoenix Branch
Attn: Leigh Blair, Director
510 West First Street
Phoenix, OR 97535

Jackson County Library Services, Medford Branch
Attn: Denise Galarraga, Director
205 South Central Avenue
Medford, OR 97501

Jackson County Library Services, Talent Branch
Attn: Laurel Prchal
101 Home Street
Talent, OR 97540

Rogue Valley Council of Governments
Attn: Pat Foley
P.O. Box 3275
Central Point, OR 97502

Rogue Valley Metropolitan Planning Organization
Attn: Vicki Guarino
P.O. Box 3275
155 North First Street
Central Point, OR 97502

Jackson County Fire District No. 5
Attn: Dan Marshall, Fire Chief
787 West 8th Street
Medford, OR 97501

Jackson County Development Services
Attn: Kelly Madding, Director
10 South Oakdale Ave., Room 100
Medford, OR 97501

Jackson County Roads and Parks
Attn: John Vial, Director
200 Antelope Road
White City, OR 97503

Jackson County Sheriff's Office
Attn: Mike Winters, Sheriff
787 West 8th Street
Medford, OR 97501

NATIVE AMERICAN TRIBES

The Confederated Tribes of the Grand Ronde Community of Oregon
Attn: Eirik Thorsgard
9615 Grand Ronde Road
Grand Ronde, OR 97347

Cow Creek Band of the Umpqua Tribe of Indians
Attn: Jessie Plueard
2371 NE Stephens, Suite 100
Roseburg, OR 97470

Confederated Tribes of Siletz
Attn: Robert Kentta
201 SE Swan Avenue
P.O. Box 549
Siletz, OR 97380

OTHER ORGANIZATIONS AND MEDIA

Medford-Jackson County Chamber of Commerce
Attn: Brad Hicks
101 E 8th Street
Medford, OR 97501-7293

Phoenix Chamber of Commerce
Attn: Marti Diviak
205 Fern Valley Rd #M1
Phoenix, OR 97535

Medford Mail Tribune
Attn: Bob Hunter, Editor
P.O. Box 1108
Medford, OR 97501

KTVL-TV
Attn: Manny Fantis, News Director
P.O. Box 10
Medford, OR 97501

KDRV TV
Attn: Ric Howard, News Director
1090 Knutson Ave,
Medford, OR 97501

KOBI-TV
Attn: Laryl Noble, Assignment Editor
125 South Fir Street
Medford, OR 97501

JACKSON COUNTY LEGISLATIVE REPRESENTATIVES

Representative Peter Buckley
71 Dewey Street
Ashland, OR 97520

Senator Alan Bates
2859 State Street #101
Ashland OR 975320

Congressman Greg Walden
John Snider
843 East Main Street, Suite 400
Medford OR 97504

OTHER INTERESTED PARTIES

Copies of this Environmental Assessment or an Executive Summary were sent to other interested businesses, individuals and non-profit organizations as requested. Postcards were sent to the following interested stakeholders for their reply regarding their preferred format. The Draft EA and Executive Summary were also posted on the project website.[1]

[1] ODOT's Region 3 website: http://www.oregon.gov/ODOT/HWY/REGION3/index.shtml

A NEWCOME BLAZE SIGNS OF AMERICA P O BOX 608 MEDFORD, OR 97501	ABDREW EDWARDS BRITTANNIA ENTERPRISES INC. 5800 S PACIFIC HWY PHOENIX, OR 97535	ABRAHAM HARRIS PHOENIX ORGANICS 4543 S PACIFIC HWY PHOENIX, OR 97535
AJ GRALL PETRO P O BOX 371787 EL PASO, TX 79937	AL BORDEAU P.O. BOX 1073 PHOENIX, OR 97535	AL NAVARREAU SIGNS ETC INC 1343 JUSTICE RD CENTRAL POINT, OR 97502
ALAN DeBOER THE SHOPPES AT EXIT 24 P O BOX 249 ASHLAND, OR 97520	ALAN JONES UNIFIED WESTERN GROCERS P O BOX 513396 LOS ANGELES, CA 90051	ALBERT HAUG PROVISION CONSTRUCTION 1616 PACIFIC LN PHOENIX, OR 97535
ALBERT REYNOSO 2720 RANDOLPH ST MEDFORD, OR 97501	ALEX LAMERAUX NORTH WEST SEASONAL WORKERS 203 N. OAKDALE AVE. MEDFORD, OR 97501	ALEXANDER P. VACA P. O. BOX 1255 PHOENIX, OR 97535
ALFONSO GONZALEZ GONZALEZ MAINTENANCE 852 ELLEN AVE MEDFORD, OR 97501	ALICE CREECH 211 PHOENIX HILLS DR PHOENIX, OR 97535	ALLEN PFEIFER LA-Z-BOY FURNITURE GALLERIES 3343 NORTH PHOENIX RD PHOENIX, OR 97535
ANCEL & NANCY ROSECRANS 5094 KANE CR RD CENTRAL POINT, OR 97502	ANDY SANDERS CASTLEROCK COLLECTIBLES P O BOX 209 PHOENIX, OR 97535	ANDY SANDERS CASTLEROCK HAC P O BOX 209 PHOENIX, OR 97535
ANNIE KING ANNIE'S CAFÉ P O BOX 1228 PHOENIX, OR 97535	ANTONIO SILVA LA TAPATIA P O BOX 1170 PHOENIX, OR 97535	ARLAN MENDELL ACTION WEST CONTRACTORS P O BOX 1287 PHOENIX, OR 97535
ARMANDO CORVANTES ABC LANDSCAPE 840 DAKOTA ST MEDFORD, OR 97501	ART ANDERSON 100 ANTELOPE RD WHITE CITY, OR 97503	ART LAMENSDORF STAR BODY P O BOX 8300 MEDFORD, OR 97501
B K CANFIELD CASCADE BUSINESS SYSTEMS P O BOX 667 PHOENIX, OR 97535	BANJAMIN NIELSEN NIELSEN CONCRETE 6341 SHADY BROOK RD CENTRAL POINT, OR 97502	BARB GREZKE 4601-5 S. PACIFIC HWY PHOENIX, OR 97535
BARBARA KNETZER 3431 #29 N. PHOENIX RD MEDFORD, OR 97504	BARNEY PHILLIPS CHEM-DRY CARPET MAGIC 405 BUYSMAN WAY GRANTS PASS, OR 97526	BARRY BLOOMBERG KENNEDY FUEL COMPANY P O BOX 998 MEDFORD, OR 97501
BEAR CREEK ORCHARDS P. O. BOX 299 MEDFORD, OR 97501	BECKY & MARGARET 4127 FERN VALLEY RD MEDFORD, OR 97501	BECKY GOMEZ 4127 FERN VALLEY RD PHOENIX, OR 97535
BEN & ALICE ROCCA 139 COUNTRY HILLS DR PHOENIX, OR 97535	BEN BERGREEN SUPERINTENDENT PHOENIX-TALENT SCHOOL DISTRICT P.O. BOX 698 PHOENIX, OR 97535	ZAC MOODY 2459 SHEFFIELD CT MEDFORD, OR 97504
BRANDIE WILSON CURVES 2080 ANTELOPE RD #348 WHITE CITY, OR 97503	BRENDA ANDERSON 415 N. MAIN ST PHOENIX, OR 97535	BRENT & KARYN MITCHELL 4450 FERN VALLEY RD MEDFORD, OR 97501
BRIAN CANNARD HOME DEPOT 370 CORPORATE DR. NORTH TUKWILA, WA 98188	BRIAN LEWIS 92 MOUNTAINVIEW DR PHOENIX, OR 97535	BRIAN WILLIAMS PACIFIC COMPUTERWORKS 107 E MAIN ST SUITE 20 MEDFORD, OR 97504

BRITA ENTENMANN OREGON ADVANTAGE PROPERTIES P O BOX 1655 PHOENIX, OR 97535	BRITA ENTERNMAN 1255 SWEET RD MEDFORD, OR 97501	BRUCE KLATSKY BASS #389 P O BOX 6969 BRIDGEWATER, NJ 8807
BRUCE KLATSKY VAN HEUSEN #334 P O BOX 6969 BRIDGEWATER, NJ 8807	BRUCE SHIPLEY S & S SHEETMETAL 912 ANTELOPE RD WHITE CITY, OR 97503	BRUCE SOPHIE 215 PHOENIX HILLS DR PHOENIX, OR 97535
CARL OST NATIONAL HEATING & AIR P O BOX 379 TALENT, OR 97540	CARLOS DEBRITTO 158 PHOENIX HILLS DR PHOENIX, OR 97535	CAROL BRADFORD, MANAGER MEDFORD IRRIGATION DISTRICT PO BOX 70 JACKSONVILLE, OR 97530
CAROL CORBRIDGE CHROMATIC dba CAROL'S COLORS P O BOX 1169 PHOENIX, OR 97535	CAROL ENGLE 301 MEADOWVIEW DR PHOENIX, OR 97535	CAROL HOOD P.O. BOX 652 PHOENIX, OR 97535
CARRIE HANSON SALVATION ARMY P.O. BOX 757 PHOENIX, OR 97535	CASEY BRIGHT CASEY BRIGHT CUSTOM BUILDING 531 SCENIC DRIVE ASHLAND, OR 97520	CASTO GOMEZ LA ESTRELLA P O BOX 1260 PHOENIX, OR 97535
CATHERINE COLLINS NET CARE 711 MEDORD CENTER #352 MEDFORD, OR 97504	CATHI KENNEDY P.O. BOX 446 PHOENIX, OR 97535	CECIL CUNNINGHAM 775 LEONARD ST ASHLAND, OR 97520
CENJI COTA COTA HOMES P O BOX 548 ASHLAND, OR 97520	CHARLEEN BROWN R V GENEALOGICAL SOCIETY P O BOX 1468 PHOENIX, OR 97535	CHARLES MAHLER 100 KAREN WAY PHOENIX, OR 97535
CHARLES ROMBACH GOOFY'S FURNITURE CO. 4149 S PACIFIC HWY U-B1 MEDFORD, OR 97501	CHARLES WILLIAMS PACWEST PLUMBING 1875 BRISTOL DR MEDFORD, OR 97504	CHARLIE HALE PHOENIX COUNSELING CENTER P O BOX 428 PHOENIX, OR 97535
CHERISH SINKS CHERISH SINKS HOME-CARE SERVICES 690 BLACK OAK DR #27 MEDFORD, OR 97504	CHERRIE CLATLIN 108 W. 6TH ST PHOENIX, OR 97535	CHIEF BOB KERSHAW P.O. BOX 330 PHOENIX, OR 97535
CHRIS CORNETT 2526 FREEDOM WAY PHOENIX, OR 97535	CHRIS HAYNES 1870 ST CLAIR MEDFORD, OR 97504	CHRIS HENRY COMMERCIAL SIGN & DESIGN P O BOX 1107 PHOENIX, OR 97535
CHRISTINA NEIL NAILS BY CHRISTY 225 ARNOS ST TALENT, OR 97540	CHUCK HEAUSER 3551 BRANNON DR MEDFORD, OR 97504	CHUCK McGILRAY THE LAWNMOWER SHOP 6704 TABLE ROCK RD CENTRAL POINT, OR 97502
CHUCK ROOT 516 AMERICAN DRIVE PHOENIX, OR 97535	CHUCK ROOT, GENERAL MANAGER ROGUE VALLEY SEWER SERVICES PO BOX 3130 CENTRAL POINT, OR 97502	CINDY CAMERON THE SNACK SHACK P O BOX 697 PHOENIX, OR 97535
CINDY KELLY 507 N. MAIN PHOENIX, OR 97535	COLLEEN HANSEN 317 PHOENIX HILLS DRIVE PHOENIX, OR 97535	CONNIE HENDRYCKS 132 MEADOWVIEW DR PHOENIX, OR 97535
COREY BAYSINGER BAYSINGER ELECTRIC INC P O BOX 1665 MEDFORD, OR 97501	COREY VITUS VITUS CONSTRUCTION P O BOX 1097 GOLD HILL, OR 97525	CRAIG HOLLINGSWORTH YELLOW CAB OF SOUTHERN OR 686 ROSSANLEY MEDFORD, OR 97501

CRYSTAL CLARK CRYSTAL CLARK P O BOX 149 PHOENIX, OR 97535	CYNTHIA CRAWFORD CYNTHIA'S FOR WOMEN P O BOX 555 PHOENIX, OR 97535	DACK DOGGETT RAY'S MARKET P.O. BOX 993 PHOENIX, OR 97535
DALE & KAREN SHADDOX 8934 ST ANDREWS WAY EAGLE POINT, OR 97524	DAN CASAD 4281 COLEMAN CR RD MEDFORD, OR 97501	DAN CLARK AUDIO VIDEO INTERIORS 4812 S 6TH STREET KLAMATH FALLS, OR 97603
DAN CURTIS 1955 CRESTVIEW DR ASHLAND, OR 97520	DAN ETEHISON INDOOR COMFORT 572 PARSONS DR #104 MEDFORD, OR 97502	DAN HANSCOM DAN'S FIX-IT P O BOX 674 PHOENIX, OR 97535
DAN MARSHALL, FIRE CHIEF FIRE DISTRICT #5 5811 SOUTH PACIFIC HWY PHOENIX, OR 97535	DAN MAY MAY ROCK & EXCAVATING P O BOX 319 TALENT, OR 97540	DAN SEEMAN PETRO 610 SW ALDER STE 700 PORTLAND, OR 97205
DAN THOMAS CIRCLE T CONSTRUCTION 897 OAK KNOLL ASHLAND, OR 97520	DANA PETERS ROGUE ELECTRIC SERVICE 843 E MAIN ST SUITE 307 MEDFORD, OR 97504	DANIEL BARTELL J & J TREE SERVICE 5620 McLOUGHLIN DR CENTRAL POINT, OR 97502
DAR YARBROUGH P. O. BOX 397 SUTHERLIN, OR 97479	DARCY SPENCE 216 PHOENIX HILLS DR PHOENIX, OR 97535	DARRYL OWENS CUSTOM MAID OF JACKSON COUNTY P O BOX 480 PHOENIX, OR 97535
DAVE BLOOMNESS A-1 SAFE & LOCK 179 WINEMA WAY MEDFORD, OR 97501	DAVE BROADWAY 227 NORTHRIDGE TERRACE MEDFORD, OR 97501	DAVE DUTENHOEFER JUNK BE-GONE 208 CORAL CIRCLE PHOENIX, OR 97535
DAVE JUDD PRESSURE POINT ROOFING 4707 TABLE ROCK RD CENTRAL POINT, OR 97502	DAVE LOHMAN 823 ALDER CREEK DR MEDFORD, OR 97504	DAVE WOOD HOME INSULATION CO. P O BOX 1266 MEDFORD, OR 97502
DAVID BARNES BARNES PLUMBING INC P O BOX 8252 MEDFORD, OR 97504	DAVID BOYNTON VILLAGE @ BEAR CREEK, LLC P.O. BOX 443 TALENT, OR 97540	DAVID BURDEAN PHOENIX DISCOUNT GAS P O BOX 1155 PHOENIX, OR 97535
DAVID CHAPMAN 390 ORCHARD ST ASHLAND, OR 97520	DAVID DELLER 200 GRANDVIEW DRIVE ASHLAND, OR 97520	DAVID DUNN 600 N. MAIN PHOENIX, OR 97535
DAVID FRENCH 176 MEADOWVIEW DR PHOENIX, OR 97535	DdAVID HANSEN 201 SOUTH ROSE PHOENIX, OR 97535	DAVID HOLMES ARROWHEAD LAND/CATTLE CO 2909 N PHOENIX RD MEDFORD, OR 97504
DAVID KELLER 200 GRANDVIEW DRIVE ASHLAND, OR 97520	DAVID LOWRY ASSOCIATED FRUIT CO 3721 COLVER RD PHOENIX, OR 97535	DAVID NELSON AUTOMATIC HEATING & COOLING P O BOX 2335 CENTRAL POINT, OR 97502
DAVID NISFLER KEEP UP LTD 300 LUMAN RD #55 PHOENIX, OR 97535	DAVID ORTMAN HAIRBEAR UNLIMITED 916 BEEKMAN MEDFORD, OR 97501	DAVID PYLES 200 ANTELOPE RD WHITE CITY, OR 97503
DAVID ROWLAND DAVID ROWLAND - EDGE ELECTRIC 245 YALE DR MEDFORD, OR 97504	DAVID STEVENS CRATER ELECTRIC P O BOX 3562 CENTRAL POINT, OR 97502	DAVID THOMASON DABO FOODS dba MARIO'S SANDWICHES 139 B S E 'J' STREET GRANTS PASS, OR 97526

DAVID TOURZAN RISING PHOENIX BIOFUELS 4543 S PACIFIC HWY PHOENIX, OR 97535	DAVID WOODS HAIR DESIGNS BY DAVID Von WOODS 205 FERN VALLEY RD SUITE E PHOENIX, OR 97535	DAVID WORST GREEN GOPHER P O BOX 601 TALENT, OR 97540
DEAN MARTIN P.O. BOX 357 PHOENIX, OR 97535	DELILA BARNETT GID-DE-UP BARKINS BOUTIQUE 133 S MAIN ST PHOENIX, OR 97535	DELILA BARNETT GID-DE-UP BARKINS BOUTIQUE P O BOX 870 PHOENIX, OR 97535
DENISE LIMA THE CUT STOP 3730 FERN VALLEY RD PHOENIX, OR 97535	DENNIS & BETTY DAWSON 117 MEADOWVIEW DR PHOENIX, OR 97535	DENNIS BROWNING BROWNING FIRE PROTECTION 743 LAWNSDALE RD MEDFORD, OR 97504
DENNIS RICHEY ASHLAND ELECTRIC INC. 136 N LAUREL ST ASHLAND, OR 97520	DEREK DEBOER P.O. BOX 249 ASHLAND, OR 97520	DIANA ORTO 411 PHOENIX HILLS DR PHOENIX, OR 97535
DIANA RASMUSSEN PHOENIX DESIGNS 316 CORAL CIRCLE PHOENIX, OR 97535	DIANA THOMAS HAIR TODAY P O BOX 380 SHADY COVE, OR 97539	DIANNE LINDERMAN COUNTRY COTTAGE CAFÉ 205 FERN VALLEY RD #P PHOENIX, OR 97535
DICK & FRAN FLODSTROM 93 FRESHWATER DRIVE PHOENIX, OR 97535	DICK KOVACHVICH WELLS FARGO BANK NORTHWEST 735 N MAIN ST PHOENIX, OR 97535	DICK SIMONSON 139 HIGHLAND MEDFORD, OR 97501
DINA SMITH THE WHITE HOUSE BEAUTY & SPA P O BOX 57 PHOENIX, OR 97535	DON & EUNICE MITCHELL P.O. BOX 875 PHOENIX, OR 97535	DON MAROHN AMERIGAS 1126 ROGUE RIVER HWY GRANTS PASS, OR 97527
DON REUDAHL PO BOX 300 PHOENIX, OR 97535	DON SWEET DON'S LOCK 1803 W MAIN ST #B MEDFORD, OR 97504	DON TIPTON MODERN PLUMBING SERVICES P O BOX 338 MEDFORD, OR 97501
DONALD GRAY ROGUE VALLEY MARKETING P O BOX 119 PHOENIX, OR 97535	DONNY OMEGA OMEGA & SONS MARTIAL ARTS ACADEMY 4149 S PACIFIC HWY #42 MEDFORD, OR 97501	DORIS & RICHARD KANE P.O. BOX 239 PHOENIX, OR 97535
DOROTHY COTTON P.O. BOX 13 PHOENIX, OR 97535	DOUG ARNOLD 1836 ROBERTS ROAD MEDFORD, OR 97504	DOUG WITTE WITTE LANDSCAPE SERVICE P O BOX 129 PHOENIX, OR 97535
DOUGLAS CARROLL CARROLL AND SONS P O BOX 993 MEDFORD, OR 97501	DOYLE BRANSCOM WESTERN FIREWORKS 2679 BRANSCOM RD CENTRAL POINT, OR 97502	DUANE VENEKAMP 3014 MARIGOLD LANE MEDFORD, OR 97504
DUANE WALLACE PO BOX 249 ASHLAND, OR 97520	EARL WOOD PO BOX 451 EAGLE POINT, OR 97524	ED CHIZEK APEX PAINTING CO 1000 ARANA DRIVE PHOENIX, OR 97535
ED FORSYTHE PENTECOSTAL CHURCH (FIREWORKS) P O BOX 469 CORNELIUS, OR 97113	ED GARCIA E & E CONTRACTORS P O BOX 3994 CENTRAL POINT, OR 97502	ED HAWKINS WATKINS QUALITY PRODUCTS 113-A W 1ST STREET PHOENIX, OR 97535

ED KARLOVICH EDWARD JONES 12555 MANCHESTER RD ST LOUIS, MO 63181	EDGAR HEE 17 SOUTH GROVELAND MEDFORD, OR 97501	EDWARD AMERAL JEANNETTE'S FABRICS 4149 S PACIFIC HWY #4 MEDFORD, OR 97501
EDWARD CURTIUS CURTIUS-HUNTLEY PLUMBING 1896 DELTA WATERS RD MEDFORD, OR 97504	EILEEN PADILLA 3700 FIELDBROOK AVE MEDFORD, OR 97504	ELDEN SMITH SOUTHERN TREND BUILDERS 9171 STERLING CREEK RD JACKSONVILLE, OR 97530
ELEANOR BOLZ COMMERCIAL PROPERTY MGMT 718 BLACK OAK DR STE A MEDFORD, OR 97504	ELIZABETH GARRETT 95 MT VIEW DRIVE PHOENIX, OR 97535	ELLYN HIMMEL CBS OUTDOOR INC 185 ROUTE 46 FAIRFIELD, NJ 7004
ELOISE BARRY 121 MEADOW VIEW DRIVE PHOENIX, OR 97535	ELSIE GERLICK 123 COUNTY HILL DR PHOENIX, OR 97535	ERIC ARMSTRONG RV HEARING & AIR 113 S W 'M' ST GRANTS PASS, OR 97526
ERIC JORGENSEN SHOPPES AT 24 P.O. BOX 249 PHOENIX, OR 97535	ERIC KRUZ ERIC'S ELECTRIC SERVICE INC 1010 SANDOZ ST CENTRAL POINT, OR 97502	ERIK ALDERSON TURNING LEAF LANDSCAPE 6900 PICO DRIVE CENTRAL POINT, OR 97502
ERIN TOUZET 37 DESIGN 108 W 1ST STREET PHOENIX, OR 97535	ESPERARZA RADR 900 REBECCA DRIVE PHOENIX, OR 97535	EUGENE KEPPLER EVERGREEN ROOFING 700 INDUSTRIAL CIRCLE WHITE CITY, OR 97503
EVA MORGAN ASHLAND DAILY TIDINGS P O BOX 1726 MEDFORD, OR 97501	EVELYN NANKERVIS PARTY PONIES 2595 VICTORY LN MEDFORD, OR 97501	FRANK McLANE McLANE TRUCKING INC 300 LUMAN RD #176 PHOENIX, OR 97535
FRED OWENS MEDFORD READY MIX P O BOX 1386 MEDFORD, OR 97501	GANELL EAGLE 301 MEADOW VIEW PHOENIX, OR 97535	GARY HALL 2391 TERRI DRIVE MEDFORD, OR 97501
GARY KRAUSS GARY KRAUSS LANDSCAPE P O BOX 1108 JACKSONVILLE, OR 97530	GARY SMITH GARY SMITH CUSTOM CABINETS 313 1/2 ROSS LANE MEDFORD, OR 97501	GARY WELBURN WELBURN ELECTRIC P O BOX 329 PHOENIX, OR 97535
GARY WOODRING 220 WEST RAPP RD #72 TALENT, OR 97540	GENE & JACKIE TROFHOLZ 300 LUMAN RD #57 PHOENIX, OR 97535	GENE BRADLEY SMOKEY STOVES LLC 757 S E 6TH STREET GRANTS PASS, OR 97526
GENE HILL 724 S.CENTRAL #110 MEDFORD, OR 97501	GEORGE EISENHAUER 300 LUMAN RD #95 PHOENIX, OR 97535	GEORGE KIRKPATRICK K & H ENTERPRISES dba MINUTE MKT #8 610 E MAIN ST MEDFORD, OR 97504
GEORGE TOCHER GEORGE TOCHER PLUMBING P O BOX 356 ROGUE RIVER, OR 97537	GEORGE WINFREY QUALITY LANDSCAPE P O BOX 649 TALENT, OR 97540	GEORGINA GROVE 3345 N PHOENIX RD MEDFORD, OR 97504
GERALD COFFIN HOLLAND'S CARPET P O BOX 4205 MEDFORD, OR 97501	GERALD SCHATZ GREENWAY VILLAGE P O BOX 718 MEDFORD, OR 97501	GERALDINE HAER 510 S. PACIFIC HWY TALENT, OR 97540
GERALDINE SCHMEIZER 510 S. PACIFIC HWY TALENT, OR 97540	GERARD FOWLER ECONOMY PLUMBING 309 KENT ST ASHLAND, OR 97520	GINA LEHNER GINA LEHNER DESIGN 113 FRESHWATER DR PHOENIX, OR 97535

GINGER VINSON P.O. BOX 457 PHOENIX, OR 97535	GLEN JAHNKE JAHNKE HEATING AND AIR CONDITIONING 112 S PACIFIC HWY TALENT, OR 97540	GLEN MCARDLE TRAVEL CENTER OF AMERICA PETRO 24601 CENTER RIDGE ROAD WESTLAKE, OH 44145
GLENN ARCHAMBAULT P.O. BOX 1199 PHOENIX, OR 97535	GLENN BERG ALLIED HEATING & AIR CONDITIONING P O BOX 883 MEDFORD, OR 97501	GLENN HILL MOUNTAIN GLEN HARPS 809 W 1ST STREET PHOENIX, OR 97535
GREG ANDERSON 1268 GARNER WAY MEDFORD, OR 97504	GREG CLAFLIN 214 4TH ST PHOENIX, OR 97535	GREG HAYES COLVIN OIL dba CIRCLE K 76 2520 FOOTHILL GRANTS PASS, OR 97535
GREG HAYES 20 SOUTH STAGE MEDFORD, OR 97501	GREG JUUL PHOENIX GROUNDSKEEPING SERVICE 361 HAMILTON RD JACKSONVILLE, OR 97530	GREG MILLS AIRPORT CHEVROLET 3001 BIDDLE RD MEDFORD, OR 97504
GREG SAFFER SAFFER TRADING COMPANY P O BOX 757 PHOENIX, OR 97535	GREG SCHMIT STREET LEATHERS P O BOX 865 PHOENIX, OR 97535	GREG WALKUP 1175 E. MAIN ST STE 1C MEDFORD, OR 97504
GUMARO FIGUEROA FIGUEROA'S LANDSCAPING LLP 1444 CAROLYN CIRCLE MEDFORD, OR 97504	HAROLD & MARILYN MOBLEY 108 MEADOWVIEW DR PHOENIX, OR 97535	HAROLD HAUGEN 4300 LOWER RIVER RD GRANTS PASS, OR 97526
HAROLD JACOBY WEST PAC DIV OF SO OR RESTORATION 141 C STREET GRANTS PASS, OR 97526	HAYDEN PETERS PHOENIX CLAY & STEELWORKS P O BOX 517 PHOENIX, OR 97535	HEIDI REESE 3790 CALHOUN RD MEDFORD, OR 97501
HELEN HARPER 48 FAIRWAY CIRCLE MEDFORD, OR 97501	HELEN NIKODYM P.O. BOX 431 PHOENIX, OR 97535	HENRY OPRAWSKI HENRY'S FOREIGN AUTO SERVICE 4586 S PACIFIC HWY PHOENIX, OR 97535
HLT INC. 1380 OLEANDER ST. MEDFORD, OR 97504	IGNACIO GOMEZ GOMEZ YARD SERVICE 3777 FALCON ST #64 WHITE CITY, OR 97503	J ALLEN HARRIS PO BOX 478 PHOENIX, OR 97535
J F SHEA ROCK 'N READY MIX P O BOX 1460 MEDFORD, OR 97501	JACK ASHCRAFT 2030 GREY EAGLE DRIVE MEDFORD, OR 97501	JACK SCHMIDT PRECISION ELECTRIC P O BOX 816 MEDFORD, OR 97501
JACQUELINE JUMP 120 PARKWAY PHOENIX, OR 97535	JADE WATT AUSSIE DOGS 221 N 2ND STREET TALENT, OR 97540	JAMES BALDWIN FASTENAL CO. 4149 S PACIFIC HWY MEDFORD, OR 97501
JAMES EPPERSON E/Z MOTORCYCLES 4526 S PACIFIC HWY PHOENIX, OR 97535	JAMES EPPERSON ROGUE VALLEY CHOPPERS 4526 S PACIFIC HWY PHOENIX, OR 97535	JAMES HAWKINS P.O. BOX 482 MEDFORD, OR 97501
JAMES HEMINGWAY HEMINGWAYS VINTAGE HOMES 3425 S PACIFIC HWY MEDFORD, OR 97501	JAMES LaVIA CRATER MUSIC CO P O BOX 3785 CENTRAL POINT, OR 97502	JAMES MANON SO OR HEATING & AIR 904 CHEVY WAY MEDFORD, OR 97504

JAMES SNOW J & J HEATING AND COOLING 2863 MADRONA LN MEDFORD, OR 97501	JAN DEBRITTO 300 LUMAN RD #11 PHOENIX, OR 97535	JAN YOST 3727 N. PHOENIX RD MEDFORD, OR 97504
JANE D. FORCE 2252 TABLE ROCK RD #219 MEDFORD, OR 97502	JANE TURNER, CITY MGR CITY OF PHOENIX P. O. BOX 330 PHOENIX, OR 97535	JANICE HASLER 3420 PAYNE RD MEDFORD, OR 97504
JANNA HABERMAN 341 LIVE OAK LOOP CENTRAL POINT, OR 97502	JASON & ELLEN JANTZE P.O. BOX 419 PHOENIX, OR 97535	JASON MUIR ULTRA PURE BOTTLED WATER 716 S GRAPE ST MEDFORD, OR 97501
JASON ROBINSON PHOENIX COMICS P O BOX 327 PHOENIX, OR 97535	JASON SNEE DREAMSCAPES 117 'C' COURT PHOENIX, OR 97535	JASON WOODS 93 NORTHRIDGE TERR #25 PHOENIX, OR 97535
JAYLINE LEWIS BACK IN BALANCE P O BOX 1168 PHOENIX, OR 97535	JEANNELL WYNTERGREEN P.O. BOX 330 PHOENIX, OR 97535	JEANNIE BAKER P.O. BOX 914 PHOENIX, OR 97535
JEANNINE WEYERS NORTHWEST COFFEE 2019 AERO WAY PMB190 #103 MEDFORD, OR 97504	JEDRICK BAURES P.O. BOX 293 PHOENIX, OR 97535	JEDRICK BAURES P O BOX 293 PHOENIX, OR 97435
JEFF BENSEN JEFF BENSEN ELECTRIC 1144 AUGUSTA COURT ASHLAND, OR 97520	JEFF BERNARDO 1335 POPLAR DRIVE MEDFORD, OR 97501	JEFF EDWARDS JEFF EDWARDS P O BOX 421 ASHLAND, OR 97520
JEFF ERRICK EPHEMERA INC P O BOX 490 PHOENIX, OR 97535	JEFF GUNHUS COLLEGE WORKS PAINTING 1682 LANGLEY AVE IRVINE, CA 92614	JEFFERY NORMAN NORMAN LUMBER P O BOX 1802 MEDFORD, OR 97501
JEFFREY HOYAL 3976 BELLINGER LANE MEDFORD, OR 97501	JEFFREY TAYLOR HUMMINGBIRD ELECTRIC 6310 BUTTE FALLS HWY EAGLE POINT, OR 97524	JENNIFER WILLIS ELITE HOME LOANS INC 4149 S PACIFIC HWY #434 MEDFORD, OR 97501
JEREMY RICHMOND J T ELECTRIC 4849 AIRWAY ROAD MEDFORD, OR 97501	JEREMY WOLF S 2 J CONSTRUCTION 490 B NORK LANE SHADY COVE, OR 97539	JERRY & TERESA JARVIS P.O. BOX 788 PHOENIX, OR 97535
JERRY GARCIA JERRY GARCIA PAINTING 1359 THOMAS RD MEDFORD, OR 97501	JERRY LAUSMANN KOGAP ELECTRIC P O BOX 16087 MEDFORD, OR 97501	JERRY NEAL P.O. BOX 965 PHOENIX, OR 97535
JERRY ROLAND INDUSTRIAL COATING & PAINT 1028 BRANDON WAY PHOENIX, OR 97535	JILL KELLER KELLER'S KITCHEN P O BOX 140 PHOENIX, OR 97535	JILL VYSE PA ACQUISITIONS 980 ATLANTIC AVE #103 ALAMEDA, CA 94501
JIM & DIANA MUHS 16068 MONACHE RD APPLE VALLEY, CA 97207	JIM & LIZ ROBINSON 1795 HOUSTON RD PHOENIX, OR 97535	JIM ACORD 3895 PAYNE RD MEDFORD, OR 97504
JIM DUC HUYNH B J NAILS 315 LIVE OAK LOOP CENTRAL POINT, OR 97502	JIM DULCICH PETRO STE 1900 1211 SW 5TH PORTLAND, OR 97204	JIM HANKS 4765 VILL. PLAZA LOOP #210 EUGENE, OR 97401

JIM PINKERT JIM PINKERT CONSTRUCTION 1101 N ROSE ST PHOENIX, OR 97535	JIM REEL AIRCO MECHANICAL INC 711 MEDFORD CENTER #39 MEDFORD, OR 97504	JIM SHANNON J & S EXCAVATING LLC 1125 MAPLE PARK DR MEDFORD, OR 97501
JIM WEAR P.O. BOX 330 PHOENIX, OR 97535	JO ANN MELER J'S PERSONAL SERVICES 326 PHOENIX HILLS DR PHOENIX, OR 97535	JO MERRITT 4601 S PACIFIC HWY PHOENIX, OR 97535
JOANN BRYANT 4069 S.PACIFIC HWY #72 PHOENIX, OR 97535	JoANN FREDERICKS BEAUTY BIZ LLC 205 FERN VALLEY RD SUITE E PHOENIX, OR 97535	JODI JANSEN FINAL DRAFT 469 ELM ST PHOENIX, OR 97535
JODI YAP TEMP LLC dba COMPUTER 2 KIDS P O BOX 1362 TALENT, OR 97540	JOE DWORKIN 2810 PAYNE RD MEDFORD, OR 97504	JOE JARVIS JARVIS VILLAGE P O BOX 788 PHOENIX, OR 97535
JOHN & CONNIE HENDRYCKS 132 MEADOWVIEW DR PHOENIX, OR 97535	JOHN C. GRAVES 1975 HOUSTON RD PHOENIX, OR 97535	JOHN CAMPBELL JAC ELECTRIC 994 S SHASTA EAGLE POINT, OR 97524
JOHN DELLER 816 BOLZ RD PHOENIX, OR 97535	JOHN FOX AIKAN DOJO OF AIKIDO YOSHINKAI 3700 BELLINGER LN #57 MEDFORD, OR 97501	JOHN GOETZ TRAVEL CENTERS OF AMERICA 12310 NE 245 AVE BRUSH PRAIRIE, WA 98606
JOHN GORST 3030 SHELTERWOOD CIRCLE MEDFORD, OR 97501	JOHN JACKSON 3550 CALHOUN RD MEDFORD, OR 97501	JOHN KELLER WISDOM SIGNS & AUTO CONVERSIONS 816 E BOLZ RD PHOENIX, OR 97535
JOHN KIESER 108 W. 6TH ST PHOENIX, OR 97535	JOHN LATHAM LATHAM PLUMBING 1149 OAK ST ASHLAND, OR 97520	JOHN LAWTON CUT 'N BREAK CONSTRUCTION P O BOX 1455 MEDFORD, OR 97501
JOHN MALSON BARKLEY'S dba JACK'S FULL MOON P O BOX 567 TALENT, OR 97540	JOHN MCDONALD 3500 NW STEWART PKWY ROSEBURG, OR 97470	JOHN N. OWENS WINDEMERE INVESTORS MARKETPLACE 609 EAST JACKSON STREET MEDFORD, OR 97504
JOHN PARIANI 1335 POPLAR DRIVE MEDFORD, OR 97504	JOHN RENTZ 735 N. MAIN ST PHOENIX, OR 97535	JOHN SKINNER SKINNER WHOLESALE CARS P O BOX 86 MEDFORD, OR 97501
JON JANAKES ASHLAND-MEDFORD PLUMBING & HEAT P O BOX 8494 MEDFORD, OR 97504	JOSE REYES LAFE P O BOX 715 MEDFORD, OR 97501	JOSEPH & RUTH JARVIS P O BOX 788 PHOENIX, OR 97535
JOSEPH BETTIS J B TECHNOLOGIES INC 1996 HUTCHINS CIRCLE MEDFORD, OR 97504	JOSH PLATT 3905 PAYNE RD MEDFORD, OR 97504	JOYCE NICHOLSON NICHOLSON EQUIPMENT 2355 CAMP BAKER RD MEDFORD, OR 97501
JOYCE ROBERTSON 6401 HILLCREST RD MEDFORD, OR 97504	JOYCE TONKIN 68 MOUNTAINVIEW DR PHOENIX, OR 97535	JUDY KIMBALL 73 FRESHWATER DR PHOENIX, OR 97535
JULIANO WILSON JULIANO HEATING 22347 SE HOFFMIESTER RD BORING, OR 97009	JULIE BIBLEHEIMER THE CLAY CUP 310 N MAIN ST PHOENIX, OR 97535	KAMIE BRADFIELD PARADISE REEFS 167 COUNTRY HILL DR PHOENIX, OR 97535

KAREN ECHOLS KAREN ECHOLS PHOTOGRAPHY P O BOX 1485 PHOENIX, OR 97535	KAREN JONES 220 PHOENIX HILLS DR PHOENIX, OR 97535	KAREN PEREZ P O BOX 931 ASHLAND, OR 97520
KATE KYRYLYUK STREET RENTS P. O. BOX 12 ASHLAND , OR 97520	KATHERINE GREENE P O BOX 1273 PHOENIX, OR 97535	KATHLEEN KELLENBECK 104 MEADOWVIEW DR PHOENIX, OR 97535
KATHRYN HOOPER P.O. BOX 817 PHOENIX, OR 97535	KATHY HOLIDAY KATRINA'S P O BOX 1882 JACKSONVILLE, OR 97530	KEN BAKER KRB BUILDERS 684 SISKIYOU BLVD ASHLAND, OR 97520
KEN PECK KEN'S AUTO REPAIR P O BOX 681 PHOENIX, OR 97535	KEN TURNER PALM HARBOR VILLAGE 320 PEAR TREE LANE PHOENIX, OR 97535	KENNETH HANKS 2600 TERR-MONT WHITE CITY, OR 97503
KENT ENGLISH ENGLISH EQUIP dba ACTION IND SYSTEMS 4 E CLARK ST MEDFORD, OR 97501	KERRY COCHRAN KC'S RENT-A-HUSBAND 2810 ORCHARD HOME DR MEDFORD, OR 97501	KIM AKIN AKIN CREATIVE TECH 266 SAMUEL LANE PHOENIX, OR 97535
KIM HANSEN 317 PHOENIX HILLS DRIVE PHOENIX, OR 97535	KIMBERLY KIMBALL KIMBERLY'S CREATIONS P O BOX 248 PHOENIX, OR 97535	KIMMAKONE SIHARATH PUCK'S DONUTS P O BOX 574 PHOENIX, OR 97535
KORY SHRADER SHRADER HOMES 3805 HILSINGER RD PHOENIX, OR 97535	KYLE RAYNOR TRAVEL CENTERS OF AMERICA 400 CENTRE STREET NEWTON, MA 2458	LAN ZHEN LU LIANG GOLDEN PHOENIX CHINESE RESTAURANT 920 WILLOWDALE AVE MEDFORD, OR 97501
LANCE REDMAN REDMAN ENT dba ZEE MEDICAL SERVICE P O BOX 22 FAIR OAKS, CA 95628	LARRY KELLEMS KELLEMS BUILDING & DEVELOPMENT 105 W VALLEY VIEW #4 TALENT, OR 97540	LARRY NOLTE MEDFORD JUDO ACADEMY 3059 CRYSTAL MT. AVE. MEDFORD, OR 97504
LARRY PARDUCCI HOLIDAY RV PARK P O BOX 1020 PHOENIX, OR 97535	LARRY RAINS, MANAGER MEDFORD WATER COMMISSION 200 SOUTH IVY STREET, ROOM 177 MEDFORD, OR 97501	LAURA COCHRAN DUN-ROV'N RV PARK P O BOX 1545 BEAVERTON, OR 97075
LEAH CASTER PHOENIX BARBER SHOP P O BOX 1047 PHOENIX, OR 97535	LEE BRENNAN 1175 E. MAIN ST. MEDFORD, OR 97501	LEE CARRAU 208 MEADOW VIEW PHOENIX, OR 97535
LEE GONNELLA PROSPERO'S FINE BOOKS 576 C STREET PHOENIX, OR 97535	LEEROY SHEMEL PETS, GIFTS & MORE 3761 S PACIFIC HWY #67 MEDFORD, OR 97501	LEIGH KEELER UNIQUE HAIR DESIGN BY LEIGH P O BOX 1883 PHOENIX, OR 97535
LELAND MOON WEST COAST SALES 300 LUMAN RD #75 PHOENIX, OR 97535	LENNY NIEMARK 380 KENT ST ASHLAND, OR 97520	LEONARD DUNCAN DC EROSION CONSULTING P O BOX 1856 PHOENIX, OR 97535
LEONE HOLDEN LEONE HOLDEN CPA P O BOX 114 PHOENIX, OR 97535	LEROY KNIGHT LEROY A KNIGHT CONSTRUCTION 2225 SPRING ST MEDFORD, OR 97504	LEVI CAMERON P.O. BOX 1175 PHOENIX, OR 97535
LILLIE MYERS 100 WEST BOLZ RD #4 PHOENIX, OR 97535	LINDA ELLEBRUCH 2475 HOUSTON RD PHOENIX, OR 97535	LINDA NICHOLS 111 E. 1ST ST PHOENIX, OR 97535

