

APPENDICES

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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 requirements¹;
 - > 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.

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Alternatives Dropped Based on Screening Criteria

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ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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 connected 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 a 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)

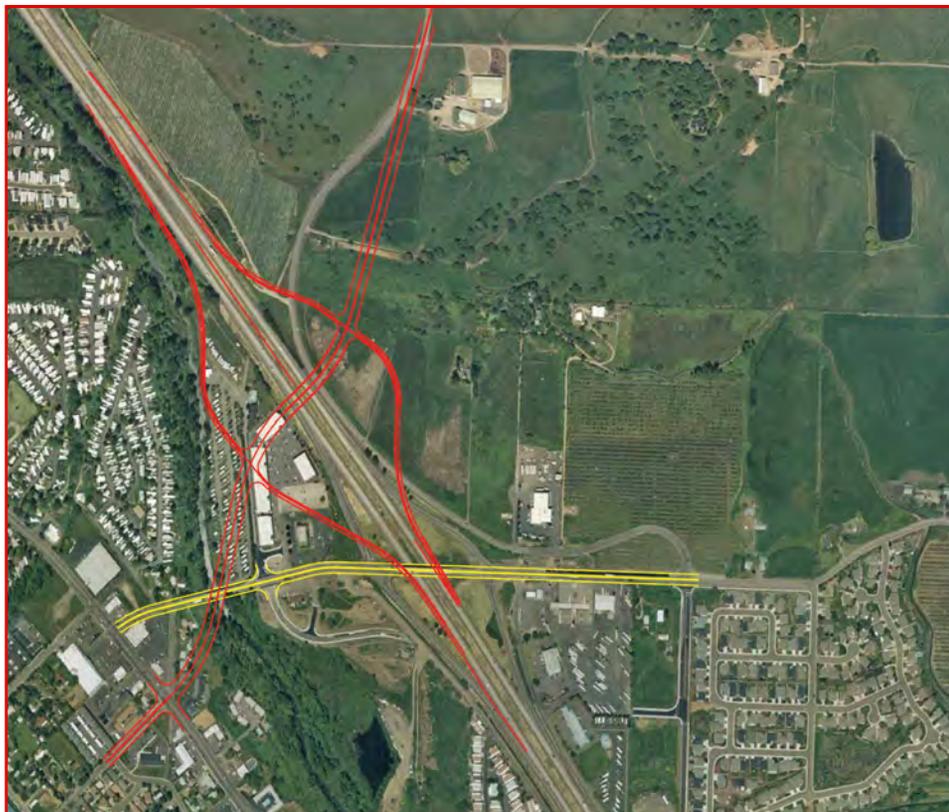


ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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)

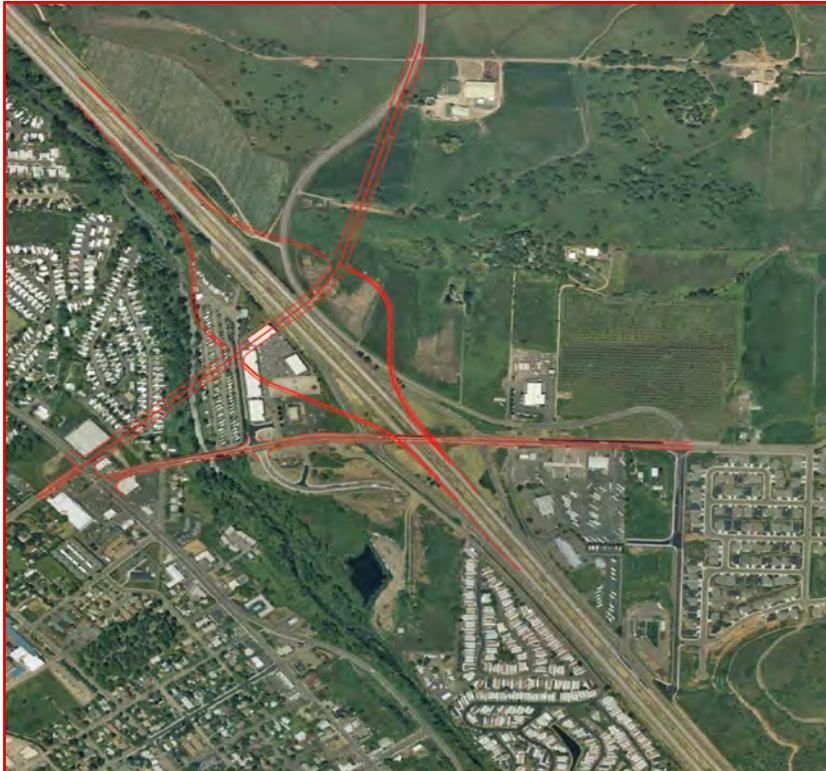


ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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)

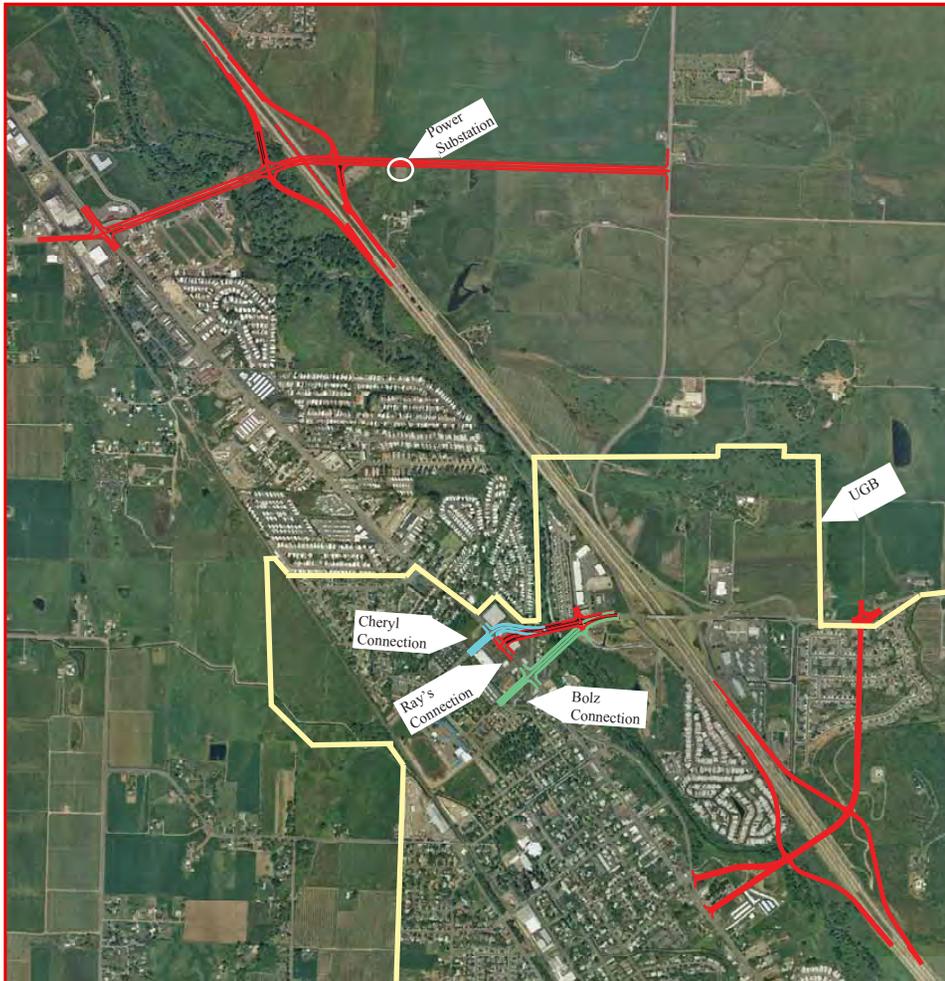


ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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)

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 Criteria #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 CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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 its 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 CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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)

