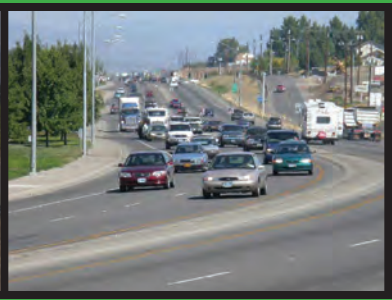
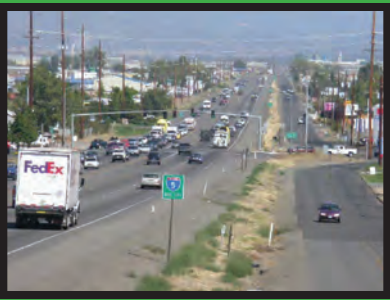
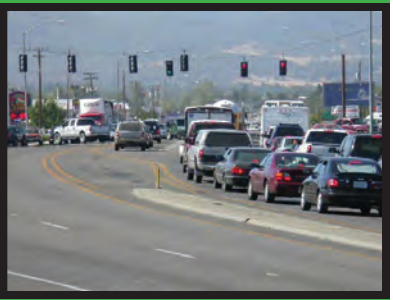
OR 62:
I-5 to Dutton Road

Final Environmental Impact Statement
Appendices

May 2013



U.S. Department of Transportation
Federal Highway Administration

Oregon Department of Transportation

Federal-Aid Number: X-NH-S022(022) • ODOT Key Number: 13226

Appendix A Goals, Objectives, Criteria and Evaluation Measures

Table A-1 Goals, Objectives, Criteria, and Evaluation Measures as Applied to Corridor Alternatives

Objective	Criterion	Evaluation Measure	Plain Bypass	Split Diamond Bypass	Existing Highway Build	Texas Turnaround	Comments
Goal 1 (Multimodal Issues): Ensure solution provides for safe Alternative modes of transportation							
Improve/increase bike and pedestrian facilities in the corridor	Does the alternative improve/increase bike and pedestrian facilities in the corridor?	Number of bike and pedestrian improvements	NA	NA	NA	NA	Enhancements had not yet been designed when this measure was applied
		Miles of new and existing bike improvements	47	47	44	28	
		Miles of new and existing sidewalks	16	16	38	28	
Improve bike and pedestrian connectivity in the corridor	Does the alternative improve bike and pedestrian connectivity in the corridor?	Number of new bike or pedestrian connections	NA	NA	NA	NA	Enhancements had not yet been designed when this measure was applied.
		Connects major origins and destinations	Yes	Yes	Yes	Yes	
		Number of new bike or pedestrian facilities	NA	NA	NA	NA	Enhancements had not yet been designed when this measure was applied.
Provide opportunities for increased transit utilization	Does the alternative provide opportunities for increased transit utilization?	Number of transit improvements.	3	3	3	0	Counted as number of bus pullouts.
		Miles of transit improvements	0	0	0	0	No HOV lanes are recommended.
Consider a separated multi-use path in corridor	Does the alternative consider a multi-use path in the corridor?	Provides a separate multi-use path.	no	no	no	no	
Provide safe bike and pedestrian facilities	Does the alternative provide safe bike and pedestrian facilities?	Number of potential bike/ped/vehicle conflict points	South terminus dangerous to bikes and peds	Reduces number of bike/ped/ vehicle conflict points	South terminus dangerous to bikes and peds	Dangerous conflicts at all interchanges and turnarounds	Interchanges and directional ramps create hazards to bikes and pedestrians.
		Width of facility meets or exceeds the standard	yes	yes	yes	yes	

Table A-1 Goals, Objectives, Criteria, and Evaluation Measures as Applied to Corridor Alternatives

Objective	Criterion	Evaluation Measure	Plain Bypass	Split Diamond Bypass	Existing Highway Build	Texas Turnaround	Comments
Goal 2 (Environmental Issues): Protect and enhance the natural environment							
Minimize air quality impacts	Does the alternative minimize the air quality impacts?	Number of CO Hotspots	0	0	0	0	
		Decrease or increase regional emissions	Decrease	Decrease	Decrease	Possible increase	Texas Turnaround requires out-of-direction travel thereby increasing vehicle miles traveled (VMT) over the other alternatives.
Protect and enhance native fish and wildlife habitat	Does the alternative protect and enhance native fish and wildlife habitat?	Number of stream crossings	9	11	21	9	
		Acres of riparian habitat impacted	12	15	23	15	
		Number of enhancements for native fish and wildlife habitats	NA	NA	NA	NA	Enhancements had not yet been designed.
Avoid or minimize impacts to ESA listed species and their habitats	Does the alternative avoid or minimize impacts to ESA listed species and their habitats?	Number of ESA listed plant species impacted	1	1	0	0	
		Acres of habitat impacted classified by USFWS as "vernal pool critical habitat"	0	0	0	0	USFWS classification is different from project-related field verification.
		Number of enhancements to ESA listed species and habitats	NA	NA	NA	NA	Enhancements had not yet been designed.
Avoid or minimize impacts to wetlands/vernal pools	Does the alternative avoid or minimize impacts to wetlands/vernal pools?	Acres of high, medium, and low-quality wetlands impacted[1]	4	4	4	2	
		Acres of field-verified vernal pool habitat impacted	1.3	1.3	0.6	0	Project-related field verification is different from USFWS classification.
		Number of enhancements to wetlands/vernal pools	NA	NA	NA	NA	Enhancements had not yet been designed.
Avoid or minimize impacts to aquatic resources	Does the alternative avoid or minimize impacts to aquatic resources?	Estimated volume (yd^3) of fill below OHW	NA	NA	NA	NA	Fill calculations require design refinement and extensive technical analysis.

Table A-1 Goals, Objectives, Criteria, and Evaluation Measures as Applied to Corridor Alternatives

Objective	Criterion	Evaluation Measure	Plain Bypass	Split Diamond Bypass	Existing Highway Build	Texas Turnaround	Comments
Minimize impacts to water quality	Does the alternative minimize impacts to water quality?	Area (ft^2) of new impervious surface	1,947,000	2,260,000	2,464,000	884,000	All new impervious surfaces will be treated for water quality and quantity. Will be required to provide 100% detention
		Amount (%) of treatment (quality/quantity) provided for new impervious surfaces	100%	100%	100%	100%	
		Impacts to 303(d) listed waterways	NA	NA	NA	NA	
Minimize noise impacts	Does the alternative minimize noise impacts?	Number of sensitive receptors (residential/institutional) impacted	14	14	9	0	Based on a preliminary estimate and not on actual noise analysis.
Enhance the visual/aesthetic landscape	Does the alternative enhance the visual/ aesthetic landscape?	Number of design elements addressing aesthetic/visual resources	NA	NA	NA	NA	Alternative designs were not developed to the level that would allow this type of assessment.
Avoid or minimize impacts to cultural resources	Does the alternative avoid or minimize impacts to cultural resources	Number of adverse impacts to archaeological resources	0	0	0	0	
		Number of adverse impacts to historic above-ground resources	0	0	0	0	
Minimize impacts on farmland (EFU) and forest land (OSR)	Does the alternative minimize impacts to farmland (EFU) and forest land (OSR)	Acres of farmland (EFU) impacted	52	52	51	27	
		Acres of forest land (OSR) impacted	42	42	12	15	

Note
[1] At the time this analysis was conducted, information about the quality of potentially impacted wetlands was not available.

Table A-1 Goals, Objectives, Criteria, and Evaluation Measures as Applied to Corridor Alternatives

Objective	Criterion	Evaluation Measure	Plain Bypass	Split Diamond Bypass	Existing Highway Build	Texas Turnaround
Goal 3 (Economic Issues): Maintain economic vitality in the corridor						
Provide for safe and efficient movement of freight	Does the alternative provide for safe and efficient movement of freight?	Number of controlled access points to industrial/commercial areas	NA	NA	NA	NA
		Number of intersections not meeting mobility standards	1	1	1	1
		Decrease travel time through corridor	yes	yes	no	no
		Increase travel time reliability	yes	yes	yes	yes
Minimize impacts to businesses and residents	Does the alternative minimize business and residential displacements?	Estimated number of partial commercial acquisitions	52	37	143	146
		Estimated number of partial residential acquisitions	30	24	40	23
		Estimated number of "other" partial acquisitions (i.e. non-residential and non-commercial)	49	52	64	51
		Estimated total partial acquisitions	131	113	247	220
		Estimated number of complete commercial acquisitions	13	10	33	34
		Estimated number of complete residential acquisitions	1	3	17	34
		Estimated number of "other" or unclassified complete acquisitions	5	4	4	2
		Estimated total complete acquisitions	19	17	54	70
Provide accessibility for businesses	Does the alternative provide accessibility to businesses?	Number of access closures	NA	NA	NA	NA
		Number of new access locations	NA	NA	NA	NA
		Vehicle routing (circuitous or simple)	simple	simple	circuitous	circuitous
Encourage opportunities for economic development	Does the alternative encourage opportunities for economic development?	Number of new access locations to viable commercial/industrial parcels	yes	yes	no	no
Develop solutions that allow construction phasing relative to funding	Can the alternative be constructed in phases?	Would the individual phases be operationally independent?	yes	yes	yes	somewhat
		Can the project be phased?	yes	yes	yes	yes

Table A-1 Goals, Objectives, Criteria, and Evaluation Measures as Applied to Corridor Alternatives

Objective	Criterion	Evaluation Measure	Plain Bypass	Split Diamond Bypass	Existing Highway Build	Texas Turnaround
Goal 4 (Safety Issues): Ensure the solution is safe for all modes of transportation						
Follow applicable design standards	Does the alternative meet the appropriate design standards?	Number of design exceptions required	0	0	0	0
Reduce the number and severity of crashes and conflict points	Does the alternative reduce the number of conflict points?	Number of conflict points	NA	NA	NA	NA
		Number of improper roadway hierarchy connections	0	0	0	0
Apply access management standards within the corridor	Does the alternative meet the appropriate access management standards?	Number of access spacing deviations required	0	0	0	0
Accommodate emergency vehicles	Does the alternative accommodate emergency vehicles?	Impact to Emergency response time	no change	no change	increases	Increases
		Impacts to emergency routes	no	no	possible	yes*

*The Texas Turnaround would increase emergency response times due to the circuitous nature of the one-way frontage roads.