LINDA WILLIAMS TIPS AND TOES 4149 S PACIFIC HWY 323 MEDFORD, OR 97501	LISA SANDROCH 4810 FERN VALLEY RD MEDFORD, OR 97504	LISA WITNAUER BENTO PHOENIX P O BOX 578 PHOENIX, OR 97535
LLOYD FOLSOM OMEGA DESIGN P O BOX 486 PHOENIX, OR 97535	LORRAINE FERRELL 4400 INDEPENDENCE SCH RD MEDFORD, OR 97501	LORRAINE SEXTON PO BOX 13 PHOENIX, OR 97535
LOUIS BERTRAND 900 N. ROSE ST PHOENIX, OR 97535	LOUIS LEHNER L LEHNER CONSTRUCTION 113 FRESHWATER DR PHOENIX, OR 97535	LOUIS LICHTENSTEIN 101 LOCKE LANE PHOENIX, OR 97535
LUCILLE DUNN P.O. BOX 1150 PHOENIX, OR 97535	LUIS HARO HARO'S CONTRACTING SERVICES P O BOX 4241 TALENT, OR 97540	LYLE & CAROL HOOD 200 BOLZ RD PHOENIX, OR 97535
LYLE HILL McDONALDS #11234 724 S CENTRAL SUITE 110 MEDFORD, OR 97504	MARGOT HENDERSON BUDGET BLINDS 3279 BIDDLE RD MEDFORD, OR 97504	MARIE KOKKALIS THE TOTAL DOG 471 BEAR CREEK DR PHOENIX, OR 97535
MARILYN GRAY A-VAN CALLING INC 435 TEAKWOOD DR EAGLE POINT, OR 97524	MARIO PASTEGA PEPSI-COLA BOTTLING OF MEDFORD P O BOX K CORVALLIS, OR 97339	MARIO SIGNORELLI P M ASSOCIATES OF OREGON 67 FRESHWATER DR MEDFORD, OR 97501
MARK DUKART NORTHWEST MECHANICAL 5610 TABLE ROCK RD CENTRAL POINT, OR 97502	MARK KELLENBECK 104 MEADOWVIEW DR PHOENIX, OR 97535	YVONNE KITCHEN 2539 PIONEER RD TALENT, OR 97540
MARK MALLORY FAITHFUL VENDING 2001 SUZANNA ST MEDFORD, OR 97501	MARK ZAKOWSKI Z ELECTRIC 1050 YANKEE CREEK RD EAGLE POINT, OR 97524	MARKEY MOTSINGER TNT FIREWORKS - BETHEL CHURCH 1225 E McANDREWS MEDFORD, OR 97504
MARSHA HULTSMAN AJ'S TREASURES & GIFTS 4149 S PACIFIC HWY #F MEDFORD, OR 97501	MARTIN HANSON 118 COUNTRY HILL PHOENIX, OR 97535	MARY KOLAND 151 COUNTRY HILL PHOENIX, OR 97535
MARY TAYLOR 4545 FERN VALLEY RD MEDFORD, OR 97504	MATT & ANN GLANZ P.O. BOX 693 PHOENIX, OR 97535	MATT GARRIS GARRIS ENVIRONMENTAL SERVICES 535 INDUSTRIAL CIRCLE WHITE CITY, OR 97503
MAX & DOREEN BROWN 94 FRESHWATER DR PHOENIX, OR 97535	MELISSA WILLITS MELISSA WILLITS - HAIR TODAY 564 JAMES ST TALENT, OR 97540	MICHAEL EMITTE DAVID MICHAEL'S BARSTOOLS & DINETTES 205 FERN VALLEY RD SUITE 2 PHOENIX, OR 97535
MICHAEL FALCO BERRY'S AUTO BODY 5494 S PACIFIC HWY PHOENIX, OR 97535	MICHAEL HAMILTON VALLEY ELECTRICAL P O BOX 1555 MEDFORD, OR 97501	MICHAEL HAYS HAYS OIL COMPANY P O BOX 1220 MEDFORD, OR 97501
MICHAEL HERETH VIDEO WORLD P O BOX 1587 PHOENIX, OR 97535	MICHAEL HODGIN COLEMAN CREEK CONSTRUCTION 6714 COLEMAN CREEK RD MEDFORD, OR 97501	MICHAEL HOOPER PHOENIX PHARMACY P O BOX 817 PHOENIX, OR 97535
MICHAEL KLASTERMAN N W INT dba NIM'S SCRATCH & DENT 1652 KINGS HWY MEDFORD, OR 97501	MICHAEL KUSICK BLUE EARTH 625 S COLUMBUS MEDFORD, OR 97501	MICHAEL SNYDER ADT SECURITY SERVICES P O BOX 5035 BOCA RATON, FL 33431

MICHAEL SULLIVAN 4303 TAMI LANE CENTRAL POINT, OR 97502	MICKI SUMMERHAYS P.O. BOX 26 PHOENIX, OR 97535	MIGUEL MEJIA MARISCOS JALISCO 626 JUDGE LANE CENTRAL POINT, OR 97502
MIKE FOSTER 117 2ND ST PHOENIX, OR 97535	MIKE HOOPER P.O. BOX 817 PHOENIX, OR 97535	MIKE KAHN HOME COMFORT HEARTH INC 166 S MAIN ST PHOENIX, OR 97535
MIKE KRUG KRUG ELECTRIC 5280 CRATER LAKE AVE CENTRAL POINT, OR 97502	MIKE MAHAR 815 ALDER CREEK RD MEDFORD, OR 97504	MIKE MATCHETT NEW ALTERNATIVES TRANSPORTATION 563 N MAIN ST YREKA, CA 96097
MIKE MCKEY 1604 PACIFIC LANE PHOENIX, OR 97535	MIKE REESE MIKE REESE ENTERPRISES P O BOX 281 PHOENIX, OR 97535	MIKE STARR NATURAL SYSTEMS L/S INC 2272 E McANDREWS MEDFORD, OR 97504
MIRNA SILVA AFFORDABLE HOUSECLEANING P O BOX 1053 PHOENIX, OR 97535	MOE & NANCY MILLER 300 LUMAN RD #53 PHOENIX, OR 97535	MR. BENT LTM INCORPORATED P O BOX 1145 MEDFORD, OR 97501
MURIEL JOHNSON 203 PHOENIX HILLS DR PHOENIX, OR 97535	MURRAY LAHUE 300 LUMAN RD PHOENIX, OR 97535	NANCY DAVID ICS EMBROIDERY P O BOX 556 PHOENIX, OR 97535
NANCY LEEVER 2470 E. MCANDREWS RD MEDFORD, OR 97504	NANCY MILLER 300 LUMAN RD PHOENIX, OR 97535	NICK LEE P.O. BOX 1239 ASHLAND, OR 97520
NOEL LESLEY NOEL LESLEY EVENT SERVICES INC. 2630 SISKIYOU BLVD ASHLAND, OR 97520	ORRIE BATEMAN ORRIE THE PLUMBER 640 HERMAN AVE MEDFORD, OR 97501	PAM GARRISON SOFAS ETC. 205 FERN VALLEY SUITE H PHOENIX, OR 97535
PAM HAWKINS SALVATION ARMY PO BOX 757 MEDFORD, OR 97501	PAM HAWKINS THE SALVATION ARMY P O BOX 757 MEDFORD, OR 97501	PAM WEAVER 572 S. C. ST PHOENIX, OR 97535
PAMELA CROWLEY DAIZY MAIZE 205 FERN VALLEY RD #C PHOENIX, OR 97535	PARBHUBHAI MISTRY PHOENIX MOTEL P O BOX 267 PHOENIX, OR 97535	PARBHUBHAI MISTRY SUPER 8 MOTEL & RV PARK 300 PEAR TREE LANE PHOENIX, OR 97535
PAT JACOBSEN OH BABY 205 FERN VALLEY RD #G PHOENIX, OR 97535	PAT JAMESON TRAVEL CENTERS OF AMERICA 24601 CENTER RIDGE RD STE 100 WESTLAKE, OH 44145	PAT SCHUMWAY UMPQUA BANK P O BOX 1820 ROSEBURG, OR 97470
PATRICIA PALUMBO 636 E MAIN ST ASHLAND, OR 97520	PATRICK FOLGER ANGELO'S PIZZA 2161 W MAIN ST PHOENIX, OR 97535	PATRICK MURPHY MURPHY ELECTRIC 193 CARLOS AVE ROGUE RIVER, OR 97537
PATRICK NUTTING ADVANCED DRYWALL 322 WILSON RD CENTRAL POINT, OR 97502	PATTY RITTUE BASKET A CANDLES 330 PLUM ST MEDFORD, OR 97501	PAUL LANGE PERSONALIZED SOFTWARE P O BOX 359 PHOENIX, OR 97535
PAUL MEYER MOUNTAIN VIEW PAVING 2560 E MAIN ST ASHLAND, OR 97520	PAULA TRUESDELL 1562 PACIFIC LANE PHOENIX, OR 97535	PETER BUCKLEY 71 DEWEY ST ASHLAND, OR 97520

PETER CISLO LEAVE YOUR MARK! 4639 S PACIFIC HWY PHOENIX, OR 97535	PETER GRINDER METRO TAXI 727 WELCH ST MEDFORD, OR 97501	PETER HOYT PETER & CAROL HOYT ENT 806 W 1ST STREET PHOENIX, OR 97535
PETER RALLS SO OR ELECTRICAL CONTRACTORS P O BOX 383 PHOENIX, OR 97535	PETER WALTON BAVARIAN INN MOTEL P O BOX 443 TALENT, OR 97540	PHOENIX PROPERTIES 6400 DARK HOLLOW RD MEDFORD, OR 97501
R L GOERGEN CEDAR VALLEY dba RV SOUTH MHP P O BOX 1210 NORTH BEND, OR 97459	R TODD GOERGEN MEDFORD ICE P O BOX 97 COOS BAY, OR 97420	RALPH & BETTY HAMMOND 67 MOUNTAIN VIEW DR PHOENIX, OR 97535
RANDY CLEVELAND MARQUESS AND ASSOCIATES P O BOX 490 MEDFORD, OR 97501	RANDY McCARTY RANDY'S PLUMBING P O BOX 874 PHOENIX, OR 97535	RAY CLABORN MEDFORD ALARM dba SOS ALARM 3273 BIDDLE RD MEDFORD, OR 97504
RAY NIDIFFER C & K MKT dba RAY'S FOOD PLACE P O BOX 993 PHOENIX, OR 97535	REALTY INCOME GREAT WEST LLC (RAY'S) 1175 E. MAIN ST STE 2A MEDFORD, OR 97504	REALTY INCOME CORP. 600 LA TERRAZA BLVD ESCONDIDO, CA 92025
REBECCA CHAVEZ PETRO STOPPING CENTER 6080 SURETY DRIVE EL PASO, TX 79905	REBECCA SPENCER NEW WORLD NUTRITION P O BOX 608 PHOENIX, OR 97535	RECLIN-OR PROPERTIES LLC 3343 N. PHOENIX RD PHOENIX, OR 97535
RENEE CHILDS HARMONIC DESIGN AND IMAGING 3708 COLVER RD PHOENIX, OR 97535	RENEE PENN BOYD COFFEE COMPANY 19730 N E SANDY BLVD PORTLAND, OR 97230	RENEE ROSTEL ELECTRICAL SERVICES INC P O BOX 1693 JACKSONVILLE, OR 97530
RICH SCOTT P.O. BOX 1096 MEDFORD, OR 97501	RICHARD CROLY 5494 COLEMAN CR RD MEDFORD, OR 97501	RICHARD FRANCIS BEAR LAKE MOBILE ESTATES 300 LUMAN RD PHOENIX, OR 97535
RICHARD PEREZ HOME POWER INC P O BOX 275 ASHLAND, OR 97520	RICHARD RIPPER 1175 ROYAL AVE STE A MEDFORD, OR 97504	RICHARD RYAN HUNTER CONSTRUCTION 801 ENTERPRISE DR #101 CENTRAL POINT, OR 97502
RICK WHITE 6000 COLVER RD TALENT, OR 97540	ROB WOUTERS ADVANCED AUTOMATIC TRANSMISSION P O BOX 487 PHOENIX, OR 97535	ROBBIE CHAPMAN MOBILE CARE INC 3374 TABLE ROCK RD MEDFORD, OR 97504
ROBBIN HEMSLEY ROBBIN HEMSLEY P O BOX 1425 PHOENIX, OR 97535	ROBERT BRANDES BRANDES PLUMBING (ROBERT J) 4872 GRANT RD CENTRAL POINT, OR 97502	ROBERT CHAFFEE LADY BUG ENTERPRISES 217 SAMUEL LN LP RD PHOENIX, OR 97535
ROBERT CHILDS RAC DRYWALL P O BOX 1318 PHOENIX, OR 97535	ROBERT DUNCAN SONITROL OF SO OREGON 546 BUSINESS PARK DR MEDFORD, OR 97504	ROBERT HURST R H HURST CONSTRUCTION P O BOX 1062 JACKSONVILLE, OR 97530
ROBERT MACKINNON THE GARDEN STUDIO 102 BRECKINRIDGE DR MEDFORD, OR 97504	ROBERT MAGRUDER KARMAL ENT dba DISCOVERY CORNER P O BOX 489 PHOENIX, OR 97535	ROBERT MARLOW 304 CORAL CIRCLE PHOENIX, OR 97535
ROBERT McKEAN JEFFERSON STATE KNIFE COMPANY P O BOX 1881 PHOENIX, OR 97535	ROBERT MUMBY 300 MEADOWVIEW DR PHOENIX, OR 97535	ROD CAMERON R-C AUTO PARTS P.O. BOX 1177 PHOENIX, OR 97535

ROD PIERSON P.O. BOX 920 PHOENIX, OR 97535	RODNEY SINCLAIR 2124 HAPPY VALLEY DR MEDFORD, OR 97501	ROGER MILLER III ACTION APPLIANCE SERVICE 2305 ASHLAND SUITE C ASHLAND, OR 97520
ROLAND DOW 72 FAIRWAY CIRCLE MEDFORD, OR 97504	RON LeCORNU MERCURY AIR & METAL P O BOX 3074 CENTRAL POINT, OR 97502	RONALD BRENNEMAN 4445 TABLE ROCK RD MEDFORD, OR 97502
RONALD LINDVIG LINDVIG AUTOMOTIVE ENTERPRISES 4612 S PACIFIC HWY PHOENIX, OR 97535	RONALD PEMBERTON REP ENTERPRISES INC. P O BOX 1045 EAGLE POINT, OR 97524	ROSALIE LINDVIG 4415 INDEPENDENCE SCH RD MEDFORD, OR 97501
ROY BURRIS SOS PLUMBING 165 WATER ST ASHLAND, OR 97520	ROY PROBST VALLEY HEATING & SHEET METAL 2584 BULLOCK RD MEDFORD, OR 97504	RUDOLPH SMITH 4069 SO. PACIFIC HWY MEDFORD, OR 97501
RUDY SMITH 4069 SO. PACIFIC HWY PHOENIX, OR 97535	RUSS & ELOISE BARRY 121 MEADOW VIEW DRIVE PHOENIX, OR 97535	RUSSELL BLACK B & G GUTTER TECH 4189 COLVER RD PHOENIX, OR 97535
RUSSELL HAMMER HAMMER'S ON-SITE RV REPAIR SERVICE 1430 APPLEGATE LANE MEDFORD, OR 97501	RUTH KLAUS FOUR TAILS PET SITTING 300 LUMAN RD #74 PHOENIX, OR 97535	SALLY SIEBERT 112 COUNTRY HILL DR PHOENIX, OR 97535
SAM & GLADYS ROBINSON 2682 SPRING LANE SUTHERLIN, OR 97479	SAM CAMP 4201 FERN VALLEY RD MEDFORD, OR 97501	SAM FUNG 2368 CRATER LAKE AVE #102 MEDFORD, OR 97504
SANDRA BARTELL 2428 DAVID LN MEDFORD, OR 97504	SANDRA CAMPBELL BLINDS FOR LESS P O BOX 4241 MEDFORD, OR 97501	SANDRA STANIFORTH SANDRA J STANIFORTH BUS SERVICE P O BOX 564 PHOENIX, OR 97535
SCOTT ATKINSON NAG DRYWALL 321 WILLAMETTE AVE MEDFORD, OR 97504	SCOTT FARMER CINTAS CORPORATION 6800 CINTAS ST CINCINNATI, OH 45262	SCOTT FRIESON ADVANCED AIR AND METAL INC. P O BOX 3317 CENTRAL POINT, OR 97502
SHANNON BEALER P.O. BOX 1207 PHOENIX, OR 97535	SHANNON BOWLEY 4149 S.PACIFIC HWY MEDFORD, OR 97501	SHARON CARPENTER THE MAIL TRIBUNE P O BOX 1108 MEDFORD, OR 97501
SHARON KOSAK DWELLING PLACE REALTY 1863 CUNNINGHAM AVE MEDFORD, OR 97501	SHELLY HARKIN VALLEY SEW & VACUUM 4044 CRATER LAKE AVE MEDFORD, OR 97504	SKIP DUPAR TUBE ART DISPLAYS 2730 OCCIDENTAL AVE S SEATTLE, WA 98134
STACY PAGE GREENTIME LANDSCAPE 1407 N HIGHWAY 99 ASHLAND, OR 97520	STAN & CAROL BARTELL PHOENIX AUTOMOTIVE P O BOX 519 PHOENIX, OR 97535	STEPHEN HENRY 608 N. MAIN PHOENIX, OR 97535
STEPHEN LARRENCE 4150 S. PACIFIC HWY MEDFORD, OR 97501	STEVE & BARB BROWN 100 MEADOWVIEW DRIVE PHOENIX, OR 97535	STEVE & CAROL HAWK P.O. BOX 338 PHOENIX, OR 97535
STEVE APTED LUMPY'S P O BOX 901 PHOENIX, OR 97535	STEVE HESS PACIFIC ELECTRICAL CONTRACTORS P O BOX 1430 MEDFORD, OR 97502	STEVE HUBLER 100 BOLZ RD PHOENIX, OR 97535

STEVE MORGAN DESIGNER DESIGNS 842 S FRONT ST CENTRAL POINT, OR 97502	STEVE MULLIS AL'S SHARPENING SERVICE P O BOX 29 PHOENIX, OR 97535	STEVE ROUSE ROGUE VALLEY LLC P O BOX 475 PHOENIX, OR 97535
STEVEN FISHER PARAMOUNT PEST CONTROL P O BOX 13386 PORTLAND, OR 97213	STEVEN LEONARD STEVEN A LEONARD 4207 CEDAR LANE MEDFORD, OR 97504	SUPPORT CENTER HOME DEPOT USA INC. STORE 2455 FERRY ATLANTA, GA 30339
SUSAN MARQUESS BILLING CONNECTION P O BOX 1470 PHOENIX, OR 97535	SUSAN McCRACKEN McQUILTS 4403 S PACIFIC HWY PHOENIX, OR 97535	SYLVIA SULLIVAN 115 COUNTRY HILLS DR PHOENIX, OR 97535
T. SCOTT DUNN P.O. BOX 276 PHOENIX, OR 97535	TALMAGE KAYLOR KAYLOR ELECTRIC LLC 3847 S PACIFIC HWY MEDFORD, OR 97501	TANI WOUTERS P.O. BOX 487 PHOENIX, OR 97535
TANYA BEMIS BEMIS DEVELOPMENTS P O BOX 1018 ASHLAND, OR 97520	TC BLACKWELL NBIC INC/STATEWIDE TACTICAL PATROL 216 E MAIN ST #201 MEDFORD, OR 97501	TED & MARIA MARTIN 3381 N. PHOENIX RD PHOENIX, OR 97535
TED DEFORD 3727 N. PHOENIX RD MEDFORD, OR 97504	TERESA TAYLOR PHOENIX SELF STORAGE - TAYLOR FAM. 725 ROYAL AVE - OFFICE MEDFORD, OR 97504	TERRI MAGRUDER EXCLUSIVELY CATS VETERINARY HSP P O BOX 1199 PHOENIX, OR 97535
TERRI McKAY SUBWAY OF PHOENIX P O BOX 1672 PHOENIX, OR 97535	TERRY & KIM ROMBACH 104 LOCKE LANE PHOENIX, OR 97501	TERRY LEASE OREGON HEATING/REPAIR 1861 DELTA WATERS RD MEDFORD, OR 97504
TERRY SMITH 100 CITTRELL DRIVE MEDFORD, OR 97504	THOMAS RICCIARDI STUDIO ART GLASS 205 FERN VALLEY RD M-2 PHOENIX, OR 97535	THOMAS SMITH SOCO'S LA BURRITA 115 RHONDA LANE PHOENIX, OR 97535
THOMASINA RUSH 300 LUMAN ROAD PHOENIX, OR 97535	TIM CUMMINS VALLEY CAB & LIMOSINE P O BOX 1012 ROGUE RIVER, OR 97537	TIM DAWSON THE SOLAR COLLECTION P O BOX 295 TALENT, OR 97540
TIM PRICE SISKIYOU PLUMBING P O BOX 382 ASHLAND, OR 97520	TIMOTHY FORD SPRAYMASTERS, INC. 221 N CENTRAL #362 MEDFORD, OR 97501	TIZIANA DeROVERE GREATLAND ENTERPRISES 114 BRECKINRIDGE PHOENIX, OR 97535
TIZIANA DeROVERE 114 BRECKINRIDGE PHOENIX, OR 97535	TOBY TOBIAS 1412 TALENT AVE TALENT, OR 97540	TODD FINE COCA COLA 1150 124TH AVE N E BELLEVUE, WA 98005
TOM ALLRED JACK'S BOARD HOUSE 4374 S PACIFIC HWY PHOENIX, OR 97535	TOM FISCHER COLDWELL BANKER COMMERCIAL NW 767 SOUTH RIVERSIDE AVE MEDFORD, OR 97501	TOM GILLIN TOYS FOR THE HOME 205 FERN VALLEY RD #0 PHOENIX, OR 97535
TOM GIORDANO PO BOX 330 PHOENIX, OR 97535	TOM HARDMAN HARDMAN CONSTRUCTION P O BOX 758 ROGUE RIVER, OR 97537	TOM RUNDLE RUNDLE CONSTRUCTION 61196 BONNY BRIDGE BEND, OR 97702
TOM STASSENS 3727 N. PHOENIX RD MEDFORD, OR 97504	TONI ANN EDWARDS MEDFORD PLATE GLASS & MIRROR 4751 INDUSTRY DRIVE CENTRAL POINT, OR 97502	TONY CHAVEZ GARAGEBILT MACHINES P O BOX 1894 PHOENIX, OR 97535

TRACY OMEGA 2824 COKER BUTTE RD MEDFORD, OR 97504	TROY & KAREN IRVING 975 S THIRD ST JACKSONVILLE, OR 97530	TY SULLIVAN DUTCH BROTHERS COFFEE 201 BATEMAN DR #23 CENTRAL POINT, OR 97502
URSULA TOBAR 100 N PACIFIC HWY #121 TALENT, OR 97540	V.R. INC 4150 S. PACIFIC HWY PHOENIX, OR 97535	VALENTIN GUERRERO THE TILE POLISHER P O BOX 1372 PHOENIX, OR 97535
VALERIE KERSHNER NO BARE PAGES SCRAPBOOK CO 205 FERN VALLEY RD SUITE F PHOENIX, OR 97535	VAUGHN JONES GOOD EARTH LANDSCAPE 2420 JACKSONVILLE HWY MEDFORD, OR 97501	VERDA THUMLER ALTERNATIVE HAIR BY VERDA P O BOX 726 PHOENIX, OR 97535
VERN & JIMMIE REED 167 COUNTRY HILLS DR PHOENIX, OR 97535	VERN & MARTI ARNOLD 333 PHOENIX HILLS DR PHOENIX, OR 97535	VERNON BLAIR P.O. BOX 1103 JACKSONVILLE, OR 97530
VEZIAH HINCHEN 204 W. 2ND ST PHOENIX, OR 97535	VICKI BEAR, MAYOR P.O. BOX 330 PHOENIX, OR 97535	VICTOR BALERO OREGON VALLEY LAWN 193 SUNWOOD DR MEDFORD, OR 97501
VICTOR BLOOMQUIST MEDICAL BODY ART P O BOX 1883 PHOENIX, OR 97535	VICTOR MENDOZA FIESTA BAR AND GRILL P O BOX 518 PHOENIX, OR 97535	VIN MEHTA JACK IN THE BOX 309 BARNETT RD MEDFORD, OR 97501
VIRGINIA FENSTERMEYER 407 PHOENIX HILLS DR PHOENIX, OR 97535	WALLACE YOST PETERBUILT P O BOX 3486 PORTLAND, OR 97208	WALLY SCHMIDT WALLY SCHMIDT ELECTRIC P O BOX 946 GRANTS PASS, OR 97526
WANDA LONG NORTON LUMBER P O BOX 864 PHOENIX, OR 97535	WARREN GRETHER 3432 GALLS CR RD GOLD HILL, OR 97525	WAYNE LEE STURLIER CONSTRUCTION 2247 MARTIN DRIVE MEDFORD, OR 97501
WENDY LONGO WENDY'S 1253 CORONA AVE MEDFORD, OR 97504	WES NIETO GREEN ACRES YARD CARE P O BOX 125 JACKSONVILLE, OR 97530	WES NORTON CREEKSIDE ESTATES 4601 S PACIFIC HWY PHOENIX, OR 97535
WILHELMINA ROSA Delane XPRESS YO' SELF 673 VALLEY VIEW TALENT, OR 97540	WILLA JOHNSON PO BOX 998 PHOENIX, OR 97535	WILLIAM BONFIELD BONFIELD INDUSTRIAL 549 E VILAS RD CENTRAL POINT, OR 97502
WILLIAM CHAN FARMER BROTHERS COFFEE 20333 S NORMANDIE TORRANCE, CA 90502	WILLIAM GAAR GAAR PLUMBING LLC 988 SYDNEY COURT CENTRAL POINT, OR 97501	WILLIAM HANSEN HANSEN PACIFIC PLUMBING 98 W GLENWOOD RD MEDFORD, OR 97501
WILLIAM JONES MEDICAL APPOINTMENTS XPRESS 23611 HWY 62 #45 TRAIL, OR 97541	WILLIAM KELTON RANDY'S DISCOUNT GROCERTIES 4643 RISING GLEN DRIVE CENTRAL POINT, OR 97502	WILLIAM REAGAN BILL'S BACKHOE SERVICE 1568 PACIFIC LANE PHOENIX, OR 97535
WILLIAM SCARBOROUGH JR INTERSTATE FIVE INVESTORS P O BOX 3486 PORTLAND, OR 97208	WILLIAM YEHLE SUNRAY ELECTRIC P O BOX 4752 MEDFORD, OR 97501	

GLOSSARY

Aboveground Storage Tank (AST): Tanks or other containers that are above ground, partially buried, bunkered, or in a subterranean vault.

Access Control: The limiting or regulating of access between public and/or private access to Oregon State highways, as required by law.

Access Management: A transportation strategy to manage the flow of traffic by regulating public road and private driveway connections to the roadway; requires balancing access to developed land with ensuring safe and efficient movement of traffic.

Agricultural Land: In western Oregon, predominantly Class I, II, III and IV soils; in eastern Oregon, predominantly Class I, II, III, IV, V and VI soils. Includes land not within urban growth boundaries or within acknowledged exceptions to Statewide Planning Goal 3.

Alignment: Geometric arrangement of a roadway (e.g., curvature).

Ambient Noise: The background sound of an environment in relation to which all foreground sounds are heard. Ambient noise level is a measure of the background noise of an environment over a given period of time.

Area of Potential Effects (APE): An area within which an action may directly or indirectly cause changes in the character or use of historic properties or cultural resources.

Area of Potential Impact (API): The area likely to be impacted by a project. The API is influenced by the scale and nature of impacts caused by a project, and may differ by kinds of impacts. This term applies to all studied disciplines with the exception of cultural resources.

Average Daily Traffic (ADT): The average number of vehicles passing a certain point each day on a highway, road or street.

Best Management Practices (BMPs): Schedules of activities, prohibitions of practices, maintenance procedures, treatment requirements, operating procedures, and other practices to prevent or reduce adverse impacts to the environment (e.g., practices to control plant site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage).

Capacity: Maximum volume of traffic that the roadway section is able to carry on a sustained basis.

Candidate Species: Species for which information indicates that listing is possible, but conclusive data are not yet available.

CETAS (Collaborative Environmental and Transportation Agreement for Streamlining): A group, including representatives of federal and state agencies having jurisdictional authority over transportation-related environmental issues, that meets to help streamline the environmental review process for major ODOT transportation projects

Comprehensive Plan: A general community plan stating the long-range goals and policies that will govern a county or city's future development. Adopted comprehensive plans in Oregon must include citizen participation, address statewide planning goals, and be reviewed periodically.

Congestion: Overcrowding of a highway with vehicles that makes movement slow or difficult.

Crash Rate: Crash rates are calculated with the number of crashes, length of highway segment (in miles) and annual traffic volumes.

Cumulative Impacts: The impact on the environment resulting 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 actions.

Decibel A-scale (dBA): Sound levels, measured in decibels, with a frequency weighting corresponding to the A-scale; this rating system closely represents the human hearing response, used to express relative difference in power or intensity.

***De Minimis* Use:** As amended by SAFETEA-LU (Public Law 109-59) in August 2005, *de minimis* provides for FHWA approval of a project that results in a use that is so small that the law does not consider it to have an adverse effect on the activities, features, and attributes that qualify the Section 4(f) resource for protection.

Direct Impacts: Impacts caused by the action, occurring at the same time and place as the action.

Endangered species: Defined by the Endangered Species Act as "…any species [including subspecies or qualifying distinct population segment] which is in danger of extinction throughout all or a significant portion of its range.

Environmental Assessment (EA): A public document that describes existing conditions, identifies potential effects of a project, and proposes measures to minimize or offset significant negative effects. It is used by state and federal agencies to determine if a proposed project has significant environmental impacts and to decide if it should be approved.

Environmental Justice (EJ): Process that ensures highway projects do not disproportionately impact one segment of the population (EJ populations are defined as minorities and/or low-income groups).

Evaluation Criteria: Criteria used to rank/evaluate feasible alternatives based on various factors (e.g., cost, safety, natural environmental impacts, socioeconomic environmental impacts, and local preference).

Exclusive Farm Use Zone (EFU): A zone in which land use is intended to preserve large parcels for profitable farming outside a city's urban growth boundary. These lands are protected by Statewide Planning Goal 3, and are based on soil types conducive to farming.

Freight Route: Routes identified in the Oregon Highway Plan as Interstate, Statewide, Region and District highways that cary significant tonnage of freight by truck, and serve as the primary interstate and intrastate highway freight connections to ports, inter-modal terminals and urban areas.

Goal Exception: A comprehensive plan amendment required when actions that would apply to specific properties or situations would not comply with some or all statewide goal requirements (e.g., Goal 3—Agricultural Lands; Goal 4—Forest Lands).

Habitat: An area with the combination of necessary resources (food, cover, water) and environmental conditions (temperature, precipitation, presence or absence of predators and competitors) that encourages occupancy by individuals of a given species (or population), and allows those individuals to survive and reproduce.

Highway Design Manual (HDM): The engineering manual that provides uniform procedures for ODOT and is intended to provide guidance for the location and design of new construction, major reconstruction, and resurfacing, restoration, or rehabilitation projects.

Interchange Area Management Plan (IAMP): A long-term plan to manage land use and transportation decisions for a defined area around an interchange by ensuring that the design of the interchange and supporting roads, along with permitted local land uses, provide safe and efficient operating conditions for more than 20 years.

Listed Species: A plant, animal or wildlife species that has been identified as threatened or endangered under the Federal Endangered Species Act or the Oregon Endangered Species Rules.

Metropolitan Planning Organization (MPO): A planning body in an urbanized area of over 50,000 population which has responsibility for developing transportation plans for that area. MPOs currently exist in the Eugene/Springfield, Medford, Portland, Salem, Corvallis/Philomath, and Bend areas.

Minimize: Refers to the reduction or lessening of impacts.

Mitigation and Conservation Measures: Actions taken to limit, reduce or eliminate environmental impacts; these measures may offset the negative effects of proposed projects or actions.

Mobile Source Air Toxics (MSATs): Compounds emitted from highway vehicles and non-road equipment which are known or suspected to cause cancer or other serious health and environmental effects.

Mobility Standards: Standards set in the *Oregon Highway Plan* for mobility on highways based on volume-to-capacity ratios that vary according to the highway classification and urban or rural land use types.

National Ambient Air Quality Standards (NAAQS): Standards that define the maximum allowable level of specific air pollutants in the outdoor air over a specific period of time.

National Environmental Policy Act (NEPA): National law established in 1969 that requires consideration of alternatives and public disclosure of all environmental, social, and economic impacts for federally funded projects that may have significant impacts to the natural or human environment.

National Pollutant Discharge Elimination System (NPDES): As authorized by the Clean Water Act, the permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

National Register of Historic Places (NRHP): The nation's official list of cultural resources worthy of preservation, as authorized under the national Historic Preservation Act of 1966. The National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archaeological resources.

Noise Barrier: A wall constructed out of wood, concrete, metal or other materials to reduce noise levels. Noise barriers are usually constructed between highways and adjacent residences.

Noxious Weeds: Plants classified by the Oregon State Weed Board and U.S. Department of Agriculture as injurious to public health, agriculture, recreation, wildlife, or any public or private property.

Oregon Administrative Rules (OAR): Rules written by Oregon state agencies intended to clarify the intent of an adopted law.

Oregon Highway Plan (OHP). The document, adopted by the Oregon Transportation Commission, that establishes long-range policies and investment strategies for the state's highway system.

Oregon Revised Statutes (ORS): The laws passed by the legislature to govern the State of Oregon.

Oregon Transportation Commission (OTC): ODOT's governing body. The Commission has five members appointed by the Governor.

Particulate matter: Dust, soot, and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, garbage incineration, fertilizer and pesticide application, road construction, industrial processes (e.g., making steel), mining operations, agricultural field burning, and operation of fireplaces and woodstoves. Particulate pollution can cause eye, nose, and throat irritation and other health problems.

Peak Hour: Hour of the day with the most traffic, usually during morning and evening commute times.

Pedestrian: A person on foot, in a wheelchair, or walking a bicycle.

Pier: The upright support pillar of a bridge.

Pollutant: Foreign, undesirable physical, chemical or biological substance, often human-made, that causes contamination of an environment.

Purpose and Need: A preliminary step when developing a proposed project requiring NEPA documentation (e.g., Environmental Assessment or Environmental Impact Statement). Clarifying the project's purpose and confirming the project's need, are critical when developing large-scale proposals requiring public expenditure.

Raised Median: A non-traversible median where curbs are used to help delineate the boundry between the median and the adjacent traffic lane and to elevate the surface of the median above the surface of the adjacent traffic face.

Realignment: Rebuilding an existing roadway on a new alignment where the new centerline shifts outside the existing right of way and where the existing road surface is either removed, maintained as an approach road, or maintained as a connection between the realigned roadway and a road that intersects the original alignment.

Revised Environmental Assessment (REA): A public document that describes the selected alternative and the reasons for its selection, lists mitigation measures to be taken, summarizes public involvement in the project development process, and responds to public comments on the EA.

Right of Way: A general term denoting publicly-owned land, property, or interest. The entire width between the exterior right of way lines including the paved surface, shoulders, ditches, and other drainage facilities in the border area between the ditches or curbs and right of way line.

Riparian: A vegetated area on, or adjacent to, the banks of a stream, river or pond.

Roadway: The paved portion of a highway.

Statewide Planning Goals: A set of 19 goals required by OAR 660, Division 15, that express the State's policies on land use and on related topics such as citizen involvement, housing, and natural resources. Local comprehensive planning is used to achieve Oregon's statewide goals.

Stormwater: Precipitation flowing from a land surface into streams, lakes or other waterways; stormwater often contains pollutants.

Threatened: Species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (in accordance with the Endangered Species Act).

Transportation Analysis Zone (TAZ): A small unit of geography that can often be matched to Census tracts or block groups.

Transportation Demand Management (TDM): Actions and policies that encourage people to modify their travel behavior so that the highway system has reduced peak-period single

occupant vehicle traffic. Examples of TDM include rideshare programs, discounted transit passes, pricing strategies, and flexible work hours.

Transportation System Management (TSM): Techniques and technologies applied to the system to improve traffic flow. Examples include ramp metering, automated sign controls, bus priority signaling, video surveillance, and incident response services.

Transportation System Plan: A long-range plan that guides multi-modal transportation investments and contains goals, objectives, policies, and projects for improving livability.

Underground Storage Tank (UST): Tanks or other containers or piping that are 10 percent or more beneath the ground surface. State databases identify sites with registered USTs. A leaking UST is a UST identified in these databases with a reported incident of a release of a hazardous material and/or petroleum product.

Urban Growth Boundary (UGB): The area surrounding an incorporated city in which the city may legally expand its city limits.

Vehicle Miles Traveled (VMT): The number of miles traveled per vehicle multiplied by the total number of vehicles.

Volume-to-Capacity Ratio (v/c): A measure of roadway congestion—the percentage of a roadway or intersection's capacity that is being utilized by the measured or anticipated traffic volumes. The v/c ratio is calculated by dividing the number of vehicles passing through a section of highway during the peak hour by the capacity of the roadway section.

Waters of the State: Natural waterways including all tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in Oregon; navigable and non-navigable waters, including that portion of the Pacific Ocean that is in the boundaries of the state.

Waters of the U.S.: Water bodies over which the U.S. Army Corps of Engineers has regulatory jurisdiction under the Clean Water Act. Waters of the U.S. refer to those bodies of water that have been or may be used in interstate commerce, including lakes, rivers, streams, and wetlands.

Watershed: An area bordered by topographic high points causing water to drain to a common destination.

Wetland: Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and bogs.

Wetland Delineation: A survey conducted by a qualified scientist to determine the extent and type of regulated wetlands that may be affected by a project. This survey includes evaluation of vegetation, soils and hydrology. The wetland delineation report consists of a map of the wetlands, supporting data sheets, written descriptions, and photographs which document the boundaries of the wetland.

APPENDICES

[Page intentionally left blank]

APPENDIX A
ALTERNATIVES CONSIDERED BUT NOT ADVANCED

An extensive study of a wide range of potential solutions was conducted for the Fern Valley Interchange project. This process occurred over a period of more than three years, and nearly 30 alternatives were evaluated. Throughout the project development process, each potential alternative went through a two-level evaluation process based on criteria developed by the project teams:

- **Screening criteria:** Each alternative concept was first evaluated through the filter of screening criteria. Screening criteria are intended to determine if alternatives would meet the Purpose and Need for the proposed project. These screening criteria focus on important transportation design, traffic, safety, and land use criteria that must be met for an alternative to be considered feasible. An alternative must meet these criteria to be considered feasible; however, alternatives that came very close to meeting the screening criteria were considered feasible if they could obtain approvals for minor deviations from the applicable criteria. ODOT sometimes grants design exceptions for minor variances from applicable engineering standards, provided that the exception would not compromise safety or system operations. For example, for Interstate-5, ODOT's interchange spacing standards require a minimum 3-mile distance between interchanges in urban areas. Alternatives that would have come close to this criteria, such as providing 2.8 miles between interchanges, were considered to be eligible for a potential design exception and were not considered to fail the interchange spacing standard criteria. Alternatives that only provided 1-mile between interchanges were considered not to be eligible for a design exception and were considered to fail the interchange spacing standard criteria.

  Alternatives that met the screening criteria were considered to meet the project Purpose and Need and were then further evaluated using the evaluation criteria outlined below. Those alternatives that did not meet the screening criteria were considered to not meet the project Purpose and Need and were dismissed from further consideration.

- **Evaluation criteria**, the second filter, were derived from the goals and objectives developed for the project. An alternative did not have to meet all of these criteria, but the criteria helped to evaluate how alternatives compared to each other in terms of potential impacts and benefits. The evaluation criteria generally fall into two categories: environmental impacts and social and economic impacts. Environmental criteria included the alternative's impacts to wetlands, riparian habitat, historic properties and air quality. Social and economic criteria included impacts to existing residences and businesses, impacts to the Bear Creek Greenway, and providing efficient movement of freight and school buses.

SCREENING CRITERIA

1. **Meet capacity (v/c ratio) standards at key locations for the 20-year design period.** Key locations include the Fern Valley Road intersections with the interchange ramps, OR 99, and N. Phoenix Road. This criterion is focused on reducing congestion and improving operational conditions in the project area. Of particular concern for this proposed project is the need to reduce queuing on the interchange ramps and improve sight distance in the interchange area.
   - Mobility standards for I-5, the ramp terminals and other roads are discussed in Chapter 3, Section 3.1.1, Traffic Analysis. In general, v/c ratios were considered acceptable if below or near 0.80 for interstate highways, 0.85 for interstate ramp terminals, and 0.90 for district/local interest roads.
   - V/c ratios were considered unacceptable if severe congestion was projected (v/c > 1.0).

2. **Meet roadway design standards and spacing requirements.** Roadway and interchange design standards (including spacing requirements) are specified in the *Oregon Highway Plan*, *Highway Design Manual*, and applicable jurisdictional standards. Design standards help to ensure safety and the efficient operation of the transportation system. An interchange design is safest and most effective if it has standard cross-sections and does not have approaches that are too steep, which would limit visibility. Meeting spacing standards minimizes traffic conflicts (making turning movements easier), reduces queuing and congestion, and minimizes other traffic-related problems. Exceptions to design standards are allowed as long as safety and the function of the facility are not compromised. Design exceptions are normally granted in situations where the design is close to meeting the applicable engineering standard and does not compromise safety or facility performance. Spacing standards for interchanges and between highway approach roads (driveways and local streets), and roadway slope standards were key determinants for this criterion:
   - The spacing standard for urban interchanges is 3.0 miles. Close adherence to this standard (e.g., 2.8 miles) was considered acceptable because a design exception could probably be obtained. Major variations from this standard (e.g., 0.5 mile) were considered severe and would likely not receive approval for a design exception.
   - The spacing standard from the interchange ramp terminals to the nearest intersection is 1,320 feet.
   - The spacing standard between roads and driveways is 350 feet.
   - Roadway grades of less than 6% are normally considered acceptable. Grades in excess of 6% are considered unacceptable because the grades become too steep to allow for safe sight distance and acceptable traffic operations.

3. **Provide standard bike and pedestrian facilities**.
   - Bike facilities are considered acceptable if they provide a 5-foot minimum width. Bike facilities would be considered unacceptable if they provide a 2 or 3-foot minimum width, which would severely compromise safety.
   - Sidewalks are considered standard if they provide a 6-foot minimum width and meet American with Disabilities Act (ADA) requirements (e.g., sufficient width for adequate sidewalk and ramp design). Sidewalk widths of 2 or 3 feet would be considered unacceptable.

4. **Improve safety within the project area.** Safety is best met by ensuring close adherence to design and spacing standards; minimizing traffic, pedestrian, bicycle and transit conflicts; and reducing congestion. The evaluation of this criterion is embedded in Criteria #1, 2 and 3.

5. **Be consistent with the Statewide Planning Goals.** Alternatives were evaluated to determine if the alternative would require exceptions to Oregon's Statewide Planning Goals. There are 19 Statewide Planning Goals, which address a range of planning, environmental, economic, and social values. In Oregon, amendments to city and county comprehensive plans, including transportation system plans (TSPs), must comply with the Statewide Planning Goals, unless the city or county takes an exception to the applicable goals. For the proposed Fern Valley Interchange project, such an exception would be a formal determination by Jackson County, supported by findings of fact and reasons, which justifies a departure from the policy that urban-level transportation improvements should not be built outside UGBs. State of Oregon administrative rules (OAR 660-012) establish standards for when urban-level transportation improvements outside UGBs are exempt from goal exceptions and what must be demonstrated to qualify for exceptions. Among these standards are:
   - Roadway realignments that do not change the roadway's function are exempt from Goal exception requirements[1];
   - A roadway improvement does not qualify for goal exceptions if there is a reasonable alternative that does not require goal exceptions;
   - If more than one roadway improvement alternative would require goal exceptions and they are located on land zoned for exclusive farm or forest use, it is obligatory to select the one "that has the least impact on lands in the immediate vicinity devoted to farm or forest use"; and
   - Determinations of what is reasonable must consider "cost, operational feasibility, economic dislocation and other relevant factors."

For this project, some alternatives impacted EFU property outside the UGB , potentially requiring an exception to Statewide Planning goal #3, Agriculture (OAR660-012-0070). These alternatives were analyzed and dismissed if they had a greater impact on EFU vs other alternatives that met the Purpose and Need of the project.

[1] Another requirement is that "the existing road surface is removed, maintained as an access road or maintained as a connection between the realigned roadway and a road that intersects the original alignment." (OAR 660-012-0065(f))

6. **Address off-system improvements to reduce interchange congestion (if needed).**

7. **Include a safe crossing of Bear Creek that can handle anticipated traffic capacity**.
   - The bridge over Bear Creek needs to be wide enough to handle the projected traffic volumes—4 to 5 lanes were determined to be sufficient; 2 or 3 lanes would not handle the projected traffic.
   - The bridge over Bear Creek needs to be structurally sound; the current bridge is deteriorating.