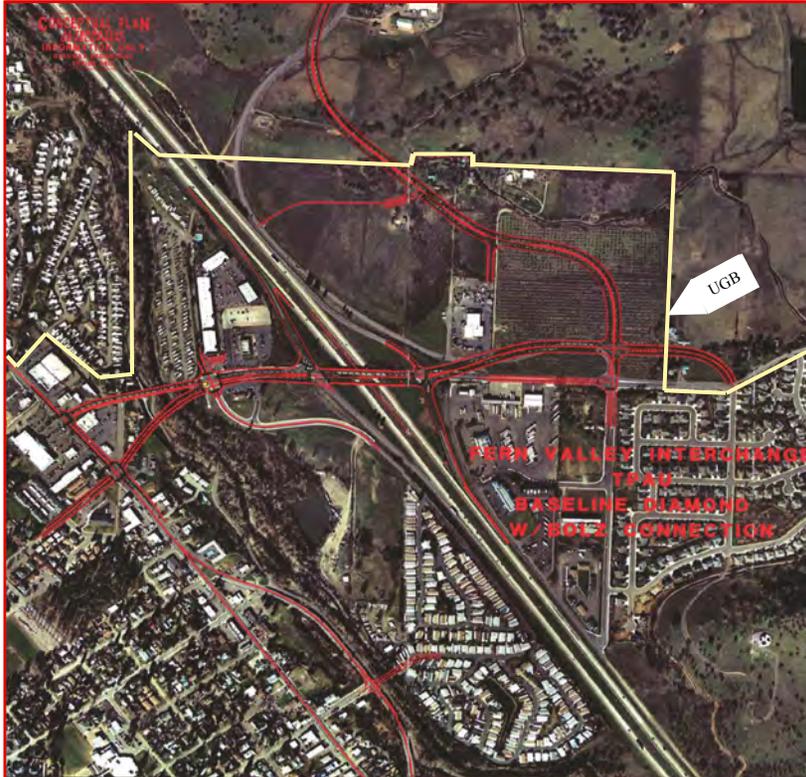


ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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)

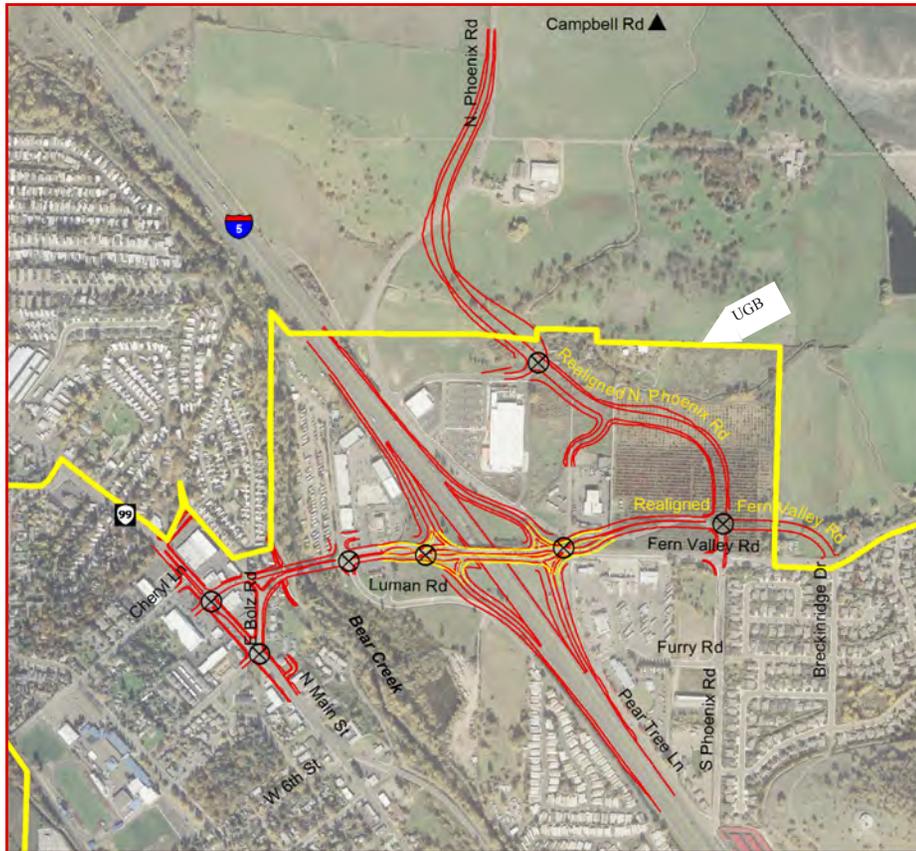


ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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)

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

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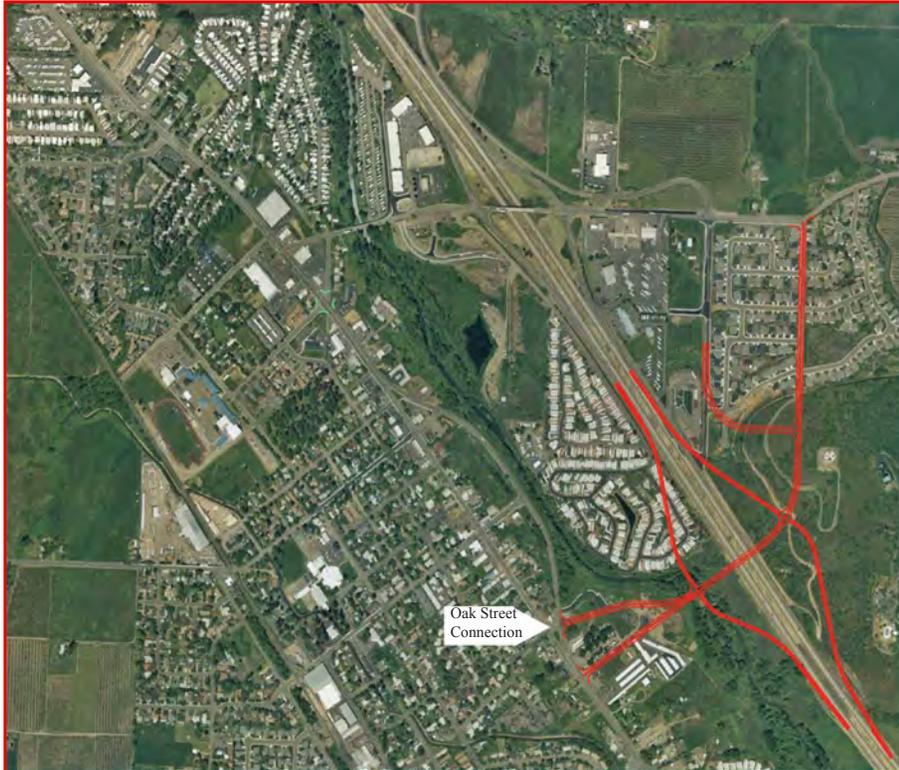


ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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

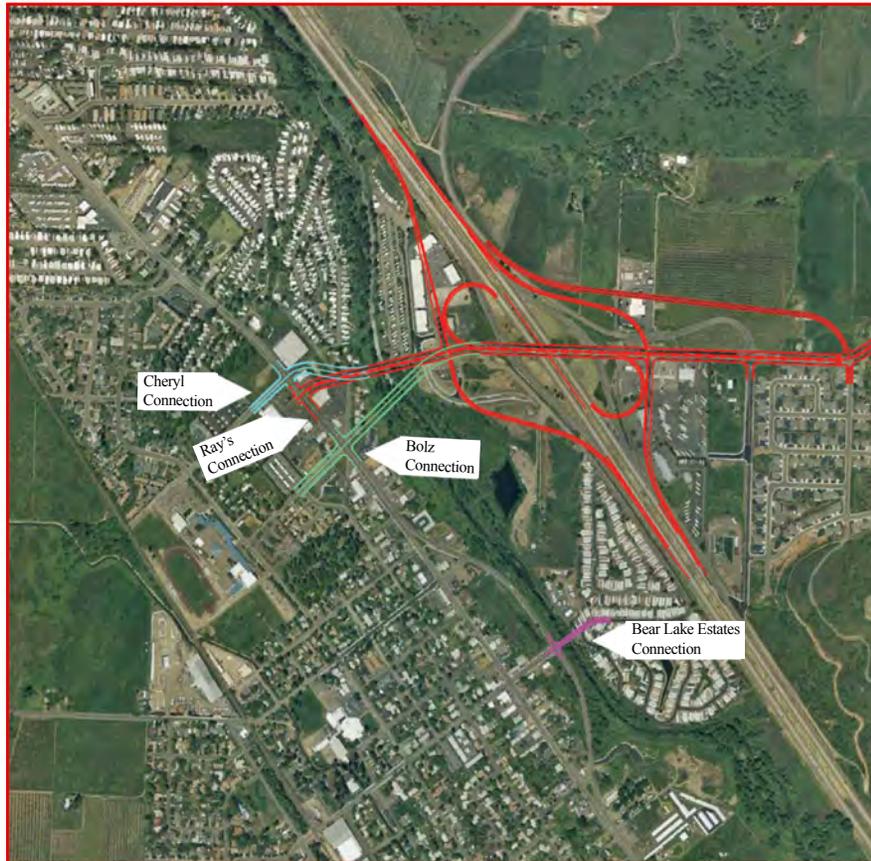
- Would result in the displacement of at least 6 businesses in the northeast quadrant, including Home Depot and Peterbilt, and 4 businesses in the southeast interchange quadrant, and about 4 to 6 residences. (Goal 1)
- Would not have allowed direct connection to the northwest and southwest quadrants 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 CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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.



ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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

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 CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED 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 CONSIDERED BUT NOT ADVANCED

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)

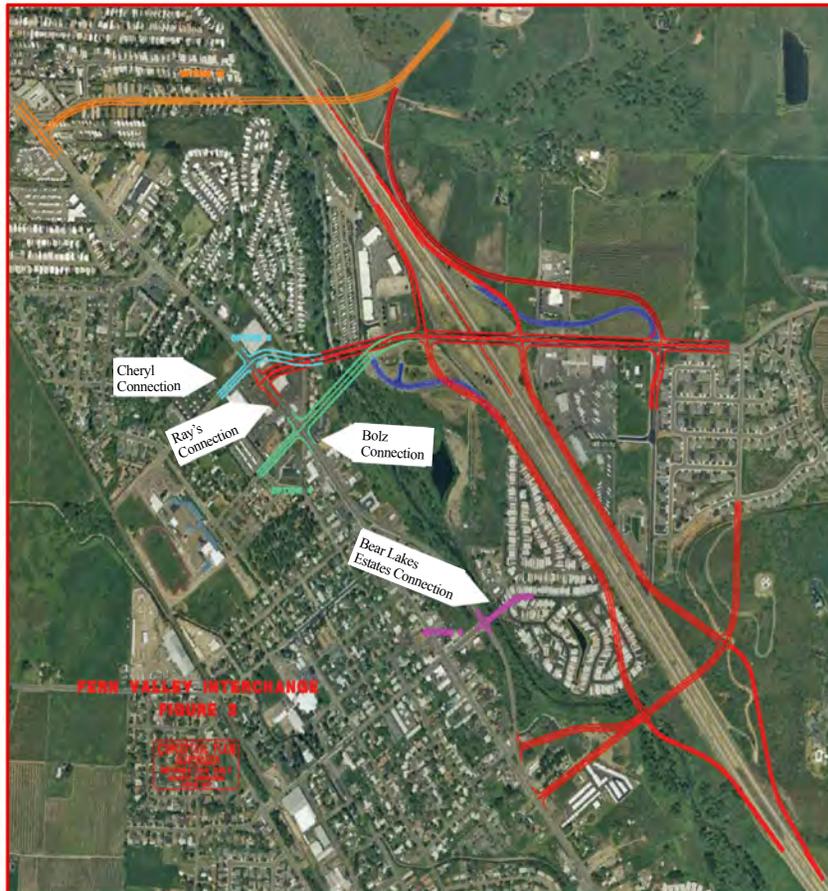


ALTERNATIVES CONSIDERED BUT NOT ADVANCED

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 CONSIDERED BUT NOT ADVANCED

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

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Figure B-1: 2004 30th Highest Hour 95th Percentile Queues