Table A-1 Goals, Objectives, Criteria, and Evaluation Measures as Applied to Corridor Alternatives

Objective	Criterion	Evaluation Measure	Plain Bypass	Split Diamond Bypass	Existing Highway Build	Texas Turnaround
Goal 5 (Transportation Issues): Provide a solution that addresses capacity and connectivity needs						
Meet design year capacity needs (v/c, LOS)	Does the alternative provide for the future design year capacity needs?	Number of intersections that do not meet mobility standards (v/c or LOS)	0	0	0	0
Provide facilities that meet user expectations (signage, visibility, etc.)	Does the alternative meet user expectations?	Provides logical progression of modal movement.	yes	yes	yes	no
Provide efficient connectivity within the corridor	Does the alternative provide efficient connectivity?	Number of major connections.	4	4	4	6
		Provides logical roadway hierarchy.	yes	yes	yes	yes
Find a balance between different users (through vs. local) needs	Does the alternative provide for the local and through needs of the corridor?	Provides separation between local and regional travel.	yes	yes	somewhat	somewhat
Design a facility that meets or approaches applicable design standards	Does the alternative meet or approach applicable standards?	Does the facility meet applicable design standards	yes	yes	yes	yes

Table A-1 Goals, Objectives, Criteria, and Evaluation Measures as Applied to Corridor Alternatives

Objective	Criterion	Evaluation Measure	Plain Bypass	Split Diamond Bypass	Existing Highway Build	Texas Turnaround
Goal 6 (Social Issues): Enhance community livability and quality of life						
Design transportation facilities that are visually pleasing	Is the alternative visually pleasing?	Provides improvements that are visually pleasing.	NA[1]	NA[1]	NA[1]	NA[1]
		Incorporates context sensitive design.	NA[1]	NA[1]	NA[1]	NA[1]
Address all user groups	Does the alternative address all user groups?	Provides improvements for local, through and freight trips	Yes	Yes	Yes	Yes
Minimize impacts to neighborhoods within and adjacent to the project area	Does the alternative minimize the impact to neighborhoods within and adjacent to the project area?	Potential Environmental Justice impacts (low income/minority)	no	no	no	no
		Neighborhood connectivity impacts	Minor	Minor	Significant[2]	Significant[2]
		Direct/indirect impacts to neighborhoods.	yes	yes	yes[2]	yes[2]

[1] At the time this table was compiled, the designs had not been refined to the point where materials, patterns, and colors had been selected. Detailed information about the potential appearance of project features was not available.
[2] The Existing Highway Build and Texas Turnaround Alternatives would significantly impact the residential area near Delta Waters Road.

Appendix B Farmland Conversion Impact Rating Forms

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
High Desert Basin
2312 South 6th Street Suite A
Klamath Falls, OR 97601

Office: (541) 883-6932
FAX: (541) 882-1401

October 23, 2012

Anna Henson, Environmental Project Manager
Oregon Department of Transportation
100 Antelope Road
White City, OR 97503

RE: Transmittal of Hwy 62 Farmland Conversion Impact Rating Forms

Ms. Henson:

This is to document that the attached Farmland Conversion Impact Rating Forms (AD-1006) were transmitted to Mr. John C. Kelly of URS in December of 2010 and January of 2011. Parts I - VII of these forms had previously been completed by URS and NRCS.

The Farmland Protection Policy Act (FPPA) requires that federally funded projects that have the potential to convert farmlands be evaluated by Natural Resources Conservation Service. The goal of our evaluation is to minimize the extent to which federal programs and federally funded projects contribute to the irreversible conversion of farmland to nonagricultural uses.

The following web site address has information on the FPPA:
http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa

Once an alternative has been selected, please complete boxes 1, 2, 3 and 5 at the bottom of the forms and return to me. If you need more information or have questions please call me at 541-883-6924 ext. 103.

Thank You,

Digitally signed by JASON OUTLAW
DN: c=US, o=U.S. Government, ou=Department of Agriculture, cn=JASON OUTLAW, 0.9.2342.19200300.100.1.1=12001000175535
Date: 2012.10.23 13:21:26 -07'00'

Jason D. Outlaw
Resource Soil Scientist

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 12/14/10	4. Sheet 1 of 1
1. Name of Project **Highway 62 Corridor Solutions, Full Build-Out**	5. Federal Agency Involved **Federal Highway Administration**	
2. Type of Project **Roadway Improvement**	6. County and State **Jackson County, Oregon**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 12/14/10	2. Person Completing Form Jason Outlaw
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated 0 / Average Farm Size 124 acres
5. Major Crop(s) Forage	6. Farmable Land in Government Jurisdiction Acres: 565,161 % 36	7. Amount of Farmland As Defined in FPPA Acres: 474,684 % 30
8. Name Of Land Evaluation System Used Jackson County Draft LE	9. Name of Local Site Assessment System none	10. Date Land Evaluation Returned by NRCS 1/13/11

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment Full Build-Out			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	83.1	85.0	85.9	
B. Total Acres To Be Converted Indirectly, Or To Receive Services	23.7	12.8	0.	
C. Total Acres In Corridor	106.8	97.8	85.9	
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	0.0	0.0	0.0	
B. Total Acres Statewide And Local Important Farmland	106.8	97.8	85.9	
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0225	0.0206	030181	
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	19.3	19.3	19.3	
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	29	26	23	

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points	Corridor A	Corridor B	Corridor C	Corridor D
1. Area in Nonurban Use	15	12	12	12	
2. Perimeter in Nonurban Use	10	8	8	9	
3. Percent Of Corridor Being Farmed	20	1	0	2	
4. Protection Provided By State And Local Government	20	20	20	20	
5. Size of Present Farm Unit Compared To Average	10	0	0	0	
6. Creation Of Nonfarmable Farmland	25	0	0	0	
7. Availablility Of Farm Support Services	5	5	5	5	
8. On-Farm Investments	20	10	10	10	
9. Effects Of Conversion On Farm Support Services	25	0	0	0	
10. Compatibility With Existing Agricultural Use	10	5	5	5	
TOTAL CORRIDOR ASSESSMENT POINTS	160	61	60	63	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	29	26	23	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	61	60	63	0
TOTAL POINTS *(Total of above 2 lines)*	260	90	86	86	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
C	85.9	4/22/13*	YES ☐ NO ☑

5. Reason For Selection:

Corridor C was selected because it converts the least amount of farmland and the least amount of land zoned Exclusive Farm Use; unlike corridors A or B, corridor C will permit the current operation of the Gutches commercial farm to continue; and corridor C is the environmentally preferred corridor because its lower farmland impacts outweigh its greater impact on wetlands because the farmland impacts can't be avoided or mitigated but the wetland impacts will be fully mitigated.

Signature of Person Completing this Part: ODOT Project Leader DATE 11/28/12

NOTE: Complete a form for each segment with more than one Alternate Corridor

*Date of expected issuance of the Record of Decision

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 12/14/10	4. Sheet 1 of 1
1. Name of Project **Highway 62 Corridor Solutions, JTA Phase**	5. Federal Agency Involved **Federal Highway Administration**	
2. Type of Project **Roadway Improvement**	6. County and State **Jackson County, Oregon**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 12/14/10	2. Person Completing Form Jason Outlaw
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated 0 / Average Farm Size 124 acres
5. Major Crop(s) Forage	6. Farmable Land in Government Jurisdiction Acres: 565,161 % 36	7. Amount of Farmland As Defined In FPPA Acres: 474,684 % 30
8. Name Of Land Evaluation System Used Jackson County Draft LE	9. Name of Local Site Assessment System none	10. Date Land Evaluation Returned by NRCS 12/15/10

PART III *(To be completed by Federal Agency)*		Alternative Corridor For Segment JTA Phase			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly		35.4	29.6	33.4	
B. Total Acres To Be Converted Indirectly, Or To Receive Services		23.7	12.9	0.0	
C. Total Acres In Corridor		59.1	42.5	33.4	
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland		0.0	0.0	0.0	
B. Total Acres Statewide And Local Important Farmland		59.1	42.5	33.4	
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		0.0125	0.0090	0.0070	
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		3.5	3.5	3.5	
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*		41	40	37	
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	13	13	13	
2. Perimeter in Nonurban Use	10	8	8	9	
3. Percent Of Corridor Being Farmed	20	6	5	7	
4. Protection Provided By State And Local Government	20	20	20	20	
5. Size of Present Farm Unit Compared To Average	10	0	0	0	
6. Creation Of Nonfarmable Farmland	25	0	0	0	
7. Availablility Of Farm Support Services	5	5	5	5	
8. On-Farm Investments	20	10	10	10	
9. Effects Of Conversion On Farm Support Services	25	0	0	0	
10. Compatibility With Existing Agricultural Use	10	5	5	5	
TOTAL CORRIDOR ASSESSMENT POINTS	160	67	66	69	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	41	40	37	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	67	66	69	0
TOTAL POINTS *(Total of above 2 lines)*	260	108	106	106	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
C	33.4	4/22/13*	YES ☐ NO ☑

5. Reason For Selection:

Corridor C was selected because it converts the least amount of farmland and the least amount of land zoned Exclusive Farm Use; unlike corridors A or B, corridor C will permit the current operation of the Gutches commercial farm to continue; and corridor C is the environmentally preferred corridor because its lower farmland impacts outweigh its greater impact on wetlands because the farmland impacts can't be avoided or mitigated but the wetland impacts will be fully mitigated.

Signature of Person Completing this Part: ODOT Project Leader DATE 11/28/2012

NOTE: Complete a form for each segment with more than one Alternate Corridor

*Date of expected issuance of the Record of Decision

Appendix C Civil Rights Act: Title VI Policy Statement

Oregon

Theodore R. Kulongoski, Governor

Department of Transportation
Office of the Director
Rm 135
355 Capitol St. NE
Salem, Oregon 97301-3871

FILE CODE:

TITLE VI AND RELATED STATUTES
NONDISCRIMINATION STATEMENT

November 12, 2008

It is the Oregon State Department of Transportation's (ODOT) policy to assure that no person shall, on the grounds of race, color, national origin, disability, age or sex, as provided by Title VI of the Civil Rights Act of 1964 and related statutes, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of the programs or activities it administers.