EVALUATION CRITERIA

Environmental, Economic and Social Impacts

If an alternative met the Purpose and Need, it was further studied using evaluation criteria derived from the project goals and objectives to determine how the environmental, social and economic impacts and benefits compared with those of other alternatives that also met the project Purpose and Need. The following provides general background on how the goals relate to the evaluation criteria. Examples are provided to give some context for which impacts were considered more severe. Alternatives with high levels of adverse impacts were not advanced if other alternatives that met the Purpose and Need, but had fewer adverse impacts, were available. The alternative that the CAC and PDT felt best met the project goals and objectives was forwarded as the proposed Build Alternative.

- **Goal 1: Ensuring the project is compatible with the long-term land use plans (providing for economic and residential growth; protecting existing businesses).**
  - Alternatives with fewer residential and business displacements and lower right of way acquisition requirements were considered better than those with substantial right of way impacts to existing and planned development. This was of particular concern along OR 99, where many of the alternatives evaluated would have required widening OR 99 and impacting numerous existing businesses, as well as in the interchange area.

- **Goal 2: Providing safe and efficient movement of emergency vehicles, school buses and freight.**
  - Alternatives that minimized out-of-direction travel were more efficient for emergency vehicles, school buses and freight.
  - Alternatives that provided additional vehicle capacity beyond the minimum requirements in the screening criteria allow buses and freight to move more efficiently.

- **Goal 3: Providing facilities that encourage alternative modes of transportation.**
  - Alternatives that reduced the conflicts between bicycle/pedestrian and vehicle traffic encouraged alternative modes of transportation.
  - Designs that did not preclude the future addition of park-and-ride facilities, when improved transit service is developed in Phoenix were preferred. Current bus service in Phoenix is limited to one route that stops at three locations on the west side of Phoenix.

- **Goal 4: Provide for easy and/or safe access to existing and planned businesses and residences.**
  - Providing safe opportunities for ingress and egress, and providing turn lanes that help to minimize traffic congestion were preferred.
  - Reducing the number of driveways was recognized to improve safety, but sometimes conflicted with providing direct driveways into businesses. Safety was considered the most important issue.
  - Impacts were considered more severe if sharp turns and road curvature were problematic for truck movements.

- **Goal 5: Ensure the design would not be cost-prohibitive.** Most alternatives were not sufficiently developed to a level of detail that provided full cost estimates. However, the following assumptions were made:
  - Alternatives with only one interchange would be much less expensive than alternatives with two or three interchanges.
  - Alternatives with short, latitudinal crossings of Bear Creek would be less expensive than alternatives that required long or double-decker structures required for longitudinal crossings.
  - Alternatives that required substantial right-of-way acquisition of commercial and residential properties would be more expensive than alternatives that required fewer acquisitions.

- **Goal 6: Enhance community livability and quality of life.**
  - Improving the connection between Phoenix development west and east of I-5 was preferred.
  - Bisecting a neighborhood with a new transportation facility was considered a severe negative impact.
  - Placing a new, major arterial closer to a neighborhood was considered undesirable, but less severe than bisecting a neighborhood.
  - Moving traffic nearer to neighborhoods and natural areas, potentially resulting in noise impacts, was considered a more adverse impact than locating alternatives further away from those areas.

- **Goal 7: Protect and enhance the natural environment.**
  - Minimal disruptions to traffic flow were considered positive for air quality.
  - Avoiding and minimizing impacts to wetlands, riparian areas, and native vegetation was preferred.
  - Avoiding impacts to parks Bear Creek was a high priority.

- **Goal 8: Protect the integrity of the Bear Creek Greenway Trail.**
  - Alternatives that had fewer construction and long-term impacts to the Bear Creek Greenway (including the creek, trail and adjacent riparian vegetation, were preferred).

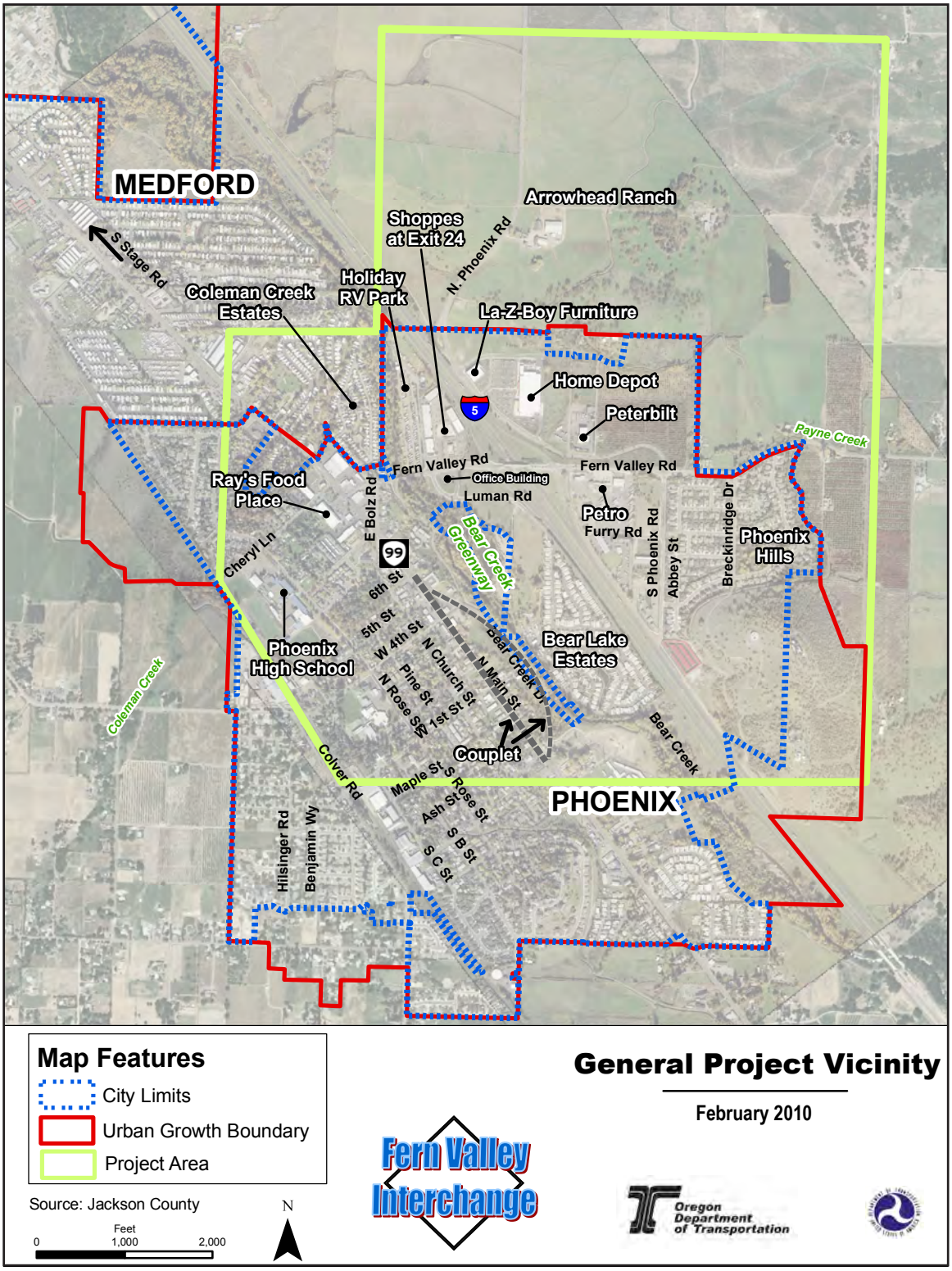
The maps and text below provide a brief description of the alternatives considered during the development of the Fern Valley Interchange project and the reasons for dismissal of each alternative.

The map references provided in the figures below include the following information related to alternatives:

- PDT: Alternatives on these maps were suggested by the Project Development Team.
- CAC: Alternatives on these maps were suggested by the Citizens Advisory Committee.
- CAC Table 1 – 4: Alternatives on these maps were developed at a CAC workshop where CAC members and the public were seated at different tables to brainstorm potential alternatives.

The following figure is provided for context; it includes street and creek names, major businesses and neighborhoods, and other landmarks referenced in this appendix.

.



General Project Vicinity

February 2010

[Page intentionally left blank]

Alternatives Dropped Based on Screening Criteria

[Page intentionally left blank]

Alternatives Dropped Based On Screening Criteria

Map 1: PDT 7

Regular Diamond Interchange -
South Stage Road Alignment

Description

- A diamond interchange would have been located at South Stage Road.
- Existing Fern Valley Interchange ramps would have been removed; Fern Valley Road would have been retained as an overcrossing to serve local traffic.Traffic volumes would have required additional lanes on South Stage Road as well as Fern Valley Road, resulting in a total of 6 lanes for east-west traffic.

To the west:

- Interchange would have been conected to the west at South Stage Road

To the east:

- Interchange would have been connected to N. Phoenix Road by new roadway along property lines.

Reasons for Not Advancing

Primary reasons for not advancing:

- Would have resulted in traffic congestion on roadway sections between OR 99 and I-5 on South Stage Road. Would have had segments that would have been significantly worse when compared with the No Build and thus would not meet Screening Criterion #1.
  - Interchange would attract about 15% more traffic than what would be diverted from Phoenix. Traffic is from south Medford and is likely diverting from the South Medford Interchange. Majority of traffic using the interchange would use it to access OR 99 or I-5 rather than N. Phoenix Road.
  - All of the traffic from Phoenix wanting to use northbound I-5 would have to travel north on OR 99 to South Stage Road.
  - Traffic from the south Medford area also would use this section of South Stage Road to access I-5
- Having two lanes on South Stage Road and two on Fern Valley Road would be insufficient; South Stage Road would need to be four lanes in the OR 99 to I-5 section, for a total of six east-west lanes. (There are six other alternatives that can handle the east-west flow in four lanes.) (Screening Criterion #1).
- Would have resulted in a short distance (1.7 miles) between the South Stage Road Interchange and the South Medford Interchange, thus resulting in an major deviation from interchange spacing standards and would probably not have received an exception. (Screening Criterion #2).
- Most of the alignment east of I-5 would be located on EFU land outside the UGB, resulting in removal of about 14 acres of agricultural land, requiring a goal exception. (Screening Criterion #5).

Additional potential adverse impacts:

- Removal of the access ramps at Fern Valley Road would have isolated local businesses from the interchange, resulting in economic impacts to the area. (Goals 1 and 4)
- Would require a wide crossing of the Bear Creek Greenway (a Section 4(f) resource) , resulting in more impacts to the Greenway than most other alternatives (3.8 acres vs.1 to 1.5 acres) (Goal 8)
  - Would have required out of directional travel to access I-5 from Phoenix because vehicles would have required traveling north on OR 99 to South Stage Road. (Goals 1, 4 and 6)
- Alignment would run through a power station. (Goal 5)

Alternatives Dropped Based On Screening Criteria

Map 2: PDT 13 & 22

Regular Diamond Interchange -
Bolz to N. Phoenix Northern Alignment

Description

- Diamond interchange would have been located about 1,300 feet north of existing Fern Valley Interchange.
- Interchange would have been approximately perpendicular to I-5.
- Existing Fern Valley Road would have crossed under the new northbound off-ramp and southbound on-ramp.
- Existing Fern Valley Interchange ramps would have been removed and Fern Valley Road would be retained as an overcrossing.

To the west:

- Interchange would reconnect at OR 99 and Bolz Road. Roadway would have crossed over Fern Valley Road and the Bear Creek Greenway on structure and directly reconnected to OR 99 at Bolz.

To the east:

- East ramps and N. Phoenix Road connection would have bisected the Home Depot and EFU properties north of the UGB, and reconnected with N. Phoenix Road northwest of Arrowhead Ranch.

Reasons for Not Advancing

Primary reasons for not advancing:

- Because of the short distance from the point where the new road crossed over Fern Valley Road at the Bear Creek Bridge to OR 99 (750 feet), alignment would have required a vertical grade of 7% (in excess of the 6% grade standard) for the new road to cross over the top of the existing Fern Valley Road at the Bear Creek Bridge. Steep vertical grades would have created unacceptable operational performance, reducing sight distance and safe stopping distances, thus not meeting Screening Criterion #2.

Additional potential adverse impacts:

- Would require a structure over Bear Creek and Fern Valley Road that would be about 600 feet long, and would be 4 to 5 times the cost of a single Bear Creek crossing. (Goal 5)
- Would result in the following right of way impacts (Goals 1, 4, & 5):
  - Acquisition of the entire northwest quadrant of the existing interchange, resulting in removal of the outlet mall (The Shoppes at Exit 24, which includes 6 to 8 businesses), McDonalds and the Holiday RV Park.
  - Acquisition of 3 or 4 businesses and about 4 or 5 residences in the southwest quadrant of the existing interchange.
  - Acquisition of Home Depot and La-Z-Boy Furniture in the northeast quadrant of the existing interchange.
- Would result in substantial out-of-direction travel. In order to access the east side of the existing interchange from N. Phoenix Road, vehicles would have to go to OR 99 and then circle back to get to Fern Valley Road or would have had to travel north at least 2,000 feet north of the interchange ramps before turning south to travel about 5,000 more feet. (Goals 1 and 4)
- Removal of the access ramps at Fern Valley Road would have isolated local businesses from the interchange, resulting in economic impacts to the area. (Goals 1 and 4)
- Southbound off-ramp (northwest interchange quadrant) would likely result in longitudinal impacts (about 3.6 acres) Bear Creek's riparian vegetation. (Goal 7)
- Would require an additional crossing of Bear Creek over Fern Valley Road, resulting in about a 1-acre impact to the creek and Bear Creek Greenway, a Section 4(f) resource. (Goal 8)
- Would require the acquisition of about 0.4 acres from the southwest corner of Coleman (Arrowhead) Ranch, a historic and Section 4(f) resource. (Goal 7)

Alternatives Dropped Based On Screening Criteria

Map 3: PDT 14

Regular Diamond Interchange -
Cheryl to N. Phoenix Northern Alignment

Description

- Diamond interchange would have been located about 1,300 feet north of existing Fern Valley Interchange.
- Interchange would have been approximately perpendicular to I-5.
- Existing Fern Valley Interchange ramps would have been removed and Fern Valley Road would be retained as an overcrossing.

To the west:

- Interchange would have been connected to OR 99 directly west of the interchange at Cheryl Lane.

To the east:

- East ramps and N. Phoenix Road connection would have bisected the Home Depot and EFU properties north of the UGB, and reconnected with N. Phoenix Road northwest of Arrowhead Ranch

Reasons for Not Advancing

Primary reasons for not advancing:

- Would not have reduced congestion and improved operational conditions at major intersections in the project area. The two intersections (OR 99/Cheryl Lane and OR99/Fern Valley Road) would have only been about 200 feet apart, causing heavy queuing and difficulty with turning movements. A design exception would likely not be granted because of the major variation from the design standard of 350 ft. (Screening Criterion #2).
- Proposed interchange may not provide enough capacity to solve the traffic problem (Screening Criterion #1).

Additional potential adverse impacts:

- Would result in the following right of way impacts (Goals 1,4 & 5):
  - Acquisition of most of the northwest quadrant of the existing interchange, resulting in removal of the outlet mall (The Shoppes at Exit 24, which includes 6 to 8 businesses) and about half of the Holiday RV Park.
  - Acquisition of 2 or 3 businesses west of Bear Creek.
  - Acquisition of at least 20 residences from Coleman Creek Estates.
  - Acquisition of Home Depot and La-Z-Boy Furniture in the northeast quadrant of the existing interchange.
- Would have required about 1 mile out-of-direction travel to access the east side of the existing interchange from N. Phoenix Road; vehicles would have to go to OR 99 and then cross back over I-5, using the Fern Valley Road overcrossing (Goals 4 and 6).
- Removal of the access ramps at Fern Valley Road would have isolated local businesses from the interchange, resulting in economic impacts to the area. (Goals 1 and 4)
- Southbound off-ramp (northwest interchange quadrant) would likely result in longitudinal impacts (about 3.6 acres) to Bear Creek's riparian vegetation. (Goal 7)
- Would require an additional crossing of Bear Creek resulting in about 0.5 acre of impact to the Bear Creek Greenway, a Section 4(f) resource. (Goal 8)
- Would require the acquisition of about 0.4 acres from the southwest corner of Coleman (Arrowhead) Ranch, a historic and Section 4(f) resource. (Goal 7)
- Connection to Cheryl Lane would have increased traffic on this local street which serves schools and has raised safety concerns (Goal 2)

Alternatives Dropped Based On Screening Criteria

Map 4: PDT 23 & 24

Regular Diamond Interchange -
5th to N. Phoenix Northern Alignment

Description

- Diamond interchange would have been located about 1,300 feet north of existing Fern Valley Interchange.
- Interchange would have been approximately perpendicular to I-5.
- Existing Fern Valley Road would have crossed under the new northbound off-ramp and southbound on-ramp.
- Existing Fern Valley Interchange ramps would have been removed and Fern Valley Road would be retained as an overcrossing.

To the west:

- Interchange would have been connected to OR 99 at 5th Street. Connection to OR 99 would have crossed over Fern Valley Road and the Bear Creek Greenway on structure, and directly reconnected to OR 99 at 5th Street, near the northern end of the OR 99 couplet.

Optional 4th Street connection:

- Interchange would have connected with OR 99 at 4th Street.

To the east:

- East ramps and N. Phoenix Road connection would have bisected Home Depot and EFU properties north of the UGB, and reconnected with N. Phoenix Road northwest of Arrowhead Ranch.

Reasons for Not Advancing

Primary reasons for not advancing:

- Because of the short distance from the structure over Fern Valley Road to OR 99 (750 feet), alignment would have required a vertical grade of approximately 7% (exceeding the 6% grade standard) for the new road to cross over the top of the existing Fern Valley Road at the Bear Creek Bridge. Steep vertical grades would have recreated unacceptable operational performance, reducing sight distance and safe stopping distances, thus not meeting Screening Criterion #2.

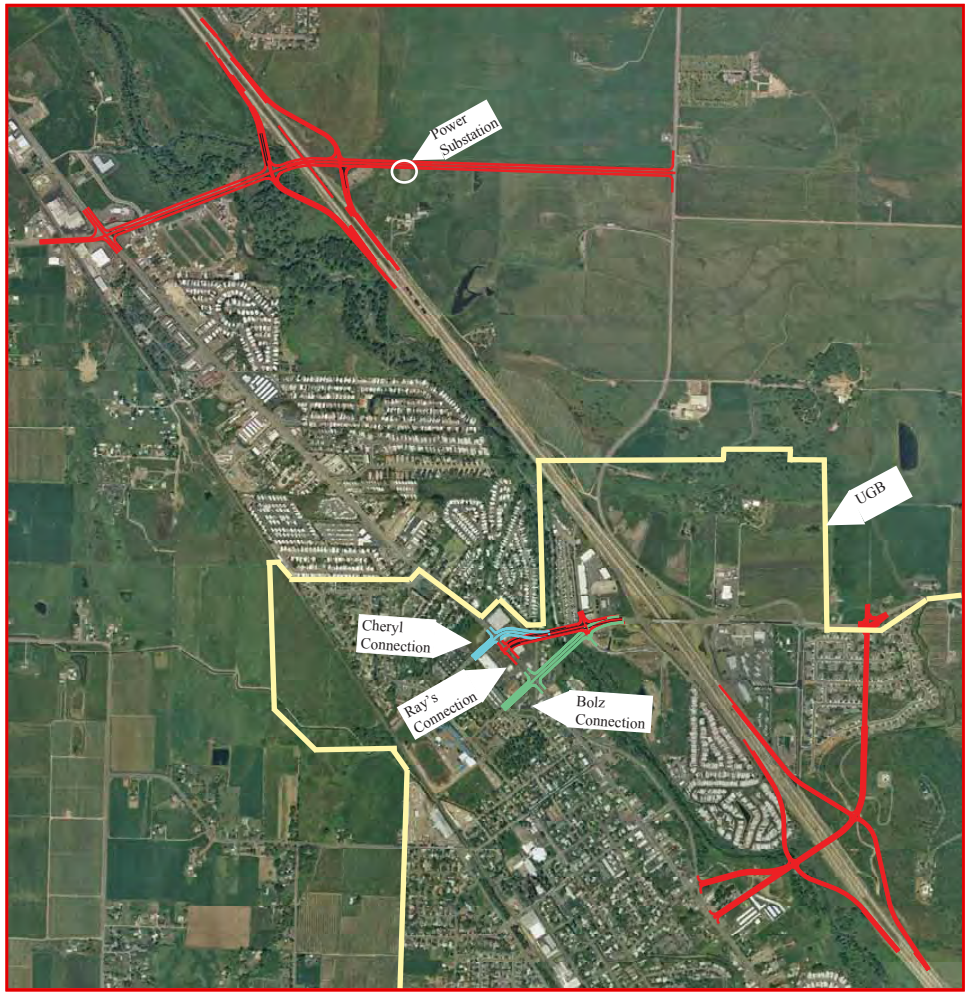
Additional potential adverse impacts:

- Would require a structure over Bear Creek and Fern Valley Road that would be 400 to 500 feet long, and would be 4 to 5 times the cost of a single Bear Creek crossing. (Goal 5)
- Would result in the following right of way impacts (Goals 1, 4 & 5):
  - Acquisition of most of the northwest quadrant of the existing interchange, resulting in removal of most of the outlet mall (The Shoppes at Exit 24, about 6 to 8 businesses) and all of Holiday RV Park.
  - Acquisition of about 2 to 5 businesses and a residential condominium unit in the southwest quadrant of the existing interchange.
  - Acquisition of Home Depot and La-Z-Boy Furniture in the northeast quadrant of the existing interchange.
- Would result in substantial out-of-direction travel. In order to access the east side of the existing interchange from N. Phoenix Road, vehicles would have to go to OR 99 and then circle back to get to Fern Valley Road or would have had to travel north at least 2,000 feet north of the interchange ramps before turning south to travel about 5,000 more feet. (Goals 4 and 6)
- Removal of the access ramps at Fern Valley Road would have isolated local businesses from the interchange, resulting in economic impacts to the area. (Goals 1 and 4)
- Southbound off-ramp (northwest interchange quadrant) would likely result in longitudinal impacts (about 3.6 acres) to Bear Creek's riparian vegetation. (Goal 7)
- Would require an additional crossing of Bear Creek over Fern Valley Road on a 400 to 500-foot structure, resulting in about 4.75 acres of impacts to the Bear Creek Greenway, a Section 4(f) resource. (Goal 8)
- Would require the acquisition of about 0.4 acres from the southwest corner of Coleman (Arrowhead) Ranch, a historic resource and Section 4(f) resource. (Goal 7)

Alternatives Dropped Based On Screening Criteria

Map 5: CAC 4

Interchanges at S. Bear Lake Estates,
South Stage Road, and Fern Valley Road



Description

- Interchanges at S. Bear Lake Estates, South Stage Road, and Fern Valley Road
- Interchanges would have been located at South Stage Road, Fern Valley Road, and just south of Bear Lake Estates.
- Fern Valley Road could have connected to OR 99 three different ways: a realignment at Cheryl, existing alignment at Ray's Food Place, or a new road at Bolz. All of which required widening at OR 99 and the east end of the city streets or Ray's to accommodate the highway connection.

Reasons for Not Advancing

Primary reasons for not advancing:

- Would not have met interchange spacing standards; the distance between the Fern Valley Interchange and the proposed Bear Lake Interchange would have been approximately 0.5 mile and the distance between the Fern Valley Interchange and the proposed South Stage Road interchange would have been about 1.4 miles. These deviations from the spacing standards would create unsafe weaving conditions for traffic and operational problems caused by the increased congestion. This alternative would have resulted in three interchanges in a 2-mile section of I-5, thus not meeting Screening Criterion #2, #4 and #6.
- Most of the S. Stage Road interchange east of I-5 would be located on EFU land outside the UGB, resulting in the removal of about 14 acres of agricultural land and requiring a goal exception. (Screening Criterion #5)

Additional potential adverse impacts:

- Would triple the cost of the project, increasing with each additional interchange. (Goal 5)
- **South Stage Road Interchange:**
  - Would cross Bear Creek Greenway (a Section 4(f) resource) at a wide location, resulting in more impacts to the Greenway than most other alternatives (3.8 acres vs. 1 to 1.5 acres). (Goal 8)
  - Would have required out of direction travel to access I-5 from Phoenix because vehicles would have to travel north on OR 99 to South Stage Road. (Goals 1, 4 and 6)
  - Alignment would run through a power station. (Goal 5)
- **Fern Valley Road Interchange:**
  - Could have resulted in the following right of way acquisitions: 1 to 4 residences (including 1 or 2 residences from Coleman Creek Estates) and 1 to 5 businesses. (Goal 1)
  - Would have resulted in about 1 additional acre of impact to the Bear Creek Greenway, a Section 4(f) resource, if the Bolz Connection were selected. (Goal 8)
- **South Bear Lake Estates Interchange:**
  - Would cut into the hill south of the Phoenix Hills neighborhood, resulting in a major grade differential exceeding the 6% standard, and making the interchange more difficult to design and construct. (Goals 5 and 7)
  - Cut into hill south of Phoenix Hills neighborhood could potentially require relocation of the City of Phoenix's water tower. (Goal 5)
  - Would connect directly into Breckinridge Drive impacting the neighborhood by displacing 8 to 10 homes, adding traffic, noise and visual impacts. (Goal 6)
  - Would impact Bear Lake Estates displacing 15 to 20 residences, adding traffic, noise and visual impacts. (Goal 6)
  - Would impact about 2 to 3 acres of Blue Heron Park, a Section 4(f) resource. (Goals 6 and 7)
  - Would have resulted in about 1 additional acre of impact to the Bear Creek Greenway, a Section 4(f) resource. (Goal 8)
  - Would have resulted in the acquisition of portions of 1 business and possibly 1 residence just east of OR 99. (Goal 1)

Alternatives Dropped Based On Screening Criteria

Map 6
CAC Table 4
South Interchange with Connection to 4th or 5th Street

Description

- Diamond interchange would have been located about 400 feet south of existing interchange.
- Interchange would have been approximately perpendicular to I-5.

To the west:

- West of interchange, road would have been connected to OR 99 by crossing Luman Road and traversing the northern and western edge of a pond, with a connection to OR 99 at the north end of couplet at 5th Street or 4th Street.
- Luman Road would have ended in a cul-de-sac near the southbound off-ramp.
- The connection to the northwest and southwest quadrants of the existing interchange would have been along existing Fern Valley Road. An option would have been to connect via an extension of Bolz Road. Either option would have been a cul-de-sac; therefore the primary route to the quadrants would have been via OR 99.
- A new approach road to Bear Lake Estates would have been required directly west of Bear Lake Estates connecting with OR 99.

To the east:

- Fern Valley Road would have connected to the local road system at the existing Fern Valley Road/N. Phoenix Road intersection.
- N. Phoenix Road would have been realigned from the existing intersection, turned north near the east side of the UGB, turned west just south of the UGB, then north through Arrowhead Ranch, and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.

Reasons for Not Advancing

Primary reasons for not advancing:

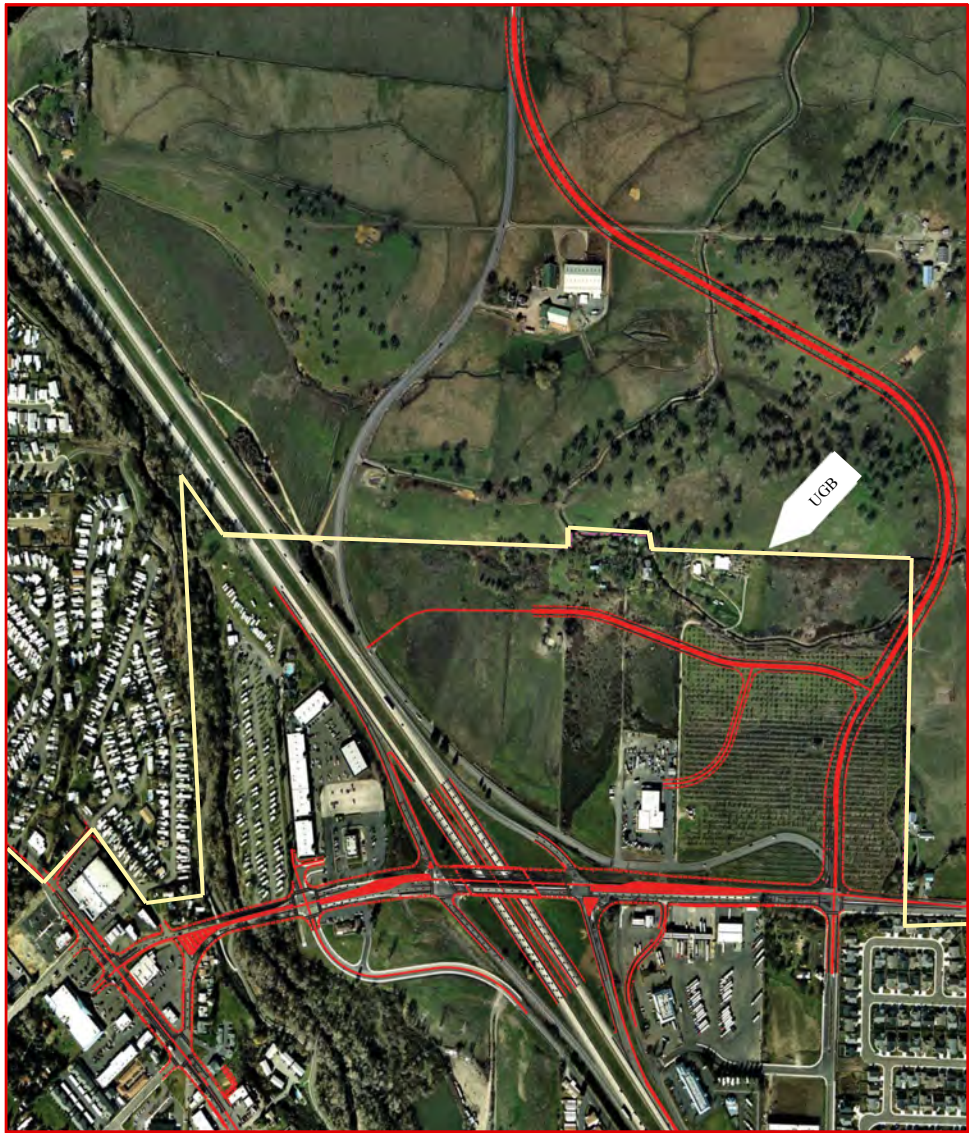
- Would have required a 6-lane cross-section at 4th Street or 5th Street between OR 99 northbound and southbound couplet. This would have resulted in worse traffic conditions that currently exist. The northbound and southbound traffic congestion would have filled the entire intersection at OR 99—queues would have extended the entire length of 4th and 5th Streets between the OR 99 northbound and southbound couplet. This heavy congestion in the downtown area would result in transportation system failure. (Screening Criterion #1).
- Would have required two sharp curves, both west and east of the interchange, which would have made it geometrically incompatible with the diamond interchange. (Screening Criterion #2)

Additional potential adverse impacts:

- Would have required out-of-direction travel from OR 99 (about 3,000 feet) to reach the commercial properties in the northwest and southwest existing interchange quadrants. Rerouted approaches would have impacted 2 to 3 residences and 1 or 2 businesses. (Goals 1 and 4)
- 4th Street Connection, as well as the 5th Street Connection would have impacted 1 or 2 residences, 1 or 2 businesses, and about 1.5 to 2 acres of the Bear Creek Greenway, a Section 4(f) resource, and the man-made lake north of Bear Lake Estates. (Goals 1, 7 and 8)
- Northbound off-ramp would have bisected the southeast commercial quadrant, displacing the motel, restaurant, gas station, and part of the truck stop. (Goal 1)
- Southbound on-ramp and new connection to OR 99 would have displaced about 12 to 16 homes in Bear Lake Estates resulting in an increase in traffic, noise and visual impacts to remaining residences. (Goals 1 and 6)

Alternatives Dropped Based On Screening Criteria

Map 7
PBA Diamond - 8 Lane



Description

- Diamond interchange would have been located along existing Fern Valley alignment.
- An 8-lane structure over I-5 would have been required.

To the west:

- Alignment would have followed the existing Fern Valley alignment except it would have become a couplet at E. Bolz Road—westbound traffic would have used Fern Valley Road and eastbound traffic would have used E. Bolz Road.
- The approaches to the Shoppes at Exit 24 and Luman Road would have remained at their current locations.

To the east:

- Existing N. Phoenix Road would have been realigned east of the UGB and Arrowhead Ranch.
- A new approach would have been created for Pear Tree Lane to the east of its existing location.
- A new approach road would have been provided to the properties in the northeast quadrant of the interchange.
- The existing N. Phoenix Road intersection with Fern Valley Road would have been a major signalized intersection.

Reasons for Not Advancing

Primary reason for not advancing:

- The N. Phoenix Road realignment on the east side would have impacted about 9 to 10 acres of EFU land outside the UGB (1.5 to 2.5 acres more than the Build Alternative) requiring a goal exception. (Screening Criterion #5)

Additional potential adverse impacts:

- Would require an 8 lane I-5 overpass structure that would be out-of-context for the setting. (Goals 1, 5 and 6)
- Would have impacted the Arrowhead Ranch, a historic and Section 4(f) resource. (Goal 7)
- Large slope cuts and fills associated with the realignment of N. Phoenix Road would have increased the cost of this alternative. (Goal 5)

Alternatives Dropped Based On Screening Criteria

Map 8
PBA 6-Lane Diamond w/SE Loop Ramp

Description

- Diamond interchange would have been constructed in its existing location along existing Fern Valley alignment, but would have included a loop ramp in the southeast quadrant.
- A 6-lane structure over I-5 would have been required.

To the west:

- Alignment would have followed the existing Fern Valley alignment except it would have become a couplet at E. Bolz Road—westbound traffic would have used Fern Valley Road and eastbound traffic would have used E. Bolz Road.
- The approaches to the Shoppes at Exit 24 and Luman Road would have remained at their current locations.

To the east:

- Existing N. Phoenix Road would have been realigned east of the UGB and Arrowhead Ranch.
- The loop ramp would have required the northbound off-ramp to be located further east.
- A new approach would have been created for Pear Tree Lane to the east of its existing location.
- A new approach road would have been provided to the properties in the northeast quadrant of the interchange.
- The existing N. Phoenix Road intersection with Fern Valley Road would have been a major signalized intersection.

Reasons for Not Advancing

Primary reason for not advancing:

- The N. Phoenix Road realignment on the east side would have impacted about 9 to 10 acres of EFU land outside the UGB (1.5 to 2.5 acres more than the Build Alternative) requiring a goal exception. (Screening Criterion #5)

Additional potential adverse impacts:

- Loop ramp would have resulted in displacement of a portion of the truck stop (gas station) and possibly the restaurant in the southeast interchange quadrant. (Goal 1)
- Would have required a 6 lane I-5 overpass structure that would be out-of-context for the setting. (Goals 1, 5 and 6)
- Large slope cuts and fills associated with the realignment of N. Phoenix Road would have increased the cost of this alternative. (Goal 5)

Alternatives Dropped Based On Screening Criteria

Map 9: PDT 11
Regular Diamond Interchange -
Southern Bear Lake Estates Alignment

Description

- Diamond interchange would have been located south of Bear Lake Estates.
- Interchange would have been approximately perpendicular to I-5.
- Existing Fern Valley Interchange ramps would have been removed, and Fern Valley Road retained as an overcrossing.

To the west:
- Interchange would have connected to OR 99 directly west of the new interchange structure at Oak Street or slightly to the south.

To the east:
- Interchange would have cut through a hill and connected directly into the Phoenix Hills neighborhood via Breckinridge Drive.
- N. Phoenix Road would have been realigned directly north of Breckinridge Drive, run parallel to and outside of the UGB, and reconnected to existing N. Phoenix Road northwest of Arrowhead Ranch.

Reasons for Not Advancing

Primary reason for not advancing:
- The N. Phoenix Road realignment on the east side would have impacted about 8 acres of EFU land outside the UGB (0.5 acres more than the Build Alternative) requiring a goal exception. (Screening Criterion #5).
- Would not have met interchange spacing standards; the distance between the proposed South Bear Lake Interchange and the Talent Interchange to the south would have been approximately 2 miles. This deviation from the spacing standards would create unsafe weaving conditions for traffic and operational problems caused by the increased congestion. (Screening Criterions #2 and #6).

Additional potential adverse impacts:
- Would cut into the hill south of the Phoenix Hills neighborhood, resulting in a major grade differential exceeding the 6% standard, and making the interchange more difficult to design and construct. (Goals 5 and 7)
- Cut into hill south of Phoenix Hills neighborhood could potentially require relocation of City of Phoenix's water tower. (Goal 5)
- Would impact the neighborhood by Breckinridge Drive, displacing 8 to 10 homes and increasing traffic noise and visual impacts. Major arterial would act as a separation, dividing the neighborhood. (Goals 1 and 6)
- Would impact Bear Lake Estates displacing about 15 to 20 residences adding traffic, noise, and visual impacts to remaining residences. Would have likely required sound wall east and south along Bear Lake Estates. (Goals 1 and 6)
- Would impact about 2 to 3 acres of Blue Heron Park, a Section 4(f) resource. (Goals 7 and 8)
- Would have resulted in about 2 additional acres of impact to the Bear Creek Greenway , a Section 4(f) resource.(Goal 8)
- Would have resulted in the acquisition of portions of one business and possibly one residence just east of OR 99. (Goal 1)
- Closure of the existing Fern Valley interchange would isolate existing businesses (along Fern Valley Road) from the interchange, resulting in economic impacts to the area.(Goal 4)

Alternatives Dropped Based On Screening Criteria

Map 10: CAC 3

Single Point Urban Interchange
Fern Valley Thru Alignment

Description

[Alternative is similar to the alternative identified in the City of Phoenix Transportation System Plan.]

- SPUI would have been located about 250 feet north of the existing interchange.
- Interchange would have been approximately perpendicular to I-5.

To the west:

- Fern Valley Road could have connected to OR 99 three different ways: a realignment at Cheryl, existing alignment at Ray's Food Place, or a new road at Bolz. All of which required widening at OR 99 and the east end of the city streets or Ray's to accommodate the highway connection.

To the east:

- Road alignment would have passed north of existing Peterbilt and then south to connect with existing Fern Valley Road.
- The current S. Phoenix Road approach to the Phoenix Hills neighborhood in the southeast quadrant would have been blocked; the approach would have changed to Fern Valley Road at Breckinridge Drive or via Fern Valley Road or Pear Tree Lane to S. Phoenix Road.
- N. Phoenix Road would have been relocated east and north of the UGB, intersecting with Breckinridge Drive east of the UGB, and reconnecting with existing N. Phoenix Road northwest of Arrowhead Ranch.
- Connections to the commercial areas in northeast and southeast quadrants would have been located north of existing Fern Valley Road.

Reasons for Not Advancing

Primary reasons for not advancing:

- The N. Phoenix Road realignment on the east side would have impacted about 8 acres of EFU land outside the UGB (0.6 acres more than the Build Alternative) requiring a goal exception. (Screening Criterion #5)

Additional potential adverse impacts:

- Would have added curvature to the Fern Valley replacement road; though meeting design standards, it would not operate as well as designs with less curvature. (Goal 2)
- Would have impacted about 4 acres of developable commercial land in northeast quadrant. (Goal 1)
- Would have included a major intersection at the entrance of the Phoenix Hills neighborhood resulting in increased traffic into the residential area. (Goal 6)
- Would have had poor travel times compared with other SPUI alternatives; traffic problems would have increased due to the required left turns from Fern Valley Road onto N. Phoenix Road. (Travel times would have been slightly under the 10% significant threshold.) (Goal 2)

Alternatives Dropped Based On Screening Criteria

Map 11: PDT 25

Regular Diamond Interchange - Glenwood Road Alignment

Description

- Diamond interchange would have been located at Glenwood Road, about 3,900 feet north of existing Fern Valley Interchange.
- Existing Fern Valley Road interchange ramps would have been removed; retaining Fern Valley Road as an over crossing.

To the west:

- Interchange would have connected to OR 99 along Glenwood Road.
- Interchange would have connected to OR 99 at Cheryl, Ray's Food Place, or E. Bolz; Fern Valley Road would have remained generally along its existing alignment with slight adjustments to the north and south to accommodate the interchange location.

To the east:

- Interchange would have been connected directly to N. Phoenix Road northwest of Arrowhead Ranch

Reasons for Not Advancing

Primary reasons for not advancing:

- The east side interchange connection to N. Phoenix Road would have impacted about 10 acres of EFU land outside the UGB (2.6 acres more than the Build Alternative) requiring a goal exception. (Screening Criterion #5)

Additional potential adverse impacts:

- Removal of the access ramps at Fern Valley Road would have isolated local businesses from the interchange, resulting in economic impacts to the area. (Goals 1 and 4)
- Would have impacted the mobile home park along Glenwood Road, displacing about 25 to 60 manufactured homes, adding, traffic, noise and visual impacts. (Goals 1 and 6)
- Interchange ramps would result in longitudinal impacts (about 3 acres) to the Bear Creek's riparian vegetation. (Goal 7)
- Could have impacted a pond northeast of the proposed interchange. (Goal 7)

Alternatives Dropped Based On Screening Criteria

Map 12: CAC Table 2

Partial Cloverleaf Interchange
Located N of FVI, North Phoenix Through East Alignment

Description

- Diamond interchange would have been located about 1,300 feet north of existing Fern Valley Interchange.
- Interchange would have included loop ramps in the northwest and southeast quadrants.
- Interchange would have been approximately perpendicular to I-5.
- Existing Fern Valley Interchange ramps would have been removed, retaining Fern Valley Road as an east-west overcrossing.
- Fern Valley Road would have crossed over new northbound off-ramp and southbound on-ramp. Alternative would have required rebuilding the Fern Valley overpass in order to allow for new ramps underneath Fern Valley Road because the existing structure is too narrow to accommodate the ramps.

To the west:

- Connection to OR 99 would have been directly to the west of the interchange via Cheryl or slightly to the south at Fern Valley Road. Both options would have required widening at OR 99.

To the east:

- East ramps and N. Phoenix Road connection would have bisected Home Depot and EFU properties north of the UGB, and reconnected with N. Phoenix Road northwest of Arrowhead Ranch.
- Fern Valley Road/S. Phoenix Road connection to the N. Phoenix Road realignment would have been included. This would have been done via a new roadway beginning at the existing Fern Valley Road/N. Phoenix Road intersection, turning to the west north of the UGB, and connecting with realigned N. Phoenix Road just south of the Arrowhead Ranch buildings.

Reasons for Not Advancing

Primary reasons for not advancing:

- The N. Phoenix Road realignment on the east side would have impacted about 8 acres of EFU land outside the UGB (0.5 acres more than the Build Alternative) requiring a goal exception. (Screening Criterion #5)
- Would be many locations where v/c ratio would be significantly worse than the No-Build. (Screening Criterion #1)
- Because of the short distance from the interchange approach road overcrossing of the Bear Creek Greenway and the connection with OR 99 (400 to 500 feet), this alternative would have required a vertical grade of at least 7% (in excess of the 6% grade standard). These grades would prevent this alternative from meeting roadway design standards and would not be eligible for a design exception (Screening Criterion #2.)