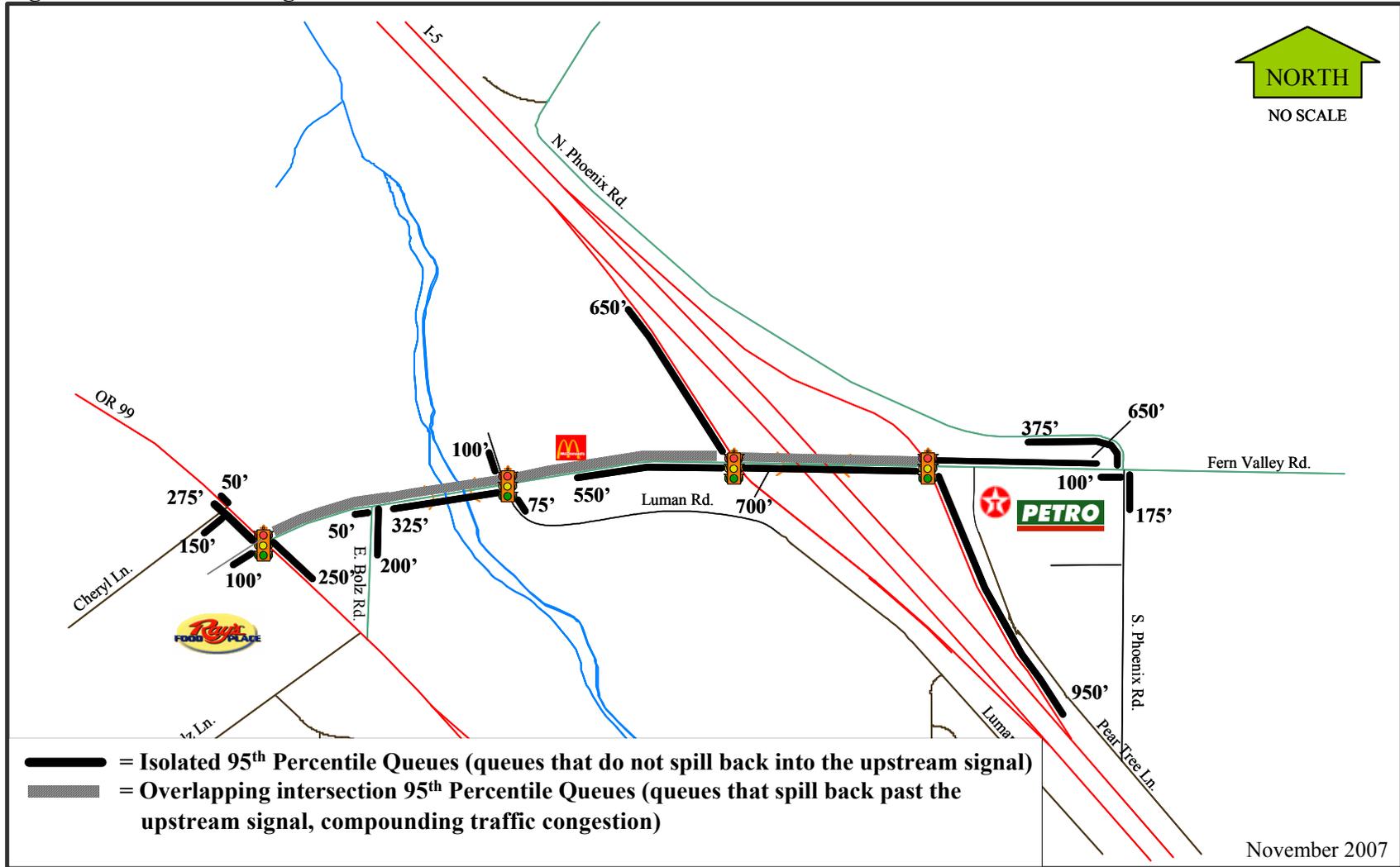


Figure B-2 : 2030 Future No-Build 95th Percentile Queues

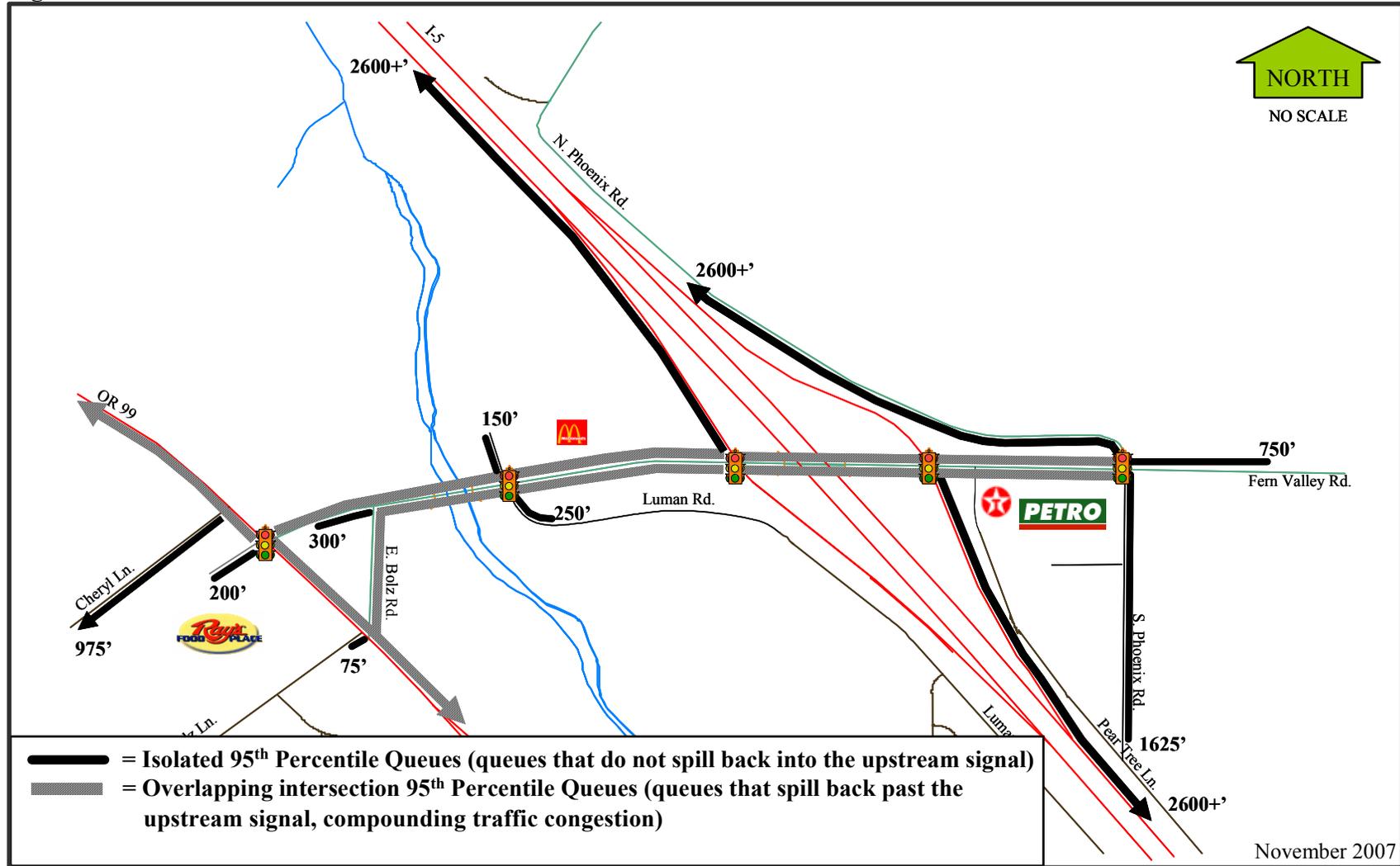


Figure B-3 : 2030 Future No-Build 95th Percentile Queues

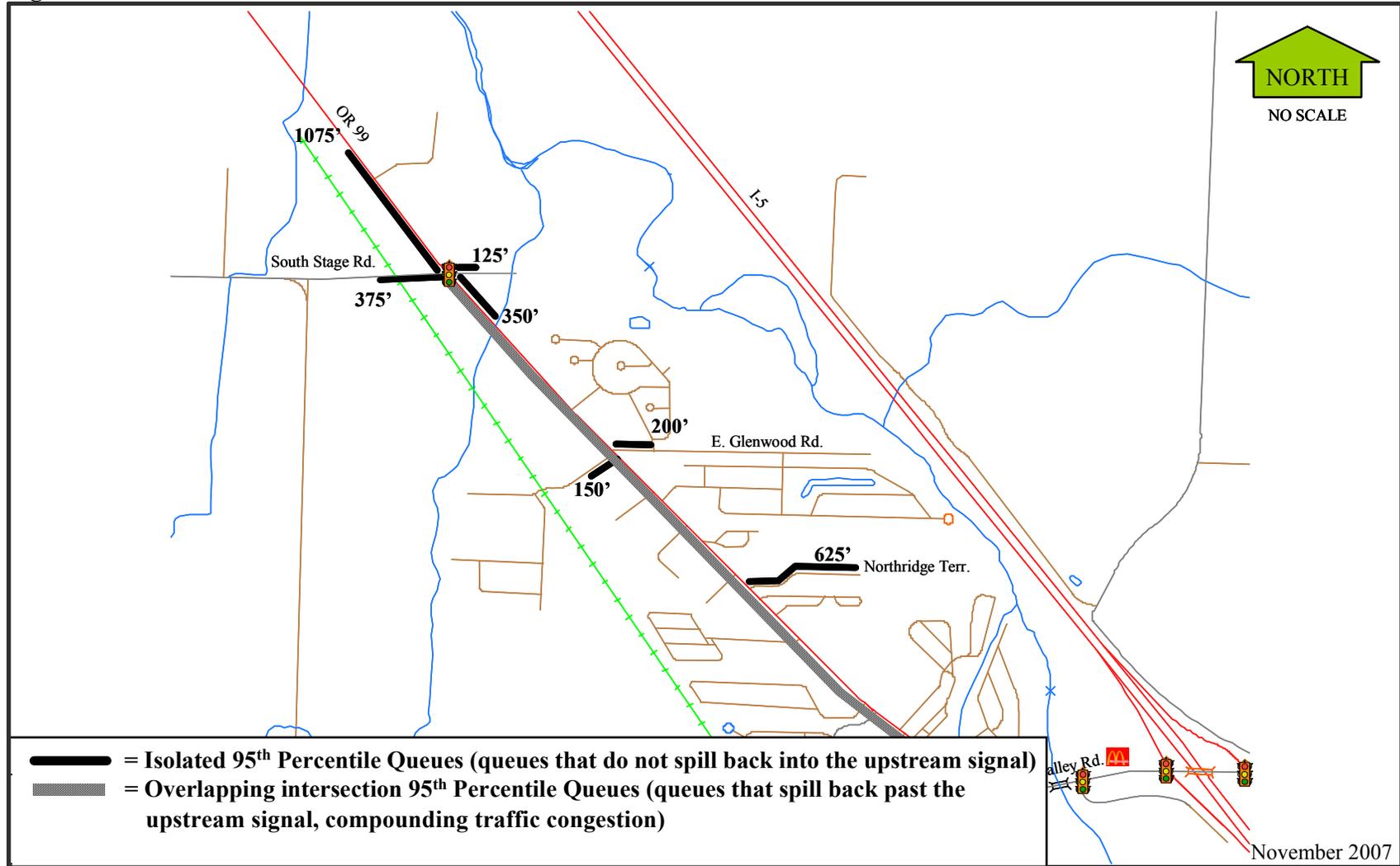