Matthew L. Garrett, Director

Form 731-0323 (11-06)

Appendix D Right-of-Way / Summary of Relocation Benefits

The Relocation Assistance Program Brochures provided on the following pages are also available online:

1. "Moving Because of the Highway or Public Projects?"
   http://www.oregon.gov/ODOT/HWY/ROW/docs/PDF/Publications/734-3772_brochure.pdf

2. "Acquiring Land for Highways & Public Projects"
   http://www.oregon.gov/ODOT/HWY/ROW/docs/PDF/Publications/734-3773_brochure.pdf

These brochures are also available in Spanish. Brochures in Spanish:

1. "Moving Because of the Highway or Public Projects?"
   http://www.oregon.gov/ODOT/HWY/ROW/docs/PDF/Publications/734-3772S.pdf

2. "Acquiring Land for Highways & Public Projects"
   http://www.oregon.gov/ODOT/HWY/ROW/docs/PDF/Publications/734-3773s_brochure.pdf

- **Possession**

No person lawfully occupying real property shall be required to move from his home, farm, or business location without at least 90 days' written notice. A displaced residential occupant will not be required to move earlier than 90 days after the date comparable replacement housing is made available.

The displacee will again be notified 30 or more days prior to the date the property must be vacated. The 30-day notice will not be given until the property owner has been paid for his or her property. However, if a purchase does not require the person to move, the agreement to purchase the property may require the person to surrender possession of his or her property upon payment.

- **Appeals**

Any person who is dissatisfied with a determination of his or her eligibility or claim for any relocation benefit payment shall have the right of appeal. Any person making such an appeal will be given a choice of appealing for an optional reconsideration conference or for an administrative hearing. A reconsideration conference is an optional process to afford a displacee an opportunity to present additional relevant information that may not have been considered by the department or to correct factual errors and for the Department to reconsider the claim with the new or corrected information. An administrative hearing is a formal hearing process conducted by the Office of Administrative Hearings according to the Administrative Procedures Act, ORS 183.310 to 183.550. Either type of **appeal must be filed within 60 days of relocation benefit or claim determination**, and must be submitted on Form 734-3623 which is available from the Right of Way Agent assigned to the file.

- **Right of Way Agent**

Relocatees will be given information regarding their eligibility and possible benefits by the Right of Way Agent assigned to acquire the property.

General Summary of Relocation Benefits

Residential				Business, Farm, Non-Profits	
Owner-occupant of 180 days or more prior to initiation of negotiations for the parcel		Owner-occupant of 90 days or more but less than 180 days and tenant-occupants of 90 days or more occupancy prior to initiation of negotiations for the parcel.		Owner-occupants and tenant-occupants entitled to same benefits.	
May be eligible for:		**May be eligible:**		**May be eligible for:**	
Replacement Housing Differential Payment	$22,500	Rent Supplement	$5,250 max.	Actual reasonable moving costs	Actual
Including: Costs incidental to purchase or replacement dwelling		Or Down payment benefit and costs incidental to purchase of replacement dwelling	$5,250 max.	Or Negotiated moving costs payment not to exceed lower of two estimates secured by agency	No more than lowest estimate
And including: Increased interest cost on replacement dwelling		Plus Actual reasonable moving costs	Actual	Plus Tangible personal property loss due to relocation	Actual value or estimated costs to move, whichever is lower
Or Rent Supplement	$5,250	And Storage of personal property for up to twelve months with prior approval	Actual	Plus Reasonable cost of search for new site	$2,500 max.
All displacees may be eligible for:		Or Moving costs based upon schedule		Plus Storage of personal property for up to twelve months with prior approval	Actual
Actual reasonable moving costs	Actual			Plus Reestablishment expenses at the replacement site	$10,000 max.
And, Storage of personal property up to twelve months with prior approval	Actual			Or Fixed payment in lieu of all other benefits requires approval of agency	Average of annual net earnings for two years prior to year of relocation of $1,000 min., $20,000 max.
Or, Moving costs based upon schedule					

Oregon Department of Transportation

Moving Because of the Highway or Public Projects?

A description of the
Oregon Department of Transportation
Relocation Assistance Program

Department of Transportation policy requires that no family or individual will be required to vacate any dwelling until such displacee has found or has been offered comparable replacement housing.

All replacement housing offered will be fair housing open to all persons regardless of race, color, religion, sex, or national origin.

Relocation payments and relocation advisory services, pursuant to State and Federal law, may not be provided to an alien unless the alien is lawfully present in the United States, except in cases of exceptional or extreme hardship. Displacees will be asked to sign a "Certification of Legal Residency in the United States."

Relocation legislation, because of its wide scope, is somewhat complicated and difficult to read and interpret. For the benefit of those who are affected by the Department of Transportation property acquisitions, this brochure summarizes the principal provisions of relocation services and benefits. However, persons reading this brochure are urged not to form advance opinions as to the benefits and amounts to which they may be entitled. The Right of Way Agent assigned to purchase property will have detailed information for displaced persons.

No relocation payment received by a displaced person under this part shall be considered as income for the purpose of the Internal Revenue code of 1954, which has been redesignated as the Internal Revenue Code of 1986 or for the purpose of determining the eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other Federal law, except for any Federal law providing low-income housing assistance.

- **Relocation Services**

The Department of Transportation maintains Regional Right of Way offices in the following locations:

Region 1
123 NW Flanders
Portland, OR 97209
503-731-8200
888-769-7341

Region 2
455 Airport Rd SE Bldg A
Salem, OR 97301
503-986-2601
888-769-7342

Region 3
3500 Stewart Parkway #164
Roseburg, OR 97470
541-957-3559
888-769-7343

Region 4
63085 N Hwy 97 #102
Bend, OR 97701
541-388-6196
888-769-7344

Region 5
3012 Island Avenue
LaGrande, OR 97850
541-963-7552
877-851-9097

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)

$ 600 (1 room) **$ 800** (2 rooms)
$ 1000 (3 rooms) **$ 1200** (4 rooms)
$ 1400 (5 rms) **$1600** (6 rms) **$1800** (7 rms) **$2000** (8 rms)
Plus **$200** for each additional room

Furnished (Relocatee does not own furniture)
$350 for first room plus $100 for each added room

- **Re-establishment Payment** (Businesses, farms, non-profit organizations only)

Displaced small businesses, farm operations, and non-profit organizations may receive a payment not to exceed $10,000 for expenses actually incurred to relocate and re-establish themselves at a replacement site. Eligible expenses can include repairs and improvements required by law, replacement of soiled and worn surfaces at the replacement site and other modifications, exterior signing, advertisement of the replacement location, and estimated increased cost of operation of the first two years.

- **Business, Farm and Non-Profit Organization Moving Expenses**

Displaced businesses, farm operations, and non profit organizations are entitled to receive actual reasonable moving expenses for moving personal property a distance not to exceed a 50-mile radius or to the nearest available and adequate site. The actual and reasonable cost of searching for a replacement location may be claimed in an amount up to $2,500 for a farm, non-profit organization, or business. Such payments must be supported by receipted bills or other evidence of expenses incurred.

As an alternate moving expense procedure, in the case of a self-move, the business, farm operation, or non-profit organization may be paid an amount not to exceed the lower of two estimates secured by the Department of Transportation from qualified moving companies.

Under certain conditions, businesses, farms, and non-profit organizations may receive payments for direct loses of tangible personal property resulting from the necessity to relocate.

A displaced or discontinued business, non profit organization or farm operation, except advertising sign owners, may, under certain conditions, elect to receive a fixed payment in an amount equal to the average annual net earnings of the business or farm preceding the year in which such business or farm operation during the two tax years immediately preceding the year in which such business or farm operation is displaced. The payment cannot exceed $20,000 and will not be less than $1,000. Those who choose the fixed payment are not eligible for any other relocation benefit payment.

- **Storage of Personal Property**

Storage of personal property requires the written approval of the Department of Transportation and may not exceed twelve (12) months except in unusual circumstances. It should be clearly understood that those dislocatees who accept the scheduled move or fixed payment are not eligible to receive the storage expense benefit.

- **Replacement Housing**

A displaced owner-occupant of a dwelling owned and occupied for 180 days or more immediately prior to the initiation of negotiations for such property may be eligible for additional payments, the combined total of which may not exceed $22,500. The replacement housing payment is the amount, if any, which when added to the amount for which the State acquired his or her dwelling, equals the actual cost which the owner is required to pay for a decent, safe, and sanitary replacement dwelling or the amount determined by the State as necessary to purchase a comparable dwelling, whichever is less. This payment includes compensation for increased interest costs for financing the replacement dwelling and actual closing costs incidental to the purchase of replacement housing.

A displaced owner-occupant of a dwelling actually owned and occupied by the owner for 90 days or more, but less than 180 days or a tenant-occupant of 90 days or more, immediately prior to initiation of negotiations for such property may be eligible for additional payments, the combined total of which may not exceed $5,250. This payment is the amount necessary to make a down payment on the purchase of a replacement dwelling and to reimburse the relocatee for the actual closing costs incidental to the purchase of the replacement dwelling. Necessary deposits for taxes and insurance are not considered as closing costs.

In those cases where an owner-occupant of 90 days or more but less than 180 days, or a tenant-occupant of 90 days or more chooses to rent instead of purchase a replacement dwelling, he or she may, under certain conditions, be eligible for payment to rent a decent, safe, and sanitary replacement dwelling.

The rent payment is the increase in rent necessary to rent a comparable dwelling for 42 months or the amount determined by the State as necessary to rent a comparable dwelling for 42 months, whichever is less. To be eligible for these benefits, the displaced occupant must purchase or rent and occupy a decent, safe, and sanitary replacement dwelling within one year after the required date of displacement or within one year after the actual date of displacement, whichever is later.

Claims for replacement housing differential payment and rent supplements must be made in writing on a Department of Transportation form supplied for this purpose and must be filed with the Department of Transportation no later than 18 months after the date of displacement.

Before payments for any replacement dwelling benefits can be made, the replacement dwelling must be checked by Department of Transportation personnel to ascertain that it meets the decent, safe, and sanitary standards established by the Federal Department of Transportation. It is recommended that this determination be made prior to a commitment to rent or buy. The decent, safe, and sanitary inspection of the replacement dwelling by agency personnel is for the sole purpose of determining a relocatee's eligibility for a relocation payment.

▪ 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: 503-731-8200
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 – LaGrande
3012 Island Avenue
LaGrande, OR 97850
Voice: 541-963-7552
Fax: 541-962-9819
Toll Free: 877-851-9097

734-3773 (11-2004)

Oregon Department of Transportation

Acquiring Land for Highways & Public Projects

A description of the Department of Transportation Land Acquisition Program

When improving highway facilities, the Department of Transportation has the task of acquiring right of way. It is the aim and desire of the Department to obtain right of way with fairness and equity.

The State is empowered to acquire private property for public use. With this power goes the obligation to protect the rights of the individual property owner. The Department thus has a dual responsibility. It is to recognize and protect the individuals who are affected by acquisition of land, as well as competent and efficient service to the public.

▪ Public Hearings

Public hearings, when required, are held during the location and design stages of a project. Such hearings provide opportunities for public participation to ensure that highway locations and designs are consistent with Federal, State and Local goals and objectives.