Additional potential adverse impacts:

- Would result in the following right of way impacts (Goals 1, 4 & 5):
  - Acquisition of most of the northwest quadrant of the existing interchange, resulting in removal of most the outlet mall (The Shoppes at Exit 24, which includes 6 to 8 businesses), and at least half of the Holiday RV Park.
  - Acquisition of 2 or 3 businesses and about 1 or 2 residences in the southwest quadrant of the existing interchange.
  - Acquisition of Home Depot and La-Z-Boy Furniture in the northeast quadrant of the existing interchange.
  - Acquisition of 1 to 3 businesses along OR 99.
  - Acquisition of 18 to 25 residences from Coleman Creek Estates.
- Would result in substantial out-of-direction travel. In order to access the east side of the existing interchange from OR 99, vehicles would have to go about 1,600 feet north and then 3,500 feet south to reach the businesses in the southeast quadrant of the interchange. (Goals 1 and 4)
- Removal of the access ramps at Fern Valley Road would have isolated local businesses from the interchange, resulting in economic impacts to the area. (Goals 1 and 4)
- Southbound off-ramp (northwest interchange quadrant) would likely result in longitudinal impacts (about 3.5 to 6 acres) to Bear Creek's riparian vegetation. (Goal 7)
- Would require two new crossings of Bear Creek over Fern Valley Road, resulting in about a 1.5 acre impact to the Bear Creek Greenway, a Section 4(f) resource. (Goal 8)
- Would require the acquisition of about 0.4 acres from the southwest corner of Coleman (Arrowhead) Ranch, a historic and Section 4(f) resource. (Goal 7)
- Would have required additional costs for rebuilding the Fern Valley overpass to accommodate the north and southbound on ramps because the current structure is too narrow. (Goal 5)

Alternatives Dropped Based On Screening Criteria

Map 13: CAC Table 3

Single Point Urban Interchange -
South of FVI, Realigned Fern Valley Road (aka Lowry SPUI)

Description

[This alternative was originally shown as a regular diamond interchange, but evolved from the CAC Table 3 SPUI to a SPUI located just south of the existing interchange. It was refined to the alternative shown on the map.]

- SPUI would have been located about 250 feet south of the existing interchange location.
- Interchange would have been approximately perpendicular to I-5.

To the west:
- Connection to OR 99 would have been via Fern Valley Road at Ray's Food Place or realigned Cheryl.
- E. Bolz Lane would have ended in a cul-de-sac.
- A new approach road to Bear Lake Estates would have been required directly west of Bear Lake Estates connecting with OR 99.

5th and 4th Street connection options:
- West of interchange, road connections to OR 99 would have crossed Luman Road, been routed south just west of or over the pond, and connected at the north end of couplet at either 5th or 4th Street.

To the east:
- Interchange connection to Fern Valley Road would have been shifted north of its existing alignment. Movement from Fern Valley Road to N. Phoenix Road would have remained a left turn.
- Existing Fern Valley Road would have ended in a cul-de-sac east of I-5, with a possible road connection to Home Depot under the interchange.
- N. Phoenix Road would have been realigned north of it's intersection with Fern Valley Road and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.

Reasons for Not Advancing

Primary reason for not advancing:
- Would not have drawn enough traffic away from the OR 99/Fern Valley Road when compared to existing conditions. (Screening Criterion #1)

Additional potential adverse impacts:
- Would have resulted in circuitous traffic movements to reach the northwest quadrant, requiring considerable out-of-direction travel. (Goal 4)
- Would have resulted in a large intersection adjacent to the Phoenix Hills neighborhood, which would increase traffic congestion and noise near this residential area. (Goals 6 and 7)

5th and 4th Street connection options:
- Would have required 6-lane cross-sections between 5th and 4th Streets at the north end of the downtown couplet. Because there would have been insufficient storage for vehicles on 5th and 4th Streets between the OR 99 couplet roadways, traffic congestion would have filled entire intersections at OR 99 and through many adjacent intersections.
- Would have resulted in up to two additional crossings of the Bear Creek, impacting about 2 to 2.5 acres of the Greenway, a Section 4(f) resource. (Goal 8)
- Approach road to Bear Lake Estates would have displaced about 2 to 6 residences and changed the circulation pattern within the neighborhood increasing noise and visual impacts. (Goals 1 and 6)

Alternatives Dropped Based On Screening Criteria

Map 14: CAC Table 3, Refinement 1

Single Point Urban Interchange -
South of FVI, Realigned Fern Valley Road with West Jughandle and East Parallel Alignment (aka Lowry SPUI)

Description

- SPUI would have been located about 250 feet south of existing interchange location.
- Interchange would have been approximately perpendicular to I-5.

To the west:
- Alignment from I-5 to OR 99 would have been moved south to connect directly into W. Bolz Road.
- Connections to the northwest and southwest quadrants would have been via existing Fern Valley Road.
- Luman Road would have required a new connection adjacent to and under I-5.
- Fern Valley Road would have been reconnected to OR 99 at Cheryl Lane.
- The approach to Ray's Food Place would have been right-in/right-out at OR 99 and via a new approach road west of (and behind) Ray's.

To the east:
- Interchange connection from I-5 to Fern Valley Road would have been realigned to the north parallel to Fern Valley Road.
- N. Phoenix Road would have been realigned north of its intersection with Fern Valley Road, and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.
- Existing Fern Valley Road would have ended in a cul-de-sac.

Reasons for Not Advancing

Primary reason for not advancing:
- Would not have attracted substantially more traffic when compared to the No-Build.(Screening Criterion #1)
- The east side interchange connection to N. Phoenix Road would have impacted about 10 acres of EFU land outside the UGB (2.6 acres more than the Build Alternative), requiring a goal exception. (Screening Criterion #5)

Additional potential adverse impacts:
- Would have resulted in circuitous traffic movement to reach the northwest and southwest interchange quadrants, requiring considerable out-of-direction travel for businesses and residents. (Goal 4)
- Would have resulted in a circuitous approach to Ray's Food Place, which was strongly opposed by the community. (Goal 4)
- Would have resulted in an additional crossing of the Bear Creek, impacting about 1.5 acres of the Greenway, a Section 4(f) resource. (Goal 8)
- Widening of OR 99 to 6 lanes would have resulted in displacement of at least 12 businesses and 4 residences. (Goals 1 and 5)

Alternatives Dropped Based On Screening Criteria

Map 15
CAC Lowry w/TPAU West Side

Description

- SPUI would have been located about 250 feet south of existing interchange location.
- Interchange would have been approximately perpendicular to I-5.

To the west:

- The connection to OR 99 would have been via a realigned Fern Valley Road that split into a couplet just east of Bear Creek. Westbound traffic would have traveled via Fern Valley Road, which would have been located very close to its current alignment. Eastbound traffic would have traveled via a new roadway extending to W. Bolz Road.
- The approach to the Shoppes at Exit 24 and Luman Road (Bear Lake Estates) would have been via a new connection extending between the new roadway just east of the couplet and existing Fern Valley Road.
-

To the east:

- Interchange connection to Fern Valley Road would have been shifted to the north of existing Fern Valley Road.
- N. Phoenix Road would have been realigned north of its intersection with Fern Valley Road, and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.
- Existing Fern Valley Road would have ended in a cul-de-sac.

Reasons for Not Advancing

Primary reason for not advancing:

- The east side interchange connection to N. Phoenix Road would have impacted about 10 acres of EFU land outside the UGB (2.6 acres more than the Build Alternative), requiring a goal exception. (Screening Criterion #5).
- Would not attract significantly more traffic when compared to the No-Build, therefore would not meet the design criteria for mobility (Screening Criteria #1)

Additional potential adverse impacts:

- Would have resulted in circuitous traffic movement to reach the northwest and southwest interchange quadrants, requiring considerable out-of-direction travel for businesses and residents. (Goal 4)
- Would have resulted in an additional crossing of the Bear Creek Greenway, impacting about 1 acre of the Greenway. (Goal 8)

Alternatives Dropped Based On Screening Criteria

Map 16
TPAU 6-Lane Diamond w/SE Loop Ramp

Description

- Diamond interchange would have been located along the existing Fern Valley alignment, but a loop would have been added to the southeast interchange quadrant.

To the west:
- Connection to OR 99 would have been via Fern Valley Road that would split into a couplet just east of Bear Creek. Westbound traffic would have traveled via Fern Valley Road, which would be located along its current alignment. Eastbound traffic would have traveled via a new roadway extending from OR 99 to Luman Road.

To the east:
- Interchange connection to Fern Valley Road would have been shifted to the north of existing alignment.
- N. Phoenix Road would have been realigned north of its intersection with Fern Valley Road, and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.
- Existing Fern Valley Road would have become a cul-de-sac.

Reasons for Not Advancing

Primary reason for not advancing:
- Connection to Fern Valley Road on the east side would have impacted about 8.7 acres of EFU land outside the UGB (1.3 acres more than the Build Alternative), requiring a goal exception. (Screening Criterion #5)

Additional potential adverse effects:
- Would result in the displacement of at least 3 to 5 businesses in the northeast quadrant, 2 or 3 businesses in the southeast interchange quadrant, and 2 businesses required for the OR 99 connection. Would also result in the displacement of about 3 residences. (Goals 1 and 5)
- Would have resulted in an additional crossing of the Bear Creek Greenway, impacting about 1 acre of the Greenway, a Section 4(f) resource. (Goal 8)

Alternatives Dropped Based On Screening Criteria

Map 17
TPAU Baseline (4-lane structure) Diamond Interchange
w/Bolz Connection

Description

- Diamond interchange in its existing location.

To the west:

- Connection to OR 99 would have been via Fern Valley Road that would split into a couplet just east of Bear Creek. Westbound traffic would have traveled via Fern Valley Road, which was located along its current alignment. Eastbound traffic would have traveled via a new roadway extending from OR 99 to Luman Road.

To the east:

- Interchange connection to Fern Valley Road would have been shifted to the north of existing alignment.
- N. Phoenix Road would have been realigned north and east of its current location.
- Existing Fern Valley Road would have ended in a cul-de-sac.

Reasons for Not Advancing

Primary reason for not advancing:

- Would exceed capacity on the east side prior to the 20-year design life. (Screening Criterion #1)
- Connection to Fern Valley Road on the east side would have impacted about 8.7 acres of EFU land outside the UGB (1.3 acres more than the Build Alternative), requiring a goal exception. (Screening Criterion #5)

Additional potential adverse impacts:

- Would have resulted in an additional crossing of Bear Creek impacting about 1 acre of the Bear Creek Greenway, a Section 4(f) resource. (Goal 8)

Alternatives Dropped Based On Screening Criteria

Map 18: PDT 19
Regular Diamond Interchange-
Original Fern Valley Thru Alignment

Description

- Diamond interchange would have been located along existing Fern Valley Road alignment.

To the west:

- Interchange connection to OR 99 could have been one of three options: realigned at Cheryl, at Ray's Food Place, or a new road at E. Bolz. All options would have required widening at OR 99 and the east end of the city streets or Ray's Food Place approach to accommodate the highway connection.
- A new approach road to Bear Lake Estates would have been required directly west of Bear Lake Estates connecting with OR 99.

To the east:

- Fern Valley Road would have remained along the existing alignment, and would have been used as the primary connection to N. Phoenix Road.
- N. Phoenix Road would have been realigned to the north of its existing alignment connecting to the S.Phoenix Road at the S.Phoenix Road/Fern Valley Road intersection and reconnect to the northwest with existing N. Phoenix Road.
- Minor realignment of the north end of S. Phoenix Road would have been needed to connect to the N. Phoenix Road intersection.

Reasons for Not Advancing

Primary reason for not advancing:

- Would have resulted in the worst unsignalized v/c ratio of all of the interchange types (v/c ratio of 1.97 compared to 0.85 standard). (Screening Criterion #1)
- Would exceed capacity on the east side prior to the 20-year design life, therefore would not meet the design criteria for mobility. (Screening Criterion #1)

Additional reasons for not advancing:

- Would have resulted in additional right of way impacts to 4 to 6 businesses due to the required widening at OR 99. (Goals 1 and 6)
- Approach road to Bear Lake Estates would have displaced 4 to 6 residences and changed traffic circulation increasing noise and visual impacts to the neighborhood. (Goals 1 and 6).
- Would have resulted in an additional crossing of Bear Creek, impacting about 1 acre of the Bear Creek Greenway, a Section 4(f) resource. (Goal 8)
- Would have resulted in the displacement of at least 6 businesses in the northeast quadrant, including Home Depot, La-Z-Boy and Peterbilt, and about 4 to 6 residences on the west side of the interchange. (Goal 1)
- Would bisect several developable commercial properties in northeast quadrant. (Goal 1)

Alternatives Dropped Based On Screening Criteria

Map 19
Fern Valley Thru Alternative

Description

[This alternative was retained until late in the decision-making process because there was a potential that the City of Phoenix could have expanded their UGB and/or Regional Problem Solving efforts would have resulted in an update of the Regional Transportation Plan that included the EFU land needed for this alternative. If either of these actions had occurred, this alternative would have been included in the Environmental Assessment.]

- Crossing diamond interchange would have been located along the existing Fern Valley alignment.

To the west:

- Alignment would have followed the existing Fern Valley alignment except it turned into a couplet at E. Bolz Road—westbound traffic would have used Fern Valley Road and eastbound traffic would have used E. Bolz Road.
- The approaches to the Shoppes at Exit 24 and Luman Road would have remained at their current locations.

To the east:

- N. Phoenix Road would have been realigned north of the signalized intersection, and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.
- Interchange connection from I-5 to Fern Valley Road would have been realigned to the north parallel to Fern Valley Road.
- Existing Fern Valley Road east of I-5 would have become a cul-de-sac at Petro.

Reasons for Not Advancing

Primary reason for not advancing:

- Connection to Fern Valley Road on the east side would have impacted about 8.7 acres of EFU land outside the UGB (1.3 acres more than the Build Alternative) requiring a goal exception. (Screening Criterion #5)

[Page intentionally left blank.]

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

[Page intentionally left blank]

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 20: PDT 18

Regular Diamond Interchange Siphon to Frontage Road Southern Alignment

Description

- Diamond interchange would have been located south of Bear Lake Estates.
- Interchange would have been approximately perpendicular to I-5.
- Existing Fern Valley Interchange ramps would have been removed, and Fern Valley Road retained as an over crossing .

SPUI option:

- Interchange type would have been changed to a SPUI and the interchange moved farther to the south to minimize impacts to the hill and adjacent neighborhoods. The interchange would have been connected on the east side to S. Phoenix Road rather than Breckinridge Drive.

To the west – OR 99 connection options:

- Interchange would have been connected to OR 99 at Oak Street.
- Interchange would have been connected to OR 99 slightly to the south directly west of new interchange structure.

To the east:

- Interchange would have cut through the hill and connected directly into the neighborhood via Breckinridge Drive.

S.Phoenix Road local road connection option:

- A local road connection would have been added south of the Phoenix Hills neighborhood, connecting to S. Phoenix Road.

Reasons for Not Advancing

- Removal of access ramps at Fern Valley would have isolated existing businesses from the interchange resulting in economic impacts to the area. (Goal 1)
- Would cut into the hill south of the Phoenix Hills neighborhood, resulting in a major grade differential exceeding the 6% standard, and making the interchange more difficult to design and construct. (Goals 5 and 7)
- Cut into hill south of Phoenix Hills neighborhood could potentially require relocation of city of Phoenix's water tower. (Goal 5)
- Would connect directly into Breckinridge Drive, bisecting the Phoenix Hills neighborhood, displacing 8 to 10 residences and increasing traffic, noise, and visual impacts. (Goals 1 and 6)
- Would displace about 30 to 35 residences in Bear Lake Estates and increasing traffic, noise and visual impacts. A sound wall would likely be required. (Goals 5, 6 and 7)
- Would impact about 2 to 3 acres of Blue Heron Park, a Section 4(f) resource. (Goal 7)
- Would result in about 1 additional acre of impact to the Bear Creek Greenway, a Section 4(f) resource. (Goal 8)
- Would result in the acquisition of portions of 1 business and possibly 1 residence just east of OR 99. (Goal 1)

- *S. Phoenix Road local road connection option:* Would have resulted in substantial increases in traffic and noise adjacent to the Phoenix Hills neighborhood. (Goal 6)

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 21: PDT 20
Diamond Interchange w/SE Loop - Original Fern Valley Alignment (aka partial clover leaf)

Description

- Diamond interchange would have been located at the existing interchange location.
- Interchange would have included an additional northbound loop on-ramp in the southeast quadrant.
- Fern Valley Road would have remained on its existing alignment.

To the west:

- Fern Valley Road could have been connected to OR 99 three different ways: realignment to Cheryl, at Ray's Food Place or a new road at Bolz. All options would have required widening at OR 99 and the east end of the city streets or the Ray's Food Place approach to accommodate the highway connection.
- A new approach road to Bear Lake Estates would have been required directly west of Bear Lake Estates connecting with OR 99.

To the east:

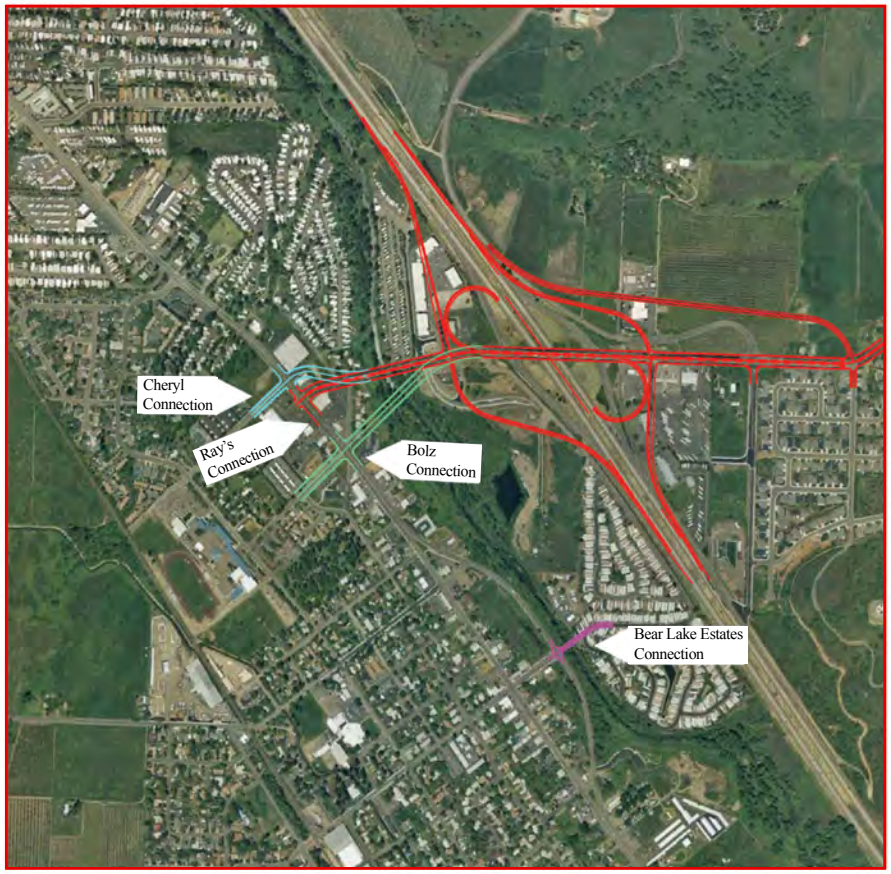
- N. Phoenix Road would have been realigned to extend from Breckinridge Drive, turn west parallel and north of its existing alignment, and reconnect with existing N. Phoenix Road at the south end of Home Depot.

Reasons for Not Advancing

- Would result in the displacement of at least 6 businesses in the northeast quadrant, including Home Depot and Peterbilt, and 4 businesses in the southeast interchange quadrant, and about 4 to 6 residences. (Goal 1)
- Would not have allowed direct connection to the northwest and southwest quadrants of the existing interchange with the Cheryl and Ray's Connections. The first approach from the interchange to the west would have been at OR 99. (Goal 6)
- Approach road to Bear Lake Estates with the Ray's and Cheryl Connections, would have displaced about 2 to 6 residences and changed traffic circulation pattern within the neighborhood, increasing noise and visual impacts. (Goals 1 and 6)
- Would have resulted in up to two additional crossings of Bear Creek impacting about 1.5 acres of the Greenway, a Section 4(f) resource. (Goal 8)
- Would have moved a major intersection directly across from the entrance to Phoenix Hills neighborhood (Breckinridge Drive), resulting in traffic and noise impacts. (Goal 6)
- Would have required additional cost for rebuilding the existing Fern Valley overpass; the current structure is not wide enough to allow the southeast and southwest interchange ramps to pass underneath. (Goal 5)

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 22: CAC 2, PDT 21
Partial Cloverleaf Interchange -
Original Fern Valley Alignment



Description

- Diamond interchange would have been located at the existing interchange location.
- Interchange would have included an additional northbound loop on-ramp in the southeast quadrant and a southbound loop on-ramp in the northwest quadrant.
- Fern Valley Road would have remained on its existing alignment.

To the west:

- Fern Valley Road could have been connected to OR 99 three different ways: realignment to Cheryl, at Ray's Food Place or a new road at Bolz. All options would have required widening at OR 99 and the east end of the city streets or the Ray's Food Place approach to accommodate the highway connection.
- A new approach road to Bear Lake Estates would have been required directly west of Bear Lake Estates connecting with OR 99.

To the east:

- N. Phoenix Road would have been realigned to extend from Breckinridge Drive north of its existing alignment, reconnecting with existing N. Phoenix Road at the south end of Home Depot.

Reasons for Not Advancing

- Would result in the displacement of at least 6 businesses in the northeast quadrant, including Home Depot and Peterbilt, and 4 businesses in the southeast interchange quadrant. (Goals 1 and 5)
- Would also require displacement of the entire northwest quadrant displacing over 10 to 12 businesses. (Goals 1 and 5)
- Would not have allowed direct connection to the northwest and southwest quadrants of the existing interchange with the Cheryl and Ray's Connections. The first approach from the interchange to the west would have been at OR 99.
- Approach road to Bear Lake Estates with the Ray's and Cheryl Connections, would have displaced about 2 to 6 residences and changed traffic circulation pattern within the neighborhood, increasing noise and visual impacts. (Goals 1 and 6)
- Would have resulted in up to two additional crossings of the Bear Creek Greenway, impacting about 1.5 acres of the Greenway, a Section 4(f) resource. (Goal 8)
- Would have moved a major intersection directly across from the entrance to Phoenix Hills neighborhood (Breckinridge Drive), resulting in traffic and noise impacts. (Goal 6)
- Widening of OR 99 would impact 4 to 6 businesses. (Goal 1)

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 23
Single Point Urban Interchange
North of FVI, Underpass for N. Phoenix Road and Fern Valley Road

Description

- SPUI would have been located about 250 feet north of the existing interchange.
- Interchange would have been approximately perpendicular to I-5.

To the west:

- Interchange would have connected to OR 99 at Cheryl; Fern Valley Road would have remained generally along its existing alignment with slight adjustments to the north and south to accommodate the interchange location.

Optional 4th Street connection:

- Interchange would have connected to OR 99 via 4th Street; this would have included an alignment east of and adjacent to Bear Creek and just west of the nearby pond.

To the east:

- Eastside road connection from the interchange would have passed north of Peterbilt and then south to connect with existing Fern Valley Road.
- Fern Valley Road/N. Phoenix Road intersection would have been located east of Peterbilt; N. Phoenix Road would have crossed under the interchange ramps to reconnect with existing N. Phoenix Road adjacent to I-5.
- The approach to the southeast quadrant, currently served by Fern Valley Road, would have changed to the N. Phoenix Road realignment.
- The S. Phoenix Road approach to the Phoenix Hills neighborhood in the southeast quadrant would have been blocked; the approach would have changed to Fern Valley Road at Breckinridge Drive or via Pear Tree Lane to S. Phoenix Road.

Optional N. Phoenix Road alignment:

- Interchange connection to N. Phoenix Road would have been located on new alignment to the east along the UGB, turning west just north of the UGB, and reconnecting with existing N. Phoenix Road just west of Arrowhead Ranch.

Reasons for Not Advancing

Additional potential adverse impacts:

- Removal of the access ramps at Fern Valley Road would have isolated local businesses from the interchange, resulting in economic impacts to the area. (Goals 1 and 6)
- Could have impacted a pond northeast of the proposed interchange (Goal 7)
- Due to curvature of the roadway, would have resulted in traffic circulation problems in the northeast and southeast quadrants. Trucks would have had difficulty making necessary turning movements to travel to the southeast interchange quadrant. (Goal 1)
- Would have added major curves to east road connections to the interchange, creating operational problems due to decreasing sight distance. (Goal 2)
- Would have resulted in landlocked parcels and would have bisected other developable commercial parcels in the Northeast quadrant. (Goal 1)
- Would have impacted at least 6 businesses with Cheryl connection to OR 99. (Goals 1 and 6).
- Additional costs would be incurred to provide an undercrossing for North Phoenix Road. (Goal 5)
- Approximately 4 to 6 residences in the Phoenix Hills subdivision would be impacted due to road curvature at the north edge of the neighborhood increasing traffic, noise and visual impacts. (Goals 1 and 6)

Optional 4th Street connection:

- Would have resulted in an additional crossing of Bear Creek, impacting about 1.5 acres of Bear Creek Greenway, a Section 4(f) resource. (Goal 8)

Optional N. Phoenix alignment:

- Because the Optional N. Phoenix alignment would have impacted about 8 acres of EFU land outside the UGB (0.6 acre more than the Build Alternative), thus requiring a goal exception, this alignment would not have met Screening Criterion #5.

Map 24: PDT 1
Single Point Urban Interchange -
Fern Valley Thru Alignment

Description

- SPUI would have been located about 300 feet north of existing interchange.
- Interchange would have been approximately perpendicular to I-5.

To the west:
- Fern Valley Road could have been connected to OR 99 in three different ways: a realignment at Cheryl, at Ray's Food Place, or a new road at E. Bolz. All options would have required widening at OR 99 and the east end of the city streets or Ray's Food Place approach to accommodate the highway connection.

To the east:
- Interchange connection to Fern Valley Road would have required Fern Valley Road to be shifted north of its existing alignment and reconnected at existing N. Phoenix Road intersection. The Fern Valley Road to N. Phoenix Road movement would have remained at its current location with left-turn lanes.
- N. Phoenix Road would have been realigned north of its existing alignment, reconnecting with existing N. Phoenix Road near the urban growth boundary (UGB).

Reasons for Not Advancing

Primary reason for not advancing:
- A portion of the alternative would be located on EFU land outside the UGB, requiring a goal exception (Screening Criterion #5)

Additional reasons for not advancing:
- Would have resulted in the displacement of at least 6 businesses in the northeast quadrant, including Home Depot, La-Z-Boy and Peterbilt, and about 4 to 6 residences on the west side of the interchange. (Goal 1)
- Would have required right-in/right-out at the Shoppes at Exit 24 approach if ramps were brought in at-grade. (Goal 4)
- Would have resulted in up to two additional crossings of the Bear Creek, impacting about 1.5 acres of the Greenway, a Section 4(f) resource. (Goal 8)
- Would have resulted in additional right of way impacts to 4 to 6 businesses due to the required widening at OR 99. (Goals 1 and 6)

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 25: PDT 1A, CAC Table 1, CAC Table 1-Refinement 1

Single Point Urban Interchange -
North Phoenix Thru Alignment

Description

[This represents both PDT 1A and CAC Table 1 alternative. These alternatives were combined and refined. The information provided here reflects the refinement.]

- SPUI would have been located about 300 feet north of existing interchange.
- Interchange would have been approximately perpendicular to I-5.

To the west:

- A modified jughandle intersection would have been located in the northwest quadrant (providing connections to the Shoppes at Exit 24, mobile homes and commercial businesses) and southwest quadrant (providing a connection to Bear Lake Estates).
- Interchange would have been connected to OR 99 via a new road located south of Fern Valley Road, intersecting at Bolz Road.
- Fern Valley Road and Bolz Road would have ended in cul-de-sacs at OR 99.

To the east:

- N. Phoenix Road would have turned north just east of the interchange and west of Peterbilt, turned west just south of the UGB, and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.
- The connection from N. Phoenix Road to the existing Fern Valley Road/N. Phoenix Road intersection would have been via a new roadway to the southeast.
- Fern Valley Road would have ended in a cul-de-sac; an additional connection from Fern Valley Road to existing N. Phoenix Road could have been made via an under crossing immediately adjacent to the east side of the SPUI (from Fern Valley Road to south and west side of Home Depot).
- A road connection from existing N. Phoenix Road west to Home Depot and adjacent properties would have been provided through a new intersection.

Reasons for Not Advancing

- Widening OR 99 to six lanes would have resulted in the displacement of at least 12 businesses and 4 to 6 residences. (Goals 1 and 5)
- Routing to Coleman Creek Estates and the commercial businesses in the northwest quadrant of the interchange would be via a cul-de-sac rather than directly to Fern Valley Road or OR 99. (Goal 4)
- Limited access to businesses and residences along OR 99 could be required. (Goal 4)
- Would have required an additional crossing of Bear Creek, impacting about 1 acre of the Bear Creek Greenway, a Section 4(f) resource. (Goal 8)
- Would have required a major connection to W. Bolz Road causing safety concerns because this road is used to reach the high school.(Goal 2)

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 26: PDT 3
Regular Diamond Interchange - Perpendicular Fern Valley Alignment

Description

- Diamond interchange would have been located about 300 feet north of existing interchange.
- Interchange would have been approximately perpendicular to I-5.

To the west:

- Fern Valley Road could have been connected to OR 99 three different ways: realignment to Cheryl, at Ray's Food Place or a new road at Bolz. All options would have required widening at OR 99 and the east end of the city streets or the Ray's Food Place approach to accommodate the highway connection.
- A new approach road to Bear Lake Estates would have been required directly west of Bear Lake Estates connecting with OR 99.

To the east:

- Interchange connection to Fern Valley Road would have been realigned to the north, reconnecting at the existing N. Phoenix Road intersection. The movement from Fern Valley Road to N. Phoenix Road would have remained a left turn.
- N. Phoenix Road would have been realigned north of its existing alignment, reconnecting with existing roadway near the UGB.

Reasons for Not Advancing

- Would have resulted in the displacement of at least 6 businesses in the northeast quadrant, including Home Depot, La-Z-Boy and Peterbilt. (Goal 1)
- Would have resulted in circuitous traffic movement to reach the northwest and southwest interchange quadrants. The first approach from the interchange to the west would have been at OR 99. (Goal 4)
- Would have required right-in/right-out at The Shoppes at Exit 24 approach if ramps were brought in at-grade. (Goal 4)
- Approach road to Bear Lake Estates with the Ray's and Cheryl Connections, would have displaced about 2 to 6 residences and changed traffic circulation pattern within the neighborhood, increasing noise and visual impacts. (Goal 1)
- Would have resulted in up to two additional crossings of the Bear Creek, impacting about 1.5 acres of the Greenway. (Goal 8)

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 27: PDT 3A
Regular Diamond Interchange - North Phoenix Through Alignment (Fern Valley connection at existing location)

Description

- Diamond interchange would have been located about 300 feet north of existing interchange.
- Interchange would have been approximately perpendicular to I-5.

To the west:

- Fern Valley Road could have been connected to OR 99 three different ways: realignment to Cheryl, at Ray's Food Place or a new road at Bolz. All options would have required widening at OR 99 and the east end of the city streets or the Ray's Food Place approach to accommodate the highway connection.
- E. Bolz Lane would have ended in a cul-de-sac.

To the east:

- N. Phoenix Road would have turned north just west of Petro and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.
- Realigned N. Phoenix Road would have traversed Arrowhead Ranch.
- Fern Valley Road connection to N. Phoenix Road would have begun at existing Fern Valley Road/N. Phoenix Road intersection, and connected to N. Phoenix Road just north of the UGB.

Reasons for Not Advancing

- Would have resulted in the displacement of about 3 to 5 businesses in the northeast quadrant. (Goal 1)
- Would have resulted in the displacement of about 3 to 5 residences in the northwest quadrant. (Goal 1)
- Would have reduced direct travel patterns to all current interchange quadrants. The first approach from the interchange to the west would have been at OR 99. (Goal 4)
- Would have required right-in/right-out at The Shoppes at Exit 24 approach if ramps were brought in at-grade. (Goal 4)
- Would have directly impacted Arrowhead Ranch, a historic Section 4(f) resource. (Goal 7)
- Would have resulted in at least one additional crossing of Bear Creek, impacting about 1 acre of the Greenway, a Section 4(f) resource. (Goal 8)

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 28: PDT 2
Split Diamond Interchange - Original Fern Valley Alignment

Orange lines are not part of this alternative. Dark blue indicates roadways that would be removed.

Description

- North portion of interchange would have been located at Fern Valley Road; south portion of interchange would have been located south of Bear Lake Estates.
- Interchange segments would have been connected by frontage roads east and west of I-5; these frontage roads would have been located immediately adjacent to I-5.

To the west:

- For the north half of the interchange, Fern Valley Road could have been connected to OR 99 three different ways: realignment to Cheryl, at Ray's Food Place or a new road at Bolz. All options would have required widening at OR 99 and the east end of the city streets or the Ray's Food Place approach to accommodate the highway connection.
- For the south half of the interchange, the west side would have been connected to OR 99 south of Bear Lake Estates at Oak Street.
- A new approach road to Bear Lake Estates would have been required directly west of Bear Lake Estates connecting with OR 99.

To the east:

- For the north half of the interchange, Fern Valley Road would have remained on its existing alignment. N. Phoenix Road would have been realigned north of its existing alignment, passing behind Peterbilt, and reconnecting with the existing roadway near the UGB.
- For the south half of the interchange, the location would have required cutting through the hill and connecting directly into the Phoenix Hills neighborhood via Breckinridge Drive.

Reasons for Not Advancing

- Would have required right of way along both sides of I-5 from the existing interchange to the proposed new interchange south of Bear Lake Estates. This alternative would have displaced about 5 to 7 businesses and about 4 to 6 residences from Phoenix Hills, 45 to 55 residences from Bear Lake Estates, and 2 to 6 residences in the vicinity of the Fern Valley Road connection to OR 99. (Goals 1, 5 and 6)
- Interchange location would have resulted in major increase in traffic adjacent to Bear Lake Estates and Phoenix Hills neighborhoods, resulting in noise, visual. and community cohesion impacts to the neighborhoods (Goals 6 and 7)
- Would have resulted in up to two additional crossings of the Bear Creek, impacting about 1.5 acres of the Greenway, a Section 4(f) resource. (Goal 8)
- Would have required two interchange structures and connecting roadways (approximately $40 million to $50 million for each interchange, excluding right of way costs). (Goal 5)
- Would have required major cuts into large hill on east side of freeway (south end of alternative). (Goals 5 and 7)
- Would have resulted in about 2 to 3 acres of impact to Blue Heron Park, a Section 4(f) resource. (Goal 7)

Alternatives that Passed the Screening Criteria and Were Advanced to be Evaluated Based on Goals and Objectives

Map 29
CAC Table 1 SPUI w/PBA Westside

Description

- SPUI interchange would have been located just north of Fern Valley Road.
- Interchange would have been approximately perpendicular to I-5.

To the west:

- Alignment would have followed existing Fern Valley Road except it turned into a couplet at E. Bolz Road—westbound traffic would have used Fern Valley Road and eastbound traffic would have used E. Bolz Road.
- The approaches to the Shoppes at Exit 24 and Luman Road would have remained at their current locations.

To the east:

- N. Phoenix Road would have turned north just east of the interchange and west of Peterbilt, turned west just south of the UGB, and reconnected with existing N. Phoenix Road northwest of Arrowhead Ranch.
- The connection from N. Phoenix Road to the existing Fern Valley Road/N. Phoenix Road intersection would have been via a new roadway to the southeast.
- Fern Valley Road would have ended in a cul-de-sac; additional connections to existing N. Phoenix Road could have been made via an under crossing immediately adjacent to east side of the SPUI (from Fern Valley Road to south and west side of Home Depot).
- A road connection from existing N. Phoenix Road west to Home Depot and adjacent properties would have been provided through a new intersection.

Reasons for Not Advancing

- SPUI would have required a larger footprint than the Crossing Diamond Interchanges used in the Build Alternative. (Goals 1 and 6)
- SPUI would be at least 30% more expensive than a Crossing Diamond Interchange, and a better interchange type was found. (Goal 5)

APPENDIX B
EXISTING AND FUTURE PREDICTED TRAFFIC QUEUING

[Page intentionally left blank]