Figure B-4 : 2030 Future No-Build 95th Percentile Queues

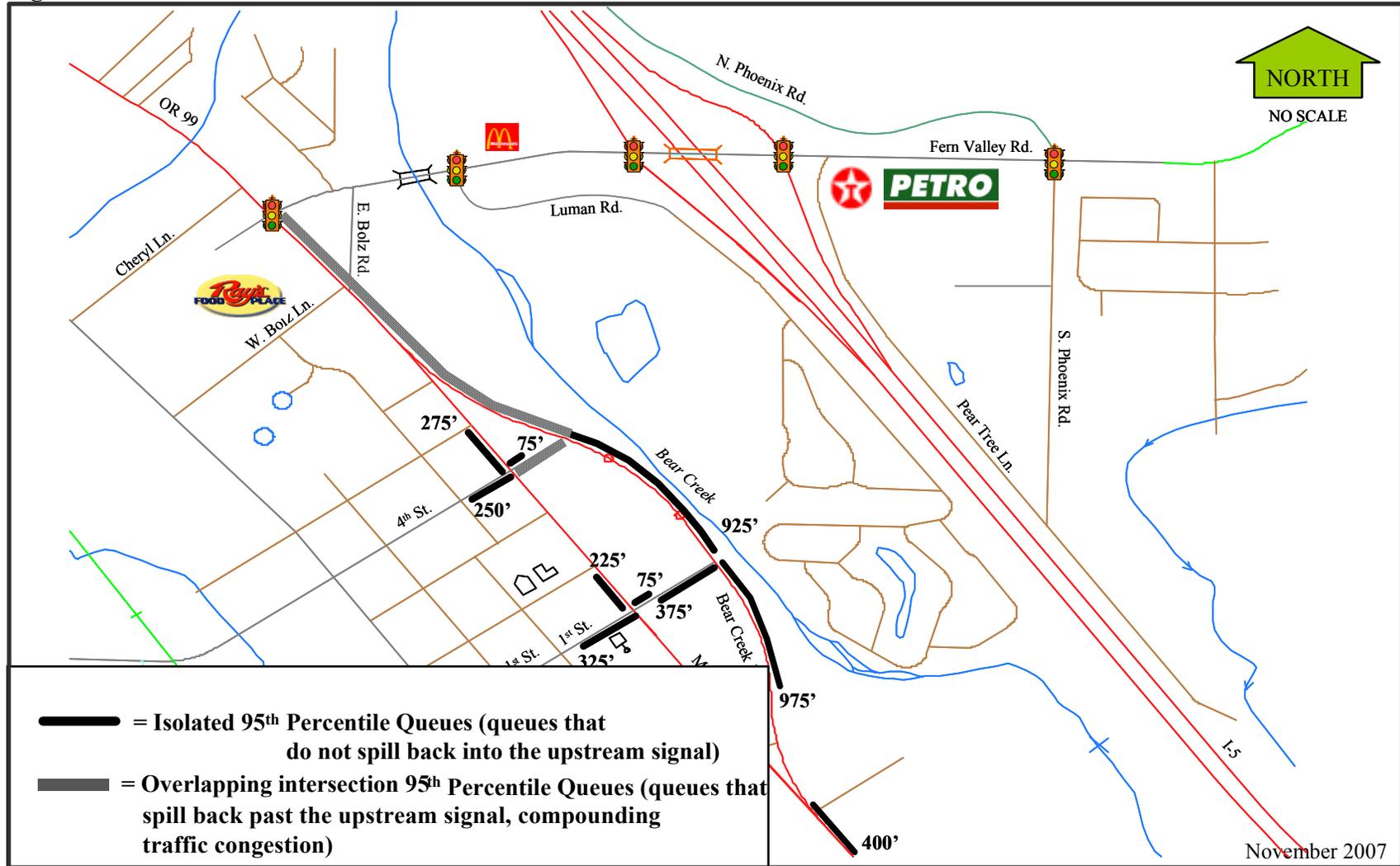


Figure B-5 : Build Alternative 95th Percentile Queues

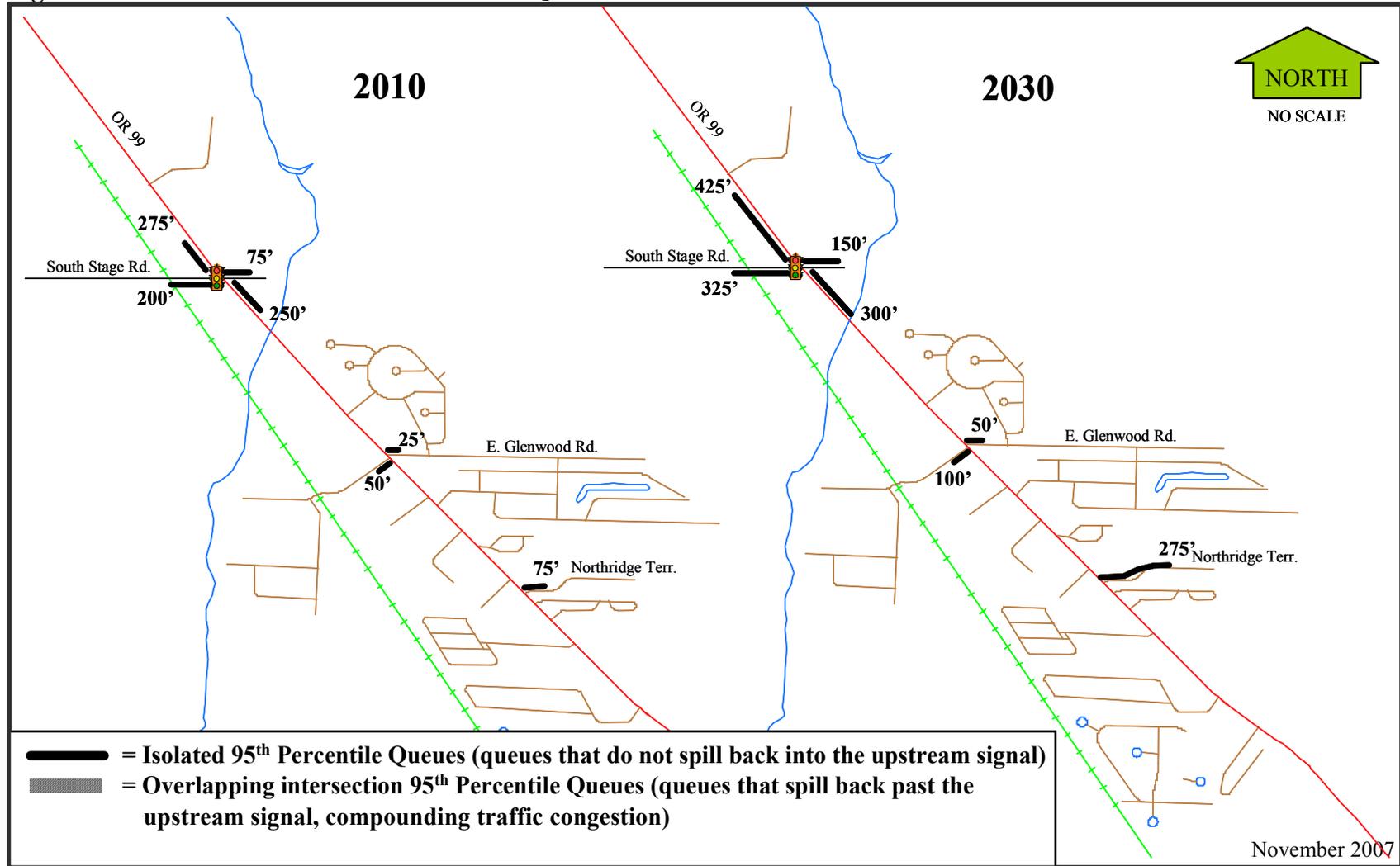
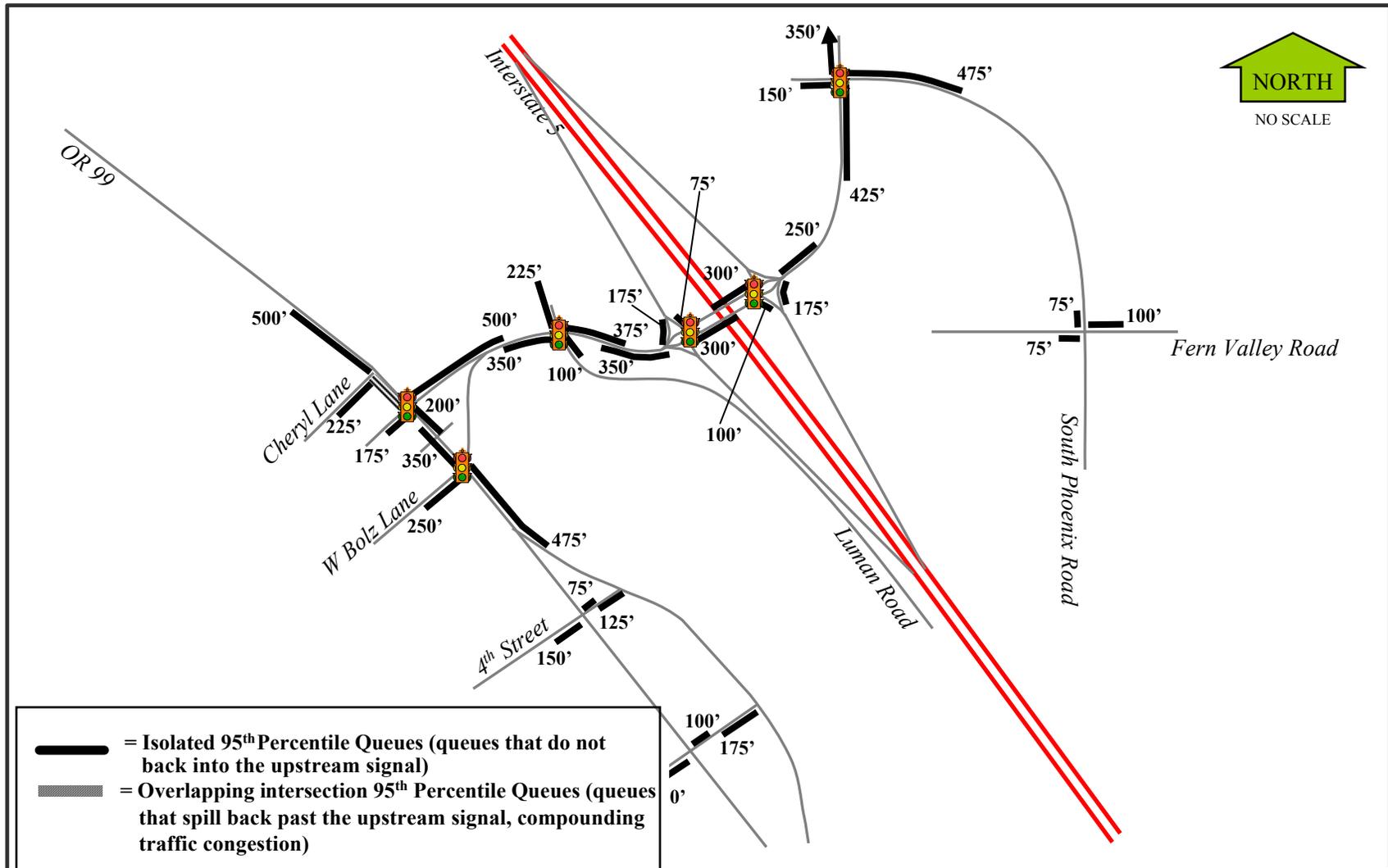
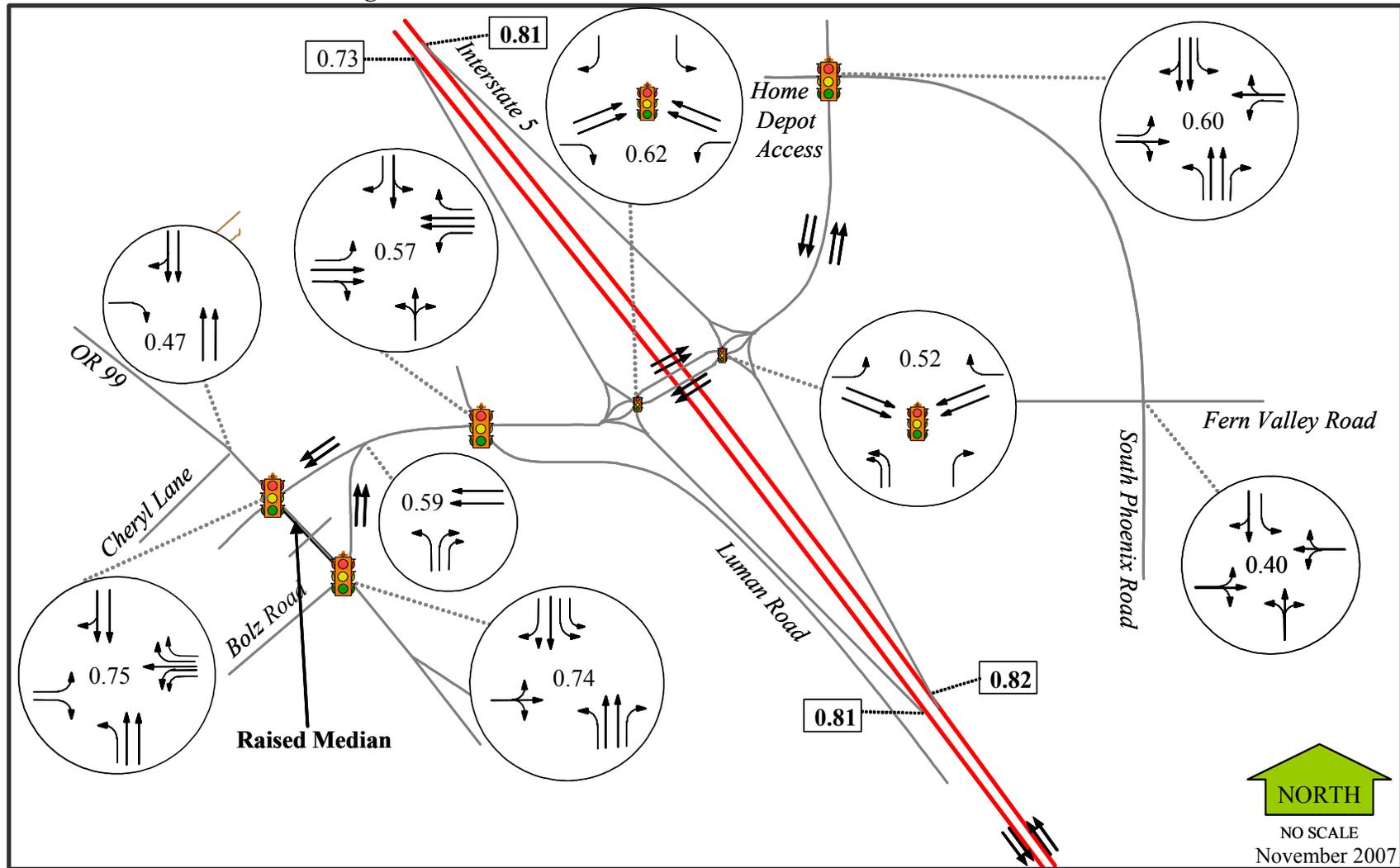