The corridor hearing is held after preliminary studies have been made on several possible routes. During the course of this hearing, testimony is recorded for study by Department personnel and the Transportation Commission.

Upon selection of a corridor, a detailed survey within that corridor is made and a preliminary design plan developed for presentation at a "Design Hearing".

The "Design Hearing" provides an opportunity to present testimony about the final highway design.

In an instance where a choice of corridors is not involved, such as the case of an improvement to an existing highway, a single "Combination Corridor-Design Hearing" may be held.

After all data and testimony has been studied, a final design is adopted by the Transportation Commission and the acquisition of rights of way is authorized.

▪ Just Compensation

Owners of property needed for a highway project will be offered Just Compensation for the required rights of way. Just Compensation includes the estimated value of all the land and improvements within the needed area. In addition, if only a part of a property is to be acquired, Just Compensation will also include any measurable loss in value to the remaining property due to the partial acquisition.

Just Compensation is based on the Department's valuation of the needed property and its estimation of any damages to the remaining property. Department procedures, guided by Federal Regulations, have been designed to protect both owners of properties needed for highway rights of way as well as other taxpayers. The valuation process will be conducted either by an experienced and qualified employee of the Department or by an independent fee appraiser under a contract with the Department. The value arrived at will be by comparison of similar properties in the market that have recently sold, by knowledge and consideration of costs and depreciation for any improvement(s) to be acquired, and when applicable, by the property's income potential. The final value determination will be based on this type of information from the local real estate market.

The property to be acquired is inspected by a qualified appraiser during the first part of the valuation process. With complex acquisitions involving large portions of the property, major buildings or improvements on the property, displacement of residents, and/or damages to the remaining part of the property not being acquired, property owners will be given 15 days to prepare the property, and will be given the opportunity to accompany the appraiser during a detailed inspection of their property.

Any increase or decrease in the value of needed property brought about by public knowledge of the upcoming highway project, is disregarded in the valuation process.

The final value estimate is reviewed for completeness and accuracy, and Just Compensation is established by the Department's Review Appraiser. In addition to this estimate of Just Compensation, the Department will make an offer to purchase any remaining property determined to have no remaining economic value to the owner.

▪ Acquisition Procedure

The Right of Way Agent who calls on you has studied the Department's valuation of the needed property and can illustrate with maps and other data how the acquisition will affect your property. The Department's offer will be confirmed in writing, together with an acquisition summary statement, and an appraisal, or evaluation sheet, which provides the basis for that amount. The Agent is authorized to obtain a deed from you to purchase your property, subject to the approval of the Transportation Commission. The Agent is unable, under Department procedures governing acquisitions, to engage in "horse trading"; rather the Agent is confined to those monetary values indicated by the appraisal process.

However, the Department is ready and willing to reconsider its position in light of any new evidence of value presented by you including a documented professional appraisal.

The Department may not take any action which would coerce you into accepting its offer. Prohibited actions include advancing the time of condemnation, deferring negotiations or condemnation or postponing the deposit of funds in court for your use.

You need not accept the State's offer or enter an agreement felt to be unfair. Owner's have a minimum 40-day period to accept or reject the offer, unless an emergency has been declared. A refusal is simply a case of disagreement between the two parties on the value of the property.

In the event the parties are still unable to agree as to the compensation to be paid, or you cannot clear the title, mediation of differences between parties, conducted by an independent mediator, can be arranged by the Department in order to reach settlement prior to filing any condemnation action. Mediation is a non-binding process where all parties reach agreement.

In the event parties are still unable to agree as to compensation to be paid, or if title cannot be cleared, a condemnation action will be filed. Once condemnation is filed, a trial date will be determined. However, an owner can elect binding arbitration prior to trial, through the Court, for amounts of $20,000 or less, and non-binding arbitration for amounts between $20,000 and $50,000. Arbitration is not available above $50,000.

Discussions and mediation can, of course, continue even after a condemnation action is filed in an effort to resolve differences. The filing allows the State to proceed with the construction project.

▪ Improvements

When the Department acquires an interest in your land, it must acquire an equal interest in your house or any other improvements located on the land acquired. If buildings are required to be removed, the Department may allow the owner to retain the improvements. If you are interested, this can be discussed with the Right of Way Agent.

Se volverá a notificar a la persona desplazada con 30 días o más de anticipación a la fecha en que deba desalojar la propiedad. Dicho aviso de 30 días no se enviará hasta que el dueño(a) de la propiedad haya recibido el pago por su propiedad. Sin embargo, si se trata de una compra que no requiere que la persona se mude, el acuerdo para comprar la propiedad puede requerir que la persona dé posesión de su propiedad en el momento del pago.

APELACIONES

Toda persona reubicada que esté desconforme con alguna de las decisiones sobre su elegibilidad o su reclamo de pago de algún beneficio de reubicación tiene derecho de apelación. Los formularios de apelación se pueden obtener del agente de derecho de paso encargado de la compra de la propiedad. El Jefe Administrativo del Departamento de Transporte ha delegado su autoridad de revisión a un oficial de audiencias. Las apelaciones deben presentarse ante la mesa en un plazo de 60 días después de que el Estado actúe sobre un reclamo o niegue elegibilidad para un beneficio.

Toda persona que haga tal apelación tiene oportunidad de ser escuchada en una audiencia de apelación hecha para examinar su queja. Se provee luego una decisión con las razones en las que se basa el resultado alcanzado.

EL AGENTE DE DERECHO DE PASO

Las personas reubicadas recibirán información relacionada con su elegibilidad y posibles beneficios del agente de derecho de paso asignado para la compra de la propiedad.

Form 734-3772S (09-2011)
IMPRIMIDO EN PAPEL RECICLADO

RESUMEN GENERAL DE LOS BENEFICIOS DE REUBICACION

GRANJAS Y ORGANIZACIONES S.F. de L.

PARA RESIDENCIAS

Podrīa ser elegible para:

Propietario ocupante por 180 días o más antes de la iniciación de las negociaciones por la propiedad
Aditivo para la vivienda $22,500 máx.

Incluyendo
Costos incidentales a la compra de la propiedad de reemplazo

E Incluyendo
Aumento en el costo de los intereses de la propiedad de reemplazo

O
Suplemento de renta $5,250 máx.

Todas las personas desplazadas podrian ser elegible para:

Costos reales razonables de mudanza Real

Y
Almacenamiento de propiedad personal, hasta doce meses con autorización previa Real

Costos de mudanza basados en la tabla

Dueño ocupante por 90 días o más pero menos de 180 días e inquilino ocupante por 90 días o más antes de la iniciación de las negociaciones por la propiedad

Podr -a ser elegible para:

Suplemento de renta $5,250 máx.

O
Beneficio de entrega inicial y costos incidentales a la compra de la propiedad de reemplazo $5,250 máx.

Más
Costos reales razonables de mudanza Real

O
Costos de mudanza basados en la tabla

O
Almacenamiento de propiedad personal por hasta doce meses con autorización previa Real

Dueños ocupantes e inquilinos ocupantes con derecho a los mismos beneficios

PARA NEGOCIOS,

Podria ser elegible para:

Costos reales razonables de mudanza Real

O
Pago negociado de los costos de mudanza no mayor que el más bajo de dos presupuestos obtenidos por la agencia No mayor que el presupuesto más bajo

Más
Pérdida de propiedad personal tangible causada por la reubicación $1,000 mínimo, $20,000 máximo

Más
Costo razonable de la búsqueda de un nuevo sitio $1,000 máx.

Más
Almacenamiento de propiedad personal por hasta doce meses con autorización previa Real

Más
Gastos de reinstalación en el sitio de reemplazo $10,000 máx.

O
Pago fijo en lugar de todos los otros beneficios - requiere autorización de la trasladarla, cualquiera sea el valor más bajo Promedio de las ganancias netas anuales de los dos agencia últimos años anteriores a la reubicación Valor real o costo estimado para

¿TIENE QUE MUDARSE A CAUSA DE LA CONSTRUCCION DE CARRETERAS O PROYECTOS PUBLICOS?

DESCRIPCION DEL PROGRAMA DE ASISTENCIA DE REUBICACION DEL DEPARTAMENTO DE TRANSPORTE

Los reglamentos del Departamento de Transporte establecen que no se puede obligar a ninguna familia o individuo a desalojar una residencia hasta que la persona desplazada haya encontrado o se le haya ofrecido una vivienda comparable para reemplazarla.

Toda vivienda de reemplazo ofrecida debe ser una vivienda justa, abierta a todas las personas sin consideración de raza, color, religión, sexo o nacio-nalidad.

No se puede usar fondos Federales para pagos de reubicacion o servicios consultivos de reubicacion a un extranjero que no esta legalmente en Los Estados Unidos, excepto en casos de extraodinario o extrema dificultad. Sin embargo, personas que no estan legalmente en Los Estados Unidos pueden ser eligibles para recibir beneficios de reubicacion usando fondos del Estado solamente, excepto en casos de extrema dificultad. A personas desplazadas se va pedir que firmen un "Certificado de Residencia Legal en Los Estados Unidos".

La legislación de reubicación, por su amplio alcance, es algo complicada y difícil de leer y interpretar. Para la información de quienes se vean afectados por las compras de propiedad del Departamento de Transporte, este folleto resume las principales disposiciones sobre beneficios y servicios de reubicación. Sin embargo, quienes lean este folleto no deben formar opiniones adelantadas con respecto a los beneficios y cantidades que pueden tener derecho a recibir. El agente de derecho de paso asignado a la compra de una propiedad tendrá información detallada para las personas desplazadas.

DEPARTAMENTO DE TRANSPORTE DE OREGON

Ningún pago por reubicación recibido por una persona desplazada se considerará ingreso según el Internal Revenue Code de 1954, que ha sido redesignado como Internal Revenue Code de 1986, ni se usará para determinar la elegibilidad o el grado de elegibilidad de cualquier persona para recibir asistencia según el Acta de Seguridad Social o cualquier otra ley Federal, a excepción de toda ley Federal que provea asistencia para vivienda de bajos ingresos.