Figure B-1: 2004 30th Highest Hour 95th Percentile Queues

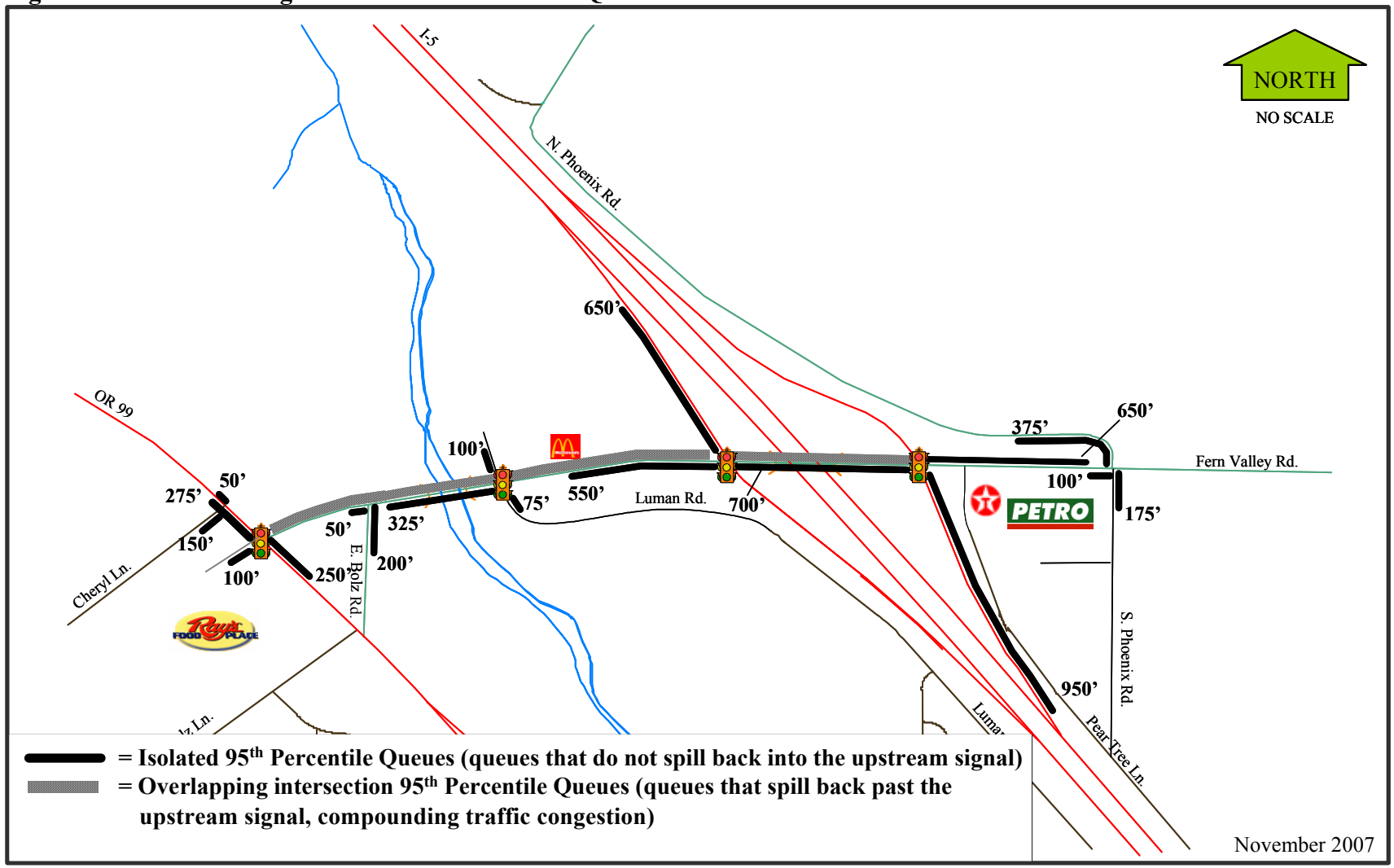


Figure B-2 : 2030 Future No-Build 95th Percentile Queues

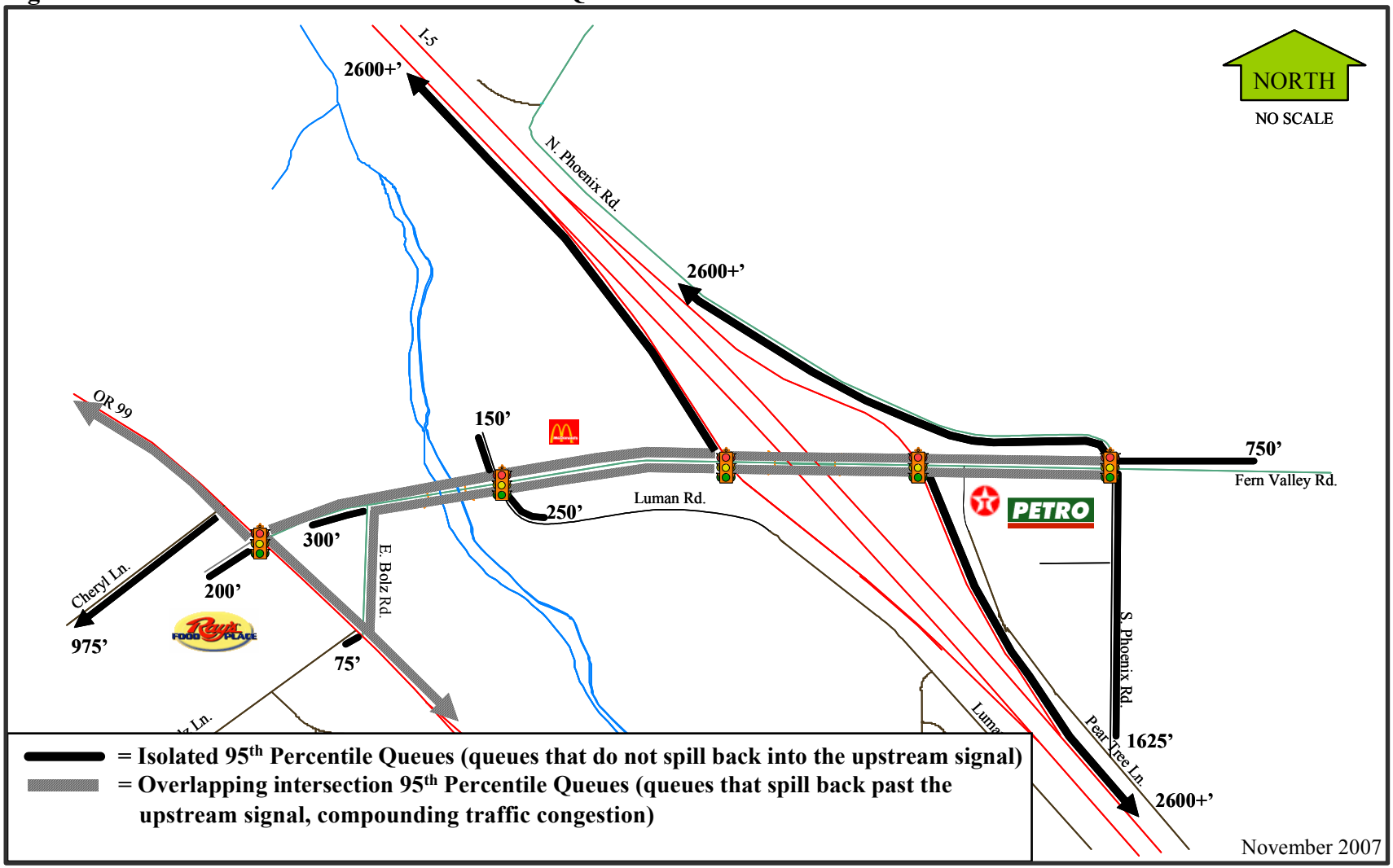


Figure B-3 : 2030 Future No-Build 95th Percentile Queues

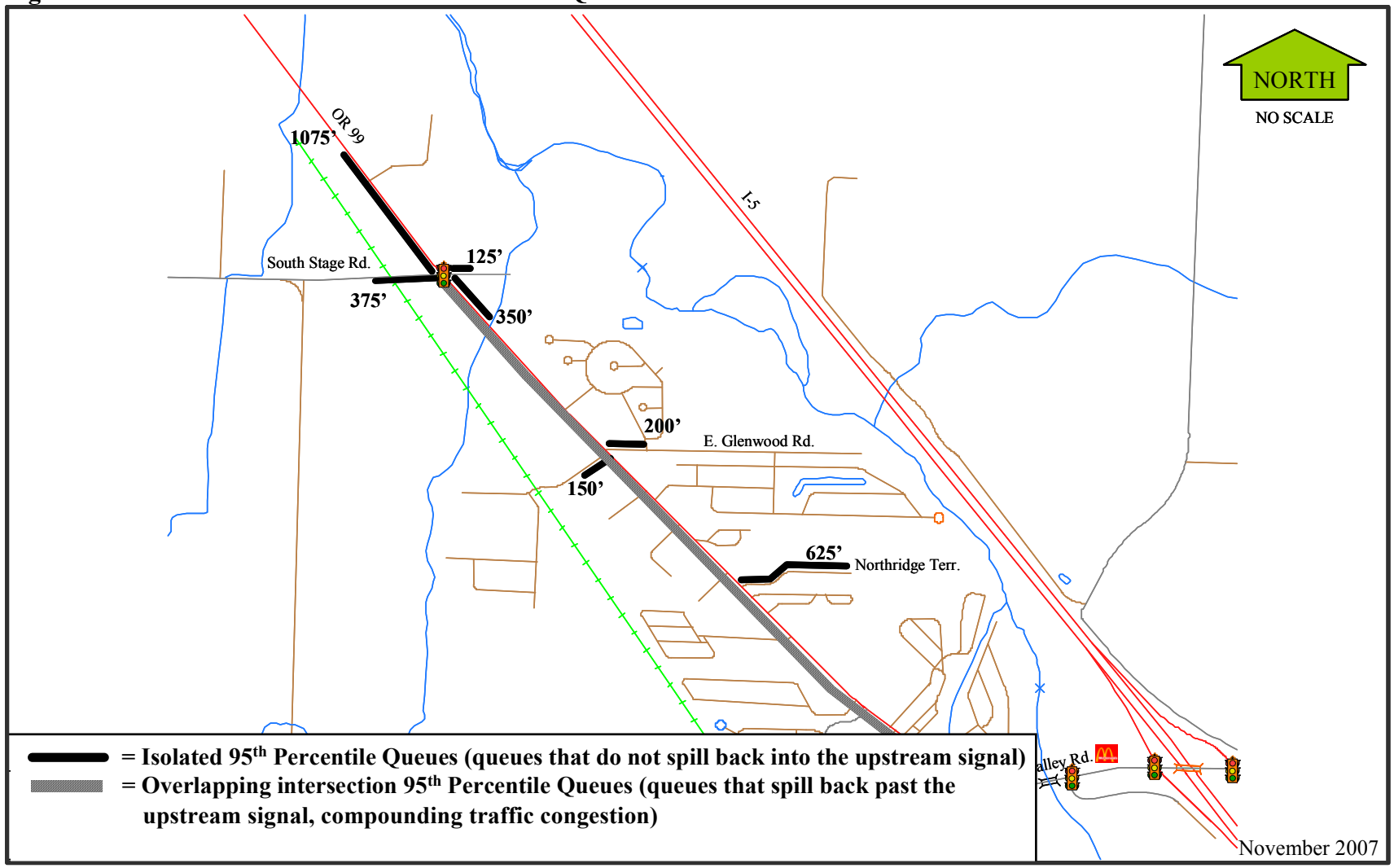


Figure B-4 : 2030 Future No-Build 95th Percentile Queues

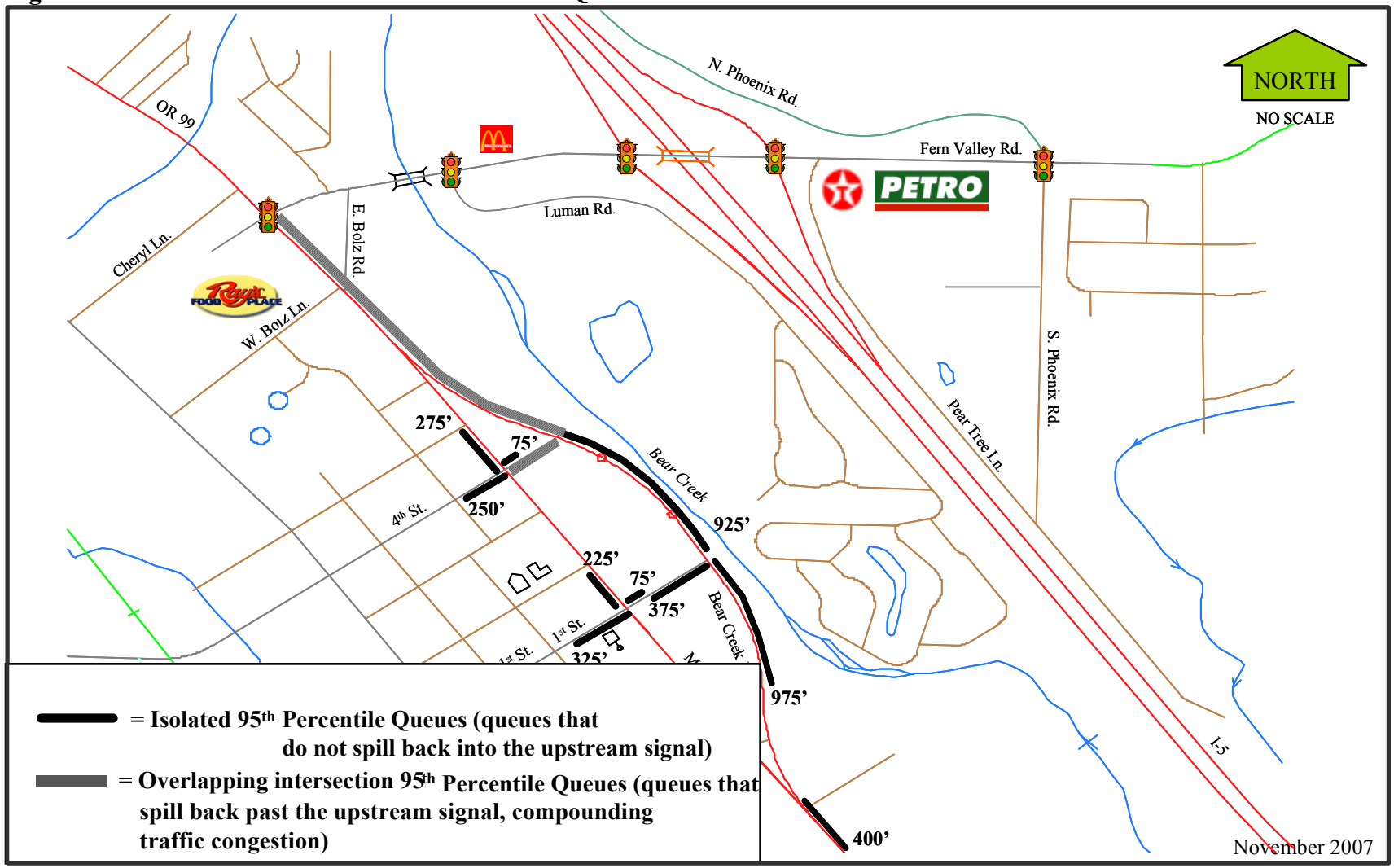


Figure B-5 : Build Alternative 95th Percentile Queues

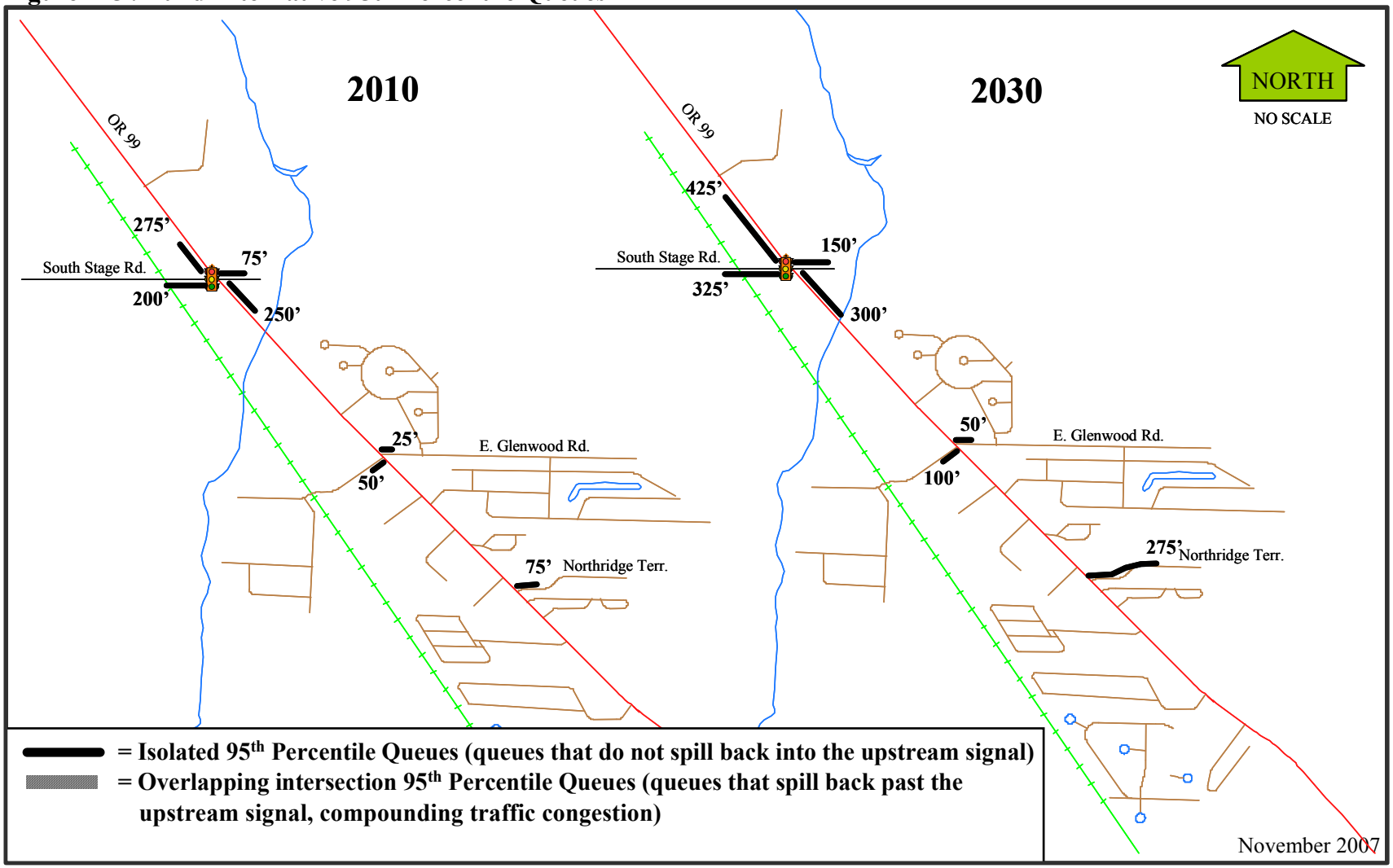


Figure B-6: 2030 Build Alternative 95th Percentile Queues

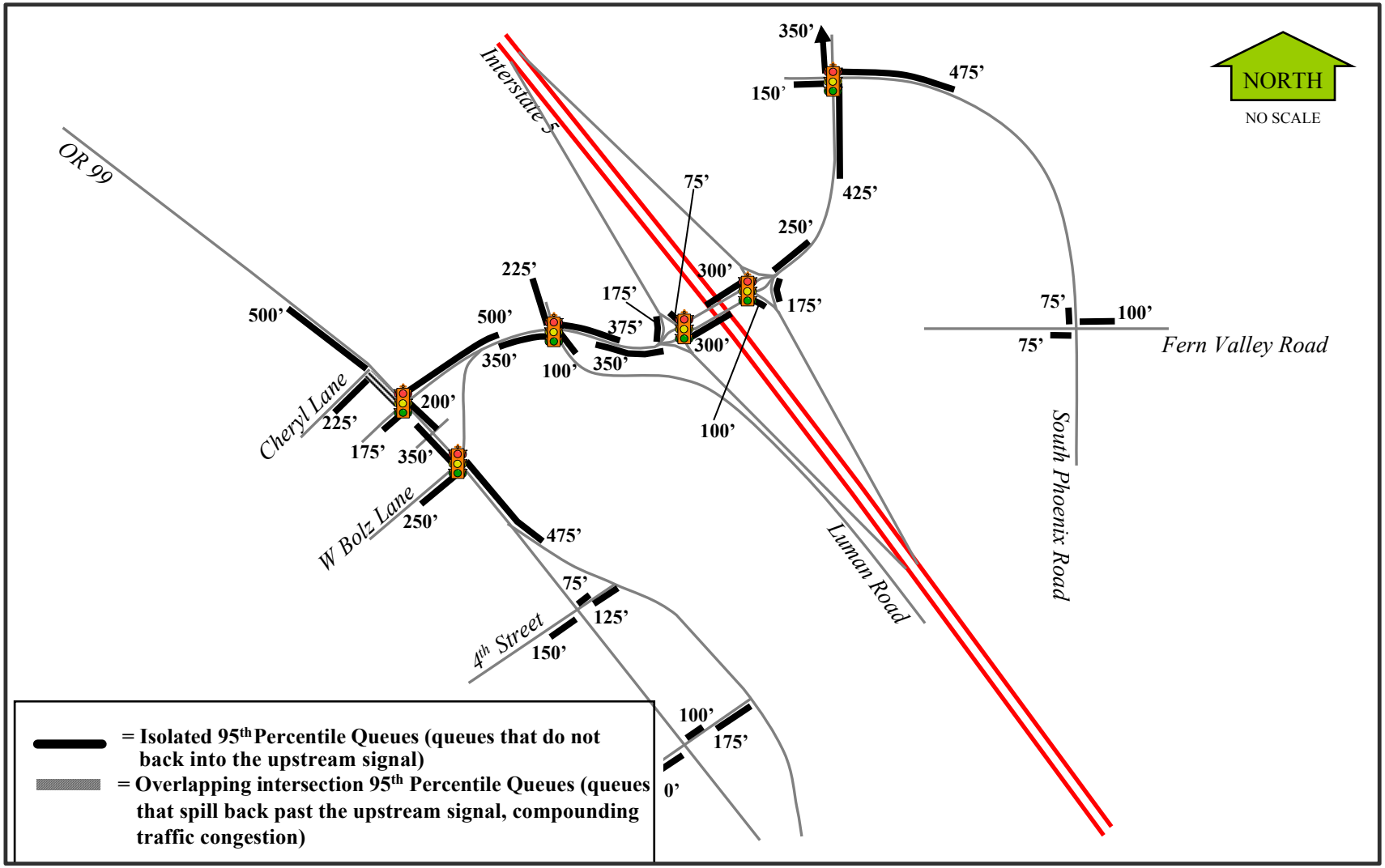
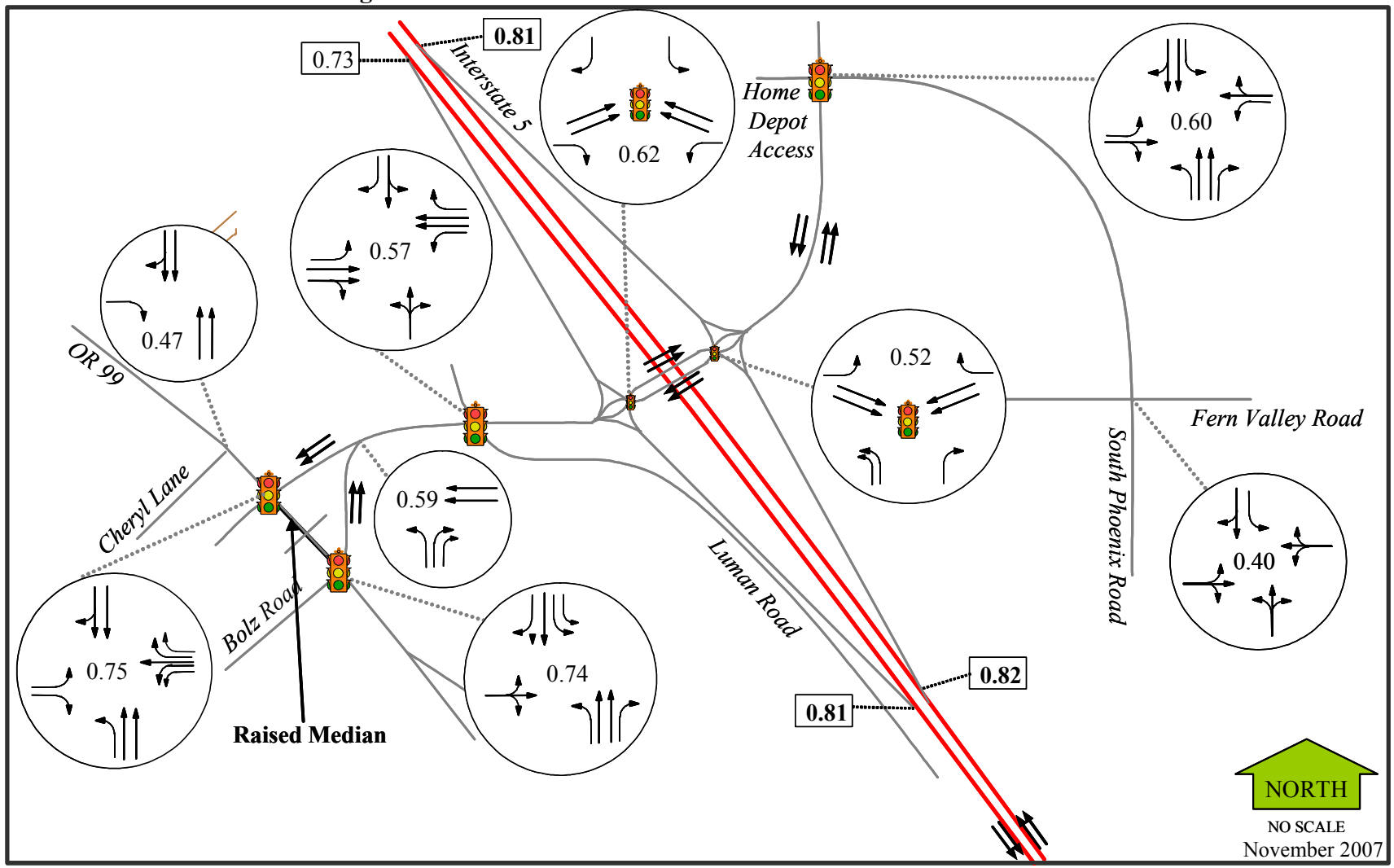


Figure B-7: Build Alternative
Intersection Turning Movements and V/C Ratios



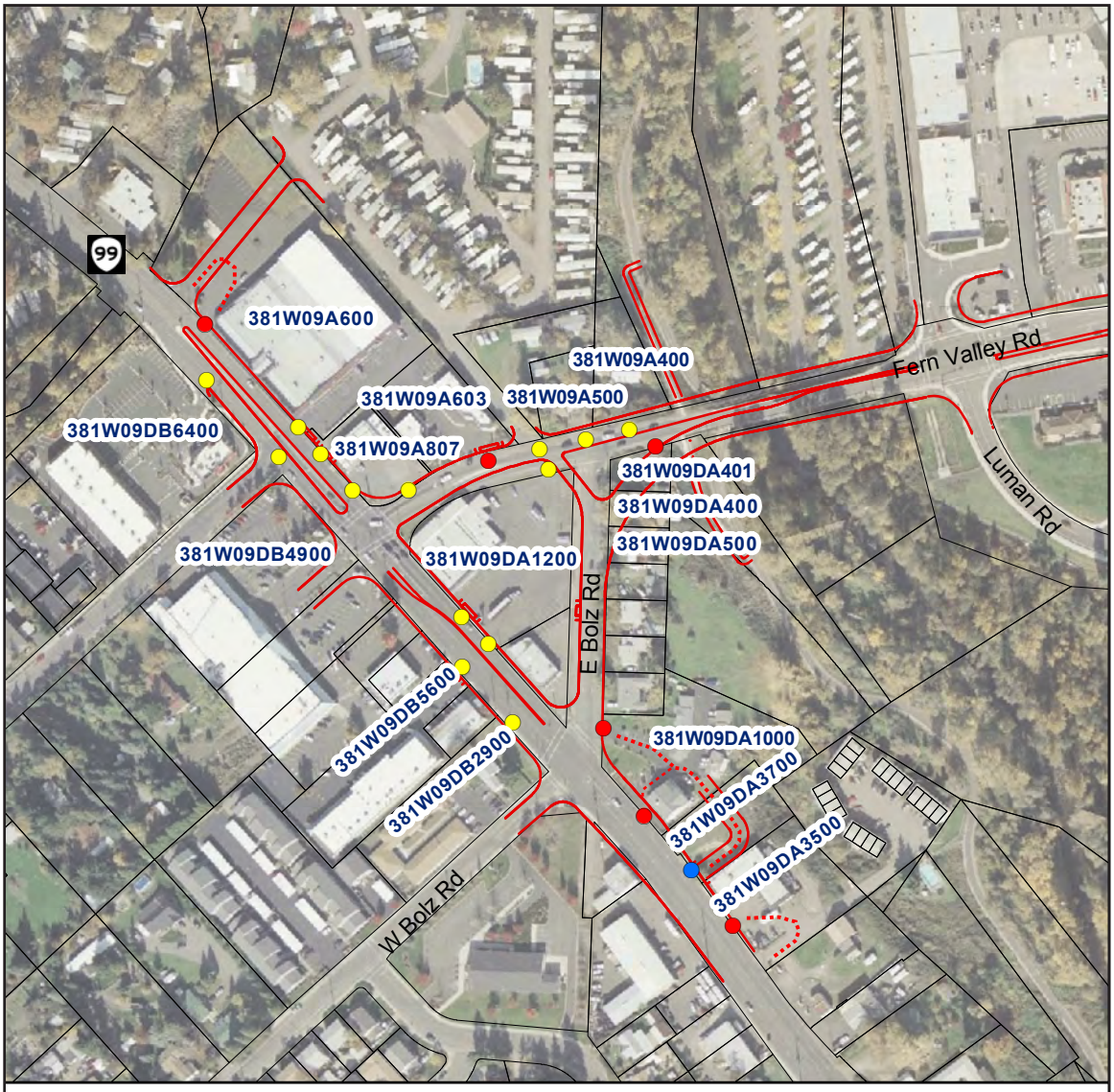
[Page intentionally left blank]

APPENDIX C
RIGHT OF WAY INFORMATION

[Page intentionally left blank]

TABLE C-1: EA R/W REPORT FOR FERN VALLEY INTERCHANGE BUILD ALTERNATIVE							
T.	**R.**	**Sec.**	**Tax Lot**	**Current Use**	**Zoning**	**Total Acres of Parcel**	**Estimated Acquisition Needs**
38 38 38	1W 1W 1W	03 09A 10	1600,1601,500 100,104 100,101	Ranch/Future Dev.	EFU EFU EFU	371.02	Partial
38	1W	04	501	Ranch	EFU	92.42	Partial
38	1W	10	202	Vacant - Future Dev.	I-C	4.10	Partial
38	1W	10	401	Rural Residential	F-5	4.05	Partial
38	1W	10	400	Peterbilt, GMC	C-1	13.98	Partial
38	1W	10	501	Orchard - Dev. Plans	F-5/C	32.96	Partial
38	1W	10	500	Orchard - Dev. Plans	C-T	0.32	Partial
38	1W	10	503	Orchard - Dev. Plans	C-T	0.03	Partial
38	1W	10	506	Orchard - Dev. Plans	F-5/C	2.04	Partial
38	1W	10	200	Home Depot	I-C	10.39	Partial
38	1W	10	2801	Petro Truck Stop	C-1	10.62	Partial
38	1W	09A	205	Exit 24 Shoppes	C-1	6.29	Tenant displacement (Dutch Bros) / partial land acquisition
38	1W	09A	202	McDonalds	C-T	2.19	Partial
38	1W	09A	201	Physical Therapy & Dentist Offices	C-T	1.49	Partial
38	1W	10	2901	Vacant - F.S.	C-T R-3	6.21	Partial
38	1W	09A	203,204,300, 303	RV Park	C-1	12.59	Partial
38	1W	09A	301	Bear Creek Bikepath	BCG C-T	1.98	Partial
38	1W	09A	302	Bear Creek Bikepath	BCG C-T	1.98	Partial
38	1W	09A	400,401,500, 800, 805,806	MH, residence in from on Coleman Ck MH Park	C	16.34	Partial
38	1W	09A	600,603	Commercial center	C-1 C-2	3.35	1 Full Business - Debbie's Diner, remaining are partial
38	1W	09A	604,807	76 & Circle K Mart	C-1	0.45	Partial

TABLE C-1: EA R/W REPORT FOR FERN VALLEY INTERCHANGE BUILD ALTERNATIVE							
T.	**R.**	**Sec.**	**Tax Lot**	**Current Use**	**Zoning**	**Total Acres of Parcel**	**Estimated Acquisition Needs**
38	1W	09DA	1100,1200	Vacant Lrg Bldgs; Sm Bldg, Hispanic Produce	C-1	1.53	Full Business RV, Relo Lion's recycle box
38	1W	09DA		Bus shelter			Partial - Bus shelter
38	1W	09DA	400	Residence	C-1	0.29	Full
38	1W	09DA	401	Vacant	C-1	0.15	Full
38	1W	09DA	500	Residence	C-1	0.14	Full
38	1W	09DA	600	Residence	C-1	0.14	Partial
38	1W	09DA	700	Residence	C-1	0.14	Partial
38	1W	09DA	800	Residence	C-1	0.14	Partial
38	1W	09DA	900	Residence	C-1	0.16	Partial
38	1W	09DA	200,1000	Bavarian Motel	C-1	2.63	Partial
38	1W	09DA	3500	CarQuest / Advanced Transmission	C-1	0.81	Partial
38	01	09DA	1400,1600	Phoenix Auto Center	C-1	0.88	Partial
38	1W	09DA	1300	Cascade Business Systems	C-1	0.21	Partial
38	1W	09DB	2800	Post Ofc & Detention Pond	C-1	1.83	Partial
38	1W	09DB	2900	Residence	C-1	0.92	Partial
38	1W	09DB	5700	Annies Café	C-1	0.17	Partial
38	1W	09DB	5600	Strip mall access	C-1 R-3	0.92	Partial
38	1W	09DB	5100,5200,5300	Angelos Pizza	C-1	0.41	Partial
38	1W	09DB	4900,5000,5400	Ray's Market	C-1	2.59	Full Business RV, remaining is partial
38	1W	09DB	6400	New Strip Mall & Jack-in-Box	C-1	1.96	Partial
38	1W	09DA	1200	Vacant building - NIMS	C-1	1.25	Partial



Map Features

- Existing Approach Retains Location, but Changes Connection to System
- Existing Approach to be Right-In/Right-Out Only (or LILO on 1-way links)
- Existing Approach to be Closed or Relocated
- New Location for Relocated Approach
- Path for Relocated Approach
- Build Alternative

Source: Fern Valley Interchange Access Management Strategy

Feet 0 250 500

Build Alternative Changes to Existing Approaches West of I-5

Figure C-1

February 2010

Fern Valley Interchange

N

Oregon Department of Transportation

Map Features

- Existing Approach Retains Location, but Changes Connection to System
- Existing Approach to be Right-In/Right-Out Only (or LILO on 1-way links)
- Existing Approach to be Closed or Relocated
- New Location for Relocated Approach
- Path for Relocated Approach
- Build Alternative

Source: Fern Valley Interchange Access Management Strategy

0 250 500
Feet

Build Alternative Changes to Existing Approaches East of I-5

Figure C-2
February 2010

Fern Valley Interchange

N

Oregon Department of Transportation

TABLE C-2: BUILD ALTERNATIVE ANTICIPATED ACCESS CHANGES	
Tax Lot	**Anticipated Change in Access**
381W09A600	Existing access to be relocated
381W09DB6400	Existing access to be right-in/right-out only
381W09A807	Existing accesses to be right-in/right-out only
381W09DB4900	Existing access to be right-in/right-out only
381W09A500	Existing access to be right-in/right-out only
381W09A400	Existing access to be right-in/right-out only
381W09A603	Existing access to be removed
381W09DA401	Existing access to be removed
381W09DB5600	Existing access to be right-in/right-out only
381W09DB2900	Existing access to be right-in/right-out only
381W09DA3500	Existing access to be relocated
381W09DA1000	Existing accesses to be relocated
381W04500	Existing access to be removed
381W031601	Existing access to be removed
381W09A103	Existing access to be removed
381W09A101	Existing access to be removed
381W09A2300	Existing access to be removed
381W10200	Existing access to be removed
381W10400	Existing access to be removed or to change connection to system
381W102801	Existing access to change connection to system
381W10CA7500	Existing access to change connection to system
381W10501	Existing access to change connection to system
381W10600	Existing access to change connection to system

[Page intentionally left blank]

Payment

If you sign a deed and any accompanying agreements, and the Transportation Commission approves it, then the transfer of title and payment may proceed. As in a private sale, you are responsible for clearing encumbrances to the title such as unpaid taxes, assessments, mortgages, outstanding leases and other liens against your property. The Right of Way Agent will assist you in clearing title. No payment can be made until a warranty deed conveying clear title to the Department has been recorded in the appropriate county records.

At the time the deed is available for recording, authorization is given to prepare a check for your property. Normally, when no cloud obscures the title, you will receive payment for your property about four weeks after you give the Department a deed to the property.

If the condemnation action has been filed, the amount established by the Department as Just Compensation will be deposited with the court for distribution in accordance with the order of the court.

You are entitled to be reimbursed for fair and reasonable costs you incur for expenses incidental to conveying your property to the Department. Such expenses could be, but are not necessarily limited to, penalty costs for prepayment of any pre-existing recorded mortgage encumbering your property, mortgage release fees, and the State's portion of real property taxes.

Possession

You are not required to surrender possession of your property until you have been paid the agreed purchase price or an amount equal to the Department's established estimate of just compensation has been deposited with the court for your benefit.

When negotiations begin, you, as well as any tenants occupying your property, will be notified in writing that it is the Department's intent to acquire the property. You will not be required to move from your home, farm, or business location earlier than 90 days following that notice or within 30 days after payment, whichever is later. However, if the purchase does not require you to move, the agreement to purchase your property may require you to surrender possession of your property upon payment.

The Department is aware of the need for a reasonable time for relocation. If your property is not needed for several months, your continued occupancy may be permitted on a short-term basis. The amount of rent the Department may charge you, or another tenant, may not exceed the fair rental value of the property to a short-term occupant.

Right of Way Offices

For your convenience the Department maintains Regional Right of Way Offices in the following locations:

Region 1 – Portland
123 NW Flanders
Portland, OR 97209
Voice: 503-731-8400
Fax: 503-731-8458
Toll Free: 888-769-7341

Region 2 – Salem
455 Airport Road SE Bldg. A
Salem, OR 97301-5397
Voice: 503-986-2601
Fax: 503-986-2622
Toll Free: 888-769-7342

Region 3 – Roseburg
3500 Stewart Parkway Suite 164
Roseburg, OR 97470
Voice: 541-957-3559
Fax: 541-957-3563
Toll Free: 888-769-7343

Region 4 – Bend
63085 N Highway 97 Suite 102
Bend, OR 97701-9901
Voice: 541-388-6196
Fax: 541-388-6381
Toll Free: 888-769-7344

Region 5 – La Grande
3012 Island Avenue
LaGrande, OR 97850
Voice: 541-963-7552
Fax: 541-962-9819
Toll Free: 877-851-9097

734-3773 (11-2004)

Oregon Department of Transportation

Acquiring Land for Highways & Public Projects

A description of the Department of Transportation Land Acquisition Program

When improving highway facilities, the Department of Transportation has the task of acquiring right of way. It is the aim and desire of the Department to obtain right of way with fairness and equity.

The State is empowered to acquire private property for public use. With this power goes the obligation to protect the rights of the individual property owner. The Department thus has a dual responsibility. It is to recognize and protect the individuals who are affected by acquisition of land, as well as competent and efficient service to the public.

▪ Public Hearings

Public hearings, when required, are held during the location and design stages of a project. Such hearings provide opportunities for public participation to ensure that highway locations and designs are consistent with Federal, State and Local goals and objectives.

The corridor hearing is held after preliminary studies have been made on several possible routes. During the course of this hearing, testimony is recorded for study by Department personnel and the Transportation Commission.

Upon selection of a corridor, a detailed survey within that corridor is made and a preliminary design plan developed for presentation at a "Design Hearing".

The "Design Hearing" provides an opportunity to present testimony about the final highway design.

In an instance where a choice of corridors is not involved, such as the case of an improvement to an existing highway, a single "Combination Corridor-Design Hearing" may be held.

After all data and testimony has been studied, a final design is adopted by the Transportation Commission and the acquisition of rights of way is authorized.

▪ Just Compensation

Owners of property needed for a highway project will be offered Just Compensation for the required rights of way. Just Compensation includes the estimated value of all the land and improvements within the needed area. In addition, if only a part of a property is to be acquired, Just Compensation will also include any measurable loss in value to the remaining property due to the partial acquisition.

Just Compensation is based on the Department's valuation of the needed property and its estimation of any damages to the remaining property. Department procedures, guided by Federal Regulations, have been designed to protect both owners of properties needed for highway rights of way as well as other taxpayers. The valuation process will be conducted either by an experienced and qualified employee of the Department or by an independent fee appraiser under a contract with the Department. The value arrived at will be by comparison of similar properties in the market that have recently sold, by knowledge and consideration of costs and depreciation for any improvement(s) to be acquired, and when applicable, by the property's income potential. The final value determination will be based on this type of information from the local real estate market.

The property to be acquired is inspected by a qualified appraiser during the first part of the valuation process. With complex acquisitions involving large portions of the property, major buildings or improvements on the property, displacement of residents, and/or damages to the remaining part of the property not being acquired, property owners will be given 15 days to prepare the property, and will be given the opportunity to accompany the appraiser during a detailed inspection of their property.

Any increase or decrease in the value of needed property brought about by public knowledge of the upcoming highway project, is disregarded in the valuation process.

The final value estimate is reviewed for completeness and accuracy, and Just Compensation is established by the Department's Review Appraiser. In addition to this estimate of Just Compensation, the Department will make an offer to purchase any remaining property determined to have no remaining economic value to the owner.

▪ Acquisition Procedure

The Right of Way Agent who calls on you has studied the Department's valuation of the needed property and can illustrate with maps and other data how the acquisition will affect your property. The Department's offer will be confirmed in writing, together with an acquisition summary statement, and an appraisal, or evaluation sheet, which provides the basis for that amount. The Agent is authorized to obtain a deed from you to purchase your property, subject to the approval of the Transportation Commission. The Agent is unable, under Department procedures governing acquisitions, to engage in "horse trading"; rather the Agent is confined to those monetary values indicated by the appraisal process.

However, the Department is ready and willing to reconsider its position in light of any new evidence of value presented by you including a documented professional appraisal.

The Department may not take any action which would coerce you into accepting its offer. Prohibited actions include advancing the time of condemnation, deferring negotiations or condemnation or postponing the deposit of funds in court for your use.

You need not accept the State's offer or enter an agreement felt to be unfair. Owner's have a minimum 40-day period to accept or reject the offer, unless an emergency has been declared. A refusal is simply a case of disagreement between the two parties on the value of the property.

In the event the parties are still unable to agree as to the compensation to be paid, or you cannot clear the title, mediation of differences between parties, conducted by an independent mediator, can be arranged by the Department in order to reach settlement prior to filing any condemnation action. Mediation is a non-binding process where all parties reach agreement.

In the event parties are still unable to agree as to compensation to be paid, or if title cannot be cleared, a condemnation action will be filed. Once condemnation is filed, a trial date will be determined. However, an owner can elect binding arbitration prior to trial, through the Court, for amounts of $20,000 or less, and non-binding arbitration for amounts between $20,000 and $50,000. Arbitration is not available above $50,000.

Discussions and mediation can, of course, continue even after a condemnation action is filed in an effort to resolve differences. The filing allows the State to proceed with the construction project.

▪ Improvements

When the Department acquires an interest in your land, it must acquire an equal interest in your house or any other improvements located on the land acquired. If buildings are required to be removed, the Department may allow the owner to retain the improvements. If you are interested, this can be discussed with the Right of Way Agent.

Si es necesario quitar edificios, el Departamento puede permitir que el propietario retenga las mejoras. Si Ud. está interesado, puede conversar sobre esto con el Agente de Derecho de Paso.

Pago

Si Ud. firma el acuerdo de opción y la transferencia, y la Comisión de Transporte los aprueba, se puede proceder entonces a la transferencia del título de propiedad y al pago. Como en cualquier venta privada, Ud. es responsable del pago de gravámenes sobre el título tales como impuestos sin pagar, tasas de impuestos, hipotecas, arrendamientos pendientes y otras prendas contra su propiedad. El Agente de Derecho de Paso le ayudará a remover los impedimentos de su título. No se puede hacer ningún pago hasta que se haya asentado en los registros apropiados del condado un documento que garantice la entrega al estado de un título carente de defectos, gravámenes o condicionamientos.

Cuando la transferencia está disponible para ser registrada, se da autorización para preparar el cheque por su propiedad. Normalmente, cuando no hay ningún problema con el título, Ud. recibe el pago por su propiedad alrededor de cuatro semanas después de haber transferido la propiedad al Departamento.

Si se ha iniciado una acción de expropiación, la cantidad establecida por el Departamento como compensación justa será depositada en la corte para su distribución de acuerdo con el orden de la corte.

Usted tiene derecho a ser reembolsado por los gastos justos y razonables en que incurra como consecuencia del traspaso de su propiedad al Departamento. Tales gastos pueden ser, entre otros, multas por pago adelantado de alguna hipoteca registrada pre-existente relacionada con su propiedad, gastos de terminación de hipoteca, y la parte de los impuestos a la propiedad que le corresponde pagar al estado.

Posesion

Ud. no tiene que renunciar a la posesión de su propiedad hasta que se le haya pagado el precio de compra acordado o hasta que se haya depositado en la corte para su beneficio una cantidad igual a la estimación de compensación justa establecida por el Departamento.

Al comienzo de las negociaciones, tanto Ud. como cualquier inquilino que esté ocupando su propiedad, recibirá(n) una notificación escrita de la intención del Departamento de adquirir la propiedad. No se le pedirá que desaloje su hogar, granja, o negocio antes de 90 días a partir de la fecha de esa notificación o dentro de los 30 días siguientes a la fecha del pago, la fecha que resulte más tarde de las dos. Sin embargo, si la compra no requiere que Ud. se mude, el acuerdo de compra de su propiedad puede requerir que Ud. entregue posesión de su propiedad en el momento del pago.

El Departamento es consciente de la necesidad de un tiempo razonable para la reubicación. Si su propiedad no se necesita por varios meses, se le puede permitir que continúe ocupándola por un corto plazo. La cantidad que el Departamento le cobrará a Ud. o a otros inquilinos en concepto de renta no puede exceder el valor de renta justa de la propiedad a un ocupante por corto plazo.

Oficinas De Derecho De Paso

Para su conveniencia, el Departamento mantiene Oficinas Regionales de Derecho de Paso en las siguientes ubicaciones:

Región 1
123 NW Flanders
Pórtland, Oregon 97209
No. De Teléfono 503-731-8400
Fax 503-731-8458

Región 2
455 Aeropuerto Rd SE
Salem, Oregon 97301-5397
No. De Teléfono 503-986-2601
Fax 503-986-2622

Región 3
3500 Stewart Parkway #164
Roseburg, Oregon 97470
No. De Teléfono 541-957-3559
Fax 541-957-3563

Región 4
63085 N Hwy 97 #102
Bend, Oregon 97701-9901
No. De Teléfono 541-388-6196
Fax 541-388-6381

Región 5
3012 Island Avenue
La Grande, Oregon 97850
No. De Teléfono 541-963-7552
Fax 541-962-8919

Form 734-3773S (11-2004)

Oregon Department of Transportation

Adquisicion De Tierras Para Carreteras Y Proyectos Publicos

Descripción del programa de adquisición de tierras del Departamento de Transporte

Cuando se hacen mejoras a las carreteras, el Departamento de Transporte tiene que adquirir el derecho de paso. El objetivo y deseo del Departamento es obtener el derecho de paso en forma justa e igualitaria.

El Estado está facultado para adquirir propiedades privadas para uso público. Pero este poder viene también con la obligación de proteger los derechos de los propietarios. De modo que el Departamento tiene una doble responsabilidad -- reconocer y proteger a los individuos afectados por la adquisición de la tierra, y servir al público en forma eficiente y competente.

Audiencias Publicas

Las audiencias públicas, cuando son necesarias, tienen lugar durante las etapas de ubicación y diseño de un proyecto. Tales audiencias permiten la participación del público para asegurar que la ubicación y diseño de la carretera estén de acuerdo con los objetivos y metas locales, federales y estatales.

La audiencia del corredor tiene lugar después de los estudios preliminares sobre las diferentes rutas posibles. Durante el curso de esta audiencia, se registran testimonios para su estudio por parte del personal del Departamento y de la Comisión de Transporte.

Una vez elegido el corredor, se hace un estudio detallado de ese corredor y se desarrolla un plan de diseño preliminar para su presentación en la "Audiencia de Diseño."

La "Audiencia de Diseño " es una oportunidad para prestar testimonio sobre el diseño final de la carretera.

Cuando el proceso de selección de corredor no es necesario, como en los casos de mejoras de carreteras ya existentes, es posible hacer una sola "Audiencia Combinada de Corredor- Diseño.'

Después de estudiar todos los datos y testimonios, la Comisión de Transporte adopta un diseño final y se autoriza la adquisición de los derechos de paso.

Compensaction Justa

A los propietarios de terrenos necesarios para un proyecto de carreteras se les ofrece una Compensación Justa por los derechos de paso requeridos. La Compensación Justa incluye el valor estimado de toda la tierra y de las mejoras dentro del área necesaria. Además, si se va a adquirir sólo una parte de la propiedad, la Compensación Justa también incluye cualquier pérdida notable en el valor del resto de la propiedad causada por la adquisición parcial.

El Departamento hace una Compensación Justa basada en la valoración de la propiedad necesaria y la estimación de cualquier daño al resto de la propiedad. Los procedimientos del Departamento, que se hacen de acuerdo con Regulaciones Federales, están diseñados para proteger tanto a los propietarios de los terrenos necesarios para el derecho de paso de las carreteras, como a los demás contribuyentes. El proceso de valoración está a cargo de un empleado calificado y experimentado del Departamento o de un evaluador independiente contratado por el Departamento. El valor se establece por comparación con propiedades similares vendidas recientemente en el mercado, por el conocimiento y consideración del costo y la depreciación para adquirir cualquier mejora, y si corresponde, por el potencial de la propiedad para producir ingresos. La determinación final del valor se basa en este tipo de información del mercado local de bienes raíces.

Durante la primera parte del proceso de valuación, un evaluador calificado inspecciona la propiedad a ser adquirida. Si se trata de adquisiciones complejas que involucran grandes porciones de propiedad, edificios o mejoras importantes de la propiedad, desplazamiento de residentes y/o daños a la parte de la propiedad que no va a ser adquirida, los propietarios tienen 15 días para preparar la propiedad y pueden acompañar al evaluador durante la inspección detallada de su propiedad.