Figure B-6: 2030 Build Alternative 95th Percentile Queues



**Figure B-7: Build Alternative
Intersection Turning Movements and V/C Ratios**



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APPENDIX C

RIGHT OF WAY INFORMATION

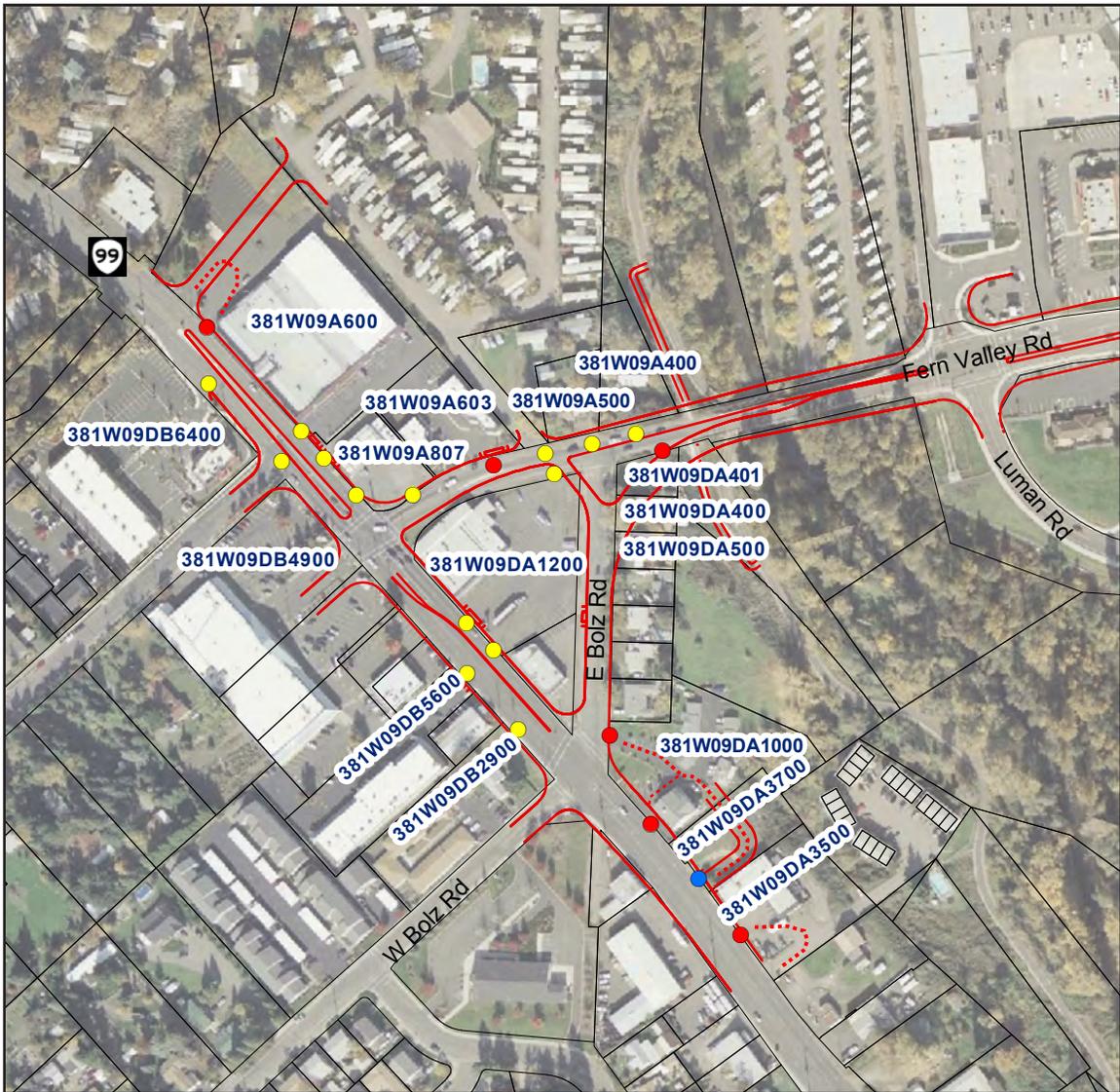
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**TABLE C-1: EA R/W REPORT FOR FERN VALLEY INTERCHANGE
BUILD ALTERNATIVE**

T.	R.	Sec.	Tax Lot	Current Use	Zoning	Total Acres of Parcel	Estimated Acquisition Needs
38	1W	03	1600,1601,5	Ranch/Future Dev.	EFU EFU	371.02	Partial
38	1W	09A	00 100,104		EFU		
38	1W	10	100,101				
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	Annie's Café	C-1	0.17	Partial
38	1W	09DB	5600	Strip mall access	C-1 R-3	0.92	Partial
38	1W	09DB	5100,5200,5 300	Angelos Pizza	C-1	0.41	Partial
38	1W	09DB	4900,5000,5 400	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

Build Alternative Changes to Existing Approaches West of I-5

Figure C-1
February 2010

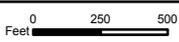




Map Features

- Existing Approach Retains Location, but Changes Connection to System
- Existing Approach to be Right-In/Right-Out Only (or LILLO 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



Build Alternative Changes to Existing Approaches East of I-5

Figure C-2
February 2010



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

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▪ **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. Owners 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
Portland, 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

Adquisición De Tierras Para Carreteras Y Proyectos Públicos

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.