LOS SERVICIOS DE REUBICACION

El Departamento de Transporte mantiene oficinas de derecho de paso en los siguientes lugares:

Region 1:123 NW Flanders, Portland, Oregon 97209
Nº de Teléfono: 503-731-8400
Fax: 503-731-8458

Region 2: 455 Airport Rd.,SE, Building A
Salem, Oregon 97301
Nº de Teléfono: 503-986-2600
Fax: 503-986-2622

Region 3: 3500 NW Stewart Parkway, Suite 164
Roseburg, Oregon 97470
Nº de Teléfono: 541-957-3559
Fax: 541-957-3563

Region 4: 63085 N Hwy. 97, Suite 102, Bend, Oregon 97701
Nº de Teléfono: 541-388-6196
Fax: 541-388-6381

Region 5: 3012 Island Avenue, La Grande, Oregon 97850
Nº de Teléfono: 541-963-7552
Fax: 541-963-9079

Estas oficinas mantienen listas actualizadas de residencias, negocios, y granjas de reemplazo para personas desplazadas, como así también datos actualizados sobre los depósitos necesarios para servicios públicos, costos de cierre, entregas iniciales tipo, tipos de interés, y requisitos e información de FHA y VA. Las oficinas también tienen mapas que muestran la ubicación de escuelas, parques, lugares de juegos, y zonas comerciales. Hay información sobre rutas, horarios y precios del transporte público. Hay agentes de derecho de paso disponibles para prestar la máxima ayuda posible a las personas desplazadas. Los agentes de derecho de paso no esperan ni aceptan retribución alguna por los servicios que prestan.

ELEGIBILIDAD

Es importante notar que la elegibilidad para recibir cualquiera de los siguientes beneficios no está establecida hasta que Ud. haya recibido un aviso escrito de elegibilidad del Estado.

GASTOS GENERALES DE MUDANZA

Las tarifas de servicio para reconectar los servicios públicos son reembolsables excepto bajo el plan de mudanza fijo.

GASTOS DE MUDANZA PARA INDIVIDUOS Y FAMILIAS

Todo individuo o familia desplazada por un proyecto del Departamento de Transporte tiene derecho a recibir un pago por el gasto real y razonable de trasladar la propiedad personal a una distancia que no exceda un radio de 50 millas o al sitio disponible y adecuado más cercano.

Para obtener el pago por gastos de mudanza, la persona desplazada tiene 18 meses a partir de su fecha de desalojo para presentar un reclamo escrito ante el Departamento de Transporte en un formulario especial. En algunos casos, y si le conviene a la persona desplazada, se puede hacer un acuerdo escrito con el Departamento de Transporte que permita a la persona desplazada presentar una cuenta de mudanza comercial impaga, y el Departamento de Transporte hará el pago directamente a la compañía de mudanza. Si el desplazado residencial lo prefiere, los costos pueden reintegrarse según un plan de mudanza fija basado en el número de recámaras amuebladas que es necesario trasladar.

PLANILLA RESIDENCIAL DE MUDANZAS

Sin amueblar
[El relocatario posee muebles]
$600 (1 recámara) **$800** (2 recámaras)
$1000 (3 recámaras) **$1200** (4 recámaras)
$1400 (5 recámaras) **$1600** (6 recámaras)
$1800 (7 recámaras) **$2000** (8 recámaras)
más $200 por cada recámara adicional.

Amueblada
[el relocatario no posee muebles]
$350 por la primera recámara más
$100 por cada recámara adicional.

PAGO DE REESTABLECIMIENTO

(sólo para negocios, granjas y organizaciones sin fines de lucro)

Los pequeños negocios, granjas y organizaciones sin fines de lucro desplazadas pueden recibir un pago no mayor de $10,000 para gastos reales incurridos para su traslado y reinstalación en un sitio de reemplazo. Los gastos cubiertos pueden incluir arreglos y mejoras requeridas por ley, reemplazo de superficies manchadas y gastadas en el sitio de reemplazo y otras modificaciones, letreros exteriores, publicidad de la ubicación de reemplazo, y aumento estimado del costo de operación durante los dos primeros años.

GASTOS DE MUDANZA PARA NEGOCIOS, GRANJAS Y ORGANIZACIONES SIN FINES DE LUCRO

Los negocios, granjas y organizaciones sin fines de lucro desplazadas tienen derecho a recibir gastos de mudanza reales y razonables para el traslado de propiedad personal a una distancia que no exceda un radio de 50 millas o al sitio disponible y adecuado más cercano. Puede reclamarse una cantidad de hasta $1,000 por el costo real y razonable de buscar una ubicación de reemplazo para una granja, negocio u organización sin fines de lucro. Tales pagos deben estar documentados con recibos de cuentas pagadas u otra evidencia de los gastos incurridos.

Para procedimientos diferentes de mudanza, como por ejemplo si el traslado se hace por cuenta propia, los negocios, granjas u organizaciones sin fines de lucro pueden recibir un pago que no sobrepase el monto del menor de dos presupuestos que el Departamento de Transporte haya obtenido de compañías de mudanza calificadas.

Bajo ciertas condiciones, los negocios, granjas y organizaciones sin fines de lucro pueden recibir pagos por pérdidas directas de propiedad personal tangible que resulten de la necesidad de reubicarse.

Un negocio, granja u organización sin fines de lucro desplazada o en estado de discontinuidad, excepto los propietarios de letreros de publicidad, puede, en ciertas circunstancias, ser elegible para recibir un pago fijo en una cantidad igual a las ganancias netas anuales promedio del negocio o granja durante los dos últimos años inmediatamente anteriores al año en que fue desplazada. El pago no puede exceder los $20,000 y ni será menor de $1,000. Quienes eligen el pago fijo no son elegibles para recibir ningún otro pago de beneficios de reubicación.

ALMACENAJE DE LA PROPIEDAD PERSONAL

El almacenaje de propiedad personal requiere la aprobación escrita del Departamento de Transporte y no puede extenderse por más de doce meses, excepto en circunstancias especiales. Debe entenderse claramente que aquellos propietarios desplazados que aceptan el plan de mudanza fijo o el pago fijo no son elegibles para recibir beneficios por gastos de almacenaje.

VIVIENDA DE REEMPLAZO

Un propietario/ocupante desplazado de una residencia poseída y ocupada por 180 días o más inmediatamente antes del comienzo de la negociación para la compra de tal propiedad puede ser elegible para pagos adicionales cuyo total combinado no puede exceder los $22,500.

El pago de la vivienda de reemplazo es la cantidad, si la hay, que agregada al monto por el cual el Estado adquirió la vivienda, es igual al costo real que el propietario tiene que pagar por una residencia de reemplazo decente, segura, e higiénica o la cantidad que el Estado determine necesaria para comprar una residencia comparable. Siempre se usa la menor de estas dos cantidades. Este pago incluye compensación por el aumento en los costos de interés para financiar la residencia de reemplazo y los costos reales de cierre de la compra de la vivienda de reemplazo.

Un propietario/ocupante desplazado de una residencia realmente poseída u ocupada por el dueño por 90 días o más, pero por menos de 180 días o un inquilino/ocupante por 90 días o más inmediatamente antes del comienzo de la negociación para la compra de tal propiedad, puede ser elegible para recibir pagos adicionales cuyo total combinado no puede exceder los $5,250. Este pago es la cantidad necesaria para hacer la entrega inicial para la compra de una residencia de reemplazo y para reembolsar a la persona reubicada por los gastos reales de cierre de la compra de la residencia de reemplazo. Los depósitos necesarios para impuestos y seguros no se consideran gastos de cierre. En los casos en que un propietario/ocupante de 90 días o más, pero menos de 180 días o un inquilino/ocupante de 90 días o más decide alquilar en vez de comprar una residencia de reemplazo, él o ella puede, en ciertas circunstancias, ser elegible para el pago de hasta $5,250 para alquilar una vivienda de reemplazo decente, segura e higiénica.

El pago de alquiler es el aumento en el alquiler necesario para alquilar una residencia comparable por 42 meses, o la cantidad que el Estado determine necesaria para alquilar una residencia comparable por 42 meses. Siempre se usa la menor de estas dos cantidades.

Para ser elegible para estos beneficios, el ocupante desplazado debe comprar o alquilar y ocupar una residencia de reemplazo decente, segura e higiénica en un período de un de año a partir de la fecha requerida de desalojo o un año después de la fecha real de desalojo, cualquiera sea la más tardía.

Los reclamos por pagos diferenciados de la vivienda de reemplazo y suplementos de alquiler deben hacerse por escrito en un formulario que el Departamento de Transporte provee para este fin y deben presentarse ante el Departamento de Transporte a más tardar 18 meses después de la fecha de desalojo.

Antes de poder hacer cualquier pago de beneficios por residencia de reemplazo, la residencia de reemplazo debe ser inspeccionada por personal del Departamento de Transporte para comprobar que cumple con los requisitos de ser decente, segura e higiénica establecidos por el Departamento Federal de Transporte. Se recomienda que esta determinación se haga antes de que la persona se comprometa a alquilar o comprar. La inspección de la residencia de reemplazo por parte del personal de la agencia para determinar si es decente, segura e higiénica se hace con el único propósito de determinar la elegibilidad de la persona reubicada para recibir un pago de reubicación.

POSESION

Ninguna persona que esté ocupando legalmente una propiedad estará obligada a desalojar su hogar, granja, o negocio sin un aviso escrito entregado por lo menos con 90 días de anticipación. Un ocupante residencial desplazado no tendrá que mudarse hasta 90 días después de que se ponga a su disposición una vivienda de reemplazo comparable.

Si es necesario quitar edificios, el Departamento puede permitir que el propietario retenga las mejoras. Si Ud. está interesado, puede conversar sobre esto con el Agente de Derecho de Paso.

Pago

Si Ud. firma el acuerdo de opción y la transferencia, y la Comisión de Transporte los aprueba, se puede proceder entonces a la transferencia del título de propiedad y al pago. Como en cualquier venta privada, Ud. es responsable del pago de gravámenes sobre el título tales como impuestos sin pagar, tasas de impuestos, hipotecas, arrendamientos pendientes y otras prendas contra su propiedad. El Agente de Derecho de Paso le ayudará a remover los impedimentos de su título. No se puede hacer ningún pago hasta que se haya asentado en los registros apropiados del condado un documento que garantice la entrega al estado de un título carente de defectos, gravámenes o condicionamientos.

Cuando la transferencia está disponible para ser registrada, se da autorización para preparar el cheque por su propiedad. Normalmente, cuando no hay ningún problema con el título, Ud. recibe el pago por su propiedad alrededor de cuatro semanas después de haber transferido la propiedad al Departamento.

Si se ha iniciado una acción de expropiación, la cantidad establecida por el Departamento como compensación justa será depositada en la corte para su distribución de acuerdo con el orden de la corte.