En el proceso de valuación no se tiene en cuenta aumento o disminución alguna en el valor de la propiedad necesaria que ocurra como consecuencia del conocimiento público del proyecto de carretera próximo a construirse.

Procedimiento De Adquiscion

El Revisor de Valoración del Departamento controla que la estimación final de valor esté completa y exacta y establece la Compensación Justa. Además de esta estimación de Compensación Justa, el Departamento hace una oferta de compra del resto de toda propiedad si se determina que ésta no tiene valor económico restante para el propietario.

En el caso de que los partidos aun no lleguen a un acuerdo con respecto a la compensación a pagar, o si usted no puede librar el título de propiedad, el Departamento puede hacer arreglos para la mediación de las diferencias entre los partidarios, a cargo de un mediador independiente, para tratar de llegar a un acuerdo antes de iniciar una acción de expropiación. La mediación es un proceso no obligatorio donde todos los partidarios llegan a un acuerdo.

Usted no tiene que aceptar la oferta del Estado ni entrar en un acuerdo que Ud. no considere justo. Los propietarios tienen un período mínimo de 40 días para aceptar o rechazar la oferta, a menos que se declare una emergencia. Un rechazo es simplemente un caso de desacuerdo entre las dos partes sobre el valor de la propiedad.

En el caso de que los partidos aun no lleguen a un acuerdo con respecto a la compensación a pagar, o si usted no puede librar el título de propiedad, el Departamento puede hacer arreglos para la mediación de las diferencias entre los partidarios, a cargo de un mediador independiente, para tratar de llegar a un acuerdo antes de iniciar una acción de expropiación. La mediación es un proceso no obligatorio donde todos los partidarios llegan a un acuerdo.

En el caso de que los partidos aun no lleguen a un acuerdo con respecto a la compensación a pagar, o si usted no puede librar el título de propiedad, una acción de expropiación será llenada. Una vez presentada la acción de expropiación, se pone fecha para el juicio. Sin embargo, el propietario puede optar por arbitraje obligatorio previo al juicio, mediante el Tribunal, para cantidades de $20,000 o menores, y por arbitraje no obligatorio para cantidades de $20,000 a $50,000. El arbitraje no se puede usar para cantidades mayores de $50,000.Las conversaciones pueden continuar aún después de ser presentada la acción de expropiación, en un esfuerzo por resolver diferencias. La presentación permite al Estado proceder con el proyecto de construcción.

Mejoras

Cuando el Departamento adquiere un interés en su tierra, debe adquirir un interés igual en su casa o cualquier otra mejora ubicada en el terreno adquirido.

- **Possession**

No person lawfully occupying real property shall be required to move from his home, farm, or business location without at least 90 days' written notice. A displaced residential occupant will not be required to move earlier than 90 days after the date comparable replacement housing is made available.

The displacee will again be notified 30 or more days prior to the date the property must be vacated. The 30-day notice will not be given until the property owner has been paid for his or her property. However, if a purchase does not require the person to move, the agreement to purchase the property may require the person to surrender possession of his or her property upon payment.

- **Appeals**

Any person who is dissatisfied with a determination of his or her eligibility or claim for any relocation benefit payment shall have the right of appeal. Any person making such an appeal will be given a choice of appealing for an optional reconsideration conference or for an administrative hearing. A reconsideration conference is an optional process to afford a displacee an opportunity to present additional relevant information that may not have been considered by the department or to correct factual errors and for the Department to reconsider the claim with the new or corrected information. An administrative hearing is a formal hearing process conducted by the Office of Administrative Hearings according to the Administrative Procedures Act, ORS 183.310 to 183.550. Either type of **appeal must be filed within 60 days of relocation benefit or claim determination**, and must be submitted on Form 734-3623 which is available from the Right of Way Agent assigned to the file.

- **Right of Way Agent**

Relocatees will be given information regarding their eligibility and possible benefits by the Right of Way Agent assigned to acquire the property.

734-3772 (08-2008)

General Summary of Relocation Benefits

Residential				Business, Farm, Non-Profits	
Owner-occupant of 180 days or more prior to initiation of negotiations for the parcel		Owner-occupant of 90 days or more but less than 180 days and tenant-occupants of 90 days or more occupancy prior to initiation of negotiations for the parcel.		Owner-occupants and tenant-occupants entitled to same benefits.	
May be eligible for:		**May be eligible:**		**May be eligible for:**	
Replacement Housing Differential Payment	$22,500	Rent Supplement	$5,250 max.	Actual reasonable moving costs	Actual
Including: Costs incidental to purchase or replacement dwelling		Or Down payment benefit and costs incidental to purchase of replacement dwelling	$5,250 max.	Or Negotiated moving costs payment not to exceed lower of two estimates secured by agency	No more than lowest estimate
And including: Increased interest cost on replacement dwelling		Plus Actual reasonable moving costs	Actual	Plus Tangible personal property loss due to relocation	Actual value or estimated costs to move, whichever is lower
Or Rent Supplement	$5,250	And Storage of personal property for up to twelve months with prior approval	Actual	Plus Reasonable cost of search for new site	$2,500 max.
All displacees may be eligible for:		Or Moving costs based upon schedule		Plus Storage of personal property for up to twelve months with prior approval	Actual
Actual reasonable moving costs	Actual			Plus Reestablishment expenses at the replacement site	$10,000 max.
And, Storage of personal property up to twelve months with prior approval	Actual			Or Fixed payment in lieu of all other benefits requires approval of agency	Average of annual net earnings for two years prior to year of relocation of $1,000 min., $20,000 max.
Or, Moving costs based upon schedule					

Oregon Department of Transportation

Moving Because of the Highway or Public Projects?

A description of the
Oregon Department of Transportation
Relocation Assistance Program

Department of Transportation policy requires that no family or individual will be required to vacate any dwelling until such displacee has found or has been offered comparable replacement housing.

All replacement housing offered will be fair housing open to all persons regardless of race, color, religion, sex, or national origin.

Relocation payments and relocation advisory services, pursuant to State and Federal law, may not be provided to an alien unless the alien is lawfully present in the United States, except in cases of exceptional or extreme hardship. Displacees will be asked to sign a "Certification of Legal Residency in the United States."

Relocation legislation, because of its wide scope, is somewhat complicated and difficult to read and interpret. For the benefit of those who are affected by the Department of Transportation property acquisitions, this brochure summarizes the principal provisions of relocation services and benefits. However, persons reading this brochure are urged not to form advance opinions as to the benefits and amounts to which they may be entitled. The Right of Way Agent assigned to purchase property will have detailed information for displaced persons.

No relocation payment received by a displaced person under this part shall be considered as income for the purpose of the Internal Revenue code of 1954, which has been redesignated as the Internal Revenue Code of 1986 or for the purpose of determining the eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other Federal law, except for any Federal law providing low-income housing assistance.

- **Relocation Services**

The Department of Transportation maintains Regional Right of Way offices in the following locations:

Region 1
123 NW Flanders
Portland, OR 97209
503-731-8400
888-769-7341

Region 4
63085 N Hwy 97 #102
Bend, OR 97701
541-388-6196
888-769-7344

Region 2
455 Airport Rd SE Bldg A
Salem, OR 97301
503-986-2601
888-769-7342

Region 5
3012 Island Avenue
LaGrande, OR 97850
541-963-7552
877-851-9097

Region 3
3500 Stewart Parkway #164
Roseburg, OR 97470
541-957-3559
888-769-7343

These offices maintain current lists of replacement dwellings, businesses, and farms for displaced persons, as well as current data regarding required deposits for utilities, closing costs, typical down payments, interest rates, and FHWA and VA requirements and information. The offices also have maps showing the location of schools, parks, playgrounds, and shopping areas. Public transportation routes are shown, and schedules and fare information are available. Experienced Right of Way Agents are available to aid displaced persons to the fullest extent. Right of Way Agents do not expect and will not accept any fee for any service rendered.

- **Eligibility**

It is important to note that eligibility for any of the following benefits is not established until you have received a written notice of eligibility from the State.

- **General Moving Expenses**

Service charges for reconnecting utilities are reimbursable except under schedule move procedures.

- **Individual and Family Moving Expenses**

Any individual or family displaced by a Department of Transportation project is entitled to receive a payment for actual and reasonable expenses for moving personal property a distance not to exceed a 50-mile radius or to the nearest available and adequate site.

In order to obtain a moving expense payment, a displaced person must file, within 18 months after displacement, a written claim with the Department of Transportation on a form provided for that purpose. In some cases, a written arrangement with the Department of Transportation will allow the displaced person to present an unpaid commercial moving bill, and the Department of Transportation will make payment directly to the mover. If the residential displacee chooses, costs may be reimbursed according to set schedule based upon the number of rooms of furniture to be moved.

- **Residential Moving Schedule**

Unfurnished (Relocatee owns furniture)
$ 400 (1 room) $ 750 (3 rooms)
$ 550 (2 rooms) $ 950 (4 rooms)
$1125 (5 rms) $1300 (6 rms) $1475 (7 rms) $1650 (8 rms)
Plus $175 for each additional room

Furnished (Relocatee does not own furniture)
$350 for first room plus $100 for each added room

- **Re-establishment Payment** (Businesses, farms, non-profit organizations only)

Displaced small businesses, farm operations and non-profit organizations may receive a payment not to exceed $10,000 for expenses actually incurred to relocate and re-establish themselves at a replacement site. Eligible expenses can include repairs and improvements required by law, replacement of soiled and worn surfaces at the replacement site and other modifications, exterior signing, advertisement of the replacement location, and estimated increased cost of operation of the first two years.

- **Business, Farm and Non Profit Organization Moving Expenses**

Displaced businesses, farm operations, and non profit organizations are entitled to receive actual reasonable moving expenses for moving personal property a distance not to exceed a 50-mile radius or to the nearest available and adequate site. The actual and reasonable cost of searching for a replacement location may be claimed in an amount up to $2,500 for a farm, non profit organization or business. Such payments must be supported by receipted bills or other evidence of expenses incurred.

As an alternate moving expense procedure, in the case of a self-move, the business, farm operation, or non profit organization may be paid an amount not to exceed the lower of two estimates secured by the Department of Transportation from qualified moving companies.

Under certain conditions, businesses, farms, and non profit organizations may receive payments for direct loses of tangible personal property resulting from the necessity to relocate.

A displaced or discontinued business, non profit organization or farm operation, except advertising sign owners, may, under certain conditions, elect to receive a fixed payment in an amount equal to the average annual net earnings of the business or farm preceding the year in which such business or farm operation during the two tax years immediately preceding the year in which such business or farm operation is displaced. The payment cannot exceed $20,000 and will not be less than $1,000. Those who choose the fixed payment are not eligible for any other relocation benefit payment.

- **Storage of Personal Property**

Storage of personal property requires the written approval of the Department of Transportation and may not exceed twelve (12) months except in unusual circumstances. It should be clearly understood that those dislocatees who accept the scheduled move or fixed payment are not eligible to receive the storage expense benefit.

- **Replacement Housing**

A displaced owner-occupant of a dwelling owned and occupied for 180 days or more immediately prior to the initiation of negotiations for such property may be eligible for additional payments, the combined total of which may not exceed $22,500. The replacement housing payment is the amount, if any, which when added to the amount for which the State acquired his or her dwelling, equals the actual cost which the owner is required to pay for a decent, safe, and sanitary replacement dwelling or the amount determined by the State as necessary to purchase a comparable dwelling, whichever is less. This payment includes compensation for increased interest costs for financing the replacement dwelling and actual closing costs incidental to the purchase of replacement housing.

A displaced owner-occupant of a dwelling actually owned and occupied by the owner for 90 days or more, but less than 180 days or a tenant-occupant of 90 days or more, immediately prior to initiation of negotiations for such property may be eligible for additional payments, the combined total of which may not exceed $5,250. This payment is the amount necessary to make a down payment on the purchase of a replacement dwelling and to reimburse the relocatee for the actual closing costs incidental to the purchase of the replacement dwelling. Necessary deposits for taxes and insurance are not considered as closing costs.

In those cases where an owner-occupant of 90 days or more but less than 180 days, or a tenant-occupant of 90 days or more chooses to rent instead of purchase a replacement dwelling, he or she may, under certain conditions, be eligible for payment to rent a decent, safe, and sanitary replacement dwelling.

The rent payment is the increase in rent necessary to rent a comparable dwelling for 42 months or the amount determined by the State as necessary to rent a comparable dwelling for 42 months, whichever is less. To be eligible for these benefits, the displaced occupant must purchase or rent and occupy a decent, safe, and sanitary replacement dwelling within one year after the required date of displacement or within one year after the actual date of displacement, whichever is later.

Claims for replacement housing differential payment and rent supplements must be made in writing on a Department of Transportation form supplied for this purpose and must be filed with the Department of Transportation no later than 18 months after the date of displacement.

Before payments for any replacement dwelling benefits can be made, the replacement dwelling must be checked by Department of Transportation personnel to ascertain that it meets the decent, safe, and sanitary standards established by the Federal Department of Transportation. It is recommended that this determination be made prior to a commitment to rent or buy. The decent, safe, and sanitary inspection of the replacement dwelling by agency personnel is for the sole purpose of determining a relocatee's eligibility for a relocation payment.

Se volverá a notificar a la persona desplazada con 30 días o más de anticipación a la fecha en que deba desalojar la propiedad. Dicho aviso de 30 días no se enviará hasta que el dueño(a) de la propiedad haya recibido el pago por su propiedad. Sin embargo, si se trata de una compra que no requiere que la persona se mude, el acuerdo para comprar la propiedad puede requerir que la persona dé posesión de su propiedad en el momento del pago.

APELACIONES

Toda persona reubicada que esté desconforme con alguna de las decisiones sobre su elegibilidad o su reclamo de pago de algún beneficio de reubicación tiene derecho de apelación. Los formularios de apelación se pueden obtener del agente de derecho de paso encargado de la compra de la propiedad. El Jefe Administrativo del Departamento de Transporte ha delegado su autoridad de revisión a un oficial de audiencias. Las apelaciones deben presentarse ante la mesa en un plazo de 60 días después de que el Estado actúe sobre un reclamo o niegue elegibilidad para un beneficio.

Toda persona que haga tal apelación tiene oportunidad de ser escuchada en una audiencia de apelación hecha para examinar su queja. Se provee luego una decisión con las razones en las que se basa el resultado alcanzado.

EL AGENTE DE DERECHO DE PASO

Las personas reubicadas recibirán información relacionada con su elegibilidad y posibles beneficios del agente de derecho de paso asignado para la compra de la propiedad.

Form 734-3772S (08-2008)
IMPRIMIDO EN PAPEL RECICLADO

RESUMEN GENERAL DE LOS BENEFICIOS DE REUBICACION

PARA RESIDENCIAS

ORGANIZACIONES S.F. de L.	Dueño ocupante por 90 días o más pero menos de 180 días e inquilino ocupante por 90 días o más antes de la iniciación de las negociaciones por la propiedad
Podría ser elegible para:	Podr + ser elegible para:
Propietario ocupante por 180 días o más antes de la iniciación de las negociaciones por la propiedad Aditivo para la vivienda $22,500 máx. Incluyendo Costos incidentales a la compra de la propiedad de reemplazo E Incluyendo Aumento en el costo de los intereses de la propiedad de reemplazo O Suplemento de renta $5,250 máx. Todas las personas desplazadas podrían ser elegible para: Costos reales razonables de mudanza Real Y Almacenamiento de propiedad personal, hasta doce meses con autorización previa Real Costos de mudanza basados en la tabla	Suplemento de renta $5,250 máx. O Beneficio de entrega inicial y costos incidentales a la compra de la propiedad de reemplazo $5,250 máx. Más Costos reales razonables de mudanza Real O Costos de mudanza basados en la tabla O Almacenamiento de propiedad personal por hasta doce meses con autorización previa Real Dueños ocupantes e inquilinos ocupantes con derecho a los mismos beneficios

PARA NEGOCIOS, GRANJAS Y

Podría ser elegible para:	
Costos reales razonables de mudanza	Real
O	
Pago negociado de los costos de mudanza no mayor que el más bajo de dos presupuestos obtenidos por la agencia	No mayor que el presupuesto más bajo
Más	
Pérdida de propiedad personal tangible causada por la reubicación	$1,000 mínimo, $20,000 máximo
Más	
Costo razonable de la búsqueda de un nuevo sitio	$1,000 máx.
Más	
Almacenamiento de propiedad personal por hasta doce meses con autorización previa	Real
Más	
Gastos de reinstalación en el sitio de reemplazo	$10,000 máx.
O	
Pago fijo en lugar de todos los otros beneficios - requiere autorización de la trasladarla, cualquiera sea el valor más bajo	Valor real o costo estimado para
Promedio de las ganancias netas anuales de los dos últimos años anteriores a la reubicación agencia	

¿TIENE QUE MUDARSE A CAUSA DE LA CONSTRUCCION DE CARRETERAS O PROYECTOS PUBLICOS?

DESCRIPCION DEL PROGRAMA DE ASISTENCIA DE REUBICACION DEL DEPARTAMENTO DE TRANSPORTE

Los reglamentos del Departamento de Transporte establecen que no se puede obligar a ninguna familia o individuo a desalojar una residencia hasta que la persona desplazada haya encontrado o se le haya ofrecido una vivienda comparable para reemplazarla.

Toda vivienda de reemplazo ofrecida debe ser una vivienda justa, abierta a todas las personas sin consideración de raza, color, religión, sexo o nacio-nalidad.

No se puede usar fondos Federales para pagos de reubicacion o servicios consultivos de reubicacion a un extranjero que no esta legalmente en Los Estados Unidos, excepto en casos de extraodinario o extrema dificultad. Sin embargo, personas que no estan legalmente en Los Estados Unidos pueden ser eligibles para recibir beneficios de reubicacion usando fondos del Estado solamente, excepto en casos de extrema dificultad. A personas desplazadas se va pedir que firmen un "Certificado de Residencia Legal en Los Estados Unidos".

La legislación de reubicación, por su amplio alcance, es algo complicada y difícil de leer y interpretar. Para la información de quienes se vean afectados por las compras de propiedad del Departamento de Transporte, este folleto resume las principales disposiciones sobre beneficios y servicios de reubicación. Sin embargo, quienes lean este folleto no deben formar opiniones adelantadas con respecto a los beneficios y cantidades que pueden tener derecho a recibir. El agente de derecho de paso asignado a la compra de una propiedad tendrá información detallada para las personas desplazadas.

DEPARTAMENTO DE TRANSPORTE DE OREGON

Ningún pago por reubicación recibido por una persona desplazada se considerará ingreso según el Internal Revenue Code de 1954, que ha sido redesignado como Internal Revenue Code de 1986, ni se usará para determinar la elegibilidad o el grado de elegibilidad de cualquier persona para recibir asistencia según el Acta de Seguridad Social o cualquier otra ley Federal, a excepción de toda ley Federal que provea asistencia para vivienda de bajos ingresos.

LOS SERVICIOS DE REUBICACION

El Departamento de Transporte mantiene oficinas de derecho de paso en los siguientes lugares:

Region 1:123 NW Flanders, Portland, Oregon 97209
Nº de Teléfono: 503-731-8400
Fax: 503-731-8458

Region 2: 455 Airport Rd.,SE, Building A
Salem, Oregon 97301
Nº de Teléfono: 503-986-2600
Fax: 503-986-2622

Region 3: 3500 NW Stewart Parkway, Suite 164
Roseburg, Oregon 97470
Nº de Teléfono: 541-957-3559
Fax: 541-957-3563

Region 4: 63085 N Hwy. 97, Suite 102, Bend, Oregon 97701
Nº de Teléfono: 541-388-6196
Fax: 541-388-6381

Region 5: 3012 Island Avenue, La Grande, Oregon 97850
Nº de Teléfono: 541-963-7552
Fax: 541-963-9079

Estas oficinas mantienen listas actualizadas de residencias, negocios, y granjas de reemplazo para personas desplazadas, como así también datos actualizados sobre los depósitos necesarios para servicios públicos, costos de cierre, entregas iniciales tipo, tipos de interés, y requisitos e información de FHA y VA. Las oficinas también tienen mapas que muestran la ubicación de escuelas, parques, lugares de juegos, y zonas comerciales. Hay información sobre rutas, horarios y precios del transporte público. Hay agentes de derecho de paso disponibles para prestar la máxima ayuda posible a las personas desplazadas. Los agentes de derecho de paso no esperan ni aceptan retribución alguna por los servicios que prestan.

ELEGIBILIDAD

Es importante notar que la elegibilidad para recibir cualquiera de los siguientes beneficios no está establecida hasta que Ud. haya recibido un aviso escrito de elegibilidad del Estado.

GASTOS GENERALES DE MUDANZA

Las tarifas de servicio para reconectar los servicios públicos son reembolsables excepto bajo el plan de mudanza fijo.

GASTOS DE MUDANZA PARA INDIVIDUOS Y FAMILIAS

Todo individuo o familia desplazada por un proyecto del Departamento de Transporte tiene derecho a recibir un pago por el gasto real y razonable de trasladar la propiedad personal a una distancia que no exceda un radio de 50 millas o al sitio disponible y adecuado más cercano.

Para obtener el pago por gastos de mudanza, la persona desplazada tiene 18 meses a partir de su fecha de desalojo para presentar un reclamo escrito ante el Departamento de Transporte en un formulario especial. En algunos casos, y si le conviene a la persona desplazada, se puede hacer un acuerdo escrito con el Departamento de Transporte que permita a la persona desplazada presentar una cuenta de mudanza comercial impaga, y el Departamento de Transporte hará el pago directamente a la compañía de mudanza. Si el desplazado residencial lo prefiere, los costos pueden reintegrarse según un plan de mudanza fija basado en el número de recámaras amuebladas que es necesario trasladar.

PLANILLA RESIDENCIAL DE MUDANZAS

Sin amueblar
[El relocatario posee muebles]
$400 [1 recámara] $750 [3 recámaras]
$550 [2 recámaras] $950 [4 recámaras]
$1125 [5 recámaras] $1300 [6 recámaras] $1475 [7 recámaras]
$1650 [8 recámaras]
más $175 por cada recámara adicional.

Amueblada
[el relocatario no posee muebles]
$300 por la primera recámara más
$50 por cada recámara adicional.

PAGO DE REESTABLECIMIENTO

(sólo para negocios, granjas y organizaciones sin fines de lucro)

Los pequeños negocios, granjas y organizaciones sin fines de lucro desplazadas pueden recibir un pago no mayor de $10,000 para gastos reales incurridos para su traslado y reinstalación en un sitio de reemplazo. Los gastos cubiertos pueden incluir arreglos y mejoras requeridas por ley, reemplazo de superficies manchadas y gastadas en el sitio de reemplazo y otras modificaciones, letreros exteriores, publicidad de la ubicación de reemplazo, y aumento estimado del costo de operación durante los dos primeros años.

GASTOS DE MUDANZA PARA NEGOCIOS, GRANJAS Y ORGANIZACIONES SIN FINES DE LUCRO

Los negocios, granjas y organizaciones sin fines de lucro desplazadas tienen derecho a recibir gastos de mudanza reales y razonables para el traslado de propiedad personal a una distancia que no exceda un radio de 50 millas o al sitio disponible y adecuado más cercano. Puede reclamarse una cantidad de hasta $1,000 por el costo real y razonable de buscar una ubicación de reemplazo para una granja, negocio u organización sin fines de lucro. Tales pagos deben estar documentados con recibos de cuentas pagadas u otra evidencia de los gastos incurridos.

Para procedimientos diferentes de mudanza, como por ejemplo si el traslado se hace por cuenta propia, los negocios, granjas u organizaciones sin fines de lucro pueden recibir un pago que no sobrepase el monto del menor de dos presupuestos que el Departamento de Transporte haya obtenido de compañías de mudanza calificadas.

Bajo ciertas condiciones, los negocios, granjas y organizaciones sin fines de lucro pueden recibir pagos por pérdidas directas de propiedad personal tangible que resulten de la necesidad de reubicarse.

Un negocio, granja u organización sin fines de lucro desplazada o en estado de discontinuidad, excepto los propietarios de letreros de publicidad, puede, en ciertas circunstancias, ser elegible para recibir un pago fijo en una cantidad igual a las ganancias netas anuales promedio del negocio o granja durante los dos últimos años inmediatamente anteriores al año en que fue desplazada. El pago no puede exceder los $20,000 y ni será menor de $1,000. Quienes eligen el pago fijo no son elegibles para recibir ningún otro pago de beneficios de reubicación.

ALMACENAJE DE LA PROPIEDAD PERSONAL

El almacenaje de propiedad personal requiere la aprobación escrita del Departamento de Transporte y no puede extenderse por más de doce meses, excepto en circunstancias especiales. Debe entenderse claramente que aquellos propietarios desplazados que aceptan el plan de mudanza fijo o el pago fijo no son elegibles para recibir beneficios por gastos de almacenaje.

VIVIENDA DE REEMPLAZO

Un propietario/ocupante desplazado de una residencia poseída y ocupada por 180 días o más inmediatamente antes del comienzo de la negociación para la compra de tal propiedad puede ser elegible para pagos adicionales cuyo total combinado no puede exceder los $22,500.

El pago de la vivienda de reemplazo es la cantidad, si la hay, que agregada al monto por el cual el Estado adquirió la vivienda, es igual al costo real que el propietario tiene que pagar por una residencia de reemplazo decente, segura, e higiénica o la cantidad que el Estado determine necesaria para comprar una residencia comparable. Siempre se usa la menor de estas dos cantidades. Este pago incluye compensación por el aumento en los costos de interés para financiar la residencia de reemplazo y los costos reales de cierre de la compra de la vivienda de reemplazo.

Un propietario/ocupante desplazado de una residencia realmente poseída u ocupada por el dueño por 90 días o más, pero por menos de 180 días o un inquilino/ocupante por 90 días o más inmediatamente antes del comienzo de la negociación para la compra de tal propiedad, puede ser elegible para recibir pagos adicionales cuyo total combinado no puede exceder los $5,250. Este pago es la cantidad necesaria para hacer la entrega inicial para la compra de una residencia de reemplazo y para reembolsar a la persona reubicada por los gastos reales de cierre de la compra de la residencia de reemplazo. Los depósitos necesarios para impuestos y seguros no se consideran gastos de cierre. En los casos en que un propietario/ocupante de 90 días o más, pero menos de 180 días o un inquilino/ocupante de 90 días o más decide alquilar en vez de comprar una residencia de reemplazo, él o ella puede, en ciertas circunstancias, ser elegible para el pago de hasta $5,250 para alquilar una vivienda de reemplazo decente, segura e higiénica.

El pago de alquiler es el aumento en el alquiler necesario para alquilar una residencia comparable por 42 meses, o la cantidad que el Estado determine necesaria para alquilar una residencia comparable por 42 meses. Siempre se usa la menor de estas dos cantidades.

Para ser elegible para estos beneficios, el ocupante desplazado debe comprar o alquilar y ocupar una residencia de reemplazo decente, segura e higiénica en un período de un de año a partir de la fecha requerida de desalojo o un año después de la fecha real de desalojo, cualquiera sea la más tardía.

Los reclamos por pagos diferenciados de la vivienda de reemplazo y suplementos de alquiler deben hacerse por escrito en un formulario que el Departamento de Transporte provee para este fin y deben presentarse ante el Departamento de Transporte a más tardar 18 meses después de la fecha de desalojo.

Antes de poder hacer cualquier pago de beneficios por residencia de reemplazo, la residencia de reemplazo debe ser inspeccionada por personal del Departamento de Transporte para comprobar que cumple con los requisitos de ser decente, segura e higiénica establecidos por el Departamento Federal de Transporte. Se recomienda que esta determinación se haga antes de que la persona se comprometa a alquilar o comprar. La inspección de la residencia de reemplazo por parte del personal de la agencia para determinar si es decente, segura e higiénica se hace con el único propósito de determinar la elegibilidad de la persona reubicada para recibir un pago de reubicación.

POSESION

Ninguna persona que esté ocupando legalmente una propiedad estará obligada a desalojar su hogar, granja, o negocio sin un aviso escrito entregado por lo menos con 90 días de anticipación. Un ocupante residencial desplazado no tendrá que mudarse hasta 90 días después de que se ponga a su disposición una vivienda de reemplazo comparable.

APPENDIX D
FARMLAND CONVERSATION IMPACT RATING FORM

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 1/20/09
Name Of Project I-5 Fern Valley Interchange Unit 2a	Federal Agency Involved Federal Highway Administration
Proposed Land Use Paved roadway	County And State Jackson County, Oregon
PART II *(To be completed by NRCS)*	Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☑	No ☐	Acres Irrigated 49,887 / Average Farm Size 129 ac
Major Crop(s) Pasture	Farmable Land In Govt. Jurisdiction Acres: 565,161 % 36		Amount Of Farmland As Defined In FPPA Acres: 89,422 % 6
Name Of Land Evaluation System Used Jackson County Draft LE	Name Of Local Site Assessment System none		Date Land Evaluation Returned By NRCS 2/2/09

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	20.9			
B. Total Acres To Be Converted Indirectly	2.4			
C. Total Acres In Site	23.3	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	11.3			
B. Total Acres Statewide And Local Important Farmland	5.1			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.0			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	4.5			
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	45		0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	12			
2. Perimeter In Nonurban Use	10	10			
3. Percent Of Site Being Farmed	20	20			
4. Protection Provided By State And Local Government	20	20			
5. Distance From Urban Builtup Area	15	6			
6. Distance To Urban Support Services	15	0			
7. Size Of Present Farm Unit Compared To Average	10	10			
8. Creation Of Nonfarmable Farmland	25	0			
9. Availability Of Farm Support Services	5	5			
10. On-Farm Investments	20	20			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	5			
TOTAL SITE ASSESSMENT POINTS	160	108	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	45		0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	108	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	153	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☒

Reason For Selection:

(See instructions on reverse side)

This form was electronically produced by National Production Services Staff

Clear Form

Form AD-1006 (10-83)

[Page intentionally left blank]

APPENDIX E
CULTURAL RESOURCES
SECTION 106 DOCUMENTATION

[Page intentionally left blank]

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Individual Properties

Agency/Project: Oregon Department of Transportation / Fern Valley Interchange Project	
Property Name: James Kirk Farm	
Street Address: 3381 N Phoenix Road	City, County: Phoenix, Jackson
USGS Quad Name: Medford South	Township: 38S Range: 1W Section: 10
This property is part of a ☐District ☒Grouping/Ensemble (see instructions) Name of District or Grouping/Ensemble: James Kirk Farm	
Number and Type of Associated Resources in Grouping/Ensemble: 3 Buildings (1 barn, 1 shed, 1 house)	

Current Use: Domestic (single dwelling)	Construction Date: 1910s
Architectural Classification / Resource Type: Craftsman Bungalow / Building	Alterations & Dates: 1987: property line adjustment removed associated farmland; 1994 portion of rear of house demolished, new 1.5-story addition added to rear
Window Type & Material: one-over-one double hung and multi-pane fixed sash, wood	Exterior Surface Materials: Primary: Wooden clapboards Secondary: Decorative:
Roof Type & Material: Side-Gable with gabled dormer, asphalt shingles	
Condition: ☐Excellent ☒Good ☐Fair ☐Poor	Integrity: ☐Excellent ☐Good ☒Fair ☐Poor

Preliminary National Register Findings: ☐**National Register listed**

☐**Potentially Eligible:** ☐Individually ☐As part of District

☒**Not Eligible:** ☐In current state ☒Irretrievable integrity loss ☐Lacks Distinction ☐Not 50 Years

State Historic Preservation Office Comments:

☑**Concur** ☐**Do Not Concur:** ☐Potentially Eligible Individually ☐Potentially Eligible as part of District ☐Not Eligible

Signed _____ Date 4/30/08

Comments:

Surveyor/Agency: Martha Richards/URS Date Recorded: October 2007 **Pg 1**

106 Documentation: Individual Properties Rev. 08/03

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Individual Properties

Agency/Project: Oregon Department of Transportation / Fern Valley Interchange Project	
Property Name: Coleman Ranch (Arrowhead Ranch)	
Street Address: 3001 North Phoenix Road	City, County: Phoenix, Jackson
USGS Quad Name: Medford East	Township: 38S Range: 1W Section: 3
This property is part of a ☐District ☒Grouping/Ensemble (see instructions) Name of District or Grouping/Ensemble:	
Number and Type of Associated Resources in Grouping/Ensemble: 2 houses, 2 barns, 1 horse arena, assorted small structures	

Current Use: Agricultural / Horse Ranch (residence and barns)	Construction Date: c. 1880
Architectural Classification / Resource Type: Vernacular / Building	Alterations & Dates: Shed roofed additions to house (date unknown); shed roofed additions to guest house (1990s); 2 horse arenas built (1990s)
Window Type & Material: four-over-four double-hung wood sash	Exterior Surface Materials: Primary: Wooden shiplap siding (main house) Secondary: Wood trim Decorative:
Roof Type & Material: Side-gable with wood shake shingles	
Condition: ☐Excellent ☒Good ☐Fair ☐Poor	Integrity: ☐Excellent ☒Good ☐Fair ☐Poor

Preliminary National Register Findings: ☐**National Register listed**

☒**Potentially Eligible:** ☒Individually ☐As part of District

☐**Not Eligible:** ☐In current state ☐Irretrievable integrity loss ☐Lacks Distinction ☐Not 50 Years

State Historic Preservation Office Comments:

☒**Concur** ☐**Do Not Concur:** ☐Potentially Eligible Individually ☐Potentially Eligible as part of District ☐Not Eligible

Signed _____ Date 4/30/08

Comments:

Surveyor/Agency: Martha Richards/URS Date Recorded: October 2007

106 Documentation: Individual Properties **Pg 1** Rev. 08/03

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 LEVEL OF EFFECT FORM

Agency/Project: FHWA/Fern Valley Interchange Project (ODOT Key #12723, Federal Aid #S001164)	
Property Name: Coleman Ranch (currently known as Arrowhead Ranch)	
Street Address: 3001 North Phoenix Road	City, County: Phoenix, Jackson

Preliminary Finding of Effect:

☐ No Historic Properties Affected ☒ No Historic Properties Adversely Affected ☐ Historic Properties Adversely Affected

State Historic Preservation Office Comments:

☑ Concur ☐ Do Not Concur: ☐ No Historic Properties Affected ☐ No Historic Properties Adversely Affected ☐ Historic Properties Adversely Affected

Signed _____ Date 5/1/08

Comments:

Provide written description of the project, and its potential effects on the subject property per 36 CFR 800. Include maps, drawings, and photographs as necessary to effectively describe and discuss the project. Use continuation sheets as needed.

INTRODUCTION

This statement of finding discusses the effect of the proposed project on the Coleman Ranch (currently called the Arrowhead Ranch) in Jackson County. A Determination of Eligibility form has been completed in which the property has been determined eligible for the National Register; the determination is currently under SHPO review.

It is the finding of the Federal Highway Administration (FHWA), in concurrence with the Oregon Department of Transportation (ODOT) that the proposed project will have an effect on the National Register eligible Coleman Ranch, but this effect is "not adverse."

This statement of finding is made pursuant to the requirements of the National Historic Preservation Act of 1966 (36 CFR 800), Executive Order 11593, and the National Environmental Policy Act.

PROJECT DESCRIPTION

The Fern Valley Interchange Project is located in Phoenix, Oregon in Jackson County. The purpose of the proposed action is to reduce congestion and improve operational conditions at the Interstate 5 (I-5) interchange with Fern Valley Road (exit 24). In addition, the Fern Valley Road Bridge over Bear Creek is proposed for replacement. An Environmental Assessment is being compiled to assess the impacts of one no build and two build alternatives ("N. Phoenix Thru" and "Fern Valley Thru").

The two build alternatives would reconstruct the existing I-5 interchange at exit 24, replace the Fern Valley Road Bridge, and realign some of the nearby surface streets. Maps of the two alternatives are attached. In the vicinity of the Coleman Ranch, which is in the northeast corner of the project area, both of the alternatives are the same and would have the same impacts. A map of the vicinity of Coleman Ranch is attached. Because both alternatives are the same in the vicinity of Coleman Ranch, impacts from the two build alternatives would be the same. For the purposes of this evaluation, the build alternatives are simply referred to as "the proposed project."

IDENTIFICATION AND DESCRIPTION OF THE HISTORIC RESOURCE

The Coleman Ranch is significant for its demonstration of the early settlement and agricultural development of the lower Rogue Valley. It is located approximately one mile northeast of Phoenix, Oregon on the east side of N. Phoenix Road. The ranch consists of two houses (a main house and a smaller guest house), two barns, a new horse arena, and assorted small sheds and farm-related structures. The house was built c. 1880, the older barn was built c. 1900, and the newer, larger barn was built in the first quarter of the twentieth century.

Surveyor/Agency: Martha Richards / URS Date Recorded: December 27, 2007 **Pg 1**

106 Level of Effect Rev. 08/03

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

Agency/Project: Oregon Department of Transportation/Fern Valley Interchange Project	
Property Name: Medford Canal	
Street Address:	City, County: Jackson County
USGS Quad Name: Medford East, Eagle Point	Township: 38S Range: 1W Section: many Also in 36S10E, 36S01W, 37S01W
This property is part of a ☐District ☐Grouping/Ensemble (see instructions) Name of District or Grouping/Ensemble:	
Number and Type of Associated Resources in Grouping/Ensemble:	

Current Use: Agriculture / irrigation facility (irrigation canal)	Construction Date: c. 1920
Architectural Classification / Resource Type: Structure	Alterations & Dates: 1957-1966 repair and maintenance campaign
Window Type & Material: n/a	Exterior Surface Materials: Earthen channel Primary: Secondary: Decorative:
Roof Type & Material: n/a	
Condition: ☐Excellent ☒Good ☐Fair ☐Poor	Integrity: ☐Excellent ☒Good ☐Fair ☐Poor

Segment of Medford Canal in the vicinity of the Fern Valley Interchange project (west of Phoenix). A sluice gate is on the left.

Preliminary National Register Findings: ☐**National Register listed**

☒**Potentially Eligible:** ☒Individually ☐As part of District

☐**Not Eligible:** ☐In current state ☐Irretrievable integrity loss ☐Lacks Distinction ☐Not 50 Years

State Historic Preservation Office Comments:

☑**Concur** ☐**Do Not Concur:** ☐Potentially Eligible Individually ☐Potentially Eligible as part of District ☐Not Eligible

Signed _____ Date 4/30/08

Comments:

Surveyor/Agency: Martha Richards/URS Date Recorded: October 2007 **Pg 1**

106 Documentation: Individual Properties Rev. 08/03

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 LEVEL OF EFFECT FORM

Agency/Project: FHWA/Fern Valley Interchange Project (ODOT Key #12723, Federal Aid #S001164)	
Property Name: Medford Canal	
Street Address:	City, County: Various, Jackson

Preliminary Finding of Effect:

☐ No Historic Properties Affected ☒ No Historic Properties Adversely Affected ☐ Historic Properties Adversely Affected

State Historic Preservation Office Comments:

☑ Concur ☐ Do Not Concur: ☐ No Historic Properties Affected
☐ No Historic Properties Adversely Affected
☐ Historic Properties Adversely Affected

Signed _____ Date 5/1/08

Comments:

Provide written description of the project, and its potential effects on the subject property per 36 CFR 800. Include maps, drawings, and photographs as necessary to effectively describe and discuss the project. Use continuation sheets as needed.

INTRODUCTION

This statement of finding discusses the effect of the proposed project on the Medford Canal in Jackson County. A Determination of Eligibility form has been completed in which the property has been determined eligible for the National Register; the determination is currently under SHPO review.

It is the finding of the Federal Highway Administration (FHWA), in concurrence with the Oregon Department of Transportation (ODOT) that the proposed project will have an effect on the National Register eligible Medford Canal, but this effect is "not adverse."

This statement of finding is made pursuant to the requirements of the National Historic Preservation Act of 1966 (36 CFR 800), Executive Order 11593, and the National Environmental Policy Act.

PROJECT DESCRIPTION

The Fern Valley Interchange Project is located in Phoenix, Oregon in Jackson County. The purpose of the proposed action is to reduce congestion and improve operational conditions at the Interstate 5 (I-5) interchange with Fern Valley Road (exit 24). In addition, the Fern Valley Road Bridge over Bear Creek is proposed for replacement. An Environmental Assessment (EA) is being compiled to assess the impacts of one no build and two build alternatives ("N. Phoenix Thru" and "Fern Valley Thru").

The two build alternatives would reconstruct the existing I-5 interchange at exit 24, replace the Fern Valley Road Bridge, and realign some of the nearby surface streets. Maps of the two alternatives are attached. In the vicinity of the Medford Canal, which is in the northeast corner of the project area, both of the alternatives are the same and would have the same impacts. A map of the project near the Medford Canal is attached. Because both alternatives are the same in the vicinity of the Medford Canal, impacts from the two build alternatives would be the same. For the purposes of this evaluation, the build alternatives are simply referred to as "the proposed project."

IDENTIFICATION AND DESCRIPTION OF THE HISTORIC RESOURCE

The Medford Canal is significant for its role in the development of irrigated agriculture in the Rogue Valley, and in particular, the development of orchards for which the region is well known. The Medford Canal is an irrigation canal in Jackson County. It begins in the vicinity of the confluence of the south and north forks of Little Butte Creek, approximately ten miles southeast of Eagle Point. At this point, it is at an elevation of approximately 1700' above sea level. It contours around the hills and drops only very slightly as it angles west then south, passing through the east side of Medford and then curving around the east side of Phoenix, Oregon, where it is at an elevation of approximately 1500'. It crosses under Interstate 5 and Bear Creek in a

Surveyor/Agency: Martha Richards / URS Date Recorded: December 27, 2007 **Pg 1**
106 Level of Effect Rev. 08/03

Oregon
Theodore R. Kulongoski, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0671
Fax (503) 986-0793
www.oregonheritage.org

1/21/2009

Mr. James Norman
ODOT Environmental
355 Capitol NE Rm 314
Salem, OR 97301

RE: SHPO Case No. 08-0649
ODOT Proj 12723 Fern Valley Interchange
3001 and 3381 N Phoenix Rd (38S 1W 3, 4, 9, 10), Phoenix, Jackson County

Dear James:

Our office recently received your report about the project referenced above. I have reviewed your report (SHPO# 22247) and agree that the project will have no affect on any known cultural resources. Our office has not yet received a final copy of the archaeological survey report. Aside from the need to receive this final report no further archaeological research is needed with this project.

Please be aware, however, that if during development activities you or your staff encounters any cultural material (i.e., historic or prehistoric), all activities should cease immediately and an archaeologist should be contacted to evaluate the discovery. Under state law (ORS 358.905-955) it is a Class B misdemeanor to impact an archaeological site on public or private land in Oregon. Impacts to Native American graves and cultural items are considered a Class C felony (ORS 97.740-760). If you have any questions regarding any future discovery or my letter, feel free to contact our office at your convenience.

Dennis Griffin, Ph.D., RPA
State Archaeologist
(503) 986-0674
dennis.griffin@state.or.us

Oregon
Theodore R. Kulongoski, Governor

Department of Transportation
Transportation Building
355 Capitol St. NE
Salem, Oregon 97301

FILE CODE:

December 12, 2008

Roger Roper
Deputy State Historic Preservation Officer
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97310-1271

Jackson County

Medford East Quad

T38S, R1W,
Sections 3, 4, 9, 10

Subject: **Request for Concurrence**
Finding of No Historic Properties Affected (Archaeology)
I-5: Fern Valley Interchange Unit 2a Environmental Assessment Project
Jackson County, Oregon
Key # 12723, Federal Aid # S001(268)PE

Dear Mr. Roper,

The Oregon Department of Transportation (ODOT) proposes to replace the Fern Valley Interchange and upgrade associated roads on I-5 between MP 23.9 and 24.9. A No-Build and two build alternatives, Fern Valley Thru and N. Phoenix Thru, are considered in this document. Both build alternatives would construct a new crossing-diamond interchange in generally the same location as the existing interchange; the N. Phoenix Thru Alternative would be just slightly north. Both build alternatives are almost the same west of I-5 (using Fern Valley Road to connect to OR 99); only very minor shifts in alignment just west of I-5 would occur. East of I-5, the Fern Valley Thru Alternative would run parallel to and about 250 feet north of the exiting Fern Valley Road alignment. The N. Phoenix Thru Alternative would turn north just east of the interchange, and reconnect with existing N. Phoenix Road.