Compensation 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 Adquisicion

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 periodo 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**

Relocates 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.	
<p>May be eligible for: Replacement Housing \$22,500 Differential Payment</p> <p>Including: Costs incidental to purchase or replacement dwelling</p> <p>And including: Increased interest cost on replacement dwelling</p> <p>Or Rent Supplement \$5,250</p> <p>All displacees may be eligible for:</p> <p>Actual reasonable moving costs Actual</p> <p>And, Storage of personal property up to twelve months with prior approval Actual</p> <p>Or, Moving costs based upon schedule</p>	<p>May be eligible: Rent Supplement \$5,250 max.</p> <p>Or Down payment benefit and costs incidental to purchase of replacement dwelling \$5,250 max.</p> <p>Plus Actual reasonable moving costs Actual</p> <p>And Storage of personal property for up to twelve months with prior approval Actual</p> <p>Or Moving costs based upon schedule</p>	<p>May be eligible for: Actual reasonable moving costs Actual</p> <p>Or Negotiated moving costs payment not to exceed lower of two estimates secured by agency No more than lowest estimate</p> <p>Plus Tangible personal property loss due to relocation Actual value or estimated costs to move, whichever is lower</p> <p>Plus Reasonable cost of search for new site \$2,500 max.</p> <p>Plus Storage of personal property for up to twelve months with prior approval Actual</p> <p>Plus Reestablishment expenses at the replacement site \$10,000 max.</p> <p>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.</p>	



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 losses 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.

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 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 CONVERSION 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? <i>(If no, the FPPA does not apply -- do not complete additional parts of this form).</i>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	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	8		
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
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
TOTAL POINTS (Total of above 2 lines)		260	153	0	0
Site Selected:		Date Of Selection		Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
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)

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APPENDIX E
CULTURAL RESOURCES
SECTION 106 DOCUMENTATION

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**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 <input type="checkbox"/> District <input checked="" type="checkbox"/> 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: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	Integrity: <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor
	
Preliminary National Register Findings: <input type="checkbox"/> National Register listed <input type="checkbox"/> Potentially Eligible: <input type="checkbox"/> Individually <input type="checkbox"/> As part of District <input checked="" type="checkbox"/> Not Eligible: <input type="checkbox"/> In current state <input checked="" type="checkbox"/> Irretrievable integrity loss <input type="checkbox"/> Lacks Distinction <input type="checkbox"/> Not 50 Years	
State Historic Preservation Office Comments: <input checked="" type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur; <input type="checkbox"/> Potentially Eligible Individually <input type="checkbox"/> Potentially Eligible as part of District <input type="checkbox"/> Not Eligible	
Signed: _____ Comments:	Date: <u>4/30/08</u>

**OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties**

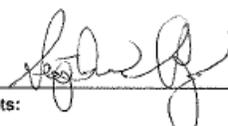
Agency/Project: Oregon Department of Transportation / Fern Valley Interchange Project	
Property Name: Coleman Ranch (Arrowhead Ranch)	
Street Address: 3001 North Phoenix Road	City, County: Phoenix, Jackson
USGS Quad Name: Medford East	Township: 38S Range: 1W Section: 3
This property is part of a <input type="checkbox"/> District <input checked="" type="checkbox"/> 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: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	Integrity: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor
	
Preliminary National Register Findings: <input type="checkbox"/> National Register listed <input checked="" type="checkbox"/> Potentially Eligible: <input checked="" type="checkbox"/> Individually <input type="checkbox"/> As part of District <input type="checkbox"/> Not Eligible: <input type="checkbox"/> In current state <input type="checkbox"/> Irrecoverable integrity loss <input type="checkbox"/> Lacks Distinction <input type="checkbox"/> Not 50 Years	
State Historic Preservation Office Comments: <input checked="" type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: <input type="checkbox"/> Potentially Eligible Individually <input type="checkbox"/> Potentially Eligible as part of District <input type="checkbox"/> Not Eligible Signed: <u>[Signature]</u> Date: <u>4/30/08</u> Comments:	

Surveyor/Agency: Martha Richards/URS
 106 Documentation: Individual Properties

Date Recorded: October 2007

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**OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 LEVEL OF EFFECT FORM**

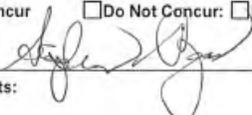
Agency/Project: FHWA/Fern Valley Interchange Project (ODOT Key #12723, Federal Aid #S001164)	
Property Name: Coleman Ranch (currently known as Arrowhead Ranch)	
Street Address: 3001 North Phoenix Road	City, County: Phoenix, Jackson
Preliminary Finding of Effect: <input type="checkbox"/> No Historic Properties Affected <input checked="" type="checkbox"/> No Historic Properties Adversely Affected <input type="checkbox"/> Historic Properties Adversely Affected	
State Historic Preservation Office Comments: <input checked="" type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: <input type="checkbox"/> No Historic Properties Affected <input type="checkbox"/> No Historic Properties Adversely Affected <input type="checkbox"/> Historic Properties Adversely Affected	
Signed: 	Date: 5/1/08
Comments:	
<p>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.</p> <p>INTRODUCTION</p> <p>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.</p> <p>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."</p> <p>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.</p> <p>PROJECT DESCRIPTION</p> <p>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").</p> <p>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."</p> <p>IDENTIFICATION AND DESCRIPTION OF THE HISTORIC RESOURCE</p> <p>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.</p>	

Surveyor/Agency: Martha Richards / URS
 100 Level of Effect

Date Recorded: December 27, 2007

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 Rev 03/03

**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 <input type="checkbox"/> District <input type="checkbox"/> 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: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	Integrity: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor
 <p>Segment of Medford Canal in the vicinity of the Fern Valley Interchange project (west of Phoenix). A sluice gate is on the left.</p>	
Preliminary National Register Findings: <input type="checkbox"/> National Register listed <input checked="" type="checkbox"/> Potentially Eligible: <input checked="" type="checkbox"/> Individually <input type="checkbox"/> As part of District <input type="checkbox"/> Not Eligible: <input type="checkbox"/> In current state <input type="checkbox"/> Irretrievable integrity loss <input type="checkbox"/> Lacks Distinction <input type="checkbox"/> Not 50 Years	
State Historic Preservation Office Comments: <input checked="" type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: <input type="checkbox"/> Potentially Eligible Individually <input type="checkbox"/> Potentially Eligible as part of District <input type="checkbox"/> Not Eligible	
Signed 	Date 4/30/08
Comments:	

Surveyor/Agency: Martha Richards/URS
106 Documentation: Individual Properties

Date Recorded: October 2007

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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



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**

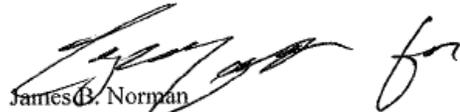


project changes, this includes staging and disposal areas, additional archaeological investigations will be necessary.

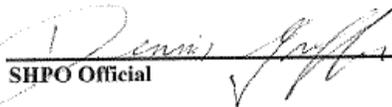
Preliminary application of Section 106 Criteria for Identification and Evaluation of Historic Properties [36 CFR 800.4(d)] indicates a finding of "No Historic Properties Affected" for the I-5: Fern Valley Interchange Unit 2a Environmental Assessment project, based on the findings outlined above. ODOT, 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,


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)**.