Usted tiene derecho a ser reembolsado por los gastos justos y razonables en que incurra como consecuencia del traspaso de su propiedad al Departamento. Tales gastos pueden ser, entre otros, multas por pago adelantado de alguna hipoteca registrada pre-existente relacionada con su propiedad, gastos de terminación de hipoteca, y la parte de los impuestos a la propiedad que le corresponde pagar al estado.

Posesion

Ud. no tiene que renunciar a la posesión de su propiedad hasta que se le haya pagado el precio de compra acordado o hasta que se haya depositado en la corte para su beneficio una cantidad igual a la estimación de compensación justa establecida por el Departamento.

Al comienzo de las negociaciones, tanto Ud. como cualquier inquilino que esté ocupando su propiedad, recibirá(n) una notificación escrita de la intención del Departamento de adquirir la propiedad. No se le pedirá que desaloje su hogar, granja, o negocio antes de 90 días a partir de la fecha de esa notificación o dentro de los 30 días siguientes a la fecha del pago, la fecha que resulte más tarde de las dos. Sin embargo, si la compra no requiere que Ud. se mude, el acuerdo de compra de su propiedad puede requerir que Ud. entregue posesión de su propiedad en el momento del pago.

El Departamento es consciente de la necesidad de un tiempo razonable para la reubicación. Si su propiedad no se necesita por varios meses, se le puede permitir que continúe ocupándola por un corto plazo. La cantidad que el Departamento le cobrará a Ud. o a otros inquilinos en concepto de renta no puede exceder el valor de renta justa de la propiedad a un ocupante por corto plazo.

Oficinas De Derecho De Paso

Para su conveniencia, el Departamento mantiene Oficinas Regionales de Derecho de Paso en las siguientes ubicaciones:

Región 1
123 NW Flanders
Pórtland, Oregon 97209
No. De Teléfono 503-731-8400
Fax 503-731-8458

Región 2
455 Aeropuerto Rd SE
Salem, Oregon 97301-5397
No. De Teléfono 503-986-2601
Fax 503-986-2622

Región 3
3500 Stewart Parkway #164
Roseburg, Oregon 97470
No. De Teléfono 541-957-3559
Fax 541-957-3563

Región 4
63085 N Hwy 97 #102
Bend, Oregon 97701-9901
No. De Teléfono 541-388-6196
Fax 541-388-6381

Región 5
3012 Island Avenue
La Grande, Oregon 97850
No. De Teléfono 541-963-7552
Fax 541-962-8919

Form 734-3773S (11-2004)

Oregon Department of Transportation

Adquisicion De Tierras Para Carreteras Y Proyectos Publicos

Descripción del programa de adquisición de tierras del Departamento de Transporte

Cuando se hacen mejoras a las carreteras, el Departamento de Transporte tiene que adquirir el derecho de paso. El objetivo y deseo del Departamento es obtener el derecho de paso en forma justa e igualitaria.

El Estado está facultado para adquirir propiedades privadas para uso público. Pero este poder viene también con la obligación de proteger los derechos de los propietarios. De modo que el Departamento tiene una doble responsabilidad -- reconocer y proteger a los individuos afectados por la adquisición de la tierra, y servir al público en forma eficiente y competente.

Audiencias Publicas

Las audiencias públicas, cuando son necesarias, tienen lugar durante las etapas de ubicación y diseño de un proyecto. Tales audiencias permiten la participación del público para asegurar que la ubicación y diseño de la carretera estén de acuerdo con los objetivos y metas locales, federales y estatales.

La audiencia del corredor tiene lugar después de los estudios preliminares sobre las diferentes rutas posibles. Durante el curso de esta audiencia, se registran testimonios para su estudio por parte del personal del Departamento y de la Comisión de Transporte.

Una vez elegido el corredor, se hace un estudio detallado de ese corredor y se desarrolla un plan de diseño preliminar para su presentación en la "Audiencia de Diseño."

La "Audiencia de Diseño " es una oportunidad para prestar testimonio sobre el diseño final de la carretera.

Cuando el proceso de selección de corredor no es necesario, como en los casos de mejoras de carreteras ya existentes, es posible hacer una sola "Audiencia Combinada de Corredor- Diseño.'

Después de estudiar todos los datos y testimonios, la Comisión de Transporte adopta un diseño final y se autoriza la adquisición de los derechos de paso.

Compensaction Justa

A los propietarios de terrenos necesarios para un proyecto de carreteras se les ofrece una Compensación Justa por los derechos de paso requeridos. La Compensación Justa incluye el valor estimado de toda la tierra y de las mejoras dentro del área necesaria. Además, si se va a adquirir sólo una parte de la propiedad, la Compensación Justa también incluye cualquier pérdida notable en el valor del resto de la propiedad causada por la adquisición parcial.

El Departamento hace una Compensación Justa basada en la valoración de la propiedad necesaria y la estimación de cualquier daño al resto de la propiedad. Los procedimientos del Departamento, que se hacen de acuerdo con Regulaciones Federales, están diseñados para proteger tanto a los propietarios de los terrenos necesarios para el derecho de paso de las carreteras, como a los demás contribuyentes. El proceso de valoración está a cargo de un empleado calificado y experimentado del Departamento o de un evaluador independiente contratado por el Departamento. El valor se establece por comparación con propiedades similares vendidas recientemente en el mercado, por el conocimiento y consideración del costo y la depreciación para adquirir cualquier mejora, y si corresponde, por el potencial de la propiedad para producir ingresos. La determinación final del valor se basa en este tipo de información del mercado local de bienes raíces.

Durante la primera parte del proceso de valuación, un evaluador calificado inspecciona la propiedad a ser adquirida. Si se trata de adquisiciones complejas que involucran grandes porciones de propiedad, edificios o mejoras importantes de la propiedad, desplazamiento de residentes y/o daños a la parte de la propiedad que no va a ser adquirida, los propietarios tienen 15 días para preparar la propiedad y pueden acompañar al evaluador durante la inspección detallada de su propiedad.

En el proceso de valuación no se tiene en cuenta aumento o disminución alguna en el valor de la propiedad necesaria que ocurra como consecuencia del conocimiento público del proyecto de carretera próximo a construirse.

Procedimiento De Adquiscion

El Revisor de Valoración del Departamento controla que la estimación final de valor esté completa y exacta y establece la Compensación Justa. Además de esta estimación de Compensación Justa, el Departamento hace una oferta de compra del resto de toda propiedad si se determina que ésta no tiene valor económico restante para el propietario.

En el caso de que los partidos aun no lleguen a un acuerdo con respecto a la compensación a pagar, o si usted no puede librar el título de propiedad, el Departamento puede hacer arreglos para la mediación de las diferencias entre los partidarios, a cargo de un mediador independiente, para tratar de llegar a un acuerdo antes de iniciar una acción de expropiación. La mediación es un proceso no obligatorio donde todos los partidarios llegan a un acuerdo.

Usted no tiene que aceptar la oferta del Estado ni entrar en un acuerdo que Ud. no considere justo. Los propietarios tienen un período mínimo de 40 días para aceptar o rechazar la oferta, a menos que se declare una emergencia. Un rechazo es simplemente un caso de desacuerdo entre las dos partes sobre el valor de la propiedad.

En el caso de que los partidos aun no lleguen a un acuerdo con respecto a la compensación a pagar, o si usted no puede librar el título de propiedad, el Departamento puede hacer arreglos para la mediación de las diferencias entre los partidarios, a cargo de un mediador independiente, para tratar de llegar a un acuerdo antes de iniciar una acción de expropiación. La mediación es un proceso no obligatorio donde todos los partidarios llegan a un acuerdo.

En el caso de que los partidos aun no lleguen a un acuerdo con respecto a la compensación a pagar, o si usted no puede librar el título de propiedad, una acción de expropiación será llenada. Una vez presentada la acción de expropiación, se pone fecha para el juicio. Sin embargo, el propietario puede optar por arbitraje obligatorio previo al juicio, mediante el Tribunal, para cantidades de $20,000 o menores, y por arbitraje no obligatorio para cantidades de $20,000 a $50,000. El arbitraje no se puede usar para cantidades mayores de $50,000.Las conversaciones pueden continuar aún después de ser presentada la acción de expropiación, en un esfuerzo por resolver diferencias. La presentación permite al Estado proceder con el proyecto de construcción.

Mejoras

Cuando el Departamento adquiere un interés en su tierra, debe adquirir un interés igual en su casa o cualquier otra mejora ubicada en el terreno adquirido.

Appendix E Section 4(f) Documentation

Appendix E contents

December 16, 2011 Section 4(f) *de minimis* finding for the David Cingcade House and Barn Complex

April 16, 2013 Section 4(f) *de minimis* finding for the Denman Wildlife Area, Hall Tract Unit

April 15, 2013 Section 4(f) *de minimis* finding for the Bear Creek Greenway

April 16, 2013 Section 4(f) *de minimis* finding for the planned Midway Park

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Geo-Environmental Section
4040 Fairview Industrial Dr SE MS #6
Salem, OR 97302

FILE CODE:

DATE: December 22, 2011

TO: Ann Henson, ODOT Environmental Project Manager
Chris Bell, ODOT Cultural Resource Program Coordinator

FROM: Rebecca Littau, Geo-Environmental Administrative Staff

SUBJECT: **Proposed Section 4(f) *De Minimis* Finding for Historic Properties**
David Cingcade House and Barn Complex
Highway 62 Corridor Solutions Project
OR 62 from I-5 in Medford to Dutton Road in White City
Jackson County, Oregon
ODOT Key #: 13226
Federal-Aid #: X-NH-S022(022)

Attached is the signed **4(f) *De Minimis*** from the State Historic Preservation Office for the above referenced project, **approved on Dec. 16, 2011**.

Bucher

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Highway Division/Technical Services
Geo-Environmental Section
4040 Fairview Industrial Dr SE
Salem, OR 97302-1142

RECEIVED
DEC 09 2011
FHWA
OREGON DIVISION

December 8, 2011

File Code:

Chris Bucher, Operations Engineer
Federal Highway Administration
Oregon Division
530 Center Street, NE, Suite 100
Salem, Oregon 97301

RECEIVED
DEC 19 2011
ODOT
ENVIRONMENTAL

Subject: **Proposed Section 4(f) *De Minimis* Finding for Historic Properties**
David Cingcade House and Barn Complex
Highway 62 Corridor Solutions Project
OR 62 from I-5 in Medford to Dutton Road in White City
Jackson County, Oregon
ODOT Key #: 13226
Federal-Aid #: X-NH-S022(022)

Dear Chris:

This letter requests FHWA approval of a Section 4(f) *de minimis* finding for the **David Cingcade House and Barn Complex** associated with the **Highway 62 Corridor Solutions Project**. The proposed project would address congestion, safety, and operational problems on the 7.5-mile segment of OR 62 from its intersection with I-5 in Medford to Dutton Road north of White City. The two Build Alternatives currently under consideration are similar; both would construct a limited-access highway to the west of OR 62 from the I-5 area to Dutton Road. They also include changes to the local street network. In the vicinity of Cingcade Complex, the Build Alternatives are identical and are simply referred to as the proposed project.