Five cultural resource surveys were previously conducted that overlap the current project area (Cabebe 2007; Jenkins and O'Neill 2001; Olmo and Hannon 1989; Solimano, Roulette and Hamilton 2003; Wilson and Forgeng 1995). While isolated archaeological materials were identified by the Jenkins and O'Neill (2001) and Wilson and Forgeng (1995) investigations, no archaeological sites were identified. The above surveys did not encompass the entire current project area however. Therefore, Archaeologists with URS conducted a pedestrian survey and exploratory subsurface probing of previously uninvestigated areas (McDaniel 2008). These investigations identified no cultural resources. However, high probability areas were identified along Bear Creek and ancient channels of Payne Creek and monitoring of those areas is recommended (McDaniel 2008:8).

Based on the current project area, the findings from the current survey report indicate that this project will have no effect on archaeological resources. **However, if the scope of work for the**

Form 734-3122 (1-03)

project changes, this includes staging and disposal areas, additional archaeological investigations will be necessary.

Preliminary application of Section 106 Criteria for Identification and Evaluation of Historic Properties [36 CFR 800.4(d)] indicates a finding of "No Historic Properties Affected" for the I-5: Fern Valley Interchange Unit 2a Environmental Assessment project, based on the findings outlined above. ODOT, acting as an agent of the Federal Highway Administration, requests your concurrence with a FINDING OF NO HISTORIC PROPERTIES AFFECTED (Archaeology) for the project.

If you have any questions, please contact Chris Woods, Program Development Team Leader with FHWA, at (503) 587-4703, or James Norman, Environmental Planning Unit Manager with ODOT, at (503) 986-3514.

Sincerely,

for

James B. Norman
Environmental Planning Unit Manager

The State Historic Preservation Office concurs that the I-5: Fern Valley Interchange Unit 2a Environmental Assessment project will have **No Historic Properties Affected (Archaeology)**.

Dennis Griffin 1-21-09

SHPO Official **Date**

Copies with attachments:

Jessica Bochart, Cow Creek Band of Umpqua Tribe of Indians
Robert Kentta, Confederated Tribes of the Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Anna Kemmerer, ODOT Region 3 EPM
Key # 12723, File Type C

Copies without attachments:

Chris Woods, FHWA
Tobin C. Bottman, ODOT Archaeologist

References:

Cabebe. Teresa E.

2007 Archaeological Survey of Bridge 08682 (Fern Valley Road over I-5 at Milepoint 24.4), Jackson County, Oregon. Oregon State Museum of Anthropology Research Report No. 2007-015. University of Oregon, Eugene.

Jenkins, Dennis L. and Brian L. O'Neill

2001 Archaeological Exploratory Reconnaissance at the Fern Valley Interchange, Phoenix, Jackson County, Oregon. Oregon State Museum of Anthropology Research Report No. 2001-5. University of Oregon, Eugene.

McDaniel, Sarah

2008 Archaeological Resources Technical Report, I-5: Fern Valley Interchange. Prepared by URS Corporation for the Oregon Department of Transportation.

Olmo, R.K. and N. Hannon

1989 A Cultural Resources Survey of the Bear Creek Greenway Corridor, Phase I. Southern Oregon State College, Ashland.

Solimano, P.S., B.R. Roulette and S.C. Hamilton

2003 Results of a Cultural Resource Study of a Section of the Proposed Bear Creek Greenway Trail, Jackson County, Oregon. Prepared by Applied Archaeological Research, Portland.

[Page intentionally left blank]

APPENDIX F
AIR QUALITY

[Page intentionally left blank]

Figure 8-3 - RVMPO RTP Street System Project List

RTP#	Location	Description	Timing	Cost	Cost by Phase	Funds Avail
Jackson County (continued)						
816	Ross Lane North, McAndrews Rd. to Rossanley Rd.	Widen to add continuous turn lane with bike lanes and sidewalks	short	$1,750,000		
817	East West Pathway, Division Rd. to north of 29th Ave.	New multi-use pathway	short	$580,000	$33,620,000	$33,714,000
818	Leigh Way, Agate Rd. to Antelope Rd.	New three lane street w/shoulder bikeway	medium	$2,200,000		
819	Lozier Ln, Stewart Ave. to Jacksonville Highway	Widen to add continuous turn lane with bike lanes and sidewalks	medium	$1,500,000		
820	Stewart Ave., Hull Rd. to Thomas St.	Widen to add continuous turn lane with bike lanes and sidewalks	medium	$800,000		
821	Table Rock Rd., Bear Creek to Biddle Rd.	Widen to add continuous turn lane with bike lanes and sidewalks	medium	$1,750,000		
822	Table Rock Rd. at Wilson Rd.	New traffic signal	medium	$230,000		
823	Pine St., Haskell St. to Hanley St.	Widen to add continuous turn lane with bike lanes and sidewalks	medium	$1,250,000		
824	Carpenter Hill Rd., Voorhies Rd. to Coleman Creek Rd.	Widen to rural two lane with shoulder bikeways	medium	$300,000		
825	East Pine St., Table Rock Rd. to Hamrick Rd.	Add bike lanes and sidewalks	medium	$75,000		
826	Foothill Rd., Delta Waters Rd. to Coker Butte Rd.	Widen to rural two lane with shoulder bikeways	medium	$800,000		
827	Foothill Rd., Coker Butte Rd. to Corey Rd.	Widen to rural two lane with shoulder bikeways	medium	$1,500,000		
828	Old Stage Rd., Winterbrook Rd. to MPO Limits	Widen to rural two lane with shoulder bikeways	medium	$2,750,000	$13,155,000	$13,200,000
829	Bursell Rd. at Beall Ln.	New traffic signal	long	$230,000		
830	Fern Valley Rd. at North Phoenix Rd.	New traffic signal	long	$380,000		
831	Foothill Rd., McAndrews Rd. to Delta Waters Rd.	Widen to add continuous turn lane with bike lanes and sidewalks	long	$2,240,000		
832	Foothill Rd., Hillcrest Rd. to McAndrews Rd.	Widen to add continuous turn lane with bike lanes and sidewalks	long	$3,020,000		
833	Hanley Rd., Beall Ln. to Pine St.	Widen to add continuous turn lane with bike lanes and sidewalks	long	$750,000		
834	Kings Highway, South Stage Rd. to UGB limits	Widen to add continuous turn lane with bike lanes and sidewalks	long	$250,000		
835	Lakeview Dr., re-aligned Lakeview Dr. to McLoughlin Dr.	New two lane rural minor collector	long	$1,800,000		
836	South Valley View Rd., I-5 to OR 99	Widen to five lanes with bike lanes, sidewalks	long	$14,000,000		
837	Vilas Rd., Haul Rd. to Crater Lake Ave.	Widen to five lanes with bike lanes, sidewalks	long	$2,500,000		
838	Griffin Creek Rd., Pioneer Rd. to South Stage Rd.	Widen to two lane with bike lanes and sidewalks	long	$1,170,000		
839	Hillcrest Rd., Cherry Ln. to Gardener St.	Widen to rural two lane with shoulder bikeways	long	$250,000		
840	Hull Rd., South Stage Rd. to Stewart St.	Widen to rural two lane with shoulder bikeways	long	$400,000		
841	Pioneer Rd. (Phase1), Colver Rd. to Coleman Rd.	Widen to rural two lane with shoulder bikeways	long	$1,500,000		
842	Pioneer Rd. (Phase2), Griffin Creek Rd. to Carpenter Hill Rd.	Widen to rural two lane with shoulder bikeways	long	$1,500,000		
843	Taylor Rd., Old Stage Rd. to Grant Rd.	Widen to rural two lane with shoulder bikeways	long	$1,000,000		
844	Upton Rd., Raymond St. to Gibbon Rd.	Widen to rural two lane with shoulder bikeways	long	$700,000		
845	VA Domicillary to Antelope Rd.	Upgrade pathway to ODOT's standards	long	$650,000		
846	Voorhies Rd., Carpenter Rd. to S. Stage Rd.	Widen to rural two lane with shoulder bikeways	long	$450,000		
847	Bigham Brown Rd., Antelope Rd. to City of Eagle Point	Widen to rural two lane with shoulder bikeways	long	$950,000		
848	Wilson Way, Ave. G to Ave. F	New two lane urban minor collector	long	$1,500,000		
849	Fern Valley Rd., N. Phoenix Rd. to eastern Phoenix UGB	Widen to five lanes with bike lanes and sidewalks	long	$2,500,000		
850	Coleman Creek Rd., Carpenter Hill Rd. to Pioneer Rd.	Widen to rural two lane with shoulder bikeways	long	$1,250,000	$38,990,000	$39,000,000
Oregon Department of Transportation (ODOT)						
900	OR 99: Colver Rd. to Rapp Rd. (Talent)	Widen to add continuous left turn lane and sidewalks	short	$5,770,000		
901	I-5: South Medford Interchange	Relocate and construct new interchange	short	$52,450,000		
902	I-5: Fern Valley Interchange, Unit 2	Widen I-5 bridge and Fern Valley Rd. to five lanes; replace Bear Creek bridge	short	$32,160,000		
903	OR 62: Corridor Solutions Unit 2	Construct limited access expressway from Poplar/Hilton to Delta Waters	short	$38,000,000		
904	OR 140 Freight Extension	Lane and shoulder widening for freight movements	short	$6,600,000		
905	OR 140 at Kershaw (White City)	Install advance hazard I.D. beacon	short	$570,000		
906	OR 99: Jurisdictional Transfer (Central Point)	Transfer jurisdiction over portion of OR 99 in Central Point	short	$1,032,000		
907	OR 99: Walker Ave. to I-5 (Ashland)	Grind and inlay/overlay, add sidewalks	short	$1,749,000		
908	I-5: Bear Creek Bridges NB and SB	Replace both structures	short	$7,599,000		
909	I-5/OR 66: Bridge Bundle 301	Replace bridges @ Neil Ck, OR 66, Bear Ck (2), and Eagle Mill	short	$17,187,000		
910	I-5: Bridge Bundle 302	Replace bridges at Central Pt. Connector and Upton Rd.	short	$13,768,000		

Short Range (2005-2009) - Medium Range (2010-2015) - Long Range (2016-2030)

Page 7 of 8

[Page intentionally left blank]

MOBILE SOURCE AIR TOXICS BACKGROUND AND ANALYSIS

Emissions. The Environmental Protection Agency (EPA) tools to estimate Mobile Source Air Toxics (MSAT) emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model. Emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of particulate matter (PM) under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis. These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

Dispersion. The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the National Ambient Air Quality Standards (NAAQS). The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the National Environmental Policy Act (NEPA) process and to the general public. Along with these general limitations of dispersion models, the Federal Highway Administration (FHWA) is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude EPA from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs

near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs*.* Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses. Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.

- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary non-cancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies. There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years. Some recent studies have reported that proximity to roadways is related to adverse health outcomes—particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, the studies do not provide information that would be useful to alleviate the uncertainties listed above and enable a more comprehensive evaluation of the health impacts specific to this project to be performed.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts Based Upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community. Because of the uncertainties described in this appendix, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow reasonable prediction relative to emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment." In this document, FHWA has provided a qualitative analysis of MSAT emissions relative to the various alternatives, and has acknowledged that the project alternatives may result in increased exposure to MSAT emissions in certain locations, although 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 on all legs of the Fern Valley Interchange. This project would add capacity to the interchange and the arterials serving it. Total vehicle volumes would be below the 140,000 daily trips, cited by EPA as the level where more detailed analysis is warranted. As a result, this project would be classified as a “project with low potential MSAT effects,” one that will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this project would be exempt from quantitative analysis for MSATs. Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline

significantly over the next 20 years (see Figure 7). Even after accounting for a 64% increase in vehicle miles traveled (VMT), FHWA predicts MSATs will decline in the range of 57 to 87% from 2000 to 2020, based on regulations now in effect—even with a projected 64% increase in VMT. This will both reduce the background level of MSATs, as well as the MSAT emissions from this project.

This project would add capacity to existing roadways, but would not increase ADT compared to the No-Build scenario. The increase in background emissions between 2007 and 2030 due to increased ADT is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these decreases in speed-related emissions offset increases in VMT-related emissions cannot be reliably projected due to the inherent deficiencies of technical models. Also, regardless of the alternative (No-Build or Build) chosen, emissions would likely be lower than present levels in the 2030 design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87% between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases. Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years.

Even after accounting for a 64% increase in nation-wide VMT, FHWA predicts MSATs will decline in the range of 57 to 87%, from 2000 to 2020, based on regulations now in effect, even with a projected 64% increase in VMT. Although the project would bring vehicle 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 increases will both reduce the background level of MSATs, as well as the MSAT concentrations from this project.

APPENDIX G
BIOLOGICAL RESOURCES
ESA DOCUMENTATION

[Page intentionally left blank]

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to NMFS No.:
2009/04542

June 17, 2010

Phillip Ditzler
FHWA Division Administrator
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, Oregon 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Fern Valley Interchange, Rogue River (6th field HUC: 171003080109-Bear Creek-Anderson Creek), Jackson County, Oregon (Federal ID # S001(268)) (Key Number #12723)

Dear Mr. Ditzler:

The enclosed document contains a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7(a)(2) of the Endangered Species Act (ESA) on the effects of the Federal Highway Administration's (FHWA) proposed funding for the construction of the Fern Valley Interchange under the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) Highway Bridge Program, sections 1101(a)(3) and 1114. In this Opinion, NMFS concludes that the proposed action is not likely to jeopardize the continued existence of Southern Oregon Northern California Coasts (SONCC) coho salmon (*Oncorhynchus kisutch*), or result in the destruction or adverse modification of critical habitat designated for SONCC coho salmon.

As required by section 7 of the ESA, NMFS is providing an incidental take statement with the Opinion. The incidental take statement describes reasonable and prudent measures NMFS considers necessary or appropriate to minimize the impact of incidental take associated with this action. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements, that the FHWA and applicant, if any, must comply with to carry out the reasonable and prudent measures. Incidental take from actions that meet these terms and conditions will be exempt from the ESA's prohibition against the take of listed species.

This document also includes the results of our analysis of the action's likely effects on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and includes two conservation recommendations to avoid, minimize or otherwise offset potential adverse effects on EFH. These conservation recommendations are a subset of the ESA take statement's terms and conditions. Section 305(b)(4)(B) of the MSA requires Federal agencies to provide a detailed written response to NMFS within 30 days after receiving these recommendations.

If the response is inconsistent with the EFH conservation recommendations, the FHWA must explain why the recommendations will not be followed, including the scientific justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we request that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

If you have questions regarding this consultation please contact Tom Loynes, fisheries biologist in the Southwest Oregon Habitat Branch of the Oregon State Habitat Office, at 541.957.3380.

Sincerely,

for

William W. Stelle, Jr.
Regional Administrator

cc: Frannie Brindle, ODOT
Ken Cannon, ODOT
Jim Collins, ODOT
Michelle Eraut, FHWA
Anna Henson, ODOT
Doug Sharp, ODOT

ESA FINDING OF NO EFFECT

KN 12723 I-5: Fern Valley Interchange Unit 2a
Fed Aid No S001 (164) (268) PE
February 22, 2010

☒ USFWS Species ☒ USFWS CH ☐ NMFS Species ☐ NMFS CH ☐ EFH

Project Type: Road construction
Location: Pacific Highway 1 – MP 24 Rogue Valley Highway 63. The project action area for this evaluation is located along I-5 in southwest Oregon. The Fern Valley Interchange (FVI) is located east of downtown Phoenix. Most of the project is located within the Phoenix city limits and urban growth boundary (UGB). The project area extends from OR 99 (in Phoenix) west of the interchange to the Phoenix UGB east of the interchange, and to Campbell Road, north of the Phoenix UGB.

Township/Range/Section(s): Township 38 South, Range 1 West, Sections 3, 9, and 10 of the Medford East USGS quadrangle map
City: Phoenix
County: Jackson
HUC6: HUC# 1710030801
Project Topography: Narrow floodplain
Surrounding Environment: Urban, agriculture, riparian forest, and wetlands
☒ Attached:
Area of Project Impact (API) map with survey/clearance area(s) and location(s) of closest aquatic resources.

Data Sources and Survey Method(s) Utilized:

☒ ODFW Staff Contacted; Jim Muck	Date(s): September 9, 2007
☒ Species List – USFWS Website	Date(s): June 8, 2007; Feb 2010
☒ Federal Register	Date(s): July 14, 2007
☒ ORNHIC Database	Date(s): May 5, 2007
☒ ODOT TransGIS Environmental	Date(s): February 17, 2010
☐ Field Survey – Complete Assessment	Date(s):
☒ Field Survey – Appropriate Sample	Date(s): May 22, 2007
☐ Other	Date(s):

Field Survey Technique(s): A field survey to determine the presence and extent of suitable habitat for listed terrestrial wildlife species within the Area of Project Impact (API) was conducted on May 22, 2007. Color aerial photographs were used to delineate the API into five habitat types: developed urban areas, agricultural fields/pastures, riparian forests, woodland areas, and wetlands. The field survey focused on verifying habitat for species that could occur in the vicinity of the API based on existing habitat.

A separate survey for rare plants and noxious weeds was conducted in 2005 by ODOT. The rare plant surveys were conducted to document populations of listed plant species within the API. The rare plant survey was conducted based on the Jackson County USFWS Species List (USFWS 2005) and the Oregon Department of Agriculture (ODA) Species List (ODA 2005).

Listed Species likely to be within the API: A species list was developed identifying federal and state listed terrestrial wildlife and plant species that may occur in the vicinity of the FVI Project. Species include those that are listed as endangered, threatened, proposed, or candidate under the federal and state Endangered Species Acts (ESA). Table 1.1 indentifies species potentially occurring in Jackson County and the rational for a finding of *No Effect* within the API.

Table 1.1 – ESA Listed Threatened, Endangered, Proposed and Candidate Species Potentially Occurring in the Area of Potetnial Impact

Species Common Name *(Scientific Name)*	Status	Listing Agency	Critical Habitat Designated	Finding of Effect
Northern spotted owl *Strix occidentalis caurina*	Threatened	USFWS	Yes	No Effect – Absence of species & habitat
Vernal pool fairy shrimp *Branchinecta lynchi*	Threatened	USFWS	Yes	No Effect – Absence of species & habitat
Gentner's fritillary *Fritillaria gentneri*	Endangered	USFWS	No	No Effect – Absence of species & habitat
Large-flowered woolly meadowfoam *Limnanthes floccosa ssp. grandiflora*	Endangered	USFWS	No	No Effect – Absence of species & habitat
Cook's lomatium *Lomatium cookii*	Endangered	USFWS	No	No Effect – Absence of species & habitat
Kincaid's lupine *Lupinus sulphureus ssp. kincaidii*	Threatened	USFWS	Yes	No Effect – Absence of species & habitat
Fisher *Martes pennanti*	Candidate	USFWS	No	No Effect – Absence of species & habitat
Siskiyou mariposa lily *Calochortus persistens*	Candidate	USFWS	No	No Effect – Absence of species & habitat
Mardon skipper *Polites mardon*	Candidate	USFWS	No	No Effect – Absence of species & habitat
Bald Eagle (*Haliaeetus leucocephalus*)	*De-listed*	USFWS	No	Not applicable

No project activities are expected to affect any of the species listed in Table 1, as the habitat necessary to support such species, including designated critical habitat, does not occur in the project API and the species are not expected to occur within the project API. Consequently, no avoidance measures are proposed.

Federal and state listed aquatic species that may occur in the vicinity of the FVI Project are addressed in a separate Biological Assessment (BA) prepared for this project.

Designated Critical Habitat within the API:
No critical habitat for Federal ESA terrestrial and botanical species occurs within the API.

Essential Fish Habitat (EFH) within the API:
EFH within the API is addressed in a separate BA.

☒ A BA has been/will be developed for listed species and habitats that the project may affect.

Brief Project Description: The proposed action involves replacement and reconfiguration of the Fern Valley Interchange to reduce congestion and improve operational conditions at the I-5 interchange with Fern Valley Road, on Fern Valley Road within the City of Phoenix UGB, and on OR 99 near its intersection with Fern Valley Road. One Build Alternative has been advanced to achieve the purpose and need for this project, which includes the replacement of a bridge crossing over Bear Creek.

Finding of Effect. *This No Effect determination is based on the project as defined in the Design Acceptance Package (DAP). Changes in project scope or scale following DAP may invalidate this No Effect determination.*

ODOT, acting as an agent of FHWA, determines that the project will have:

☒ **No Effect on Listed Species**…
☒ Because there is no reason to believe that listed species are present in the Area of Project Impact (API). [*Absence Determination*]
☐ Because **avoidance measures** will be implemented to prevent effects on the listed species identified below that occur or are likely to occur within the API.

☒ **No Effect on Designated Critical Habitat**…
☒ Because designated critical habitat does not occur in the API. [*Absence Determination*]
☐ Because **avoidance measures** will be implemented to prevent effects on the designated critical habitat identified below that occurs within the API.

☐ **No Effect on Essential Fish Habitat**…
☐ Because EFH does not occur in the API. [*Absence Determination*]
☐ Because **avoidance measures** will be implemented to prevent effects on EFH identified below that occurs within the API.

☒ A separate Biological Assessment (BA) addresses potential project effects on additional listed species, designated critical habitat, or EFH not covered under this No Effect determination.

Required Avoidance Measures.

For each applicable section below:

- Identify *specific* project impacts that could affect the identified resource if avoidance measures are not implemented to eliminate all impacts.

- Provide a brief description of *each* required avoidance measure.

Section A – Listed Species

Not applicable – no listed terrestrial or botanical species identified as occurring in API.

Section B – Designated Critical Habitat

Not applicable – no terrestrial or botanical critical habitat identified as occurring in API.

Section C – Essential Fish Habitat

Not applicable – EFH addressed in separate BA.

Additional Supportive Information:

- FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES AND SPECIES OF CONCERN UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON (USFWS 2010).

FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES
AND SPECIES OF CONCERN
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE
WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON

Marine & Anadromous Species: Please consult the National Marine Fisheries Service (NMFS) (http://www.nmfs.noaa.gov/pr/species/) for marine and anadromous species. The National Marine Fisheries Service (NMFS) manages mostly marine and anadromous species, while the U.S. Fish and Wildlife Service manages the remainder of the listed species, mostly terrestrial and freshwater species.

Last Updated February 20, 2010 (1:40:44 PM)
U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office
Page 4 of 4

Required Signatures.

Individuals Responsible for the No Effect Determination:

Jim Collins
Region #3 Environmental Manager, ODOT

02/22/2010
Date

Brad Rawls
Senior Environmental Scientist
URS Corporation

2/22/10
Date

Individuals Responsible for Ensuring Implementation of Avoidance Measures (if they are required):

Anna Henson
Region #3 Environmental Project Manager, ODOT

2/22/10
Date

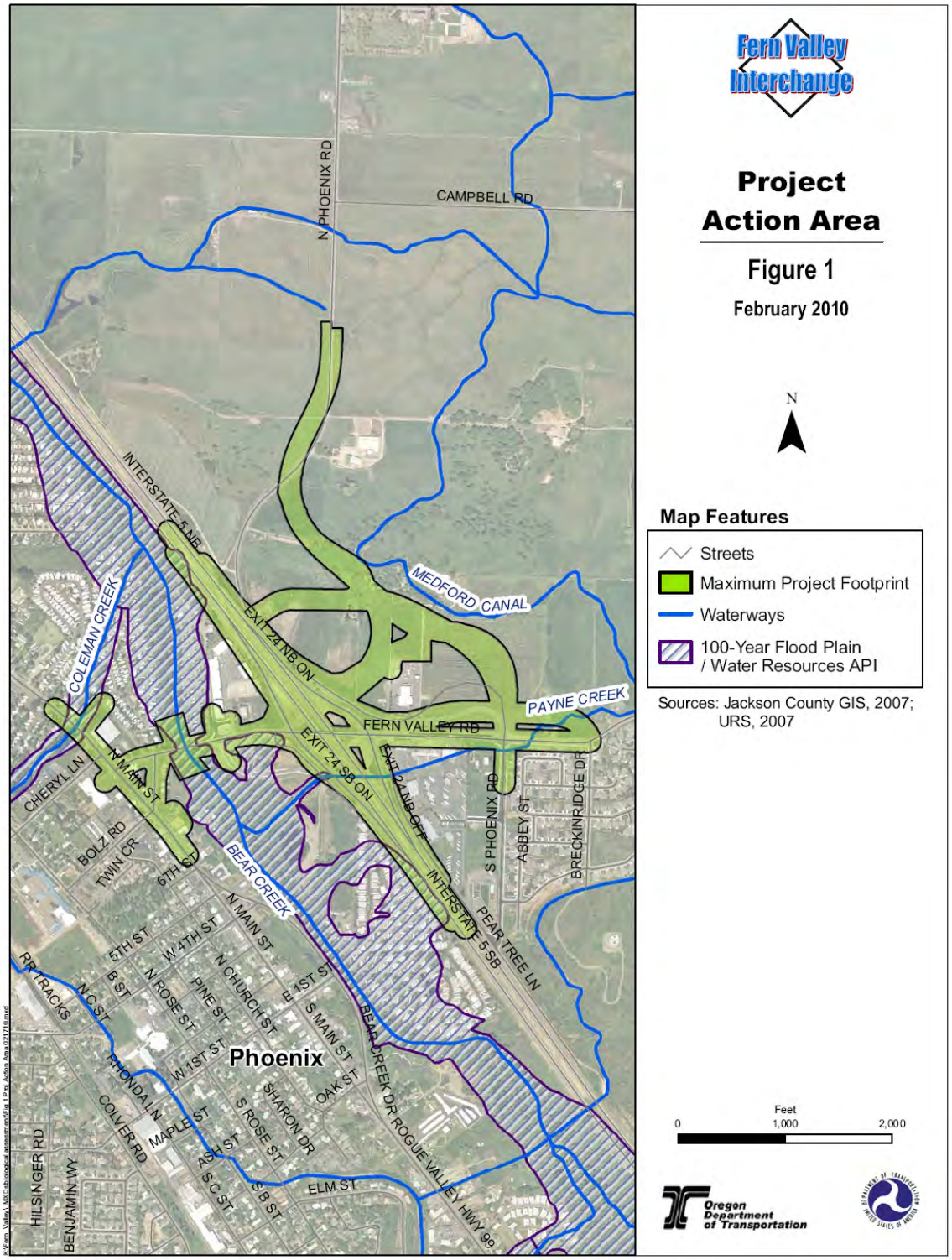
Dick Leever
Region #3 Project Leader, ODOT

2/22/10
Date

FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES
AND SPECIES OF CONCERN
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE
WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON

Marine & Anadromous Species: Please consult the National Marine Fisheries Service (NMFS) (http://www.nmfs.noaa.gov/pr/species/) for marine and anadromous species. The National Marine Fisheries Service (NMFS) manages mostly marine and anadromous species, while the U.S. Fish and Wildlife Service manages the remainder of the listed species, mostly terrestrial and freshwater species.

Last Updated February 20, 2010 (1:40:44 PM)
U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office
Page 4 of 4


Fern Valley Interchange
Project Action Area
Figure 1
February 2010
N
Map Features
Streets
Maximum Project Footprint
Waterways
100-Year Flood Plain / Water Resources API
Sources: Jackson County GIS, 2007; URS, 2007
Feet
0
1,000
2,000
Oregon Department of Transportation
N PHOENIX RD
CAMPBELL RD
INTERSTATE 5 NB
MEDFORD CANAL
COLEMAN CREEK
EXIT 24 NB ON
PAYNE CREEK
FERN VALLEY RD
EXIT 24 SB ON
EXIT 24 NB OFF
CHERYL LN
N MAIN ST
BOLZ RD
TWIN CR
6TH ST
BEAR CREEK
S PHOENIX RD
ABBEY ST
BRECKINRIDGE DR
INTERSTATE 5 SB
PEAR TREE LN
5TH ST
W 4TH ST
N MAIN ST
RR TRACKS
B ST
N ROSE ST
PINE ST
N CHURCH ST
E 1ST ST
S MAIN ST
N C ST
Phoenix
W 1ST ST
OAK ST
BEAR CREEK DR ROGUE VALLEY HWY 99
RHONDA LN
MAPLE ST
SHARON DR
S ROSE ST
COLVER RD
A ST
S C ST
S B ST
ELM ST
HILSINGER RD
BENJAMIN WY

FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES
AND SPECIES OF CONCERN
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE
WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON

LISTED SPECIES

Birds

Northern spotted owl	*Strix occidentalis caurina*	CH T

Invertebrates

Crustaceans:

Vernal pool fairy shrimp	*Branchinecta lynchi*	CH T

Plants

Gentner's fritillary	*Fritillaria gentneri*	E
Large-flowered woolly meadowfoam	*Limnanthes floccosa ssp. grandiflora*	PCH E
Cook's lomatium	*Lomatium cookii*	PCH E
Kincaid's lupine	*Lupinus sulphureus ssp. kincaidii*	CH T

PROPOSED SPECIES

None

No Proposed Endangered Species	PE
No Proposed Threatened Species	PT

CANDIDATE SPECIES

Mammals

Terrestrial:

Fisher	*Martes pennanti*

Invertebrates

Insects:

Mardon skipper	*Polites mardon*

Plants

Siskiyou mariposa lily	*Calochortus persistens*

SPECIES OF CONCERN

Mammals

Pallid bat	*Antrozous pallidus pacificus*
Red tree vole	*Arborimus longicaudus*
Townsend's western big-eared bat	*Corynorhinus townsendii townsendii*
California wolverine	*Gulo gulo luteus*
Silver-haired bat	*Lasionycteris noctivagans*
Long-eared myotis bat	*Myotis evotis*
Fringed myotis bat	*Myotis thysanodes*
Long-legged myotis bat	*Myotis volans*

Last Updated February 20, 2010 (1:40:44 PM)
U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office
Page 1 of 4

FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES AND SPECIES OF CONCERN UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON

Yuma myotis bat	*Myotis yumanensis*

Birds

Northern goshawk	*Accipiter gentilis*
Tricolored blackbird	*Agelaius tricolor*
Western burrowing owl	*Athene cunicularia hypugaea*
Olive-sided flycatcher	*Contopus cooperi*
Yellow-breasted chat	*Icteria virens*
Acorn woodpecker	*Melanerpes formicivorus*
Lewis' woodpecker	*Melanerpes lewis*
Mountain quail	*Oreortyx pictus*
Band-tailed pigeon	*Patagioenas fasciata*
White-headed woodpecker	*Plcoides albolarvatus*
Oregon vesper sparrow	*Pooecetes gramineus affinis*
Purple martin	*Progne subis*

Reptiles and Amphibians

Northern Pacific pond turtle	*Actinemys marmorata marmorata*
Coastal tailed frog	*Ascaphus truei*
Common kingsnake	*Lampropeltis getula*
California mountain kingsnake	*Lampropeltis zonata*
Del Norte salamander	*Plethodon elongatus*
Siskiyou Mountains salamander	*Plethodon stormi*
Northern red-legged frog	*Rana aurora aurora*
Foothill yellow-legged frog	*Rana boylii*
Cascades frog	*Rana cascadae*

Fish

Jenny Creek sucker	*Catostomus rimiculus ssp.*
Pacific lamprey	*Lampetra tridentata*
Coastal cutthroat trout	*Oncorhynchus clarki ssp*

Invertebrates

Insects:

Denning's agapetus caddisfly	*Agapetus denningi*
Franklin's bumblebee	*Bombus franklini*
Siskiyou chloealtis grasshopper	*Chloaeltis aspasma*
Green Springs Mountain farulan caddisfly	*Farula davisi*
Sagehen Creek goeracean caddisfly	*Goeracea oregona*
Schuh's homoplectran caddisfly	*Homoplectra schuhi*
Siskiyou carabid beetle	*Nebria gebleri siskiyouensis*

Plants

Rogue canyon rock cress	*Arabis modesta*
Crater Lake rock-cress	*Arabis suffrutescens var. horizontalis*
Greene's mariposa lily	*Calochortus greenei*
Broad-fruit mariposa lily	*Calochortus nitidus*
Umpqua mariposa-lily	*Calochortus umpquaensis*
Howell's camassia	*Camassia howellii*
Baker's cypress	*Cupressa bakeri*
Clustered lady's-slipper	*Cypripedium fasciculatum*
Siskiyou willow-herb	*Epilobium siskiyouense*

Last Updated February 20, 2010 (1:40:44 PM)
U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office
Page 2 of 4

FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES AND SPECIES OF CONCERN UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON

Wayside aster	*Eucephalus vialis*
Henderson's horkelia	*Horkelia hendersonii*
Bellinger's meadowfoam	*Limnanthes floccosa ssp. bellingerana*
Dwarf woolly meadowfoam	*Limnanthes floccosa ssp. pumila*
Mt. Ashland lupine	*Lupinus aridus ssp. ashlandensis*
White meconella	*Meconella oregana*
Detling's microseris	*Microseris laciniata ssp. detlingii*
Red-root yampah	*Perideridia erythrorhiza*
Coral seeded allocarya	*Plagiobothrys figuratus var. corallicarpus*
Howell's tauschia	*Tauschia howellii*
Small-flowered deathcamas	*Zigadenus fontanus*

DELISTED SPECIES

Birds

American Peregrine falcon	*Falco peregrinus anatum*
Bald eagle	*Haliaeetus leucocephalus*

Definitions:

Listed Species: An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future.

Proposed Species: Taxa for which the Fish and Wildlife Service or National Marine Fisheries Service has published a proposal to list as endangered or threatened in the Federal Register.

Candidate Species: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

Species of Concern: Taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service (many previously known as Category 2 candidates), but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing.

Delisted Species: A species that has been removed from the Federal list of endangered and threatened wildlife and plants.

Key:

E	Endangered
T	Threatened
CH	Critical Habitat has been designated for this species
PE	Proposed Endangered
PT	Proposed Threatened
PCH	Critical Habitat has been proposed for this species

Notes:

FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES
AND SPECIES OF CONCERN
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE
WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON

Marine & Anadromous Species: Please consult the National Marine Fisheries Service (NMFS) (http://www.nmfs.noaa.gov/pr/species/) for marine and anadromous species. The National Marine Fisheries Service (NMFS) manages mostly marine and anadromous species, while the U.S. Fish and Wildlife Service manages the remainder of the listed species, mostly terrestrial and freshwater species.

APPENDIX H
ODOT AND U.S. DOT EFFORTS ON CLIMATE CHANGE

(November 2008)

[Page intentionally left blank]

Briefing Paper:
ODOT's Efforts on Climate Change

INTRODUCTION

Climate Change mitigation encompasses activities devised to reduce the emission of greenhouse gases and thereby limit associated climate change. Climate change adaptation includes actions that would be implemented to respond to the effects of climate change. In its recent background document on climate change and transportation, the Federal Highway Administration listed the four primary climate change mitigation strategies to reduce greenhouse gas emissions from transportation. They are: (1) vehicle technology, (2) low carbon fuels, (3) vehicle miles traveled, and (4) systems efficiencies. The first two strategies are not directly affected by most ODOT activities. The second two mitigation strategies however, can be directly affected by ODOT and along with adaptation strategies characterize the majority of the efforts discussed in this document.

The purpose of this paper is to provide a quick topical listing of ODOT's current climate change efforts to brief both internal parties (managers and staff groups) and external stakeholders interested in the issue. Following this introduction, the paper is organized into three major subgroups of climate change efforts:

- Internal and external efforts which are process-related,
- Efforts related to ODOT's internal operations,
- Efforts related to the external transportation system.

Following the three sections in the body of the paper are two appendices that list policy mandates related to internal operations and policy mandates related to the transportation system.

INTERNAL AND EXTERNAL PROCESS-RELATED EFFORTS

- ODOT has a Sustainability Program Manager, who reports to ODOT's Chief of Staff and interacts regularly with ODOT's Director, the Governor's Sustainability Advisor, and the Oregon Sustainability Board. Climate Change is one of many topics within the scope of ODOT's Sustainability Program.
- ODOT has a Sustainability Council, comprised of mid- to senior-level managers representing a variety of functional and geographic backgrounds. The Council provides high-level direction, approves and monitors sustainability work items, and recommends policy and practice changes to ODOT's Director.
- ODOT has a Climate Change Executive Group comprised of senior executive staff, the purpose of which is to provide overall direction within ODOT regarding the interrelationship of greenhouse gas production, global climate change and the planning and operation of Oregon's transportation systems. This group provides a forum for discussion as to the work and activities of other internal committees and the impacts it has on the agency and their responsibilities.
- ODOT has a Climate Change Technical Advisory Committee, the purpose of which is to develop an understanding of the implications of climate change initiatives to the agency and its work. Their purpose also includes providing credible technical advice regarding the interrelationship of greenhouse gas production, global climate change

and the planning and operation of Oregon's transportation systems, as well as the potential impacts of climate change on transportation infrastructure.

- ODOT representatives participate in a number of key groups:
  - Governor's Climate Change Integration Group (CCIG) – through completion of the Group's final report to the Governor, provided staff support, gave transportation and ODOT perspective, and reviewed report drafts.
  - Western Climate Initiative (WCI) – attend meetings and provide input.
  - Department of Environmental Quality Mandatory Greenhouse Gas Reporting Rulemaking – give transportation and ODOT perspective, member of the mobile source subcommittee.
  - The Governor's Transportation Committees including the Vision Committee and the Environmental Working Group – attended meetings and provided input leading toward the Transportation Vision Committee Report to Governor Ted Kulongoski (November 2008) and Governor Kulongoski's Jobs and Transportation Act legislative proposal for the 2009 Legislature.
  - The Oregon Global Warming Commission (OGWC) - attend meetings and provide input.
  - The Transportation and Land Use Committee (T and LUC) of the OGWC– provide staff support, attend meetings, and provide input.
  - The Modeling Subcommittee of the T and LUC – provide staff support, attend meetings, and have individuals that participate as full technical members.
  - The Big Look Task Force – attend meetings and provide input.
- ODOT is a member of the Oregon Natural Step Network, the Columbia Willamette Clean Cities Coalition, and was a major sponsor of the Oregon Environmental Council 2008 Forum for Business and Environment.

INTERNAL OPERATIONS EFFORTS

- ODOT undertakes annual reporting of its own greenhouse gas emissions to the Department of Administrative Services (DAS) and the Governor's Office:
  - ODOT actively participated in the State of Oregon Greenhouse Gas Tracking interagency team (along with the Department of Environmental Quality, the Oregon Department of Energy, the Oregon University System, and the Department of Administrative Services) to develop the methodology for agencies to track their own emissions.
  - Three sources are included: building energy use, fleet fuel use, and solid waste generation.
  - Internal processes are being updated to enable more accurate and efficient data tracking and reporting.
- ODOT's Facilities Section is a leader in state government:
  - All new major facilities throughout the State are built to Leadership in Energy and Environmental Design (LEED) green building Silver standards at a minimum.
  - The Request for Proposals for the Transportation Building renovation targets LEED Gold as the desired level. This is justified by a cost-benefit study which showed that when lifecycle impacts are considered, a high performance environmentally friendly renovation of the Transportation Building would save about $90 million over 20 years (compared to a market-rate renovation).

  - ODOT is actively working to meet the Governor's energy goals through conservation measures and initiatives such as lighting switch-outs.
- ODOT's Fleet Section is a leader in state government:
  - In fiscal year 2007, 13% of the diesel fuels ODOT purchased were B20 biodiesel. In October 2007, the amount had increased to 22%, and ODOT is on track to meet the Governor's goal of 25% by July 2010.
  - Prioritizing hybrids and more efficient sedans over SUVs.
  - Switching out truck and message board lights to LEDs to save energy and limit truck idling.
  - Beginning a project to convert an older Toyota Prius to a plug-in electric vehicle, aiming for 100 mpg.
  - Testing idle reduction technology on some of its heavy equipment.
- ODOT strives to reduce energy consumption by its highway lighting systems:
  - ODOT's Region 1 annual electric bill was over $1.2 million of which 50% came from signals and flashers. Region 1 has retrofitted 95% of its signals and flashers with power-saving LEDs resulting in energy consumption reductions equivalent to the annual power needed for over 140 Oregon homes. This has saved ODOT $110,000 per year on its electric bill.
- ODOT encourages alternative employee commute practices:
  - ODOT and/or DAS provide free transit passes to employees who work more than half time and more than six months a year at Region 1 headquarters in Portland and all employees who work within the Salem Capitol Mall area.
  - Employees who work outside Region 1 headquarters or the Capitol Mall but within mass transit districts have the ability to purchase transit passes on a pre-tax basis via payroll deduction.
  - ODOT encourages participation in the Bike Commute Challenge, a competition between businesses to increase bicycle use.
  - ODOT Policy PER 18 (Telecommuting) endorses telecommuting as a work option for selected employees; the policy states that "when appropriately applied, such practice can benefit both the Department and the employee in improved employee performance, enhanced employee morale, reduced commuting miles, and reduced air pollution and traffic congestion." ODOT's Virtual Private Network allows employees access to their files and email from home and other remote locations.
  - ODOT employs technology solutions such as video conferencing, tele-conferencing, and web casts (I-link) to allow employees to participate remotely in meetings and conferences and avoid excessive travel.
  - Inside ODOT articles promote ways to save fuel and other resources during work-related travel and employee commutes.
- Conservation and Alternative Resource Teams (CART) are small "green teams" of interested employees at major ODOT offices who help educate employees about work-related conservation efforts such as recycling, energy saving and commuting options. CART members have their supervisor's approval to spend a few hours a month on CART activities.

EXTERNAL TRANSPORTATION SYSTEM EFFORTS

Land Use and Planning

- ODOT provides financial and technical support to local governments and Metropolitan Planning Organizations in the development of plans under the Transportation Planning Rule (TPR) and Statewide Planning Goal 12. Oregon's TPR requires reduced reliance on Single Occupant Vehicles (SOV) and local actions encouraging the development and use of reasonable alternatives such as transit and ridesharing. Statewide Planning Goal 12 requires that transportation systems, to the fullest extent possible, should be planned to use existing facilities and rights-of-way provided that such use is not inconsistent with the environmental, energy, land-use, economic or social policies of the state.
- The 2006 Oregon Transportation Plan (OTP) lays the policy foundation for addressing climate change. The OTP has seven broad goals, one of which is focused on sustainability. The sustainability goal has policy statements relating to environmental responsibility, energy, and creation of communities. Specific strategies are listed under each policy, some of which relate directly to climate change. In addition, climate change is discussed as one of the major challenges for the state's transportation systems.
- The Oregon Highway Plan (establishes long-range policies and investment strategies for the State Highway System) written in 1999 and amended as recently as January 2006, includes goals, policies, and actions associated with Land Use and Transportation Policies, Travel Alternatives, and Environmental Resources among others. Climate change is addressed through the associated goals and policies about Access Management, Transportation Demand Management (TDM), and actions that protect Air Quality.
- The Transportation and Growth Management (TGM) Program supports community efforts to expand transportation choices for people. By linking land use and transportation planning, TGM works in partnership with local governments to create vibrant, livable places in which people can walk, bike, take transit or drive where they want to go.
- ODOT's Transportation Planning Analysis Unit is developing the GreenSTEP model, a planning tool to estimate greenhouse gas emissions from the surface portions of the transportation sector and to assist in determining how the transportation sector can meet the statewide emissions targets in future years.
- ODOT is a key participant in the Oregon Modeling Steering Committee (OMSC) formed to improve the state-of-the-practice and promote state-of-the-art land use-transportation modeling in the state of Oregon and serve as a consensus forum and support group to coordinate the land use-transportation modeling efforts of federal, state, regional and local agencies. The OMSC serves as a technical resource and peer reviewer of land use and transportation planning tools developed for greenhouse gas emission analysis.