SHPO Official

1-21-09
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.

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APPENDIX F AIR QUALITY

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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 Domiciliary 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	\$32,180,000		
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 (2006-2009) - Medium Range (2010-2015) - Long Range (2016-2030)

Page 7 of 8

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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

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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.

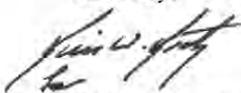
This document also includes the results of our analysis of the action's likely effects on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and includes two conservation recommendations to avoid, minimize or otherwise offset 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,



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:

<input checked="" type="checkbox"/> ODFW Staff Contacted; Jim Muck	Date(s): September 9, 2007
<input checked="" type="checkbox"/> Species List – USFWS Website	Date(s): June 8, 2007; Feb 2010
<input checked="" type="checkbox"/> Federal Register	Date(s): July 14, 2007
<input checked="" type="checkbox"/> ORNHIC Database	Date(s): May 5, 2007
<input checked="" type="checkbox"/> ODOT TransGIS Environmental	Date(s): February 17, 2010
<input type="checkbox"/> Field Survey – Complete Assessment	Date(s):
<input checked="" type="checkbox"/> Field Survey – Appropriate Sample	Date(s): May 22, 2007
<input type="checkbox"/> 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 identifies species potentially occurring in Jackson County and the rationale 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 Potential Impact

Species Common Name (Scientific Name)	Status	Listing Agency	Critical Habitat Designated	Finding of Effect
Northern spotted owl <i>Strix occidentalis caurina</i>	Threatened	USFWS	Yes	No Effect – Absence of species & habitat
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Threatened	USFWS	Yes	No Effect – Absence of species & habitat
Gentner's fritillary <i>Fritillaria gentneri</i>	Endangered	USFWS	No	No Effect – Absence of species & habitat
Large-flowered woolly meadowfoam <i>Limnanthes floccosa ssp. grandiflora</i>	Endangered	USFWS	No	No Effect – Absence of species & habitat
Cook's lomatium <i>Lomatium cookii</i>	Endangered	USFWS	No	No Effect – Absence of species & habitat
Kincaid's lupine <i>Lupinus sulphureus ssp. kincaidii</i>	Threatened	USFWS	Yes	No Effect – Absence of species & habitat
Fisher <i>Martes pennanti</i>	Candidate	USFWS	No	No Effect – Absence of species & habitat
Siskiyou mariposa lily <i>Calochortus persistens</i>	Candidate	USFWS	No	No Effect – Absence of species & habitat
Mardon skipper <i>Polites mardon</i>	Candidate	USFWS	No	No Effect – Absence of species & habitat
Bald Eagle <i>Haliaeetus leucocephalus</i>	<i>De-listed</i>	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.

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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

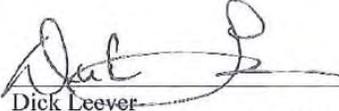
Individuals Responsible for Ensuring Implementation of Avoidance Measures (if they are required):



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
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Project Action Area

Figure 1

February 2010



Map Features

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

Sources: Jackson County GIS, 2007; URS, 2007



**FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES
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LISTED SPECIES

Birds

Northern spotted owl	<i>Strix occidentalis caurina</i>	CH T
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Invertebrates

Crustaceans:

Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	CH T
--------------------------	----------------------------	------

Plants

Gentner's fritillary	<i>Fritillaria gentneri</i>	E
Large-flowered woolly meadowfoam	<i>Limnanthes floccosa ssp. grandiflora</i>	PCH E
Cook's lomatium	<i>Lomatium cookii</i>	PCH E
Kincaid's lupine	<i>Lupinus sulphureus ssp. kincaidii</i>	CH T

PROPOSED SPECIES

None

No Proposed Endangered Species	PE
No Proposed Threatened Species	PT

CANDIDATE SPECIES

Mammals

Terrestrial:

Fisher	<i>Martes pennanti</i>
--------	------------------------

Invertebrates

Insects:

Mardon skipper	<i>Polites mardon</i>
----------------	-----------------------

Plants

Siskiyou mariposa lily	<i>Calochortus persistens</i>
------------------------	-------------------------------

SPECIES OF CONCERN

Mammals

Pallid bat	<i>Antrozous pallidus pacificus</i>
Red tree vole	<i>Arborimus longicaudus</i>
Townsend's western big-eared bat	<i>Corynorhinus townsendii townsendii</i>
California wolverine	<i>Gulo gulo luteus</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Long-eared myotis bat	<i>Myotis evotis</i>
Fringed myotis bat	<i>Myotis thysanodes</i>
Long-legged myotis bat	<i>Myotis volans</i>

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Yuma myotis bat

Myotis yumanensis

Birds

Northern goshawk
Tricolored blackbird
Western burrowing owl
Olive-sided flycatcher
Yellow-breasted chat
Acorn woodpecker
Lewis' woodpecker
Mountain quail
Band-tailed pigeon
White-headed woodpecker
Oregon vesper sparrow
Purple martin

Accipiter gentilis
Agelaius tricolor
Athene cunicularia hypugaea
Contopus cooperi
Icteria virens
Melanerpes formicivorus
Melanerpes lewis
Oreortyx pictus
Patagioenas fasciata
Picoides albolarvatus
Poocetes gramineus affinis
Progne subis

Reptiles and Amphibians

Northern Pacific pond turtle
Coastal tailed frog
Common kingsnake
California mountain kingsnake
Del Norte salamander
Siskiyou Mountains salamander
Northern red-legged frog
Foothill yellow-legged frog
Cascades frog

Actinemys marmorata marmorata
Ascaphus truei
Lampropeltis getula
Lampropeltis zonata
Plethodon elongatus
Plethodon stormi
Rana aurora aurora
Rana boylei
Rana cascadae

Fish

Jenny Creek sucker
Pacific lamprey
Coastal cutthroat trout

Catostomus rimiculus ssp.
Lampetra tridentata
Oncorhynchus clarki ssp

Invertebrates

Insects:

Denning's agapetus caddisfly
Franklin's bumblebee
Siskiyou chloaeltis grasshopper
Green Springs Mountain farulan caddisfly
Sagehen Creek goeracean caddisfly
Schuh's homoplectran caddisfly
Siskiyou carabid beetle

Agapetus denningi
Bombus franklini
Chloaeltis aspasma
Farula davisii
Goeracea oregona
Homoplectra schuhi
Nebria gebleri siskiyouensis

Plants

Rogue canyon rock cress
Crater Lake rock-cress
Greene's mariposa lily
Broad-fruit mariposa lily
Umpqua mariposa-lily
Howell's camassia
Baker's cypress
Clustered lady's-slipper
Siskiyou willow-herb

Arabis modesta
Arabis suffrutescens var. horizontalis
Calochortus greenii
Calochortus nitidus
Calochortus umpquaensis
Camassia howellii
Cupressa bakeri
Cypripedium fasciculatum
Epilobium siskiyouense

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Wayside aster	<i>Eucephalus vialis</i>
Henderson's horkelia	<i>Horkelia hendersonii</i>
Bellinger's meadowfoam	<i>Limnanthes floccosa ssp. bellingerana</i>
Dwarf woolly meadowfoam	<i>Limnanthes floccosa ssp. pumila</i>
Mt. Ashland lupine	<i>Lupinus aridus ssp. ashlandensis</i>
White meconella	<i>Meconella oregana</i>
Detling's microseris	<i>Microseris laciniata ssp. detlingii</i>
Red-root yampah	<i>Perideridia erythrorhiza</i>
Coral seeded allocarya	<i>Plagiobothrys figuratus var. corallicarpus</i>
Howell's tauschia	<i>Tauschia howellii</i>
Small-flowered deathcamas	<i>Zigadenus fontanus</i>

DELISTED SPECIES

Birds

American Peregrine falcon	<i>Falco peregrinus anatum</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>

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:

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**FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES
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APPENDIX H
ODOT AND U.S. DOT EFFORTS ON
CLIMATE CHANGE

(November 2008)

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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, teleconferencing, 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.
 - *ConnectOregon* 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.
 - *ConnectOregon 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.
 - *ConnectOregon II* was approved by the 2007 Legislature. The Oregon Transportation Commission has recently approved the selection of projects. Selected projects for *ConnectOregon 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 (CS³) 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.

- o 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:

- o Building decisions must consider the full life of materials. The review must include life cycle assessment and life cycle cost factors.
- o New state-owned buildings shall be designed to meet the point equivalent of a Leadership in Energy and Environmental Design (LEED™) Silver rating.
- o 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

OTP¹ 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.

OHP² 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 is 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 public 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 managers 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