The proposed project will build a bypass along the southern edge of the Cingcade parcel, roughly on the alignment of West Dutton Road. The bypass would be a four-lane (two in each direction) limited-access highway with a center median and paved shoulders. The bypass right-of-way would also include an unpaved clear zone; in all, the bypass and its associated right-of-way would require the use of 3.1 acres of the historic resource. Because the proposed bypass would be located on Dutton Road, a new local street would be built along the north side of the bypass for properties whose driveways currently connect to Dutton Road. As shown, the right-of-way required for the proposed driveway would be 1.8 acres. The historic resource is approximately 71 acres large (the entirety of the tax parcel). The bypass would use 3.1 acres, or 4% of the property; at most, the bypass and driveway combined would use 4.9 acres, or 7% of the total acreage.

The proposed new driveway and bypass would cross an existing irrigation ditch that is a contributing resource. An existing gravel driveway runs along the southern property boundary and crosses the ditch; at this crossing, the ditch is located in a culvert underneath the driveway.

The proposed new crossings would also place the ditch in a culvert or similar structure that would not affect the hydrology or historic or current use of the ditch, or its ability to remain a contributing resource.

The proposed bypass would terminate in an interchange with the existing OR 62 just east of the Cingcade property. The interchange's southbound exit ramp would be elevated above grade level and would be a more prominent feature in the viewshed than the existing highway.

As noted in the attached Finding of Effect, the proposed project will require the use of some of the Cingcade Complex to the south and east. The most the bypass would use is 3.1 acres, or 4% of the property; and the land used does not contain features or attributes that contribute to the significance of the resources. The bypass and driveway combined would use 4.9 acres, or 7% of the total acreage. The original Cingcade property comprised 360 acres; it is now 71 acres. In sum, a modest loss to already reduced farm acreage, combined with no features or attributes affected by this loss, led to FHWA, ODOT and SHPO's concurrence that the overall impacts would not adversely affect the historic resource.

If either of the Build Alternatives is selected as the Preferred Alternative, additional minimization efforts will be included in future design refinements. For example, the current driveway design shows the greatest potential impact to the property; future consultation with the property owners may result in a design with lesser impacts, resulting from reduced right-of-way needs. The bypass design also includes a cut slope in the area of the Cingcade Complex, as the southern portion of the Cingcade tax parcel slopes to the south. Right-of-way impacts could be reduced by using a retaining wall rather than a cut slope. Engineers may also find a way to shift the bypass alignment to the south, thus reducing the potential use of the property.

A Draft Environmental Impact Statement is being prepared for this project. Although the project has solicited public comment at various times throughout project development, there has been no public outreach specifically directed at the proposed *de minimis* finding for the David Cingcade House and Barn Complex.

The David Cingcade House and Barn Complex was built in the 1890s. It was determined eligible for listing on the National Register of Historic Places in 1996. In 2011, the State Historic Preservation Office concurred with an addendum to that Determination of Eligibility; the addendum clarified the boundary of the historic resource (the tax parcel itself) and defined the contributing and non-contributing elements of the resource (see attached map). Because the resource is considered historic, it is protected under Section 4(f). According to the determination of eligibility, it is significant as an early example of vernacular homestead architecture and also through its association with the early settlement, farming and ranching in the Eagle Point Area. While the original Cingcade farmstead covered 360 acres, the current historic resource is a 71-acre parcel. That parcel is located on the west side of OR 62 off of Dutton Road, adjacent to the northern terminus of the proposed project.

In addition to the David Cingcade House and Barn Complex, there is one other Section 4(f) historic resource within the project area: the Camp White Station Hospital, now known as the Veterans Administration Southern Oregon Rehabilitation Center and Clinics (VA SORCC). There are no Section 4(f) impacts to the VA SORCC. All Section 106 activities for above ground historic resources are complete. Archaeological studies are still being conducted, although preliminary results have not found anything to suggest that there may be archaeological resources within the project area. There is a Section 4(f) recreational facility (the Bear Creek Greenway) and a Section 4(f) wildlife refuge (the Denman Wildlife Area) within the project area. The Section 4(f) evaluation for those two resources is currently in progress.

This submission includes the following four attachments: (1) Map of Section 4(f) property in association with proposed project; (2) Summary of public outreach (i.e. all consulting parties per Section 106) and comments associated with proposed *de minimis* finding (3) Section 106 Documentation (Above Ground and Archaeological Resources) [May include: Programmatic Agreement Memo, Section 106 Determination of Eligibility (DOE) and/or Section 106 Finding of Effect (FOE); and (4) FHWA Section 4(f) *de minimis* reporting information.

Please contact Chris Bell, at 503.986.3853 if you have questions pertaining to this finding. Upon approval, please transit the signed copy to this office (TLC, 4040 Fairview Industrial Drive), where we will distribute and process this according to protocol.

Sincerely,

Kurt Roedl for JBN

James B. Norman
Environmental Planning Unit Manager

The FHWA makes a Section 4(f) *de minimis* finding for the David Cingcade House and Barn Complex for the Highway 62 Corridor Solutions Project as described in this document.

Phillip A. Ditzler

December 16, 2011

Phillip A. Ditzler
Oregon Division
Federal Highway Administration

Date

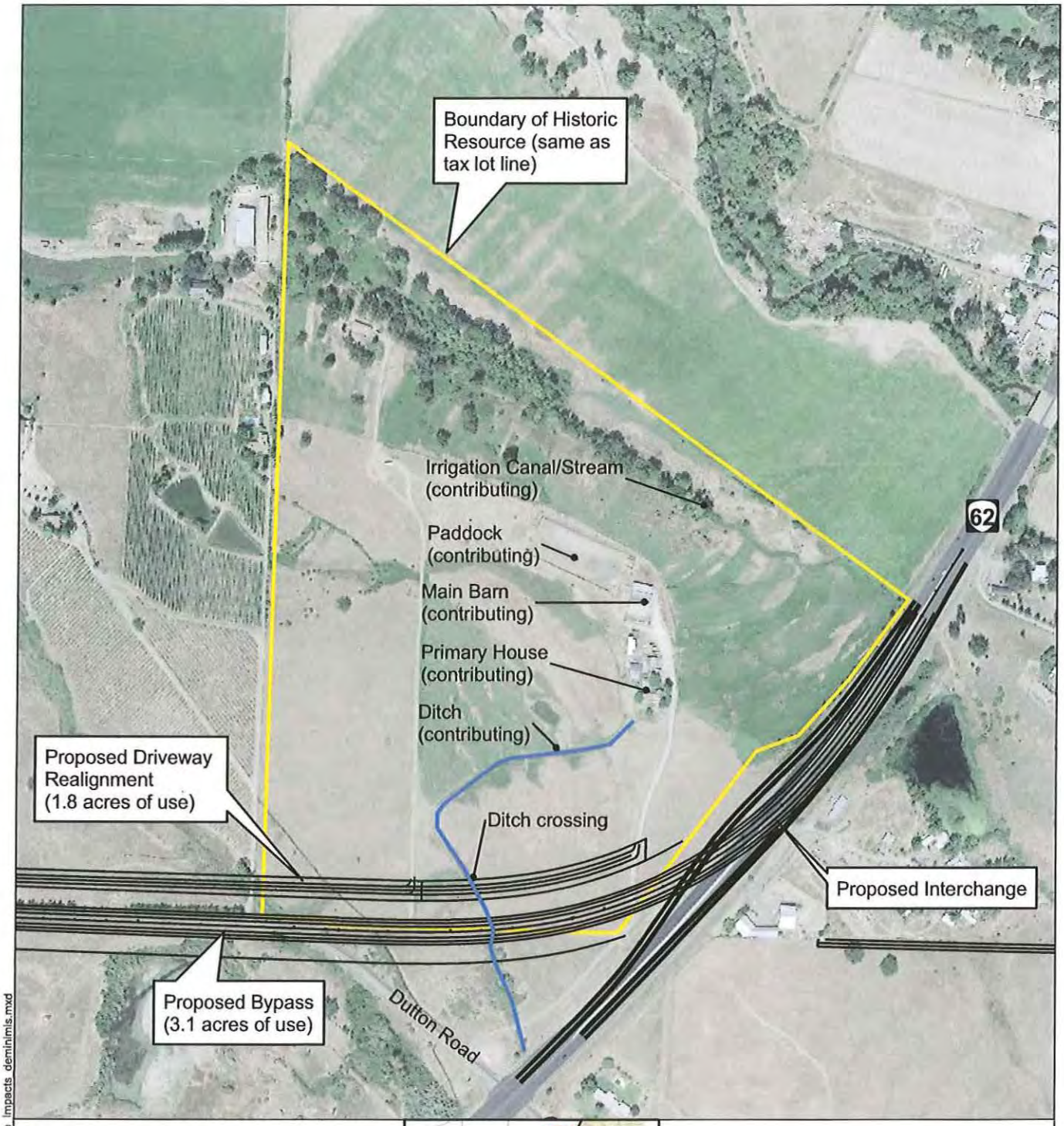
Copies to:

Ann Henson, ODOT Environmental Project Manager
Chris Bell, ODOT Cultural Resource Program Coordinator

Attachments:

(1) Map of Section 4(f) property which includes attributes and features and clearly indicates which portion of the property will be incorporated into the transportation project.
(2) Section 4(f) *de minimis* Public Outreach Summary
(3) Section 106 Documentation
(4) FHWA Reporting Information for Section 4(f) *de minimis*

ATTACHMENT 1
Section 4(f) *de minimis* Property and Project Map
Highway 62 Corridor Solutions Project
David Cingcade House and Barn Complex
13226
X-NH-S022(022)



Map Features

Historic Resource Boundary

Build Alternatives

Highway 62 Corridor Project

NORTH

0 0.025 0.05 0.1 Miles

Section 4(f) *de minimis* Property and Project

Attachment 1

June 2011

Oregon Department of Transportation

K:\Hwy_62_MXD\Cultural\Attachment1_Cingcade_Impacts_deminimis.mxd

ATTACHMENT 2
Section 4(f) *de minimis* Public Outreach Summary
Highway 62 Corridor Solutions Project
David Cingcade House and Barn Complex
13226
X-NH-S022(022)

Outreach events Throughout the project development, there were Citizens Advisory Committee (CAC) and Project Development Team (PDT) meetings that were open to the public. Section 4(f) was discussed in general terms during the development and evaluation of Alternatives at many of these meetings. In addition, one of the evaluation measures was the number of historic resources impacted by each alternative. At the May 25, 2011 CAC meeting and the May 26, 2011 PDT meeting, the presentations included a discussion of the evaluation criteria, including the fact that both Build Alternatives would use a portion of the Cingcade Complex, but that there would be no historic properties adversely affected, which would provide the basis for a *de minimis* finding.