Multi-Modal System

- ODOT's Public Transit Division assists communities with the development of alternative transportation options, including rideshare programs, park and ride lots, telecommuting programs, and information and incentive programs to encourage the use of alternatives to driving alone in SOVs:

- In 2005 ODOT worked with local jurisdictions to conduct individualized marketing pilot projects in Portland, Salem/Keizer, Eugene, and Bend. The program called TravelSmart uses innovative individualized marketing to encourage environmentally-friendly ways to travel.
- In February 2006 ODOT, Metro, TriMet, the City of Vancouver and other public and private partners launched the Drive Less/Save More Campaign in February 2006. The Drive Less/Save More Campaign seeks to reduce single-person car trips by promoting travel options like public transit, car pooling, biking and walking and encouraging drivers to trip chain or combine multiple errands into single trips.
- ODOT Region 2 sponsors the Commuter Solutions Group in Lane County a partnership with Lane Transit District to offer transportation options programs to the region's businesses, organizations, and educational institutions for their employees, staff and students.
- ODOT is a key sponsoring agency for the Central Oregon Commute Options program, including the Central Oregon Rideshare and Transportation Demand Management Program.
- ODOT Regions dedicate a portion of their federal funds available as part of their Statewide Transportation Improvement Program requests for funding capital investments in transit.
- In 2004 ODOT Public Transit Division used flexible federal funds to initiate a small program to assist urban transit providers to replace older mass transit vehicles. The program started with $1 million annually and has been increased to $2 million annually, replacing roughly eight large buses each year.
- ODOT encourages public transit providers to use alternative fuels where possible. Some providers are increasing the amount of biofuels they use, as well as experimenting with improved engines and hybrid options in their fleets.
- ODOT Public Transit Division has used increases in federal funds for rural and intercity bus service to fund new or expanded service in Welches, Sandy, Yamhill County, Curry County, Linn County, Hood River, The Dalles, Columbia County and other areas of Oregon.
- ODOT Transit Division and Rail Division have collaborated to improve and increase bus/rail connections. Service and schedules have been coordinated to connect additional Amtrak choices in Portland. Currently ODOT is testing productivity for weekend express bus/rail connections for Eugene and University of Oregon students.
- ODOT Transit Division and the Governor's Office collaborated in the "Governor's Commute Challenge". The 2008 summer activity challenging State Capital Mall employees to reduce drive-alone trips and save greenhouse gas emissions resulted in a 19 percent reduction in drive-alone commute trips and an estimated 593,000 pounds of carbon dioxide saved by Capital Mall employees from June 1 to August 29 (surpassing the Governor's goal of 500,000 pounds by 19 percent). ODOT was the August winner in the challenge among large agencies for number of employees committing to replace drive-alone commute trips and pounds of carbon dioxide emissions reduced.

- The ODOT Rail Division represents and advocates for customers of railroads, both passenger and freight, to ensure a safe, efficient and reliable rail transportation

system. ODOT supports Amtrak rail service from Eugene to Portland, increasing to five trains and four Amtrak Thruway bus-to-train connections per day.

- The ODOT Bicycle and Pedestrian Program provides direction to ODOT in establishing pedestrian and bicycle facilities on state highways and provides support to local governments, governmental and non-governmental organizations and private citizens, in planning, designing and constructing pedestrian and bicycle facilities.
    - The Transportation Enhancements program pays for millions of dollars of sidewalk and streetscape improvements, bicycle lanes, and multi-use pathways projects each year.
    - The Safe Routes to School program funds Oregon Schools and School Districts with over $3 million for education and enforcement projects designed to encourage and enable easier and healthier ways for children to walk and bike to and from school safely, reducing the need to drive.
- The Congestion Mitigation and Air Quality (CMAQ) Improvement Program provides approximately $14 million per year of funds across Oregon for Transportation Demand Management (TDM), Transit, and Bicycle/Pedestrian facilities projects.
- *Connect*Oregon is a lottery bond based initiative to invest in air, rail, marine and transit infrastructure to ensure Oregon's multi-modal transportation system is strong, diverse, and efficient.
    - *Connect*Oregon I, approved in the 2005 legislative session, has 40 projects all of which are underway, many of which are complete. It was a significant success with even non-funded applicants praising the process. Projects included the Portland Streetcar Lowell Extension, the Lane Transit District Pioneer Parkway Bus Rapid Transit Project, the City of Bend Public Transit Operations and Maintenance Center, and the Community Connection of Northeast Oregon multimodal Transit Consolidation and Improvement Project.
    - *Connect*Oregon II was approved by the 2007 Legislature. The Oregon Transportation Commission has recently approved the selection of projects. Selected projects for *Connect*Oregon II include a Columbia County Public Transit Facility, the Lane Transit District Veneta Transit Center, the Salem-Keizer Transit District Keizer Transit Center, the City of Bend Central Oregon Inter-modal Transit Center, the City of Prineville Multi-modal Railroad/Freight Depot, and the Union County Alicel Inter-modal Rail Logistics Center.
- ODOT is a key partner with other public agencies in financing transit expansions in the Portland Metro area:
    - ODOT allocated $7 million of federal Surface Transportation Program funds and provided right-of-way at a significant below-market value to support the expansion of TriMet light rail along the I-205 corridor.
    - ODOT Financial Services is assisting with the sale of $250 million of lottery backed bonds that will assist in capital construction of the TriMet light rail expansion and ODOT Public Transit is administering the distribution of $20 million in lottery backed bonds for the purchase of streetcars to enable streetcar system expansion.

Freight

- ODOT Motor Carrier's Green Light program helps truckers save time and money and reduce emissions by "preclearing" trucks so they don't have to stop at Oregon weigh stations – saving an estimated 113,000 hours and $13 million for truckers in 2006.

- TDD's Freight Mobility Section is conducting Oregon's first statewide freight planning effort, to ensure freight planning at local, statewide and regional levels reflects Oregon's sustainability as well as economic goals and strategies.
- In 2006, ODOT provided a $3 million loan to the non-profit organization Cascade Sierra Solutions (CSS) to fund heavy-duty truck efficiency and idle reduction programs that reduce fuel consumption and greenhouse gas emissions. CSS operates in the States of Washington, Oregon and California with a primary focus on the Interstate 5 corridor. This loan was unprecedented and ODOT worked closely with FHWA to make the money available. The loan funds purchases of fuel-saving equipment like auxiliary power units which CSS then leases to small truck operators.
- ODOT participated in a 2005 Oregon Solutions project to promote truck stop electrification, and a number of truck plazas in Oregon have invested in electrified hookups. These are used to power refrigeration trucks and cab heat and air conditioning systems so that truck operators do not have to idle their diesel engines overnight.
- In light of the significant impact to the renewable energy sector and economic development in the state, ODOT accelerated decision-making processes to allow oversized vehicles on I-84 for shipping wind turbines.

Optimizing the System

- ODOT participated in the City of Portland's grant from the Climate Trust to improve signal coordination on three ODOT corridors in the Portland Metro area. The retiming was completed in 2005. It was estimated that the retiming would offset more than 33,000 metric tons of CO2 in the first year alone, with declining benefits after that. The grant paid for equipment to allow better signal coordination.
- ODOT's Region 1 has implemented adaptive ramp metering control systems. The ramp signals are optimized to keep the freeway traffic moving as well as possible depending on the level of congestion. This limits stopping and starting on the ramps and helps to reduce vehicular emissions and fuel consumption. Under the previous system the meters were pretimed and would stop vehicles on the ramps even when there was no congestion.
- Since 2004, ODOT has added a number of Intelligent Transportation System (ITS) technologies including cameras, variable message signs, highway advisory radio and weather stations to the inventory for operating the system. We have made improvements to the traveler information systems. Improvement include adding better information about public transportation options to TripCheck, delivering traveler information that is better formatted for wireless devices through our TripCheck Mobile system, and delivering traveler information to cable TV in several locations around the state. These technologies help optimize the use of the systems and ease peak demand.

Innovative Pilot Projects

- With direction from the legislatively mandated Road User Fee Task Force, ODOT developed an electronic mileage fee collection system that could support congestion pricing. This system, which would enable ODOT to disconnect its revenues from the consumption of fossil fuels, was tested in a year long study that ended in March 2007 and included a congestion pricing element.

- The Oregon Solar Highway Initiative – ODOT has initiated a project to demonstrate the viability of locating solar arrays along state highway rights of way. The first demonstration project is located at the interchange of I-5 and I-205 and will be operational before year's end. Funding for the project comes through a public-private partnership with Portland General Electric (see http://www.oregon.gov/ODOT/HWY/OIPP/docs/solar_factsheet.pdf for details on the financing). ODOT will not own the array and is not responsible for operating or maintaining it. Instead ODOT will purchase the green power generated from the array at the same rate it would pay for grid energy – essentially getting caviar for the price of trout eggs. This is significant because unlike other state (General Fund) agencies, ODOT cannot purchase "green tags" or renewable energy certificates in order to secure green electricity, due to current interpretation of the constitutional limitations on the Highway Fund. ODOT can only get green energy by generating its own. This single installation will reduce annual carbon emissions by 38.9 metric tons of CO2e (carbon dioxide equivalent) compared to electricity purchased from the Pacific Northwest Regional Energy Grid. Future installations will include other ODOT properties, including roof tops, facility ground mounts, and right of way installations.
- ODOT Alternative Fuels Corridor - The Department is leading an effort to incubate the distribution of alternative fuels and/or solar powered charging stations for plug-in electric hybrid vehicles along the I-5 corridor to help increase the market demand for alternative fuel vehicles, by developing partnerships with the private sector and/or other public partners.
- ODOT's Innovative Partnership Program is working with Portland General Electric and other partners on a demonstration project which will design standards for charging stations and develop a public awareness campaign to prepare for mass adoptions of plug-in cars over the next two to five years. For ODOT, the project is part of a larger effort that will investigate a variety of methods for funding, installing, and managing a network of charging stations.

The Oregon Transportation Commission approved in October eight projects to receive funding through ODOT's Operations Innovation and Demonstration Program. The program includes $8 million for projects that demonstrated the ability to reduce congestion or improve freight mobility.

(see http://www.oregon.gov/ODOT/COMM/nr08102101.shtml for details on selected projects)

Highway Construction Projects

- The Columbia River Crossing project, located in a five-mile area between Portland and Vancouver, Washington, undertook an analysis of greenhouse gas impacts as part of a Cumulative Effects analysis in the Draft Environmental Impact Statement. The CRC project worked with Washington Department of Transportation, Federal Highway Administration and Federal Transit Authority to analyze potential cumulative impacts of the construction and operation of the project. A quantitative analysis was prepared for the purpose of comparing the alternatives. The DEIS also discussed potential adaptation measures to be taken to prepare for effects of climate change, such as a rise in river level.
- Various aspects of ODOT's innovative Context Sensitive and Sustainable Solutions (CS^3) approach to the OTIA III bridge program support greenhouse gas reductions:
    - The OTIA III Access/Staging Performance Standard limits truck idling to five minutes, except in extreme cold weather or when needed for other reasons.

- The OTIA III Materials Procurement and Use Performance Standard requires contractors to use ultra-low sulfur fuel, bio-diesel, or EPA-verified fuel additives in vehicles and equipment where possible and available, or a minimum of highway grade fuel where alternative fuels are not possible.

SUMMARY AND NEXT STEPS

This paper has provided a listing of six significant internal and external process-related efforts that ODOT has undertaken to respond to the issue of climate change (see bullets under **INTERNAL AND EXTERNAL PROCESS-RELATED EFFORTS** above). One of these involves interactions with eight key external groups and initiatives started by the Governor Office that are related to climate change.

The paper lists six internal operations climate change efforts (see bullets under **INTERNAL OPERATIONS EFFORTS** above) including: greenhouse gas reporting, facilities and fleet management to reduce emissions of greenhouse gases, modification of highway lighting systems to reduce energy consumption, encouragement of alternative employee commuting practices, and the creation and support of conservation and alternative resource teams to help educate employees about work-related conservation efforts.

Finally, the paper lists climate change efforts that relate to the external transportation system in the areas of land use and planning, development and support of an effective multi-modal system, freight, transportation system optimization, innovative pilot projects, and highway construction (see **EXTERNAL TRANSPORTATION SYSTEM EFFORTS** above).

The next steps for ODOT in response to climate change involve continued involvement with groups like the Oregon Global Warming Commission and its various committees and subcommittees and key processes such as the Western Climate Initiative and the Big Look Task Force. Through the efforts of ODOT's Climate Change Executive Group and Technical Advisory Committee, ODOT will play a continuing important role in the avoidance of future climate change through development of mitigation actions related to Oregon's transportation system as well as actions that will adapt the transportation system to climate change already anticipated.

APPENDIX 1: POLICY MANDATES RELATED TO INTERNAL OPERATIONS

ORS 276.900 states that "It is the policy of the State of Oregon that facilities to be constructed or purchased by authorized state agencies be designed, constructed, renovated and operated so as to minimize the use of nonrenewable energy resources and to serve as models of energy efficiency."

A goal of 20% energy reduction by state agencies by 2010 (over a 2000 baseline) is mandated by Executive Order 06-02; energy savings are required to come from both new and existing buildings and other metered electricity use.

When siting state office locations, Executive Order 94-07 "Siting State Offices in Oregon's Community Centers" requires preferential consideration be given to locations within central business districts and conveniently close to transit in communities that have transit service. Other areas of mixed use development that are highly accessible to the public, have a fully developed pedestrian circulation system, have high quality transit service (in those communities with transit service), and are designated as urban centers in the applicable comprehensive plan may also be given priority consideration.

OAR 330-130 prescribes procedures to minimize energy use in new and renovated facilities designed and constructed by state agencies; guidelines for implementing these procedures are given in the State Energy Efficient Design (SEED) Program Guidelines.

Governor Kulongoski has stated his desire for state agencies to purchase 100% of their energy from renewable sources by 2010.

Oregon's Renewable Energy Action Plan (REAP) mandates the following use of biofuels: 10% of the gasoline used by state government's fleet vehicles will be E-85 by 2010, increasing to 25% by 2025; 10% of the diesel used by state government's fleet vehicles will be B-20 by July 2007, increasing to 25% by July 2010 and 100% 2025.

DAS Policy 125-6-010 "Sustainable Facilities Standards and Guidelines" requires:

- Building decisions must consider the full life of materials. The review must include life cycle assessment and life cycle cost factors.
- New state-owned buildings shall be designed to meet the point equivalent of a Leadership in Energy and Environmental Design (LEED™) Silver rating.
- Renovations of state-owned or build-to-suit leased buildings shall be designed to meet the point equivalent of a LEED™ Certified rating.

DAS Policy 107-009-0050 "Sustainable Acquisition and Disposal of Electronic Equipment" requires the use of Electronic Products and Acquisition Technology (EPEAT) environmental and energy criteria for the purchase of computer equipment such as desktops, computer laptops, computer monitors, and input or output devices.

APPENDIX 2: POLICY MANDATES RELATED TO THE TRANSPORTATION SYSTEM

OTP[1] Policy 1.1 – It is the policy of the State of Oregon to plan and develop a balanced, integrated transportation system with modal choices for the movement of people and goods.

OTP Policy 2.1 – 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.

OTP Policy 4.2 – It is the policy of the State of Oregon to support efforts to move to a diversified and cleaner energy supply, promote fuel efficiencies and prepare for possible fuel shortages.

OHP[2] Policy 4B – It is the policy of the State of Oregon to advance and support alternative passenger transportation systems where travel demand, land use, and other factors indicate the potential for successful and effective development of alternative passenger modes.

OHP Policy 4D – It is the policy of the State of Oregon to support the efficient use of the state transportation system through investment in transportation demand management strategies.

ORS 469.010 states that "It is the goal of Oregon to promote the efficient use of energy resources and to develop permanently sustainable energy resources" and includes the following policy: "energy-efficient modes of transportation for people and goods shall be encouraged, while energy-inefficient modes of transportation shall be discouraged."

House Bill 3543 (The Climate Change Integration Act) created specific greenhouse gas emissions reduction goals for the state:

1. By 2010, arrest the growth of Oregon's greenhouse gas emissions and begin to reduce them.
2. By 2020, achieve greenhouse gas levels that are 10 percent below 1990 levels.
3. By 2050, achieve greenhouse gas levels that are at least 75 percent below 1990 levels.

ORS 366.514 requires that wherever highways, roads, or streets are being constructed, reconstructed, or relocated, footpaths and bicycle trails will be built as part of these projects. The amount expended by ODOT shall never in any one fiscal year be less than one percent of the funds received from the Highway Fund.

[1] Oregon Transportation Plan, 2006
[2] Oregon Highway Plan, 1999

Ongoing Climate Change Mitigation Activities at USDOT
August 2009

Intermodal

Report to Congress on Transportation's Impact on Climate Change and Solutions
The Energy Independence and Security Act of 2008, signed into law in December 2007, mandates that the US DOT produce a report to Congress on transportation's impact on climate change and solutions for reducing this impact. The study is also to consider co-benefits of fuel savings and air quality improvement. The report is to be completed in coordination with the US EPA and the US Global Change Research Program. Operating administrations are providing resources and technical expertise to the US DOT Climate Change Center in order to complete the report.
POC: Tina Hodges, tina.hodges@dot.gov, 202-366-4287

Intermodal Emissions Modeling Tool
DOT is updating its web-based intermodal emissions modeling tool to update the model and make it more user friendly. The updating should be finished by the end of calendar 2009.
POC: MJ Fiocco, mj.fiocco@dot.gov, 202.366.8018

Climate Change Clearinghouse
The Transportation and Climate Change Clearinghouse, which was launched in January 2009, includes information on greenhouse gas (GHG) inventories, analytic methods and tools, GHG reduction strategies, potential impacts of climate change on transport infrastructure, and approaches for integrating climate change considerations into transportation decision making. The Clearinghouse can be found at: http://climate.dot.gov/.
POC: Diane Turchetta, diane.turchetta@dot.gov, 202-493-0158

Sustainable Communities Partnership
The Secretaries of the Department of Transportation and the Department of Housing and Urban Development and the Administrator of the Environmental Protection Agency have formed an interagency partnership to better align federal transportation, environmental protection and housing investments. This partnership seeks to provide communities – urban, rural and suburban – with the tools necessary to gain better access to affordable housing, more transportation options and lower transportation costs. HUD has requested $100M in planning grant money to help start the program. The Partnership expects to have a pilot program ready by FY 10 to showcase successful integrated land-use and transportation plans.
POC: Linda Lawson, linda.lawson@dot.gov, 202-366-4835

DOT Livability Initiative
Secretary LaHood has made livability a key component of his reauthorization agenda. An intermodal team has formed within DOT to both support the efforts of the Sustainable Communities Partnership and. Currently, modes are identifying what internal administrative fixes are available to emphasize livability in transportation planning and design.
POC: Linda Lawson, linda.lawson@dot.gov, 202-366-4835

FAA

Aviation Climate Change Research Initiative
ACCRI accelerates our scientific understanding so as to inform policy and mitigation decisions. Funding for ACCRI was included in the recent Fiscal Year 2009 Omnibus bill and we expect to initiate efforts in the next few months.
POC: Lourdes Maurice, lourdes.maurice@faa.gov, 202-493-4293

Continuous Lower Energy Emissions and Noise (CLEEN)
With support from NASA, the FAA recently launched the CLEEN (Continuous Lower Energy Emissions and Noise) Program to advance maturing engine and aircraft technologies for quick fusion into the fleet in order to achieve increases in fuel efficiency (which is directly related to CO2 emissions) and reduction in nitrogen oxides emissions (which affects distributions ozone and methane – both of which are greenhouse gases).
POC: Lourdes Maurice, lourdes.maurice@faa.gov, 202-493-4293

Commercial Aviation Alternative Fuels Initiative (CAAFI)
FAA helped form – and is an active participant in – the Commercial Aviation Alternative Fuels Initiative. CAAFI seeks to develop and deploy alternative jet fuels for commercial aviation which offer reductions in life cycle emissions. The CLEEN Program also supports this effort.
POC: Lourdes Maurice, lourdes.maurice@faa.gov, 202-493-4293

Additional initiatives
FAA is more generally working to advance environmentally friendly aircraft operation procedures and develop policy and market based measures to control emissions.
POC: Lourdes Maurice, lourdes.maurice@faa.gov, 202-493-4293

FHWA

Carbon Sequestration Pilot Program
FHWA is working with state DOTs in New Mexico and Minnesota on a climate change-related pilot program The goals of the program are 1) to develop successful strategies for sequestering carbon on rights-of-way and other lands managed by State DOTs through focused native vegetation management; 2) to determine whether revenue can be generated from the sale of "carbon credits" developed from these projects; and 3) to determine whether FHWA should pursue a national-level effort to support state DOTs in these activities. Several analytical and decision support tools are in development, most of which should be available at the end of the calendar year.
POC: Steve Earsom, Stephen.earsom@dot.gov, 202-366-2851

Evaluate How Land Use, Transportation Infrastructure, and Policy Changes Affect Travel Activity and GHG Emissions
The objective of this research is to develop analysis tools that will allow planners and policy makers in small to medium metropolitan areas evaluate how land use, transportation infrastructure, and policy changes affect travel activity and GHG emissions. The work is expected to be completed in the early to mid 2010 timeframe.
POC: Gloria Shepherd, gloria.shepherd@dot.gov, 202-366-0581

Reducing Energy Usage through Transportation Planning for Megaregions
This research will produce tools to help transportation planners reduce the transportation system's energy consumption. Transportation and land use will be considered as a system with respect to energy consumption. The research will identify and refine organizational tools that can build planning capacity and enable planners from numerous MPOs to plan as a unit – a megaregion – and will produce a sketch planning computer tool to help planners implement the capacity-building and megaregion tools. The research results will help create a roadmap for implementing strategies to reduce transportation's energy demand on a megaregion scale. The ongoing research has produced a draft literature review of efforts related to megaregion planning.
POC: Rob Kafalenos, robert.kafalenos@dot.gov, 202-366-2079

Sustainability Evaluation and Planning Guidance for Transportation Systems
This research will focus on how to incorporate sustainability in transportation planning to address challenges facing the nation's transportation infrastructure including nonrenewable fuel depletion and the resulting energy insecurity, GHG emissions, global climate change, local air quality, fatalities and injuries, congestion, noise pollution, low mobility, ecosystem damage and lack of equity. To date, a "Best Practices" report has been developed which catalogs domestic and international best practices for

sustainability assessment and planning. Next steps include the development of guidelines for State DOT's on incorporating sustainability practices into their transportation planning processes. Completion date: September 2010
POC: Supin Yoder, supin.yoder@dot.gov, 708-283-3554

Puget Sound Regional Council (PSRC) Modeling Improvement
FHWA has provided funding to PSRC to update their existing models and develop new models to more accurately account for transportation-related GHG emissions. Five major model improvements have been implemented and calibrated for the year 2006. This includes the trip assignment improvements, the restructuring of the mode choice model, the development of the activity generator, and the inclusion of walk and bike factors in mode choice. The forecasting of these new improvements in underway and will be tested for the 2040 baseline conditions as well as for five alternatives for the transportation plan update process. In addition, PSRC is preparing to test the sensitivity of the models to changes in gas prices with the new modeling structure.
POC: Diane Turchetta, diane.turchetta@dot.gov, 202-493-0158

FMCSA
Impacts of Mitigation and Adaptation Policies on FMCSA
This study will examine the impacts of mitigation and adaptation policies on FMCSA operations and truck transportation. The study has yet to begin.
POC: Michael Johnsen, michael.johnsen@dot.gov, 202-366-4111

FTA
Transit-Oriented Development and Livability
FTA provides technical assistance in planning, transit-oriented development, and livable communities. FTA grants may be used for joint development, to facilitate transit oriented development.
POC: Sharon Pugh, sharon.pugh@dot.gov, 202-366-0713

Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER)
The American Recovery and Reinvestment Act of 2009 (ARRA) authorized $100 million for a new discretionary grant program to pubic transit agencies for capital investments that will assist in reducing the energy consumption or greenhouse gas emissions of their public transportation systems.
POC: Walt Kulyk, walter.kulyk@dot.gov, 202-366-4991

Climate Change Standard
FTA has partnered with the American Public Transportation Association (APTA) to develop a standard methodology for measuring transit greenhouse gas emissions.
POC: Tina Hodges, tina.hodges@dot.gov, 202-366-4287

Transit Greenhouse Gas Management Compendium
The compendium will provide transit agency mangers with an easy to use handbook on actions to reduce greenhouse gas emissions from transit operations and construction.
POC: Henry Nejako, henry.nejako@dot.gov, 202-366-0184

National Fuel Cell Bus Program
This $49 million program develops and demonstrates fuel cell transit bus technology.
POCs: Christina Gikakis, christina.gikakis@dot.gov, 202-366-2637 and Sean Ricketson, sean.ricketson@dot.gov, 202-366-6678

Research and Deployment of Low Emission Vehicles
FTA research on alternative fuels and high fuel efficiency vehicles has yielded the introduction of low emission technologies such as hybrid-electric buses, compressed natural gas vehicles, and biodiesel. Current research focuses on electric drive

technologies, alternative fuels and rail efficiency. FTA encourages adoption of clean technologies by supporting a higher share of the cost of purchasing clean vehicles. In addition, FTA's Clean Fuel Bus Program targets investment in clean transit vehicles.
POC: Tina Hodges, tina.hodges@dot.gov, 202-366-4287

Environmental Management Systems Training (EMS)
FTA sponsors EMS training to continually assess and reduce the environmental impact of transit agency operations.
POC: Tina Hodges, tina.hodges@dot.gov, 202-366-4287

TCRP Synthesis: Greenhouse Gas Emissions Savings from Transit
FTA is funding a new synthesis report through the Transit Cooperative Research Program (TCRP).
POC: Tina Hodges, tina.hodges@dot.gov, 202-366-4287

Transit Green Building Plan
The FY 2009 Omnibus Appropriation conference report by Congress calls for FTA to submit a "transit facility green building plan" within 90 days of enactment. The plan is to include: an overview of certified green building transit projects, an analysis of green rating systems that would be suitable for transit projects, planned FTA actions, timelines and resources to encourage green building in FTA programs, plus an inventory of relevant assistance that could be provided to transit authorities.
Terrell Williams, terrell.williams@dot.gov, 202-366-0232

MARAD

Geospatial Intermodal Freight Transport (GIFT) tool
MARAD is developing a model that will identify optimal freight transportation routing pathways based on minimization of energy and emissions, including carbon dioxide, as well as time and cost. This is under development at the regional level and will likely be expanded to the national level.
Michael Carter, michael.carter@dot.gov, 202-366-9431

NHTSA

Heavy-Duty Trucks Study
Section 108 of the Energy Independence and Security Act of 2007 requires NHTSA to enter into an agreement with the National Academies of Science to develop a report evaluating medium-duty and heavy-duty truck fuel economy standards. The committee will conduct an assessment of fuel economy technologies for medium and heavy-duty vehicles; including appropriate approaches to measuring fuel economy, an assessment of current and potential technologies for improving fuel economy of these vehicles, how such technologies can be integrated into the manufacturing process, how such technologies can be used to meet potential fuel economy standards, and associated costs and impacts. The study must be completed by March 2010. There is also a requirement in EISA that NHTSA conduct its own study concerning fuel efficiency of these vehicles (by September 2010), and then a requirement to issue a regulation (by September 2012).
POC: Carol Hammel-Smith, carol.hammel-smith@dot.gov, 202-366-5206

RITA

Advanced Vehicle Technology
Overseeing and facilitating Congressionally directed university research covering emissions testing and performance evaluation of advanced engines, development of fuel cells, and advanced transit and bus technologies.
POC: MJ Fiocco, mj.fiocco@dot.gov, 202.366.8018

Biofuels
Overseeing and facilitating Congressionally directed university research on new uses for biodiesel, utilize complex systems of biofuels for transportation uses, and better understand biofuels emissions. The major element of the program is the biobased grant that makes $43.5M over the life of SAFETEA-LU available to the Sun Grant universities and the National Biodiesel Board (NBB) for wide-ranging biofuels work.
POC: MJ Fiocco, mj.fiocco@dot.gov, 202.366.8018

Hydrogen
DOT's hydrogen research efforts have two major components – congressionally directed spending requirements and a multi-year appropriation. The congressionally mandated spending supports efforts at Delaware State University, Dover, DE, to develop better storage materials at lower temperatures for hydrogen, while the University of Montana work focuses on developing hydrogen safety training materials for emergency responders.

The multi-year appropriations are focused on codes and standards development and testing as well as development of specialized training materials for state and local emergency responders. Most of the multi-year work is done through contractual arrangements with key service providers such as the University of California – Davis.
POC: MJ Fiocco, mj.fiocco@dot.gov, 202.366.8018

University Transportation Centers
UTCs advance U.S. transportation technology and expertise through education, research and technology transfer at university-based centers of excellence. These centers perform research on vehicle technology, biofuels, planning and other mitigation activities.
POC: Curtis Tompkins, curtis.tompkins@dot.gov, 202.366.2125

Partnerships
Travel Demand and Climate Change
Developing Effective Policy Approaches for Slowing VMT Growth – Through research and dialogue with pivotal stakeholders this project will help determine the extent to which new energy/GHG performance goals may complement or conflict with fundamental transportation system performance and inform the development of effective policy frameworks for slowing VMT growth and reducing GHG emissions. To date, three stakeholder dialogues have been held to debate and develop effective and tenable policy packages for reducing GHG emissions associated with travel demand. A "strawman" policy package was developed which outlines potential components of a transportation GHG reduction incentive-based program for state governments and MPOs and local governments to reduce transportation-related GHG emissions. In addition, travel data and modeling needs were identified to support development of performance-based transportation policies.
POC: Gloria Shepherd, gloria.shepherd@dot.gov, 202-366-0581

Ongoing Climate Change Adaptation Work at DOT as of July 2009

Recent Accomplishments

Gulf Coast Study, Phase 1, (2008)
Phase 1 of the Gulf Coast Study studied how changes in climate over the next 50 to 100 years could affect transportation systems in the U.S. central Gulf Coast region and discussed how to account for potential impacts in transportation planning. A case study approach was selected that generated useful research methodologies for application in other locations.
http://www.climatescience.gov/Library/sap/sap4-7/final-report/

The Potential Impacts of Global Sea Level Rise on Transportation Infrastructure—Atlantic Coast Study, (2008)
The study uses multiple data sources to identify the potential impact of sea level rise on land and transportation infrastructure along the Atlantic coast, from Florida to New York. The study (1) creates maps of land and transportation infrastructure that, without protection, could be inundated regularly by the ocean or be at risk of periodic inundation due to storm surge under a range of sea level rise scenarios; and, (2) provides statistics to demonstrate the potential extent of land areas and transportation infrastructure affected. (A companion report that discusses some of the results is approaching completion.)

Integrating Climate Change into the Transportation Planning Process, June 2008.
The final report summarizes a review of the state-of-the-practice in State DOTs and Metropolitan Planning Organizations (MPOs), including statutes and regulations, and interviews with several planning agencies. Report includes both mitigation and adaptation. (Report completed June 2008)
http://www.fhwa.dot.gov/hep/climatechange/index.htm

Peer Workshop on Adaptation to Climate Change Impacts, December 2008.
Peer Exchange conducted (with support from the American Association of State Highway Transportation Officials (AASHTO)) on adaptation of transportation infrastructure to climate change impacts. Participants in the workshop included leaders from FHWA and 11 State DOTs.
http://www.fhwa.dot.gov/planning/statewide/pwsacci.htm

Peer Workshops on Integrating Climate Change into the Transportation Planning Process, 2008.
Three peer exchanges were conducted (two in Seattle WA, and the other in Albany, NY) in 2008. The goal of the workshops was to allow senior staff from a variety of MPOs and State DOTs from across the country to come together to share information, experiences, and challenges regarding how both climate change mitigation and adaptation issues can be integrated into the transportation planning process.
Summary reports can be found at: http://www.fhwa.dot.gov/hep/climate/resources.htm

WASHTO Facilitated Session on Asset Management and Adaptation, July 2009
FHWA facilitated a session at a Regional AASHTO meeting in Seattle on managing transportation assets in a changing environment.
http://www.washto2009.com/

Initiated or Ongoing Activities

FHWA Adaptation Working Group
FHWA has formed a multi-disciplinary internal working group to coordinate policy and program activities to address climate change impacts to transportation infrastructure. This group operates across all of FHWA, including planning and construction officials.
Status: first meeting: December 2008, meetings ongoing

FHWA Strategy to Address Adaptation to Climate Change Effects
The strategy is being developed by the FHWA Adaptation Working Group. The strategy will include the relevance of impacts/adaptation to FHWA program areas, identify program vulnerabilities, and discuss ongoing, planned activities by FHWA. The strategy will provide FHWA with a common strategic framework as the agency addresses climate change impacts through policies, regulations, and programmatic activities.
Lead: Mike Culp
Status: Currently drafting
Timeframe: Late Summer/Fall 2009

Interim Framework on Conducting Assessments of Transportation Infrastructure Vulnerable to GCC Effects
The project's first phase will address what should reasonably be assumed by practitioners with regard to climate change impacts, its effects differentiated by geographic area**,** and data to be used in conducting assessments (including data gaps). The Framework itself will include criteria to be considered, recommended categories for existing and planned infrastructure, and methods to assess importance, redundancy and scale. HEP and HIF are requesting additional research funds to pilot the "Framework" in up to 5 States. This is meant to put together the best thinking we have currently available in a quick timeframe.
Lead: Mike Culp, Rob Kafalenos
Status: Consultant selected, work underway
Timeframe: Spring 2010, with interim products

NCHRP 20-83(05): Climate Change and Highway Infrastructure: Impacts and Adaptation Approaches
This is a $1 million project identified by the Transportation Research Board (TRB) executive committee as priority research. FHWA is providing technical assistance to the panel and coordination with other FHWA and DOT activities to prevent duplicative effort. The anticipated product will be guidebooks for transportation practitioners and outreach materials. This study is meant to further results of the interim study listed above, with a larger budget and a goal of addressing more issues. This is broader than the Gulf Coast Study by creating guidebooks for planners, NEPA practitioners, designers, asset managers, and operators. NCHRP has a panel overseeing the research that is broad and diverse.
Lead: Mike Culp, Raja V.
Status: Reviewing proposals, meeting to award 9-17-09
Timeframe: 2-3 years

Guidelines for Consideration of GCC Impacts and Adaptation in Project Development and Environmental Review
These guidelines will include discussions of how to consider climate change impacts as part of the project development, preliminary engineering, and NEPA analysis (including scoping, environmental context, and alternatives screening and analysis). The Guidelines are meant to provide information to FHWA Division offices on how to handle discussion on impacts in the project development process.
Status: Initiating activity
Timeframe: Fall 2009/Spring 2010

Future activities – Medium to Long-term

Gulf Coast Study – Phase 2
Phase 1, completed in 2008, studied how changes in climate over the next 50 to 100 years could affect transportation systems in the U.S. central Gulf Coast region and discussed how to account for potential impacts in transportation planning. Phase 2 will build on the information developed in Phase 1 to develop more definitive information about impacts at the local level in a particular MPO or smaller region and will focus analysis on the key transportation links, for day to day systems operations (passenger and freight) and emergency management (evacuations-before, cleanup-after). The study will develop more precise tools and guides for State DOT and MPO planners to use in deciding how to adapt to potential climate impacts and determine vulnerability for key links for each mode. Phase 2 will also develop a *risk assessment tool* to

allow decision makers to understand vulnerability to climate change and develop a process to implement transportation facility improvements in a systematic manner.
Lead: Robert Ritter
Status: RFP drafted
Timeframe: 3 years

Pilots of the Interim Adaptation Framework
FHWA plans to solicit the cooperation of up to 5 state DOTs or MPOs to pilot the interim framework for adapting to climate change. Results will provide experience for refining the framework and inform policy development activities.
Lead: Rob Kafalenos
Timeframe: one to two years

Update of the FHWA Floodplain regulations (23 CFR 650, Subpart A)
This revision of the floodplain regulations is anticipated to better reflect more recent flood risk assessment and management approaches/opportunities, clarify requirements vis-à-vis NEPA, FEMA, and other floodplain processes and stakeholders, incorporate consideration of climate change effects as appropriate.
Lead: Joe Krolak, Mike Culp, Raja Veeramachaneni
Status: Pending
Timeframe: Several years as it requires rulemaking.

FHWA Coordination/Activities with NOAA/NWS

- Consulting w/NOAA on how to "translate" climate change effects for use by practitioners (SLR, storm surge, precipitation, temperature)
- Need to develop knowledge regarding forecasting methods for weather and environmental conditions to account for global climate change.
- Critical for design assumptions with regard to floodplains, hydraulic structure design, asset management cycles
- Work is progressing very slowly in this area. All modes may be involved if they are interested.

Lead: Rob Kafalenos, Joe Krolak
Status: initiating consultation
Timeframe: ongoing

Partnerships

Southwest Region University Transportation Center, at Texas A&M University (the Region VI UTC): *Climate Change/Variability Science and Adaptive Strategies for State and Regional Transportation Decision Making*
http://swutc.tamu.edu/projectdescriptions/167165.htm

The objective of this study is to generate a baseline understanding of current policy response to climate change/variability at the state and regional transportation planning and decision levels. Research tasks will include both a survey of state DOTs and major MPOs, and detailed case studies of several DOTs and MPOs that are currently integrating climate change/variability factors in the decision and planning processes. Our results will also provide a "best practices" component which will not only include existing adaptation and recovery strategies, but potential new policy ideas for adaptation and recovery at the state and regional decision levels. The final UTC report can be used as a workbook for integrating climate science at the state and regional planning levels, and as a resource for state and regional policy and decision makers in the environmental and climate change policy arena. At this time, there is a significant lack of information of this kind available for decision makers.
Lead: *Robin Kline (RITA)*
Start date: *2006/09/01*
End date: *2007/08/31 (still ongoing)*

Oregon Transportation Research and Education Consortium (OTREC), Portland State University (National UTC): *Climate Change Impact Assessment for Surface Transportation in the Pacific Northwest and Alaska*
http://otrec.us/project/383

The states in the Pacific Northwest and Alaska (the region) share interconnected travel networks for people, goods, and services that support the regional economy, mobility, and human safety. The objective of this study is to conduct a preliminary assessment of the risks and vulnerabilities climate change poses to the surface transportation infrastructure system in the region. At a minimum, the research will: synthesize data needed to characterize the region – such as its physiography and hydrology, land use, past and projected climate, current population and trends, and multimodal surface transportation infrastructure; identify critical infrastructure vulnerable to climate change impacts; and provide recommendations for more detailed analysis as appropriate to support managing risks and opportunities to adapt multimodal surface transportation infrastructure to climate change impacts.
Lead: *Robin Kline (RITA)*
Start date: 2009/10/01
End date: 2010/09/30

INDEX

Approaches, 3-9, 3-36
Agency coordination, 5-10
Agricultural land (Exclusive Farm Use), 3-70
Air quality, ES-14, 3-103, F-1
Alternatives, ES-3, 2-1
Alternatives considered but not advanced, 2-17, A-1
Archaeology, ES-11, 3-87
Bear Creek, 3-18, 3-77, 3-81, 3-87, 3-116, 3-121, 3-122, 3-124, 3-128, 3-134
Bear Creek Bridge, 1-7
Bear Creek Greenway, 3-18, 3-77, 3-81, 3-88, 3-90, 3-108, 3-115, 3-119
Bear Creek Greenway multi-use path, 3-88
Bear Lake Estates, 3-15, 3-53, 3-59, 3-96, 3-102, 3-128
Bicycles, ES-6, 2-9, 3-10, 3-51, 3-56
Biology, ES-15, 3-116, G-1
Buses, 3-14
CETAS, 5-3
Circulation, 3-42, 3-44
Citizens Advisory Committee, 5-3
Climate change, ES-19, 3-149, H-1
Coleman Creek, 3-116, 3-118, 3-122, 3-128, 3-132, 3-134
Coleman Creek Estates, 3-17, 3-48, 3-51, 3-52, 3-109, 3-122
Coleman (Arrowhead) Ranch, 3-83
Community facilities and services, 3-54
Crash history, 1-8
Crossing Diamond Interchange, 2-7
Cultural Resources, 3-83, E-1
Disabled, 3-46, 3-48, 3-51, 3-52
EA distribution, 6-9
Economics, 3-60
Elderly, 3-46, 3-48, 3-51, 3-52
Emergency services, 3-54
Employment, 3-40
Endangered species, 3-118, G-1
Environmental Justice, 3-46, 3-50, 3-52
Evaluation criteria, 1-13, 2-19, A-1, A-4
Farmland, 3-76, D-1
Fiscal, 3-60
Fisheries, 3-118
Floodways, 3-128
Geology, ES-18, 3-144
Glossary, 6-29
Goal exceptions, 3-71, A-3
Goals and objectives, 1-12
Hazardous materials, ES-18, 3-138
Hearing, 5-11
Historic resources, ES-11, 3-83
Housing, 3-37, 3-40
Impervious surface area, 3-116, 3-122, 3-130
Income, 3-46
Interchange Area Management Plan, 2-13, 3-27, 3-31, 3-73
Interchange types, 2-19
Land use, ES-7, 3-15, 3-24
Land use measures (IAMP), 2-15
Medford Canal, 3-83
Migratory Bird Treaty Act, 3-121
Mitigation, 4-1
Mobile Source Air Toxics, 3-105, F-3
Mobility standards, 3-4
Neighborhoods, 3-58
Noise, ES-13, 3-51, 3-59, 3-93
Parking, 3-36
Parks and recreation, ES-11, 3-77
Payne Creek, 3-116, 3-122, 3-126, 3-128, 3-132, 3-134
Pedestrians, ES-6, 2-9, 3-10, 3-51, 3-56
Permits, 3-151
Petro, 3-28, 3-42
Phoenix Hills neighborhood, 5-10
Planning, ES-7, 3-64
Plants, 3-121
Population, 3-40
Preparers, List of, 6-3
Project development process, 5-12
Project Development Team, 5-2
Project Management Team, 5-1
Property tax, 3-60, 3-61
Property value, 3-60, 3-62
Public (stakeholder) involvement, 5-1, 5-6
Public open houses, 5-7
Public transportation, 3-14, 3-56
Public workshop, 5-6
Purpose and need, ES-1, 1-4
References, 6-1
Regional Problem Solving, 3-22
Right of way, ES-8, 3-32, C-1
Road system, 1-1
Safety, 1-5, 1-8, 1-12, 3-8, 3-10, 3-14, 3-36, 3-46, 3-52, 3-56, 3-61, 3-64, 3-82, 3-89, 3-106, 3-143, 3-147
Schools, 3-54
Screening criteria, 1-12, 2-18, A-1, A-2

Section 4(f), ES-11, 3-81, 3-88
Section 6(f), ES-12, 3-90
Seismic hazards, 3-145
Socioeconomics, ES-9, 3-39
Spacing standards, 3-8
Stormwater, 3-124, 3-129
Sound walls, 3-59, 3-101
Technical Reports Prepared for Project, 6-8
Traffic, ES-6, 1-7, 1-8, 3-4, B-1
Transportation Demand Management, 2-17
Transportation System Management, 2-16
Transit, 3-14, 3-48, 3-71
Travel time, 3-14, 3-28
Tribal coordination, 5-11
Utilities, ES-18, 3-147
Visual resources, ES-14, 3-108
Water quality, 3-116, 3-128
Water resources, ES-16, 3-128
Wetlands, ES-17, 3-134
Wildlife, 3-119, 3-121
Zoning, 3-18