Comment received. Aside from the SHPO concurrence on the Level of Effect determination, there were no comments received on the proposed *de minimis*.

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ATTACHMENT 3
Section 106 Determination of Eligibility
Section 106 Finding of Effect
Highway 62 Corridor Solutions Project
David Cingcade House and Barn Complex
13226
X-NH-S022(022)

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Geo-Environmental Section
4040 Fairview Industrial Dr SE MS #6
Salem, OR 97302

FILE CODE:

DATE: February 14, 2011

TO: Chris Bell, Cultural Resources Program Coordinator
Anna Henson, Region 3 Environmental Project Manager
Michelle Eraut, FHWA Oregon Division
Key No. 13226, File Type E: Cultural Resources

FROM: Rebecca Littau, Geo-Environmental Administrative Staff RL

SUBJECT: **Section 106 Determination of Eligibility**
David Cingcade House and Barn Complex DOE (AMENDED)
David Cingcade House and Barn Complex FOE
Highway 62 Corridor Solutions EIS
Medford, Jackson County
Key No. 13226
Federal-Aid Number X-NH-S022(022)

Attached is the signed **Concurrences** from the State Historic Preservation Office for the above referenced project, **approved on Feb. 9, 2011**.

Oregon
John A. Kitzhaber, MD, 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

February 9, 2011

RECEIVED
FEB 10 2011

Mr. James Norman
ODOT Environmental
355 Capitol NE Rm 314
Salem, OR 97301

RE: SHPO Case No. 11-0194
ODOT Proj 13226 - Hwy 62 Corridor Solutions EIS

Dear Mr. Norman:

We have reviewed the materials submitted on the project referenced above, and we concur with the determination that the property is eligible for listing in the National Register of Historic Places. We also concur with the finding of no adverse effect for the proposed project.

This letter refers to above-ground historic resources only. Comments pursuant to a review for archaeological resources, if applicable, will be sent separately.

Unless there are changes to the project, this concludes the requirement for consultation with our office under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800). Please feel free to contact me if you have any questions, comments or need additional assistance.

Sincerely,

Ian P. Johnson
Historian
(503) 986-0678
ian.johnson@state.or.us

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Highway Division/Technical Services
Geo-Environmental Section, MS #6
4040 Fairview Industrial Dr SE
Salem, Oregon 97302
Main Line: 503-986-3252
Fax: 503-986-3249

January 26, 2010

File Code:

Roger Roper
Deputy State Historic Preservation Officer
Assistant Director, Heritage Programs
Oregon State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301

Subject: **Section 106 Determination of Eligibility**
David Cingcade House and Barn Complex DOE (AMENDED)
David Cingcade House and Barn Complex FOE
Highway 62 Corridor Solutions EIS
Medford, Jackson County
Key No. 13226
Federal-Aid Number X-NH-S022(022)

Mr. Roper,

Included with this letter are one amended Section 106 Determination of Eligibility and one Section 106 Finding of Effect for your review and concurrence. The resource documented is the David Cingcade House and Barn Complex (originally determined eligible in 1996), located adjacent to Highway 62 between Medford and White City in Jackson County. The purpose of this addendum is to document the current state of the property and to define the period of significance, boundary, and contributing/non-contributing features – information that was not included in the 1996 DOE. The Finding of Effect reflects the current project plans and its potential effects to this Complex.

Your prompt review of the attached document is appreciated. If you have any questions regarding this submittal, or require further information, please contact either Chris Bell at 503.986.3853 or Michelle Eraut, FHWA Environmental Program Manager, at 503.587.4716.

Sincerely,

James B. Norman
Environmental Planning Unit Manager

Attachments:

David Cingcade House and Barn Complex DOE (AMENDED)
David Cingcade House and Barn Complex FOE

Copies to:

Chris Bell, Cultural Resources Program Coordinator
Anna Henson, Region 3 Environmental Project Manager
Michelle Eraut, FHWA Oregon Division
Key No. 13226, File Type E: Cultural Resources

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Individual Properties

Agency/Project: ODOT/Highway 62 DEIS Key No. 13226 Federal-Aid Number X-NH-S022(022)	
Property Name: David Cingcade House and Barn Complex	
Street Address: 60 West Dutton Road	City, County: Eagle Point, Jackson County
USGS Quad Name: Eagle Point, OR	Township: Range: Section:
This property is part of a ☐District ☐Grouping/Ensemble (see instructions) Name of District or Grouping/Ensemble:	

This is an addendum to the Determination of Eligibility that was completed in 1996. The original house and barn continue to retain a relatively high degree of historic integrity. Although a stable and barn, and possibly a mobile home, have been added to the property, these changes are consistent with the property's historic use as a farmstead and do not adversely affect the setting or landscape. As a result, the house and barn complex are still considered eligible. The purpose of this addendum is to document the current state of the property and to define the period of significance, boundary, and contributing/non-contributing features – information that was not included in the 1996 DOE.

Cingcade House, North Elevation (1996 DOE)

Preliminary National Register Findings: ☐**National Register listed**

☒**Potentially Eligible:** ☒Individually ☐As part of District

☐**Not Eligible:** ☐In current state ☐Irretrievable integrity loss ☐Lacks Distinction ☐Not 50 Years

State Historic Preservation Office Comments:

☒**Concur** ☐**Do Not Concur:** ☐Potentially Eligible Individually ☐Potentially Eligible as part of District ☐Not Eligible

Signed _____ Date 2/9/2011

Comments:

IAN JOHNSON
503-986-0678
Ian.Johnson@state.or.us

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Individual Properties

Property Name: David Cingcade House and Barn Complex		
Street Address: 60 West Dutton Road		City, County: Eagle Point, Jackson County
Architect, Builder or Designer (if known):	Owner:	☒Private ☐Local Government ☐State ☐Federal ☐Other

Description of Property (including exterior alterations & approximate dates), Significance Statement, and Sources. (Use continuation sheets if necessary):

This is an addendum to the Determination of Eligibility that was completed in 1996. The original house and barn continue to retain a relatively high degree of historic integrity. Although a stable and barn, and possibly a mobile home, have been added to the property, these changes are consistent with the property's historic use as a farmstead and do not adversely affect the setting or landscape. As a result, the house and barn complex are still considered eligible. The purpose of this addendum is to document the current state of the property and to define the period of significance, boundary, and contriuting/non-contributing features – information that was not included in the 1996 DOE.

The David Cingcade House and Barn Complex is located on a roughly triangular 71-acre lot in the northwest quadrant of the intersection of W. Dutton Road and OR 62 just north of White City in Jackson County, Oregon. The house and barn complex are located slightly east of the center of the parcel. A second house is located near the northern point of the lot.

Period of Significance

The Period of Significance of the David Cingcade House and Barn Complex is the period during which David and Mary Cingcade lived there, between the 1880s and 1911. As stated in the 1996 Determination of Eligibility, the original Cingcade Ranch was settled as the 360-acre Levi Tinkham Donation Land Claim. David and Mary Cingcade built the house and barn between 1884 and 1895 and lived there until 1911, when they moved to Eagle Point. They then leased the ranch to their sons, Thomas and Charley, who ran the ranch jointly until 1923. Between 1923 and 1939, Charley converted the ranch to a sheep raising and dairy operation. The Cingcades sold what remained of the property in 1948.

Boundary of Historic Resource

The boundary of the current tax parcel associated with the house and barn complex is the boundary of the historic resource. Map 1 shows the approximate boundary of the Levi Tinkham Donation Land Claim (the original Cingcade Ranch) as well as the current tax lot. The 1996 Determination of Eligibility states that the resource's significance includes its association with the ranching and settlement of the Eagle Point/Agate Desert, and that its location and setting are important to the historic context. Although there is a second dwelling now located on the tax parcel, the entire tax parcel provides important context to the property and there is no justifiable reason for considering the boundary to be anything less than the entire 71-acre parcel. The portions of the original 360-acre ranch that have since been subdivided remain rural in character, but most of those parcels have been developed with houses and are therefore no longer associated with the Cingcade House and Barn Complex.

Description of Features

The David Cingcade House and Barn Complex includes a number of features and buildings, but only some of them are contributing features. Map 2 shows the locations of all known features; they include the following.

Primary House: The two-story Cingcade House was built c. 1895 and has changed little since the 1996 Determination of Eligibility. It is a contributing resource. Although close inspection was not possible (right of entry was not obtained), the house appears to continue to retain a reasonably good level of integrity and continues to convey a sense of its history as an eighteenth-century farmhouse.

Primary Barn: The barn, also dating to the 1890s, is located a short distance north of the house and does not appear to have changed much at all since the 1996 Determination of Eligibility. It is a contributing resource.

Garage: A garage is located on the north side of the house; as the 1996 Determination of Eligibility notes, it is a non-contributing resource.

New Barn: A small barn located north of the garage has been built in recent years. It is a short, gable-roofed building with enclosed walls. It is a non-contributing resource.

New Stable: A horse stable located north of the new barn has been built since the 1996 Determination of Eligibility. Although it is consistent with the property's use as a ranch, it is a modern, non-contributing structure.

SECTION 106: SUPPLEMENTAL PHOTOGRAPHS

Property Name: David Cingcade House and Barn Complex	
Street Address: 60 West Dutton Road	City, County: Eagle Point, Jackson County

View: Looking west from OR 62. From left to right: Primary House (at left, in trees), Garage (behind trees), new barn (white front-gabled structure), new stables (dark building in front of utility pole), mobile home (barely visible as a low structure), and Primary Barn.

View: Looking northwest from OR 62 along northeast property line. Irrigated field at right is neighboring property. Seasonal stream/canal is at left.

Description of Features (continued)

Mobile Home: A mobile home is located between the new stable and primary barn. It may be the mobile home that was first placed at the northern apex of the lot in 1977 and replaced in 1994 (see below). It is a non-contributing structure.

Secondary House: A manufactured house is located near the northern apex of the tax lot. It was placed there in 1994, and replaced a mobile home that had been put in the same location in 1977. It is a non-contributing structure.

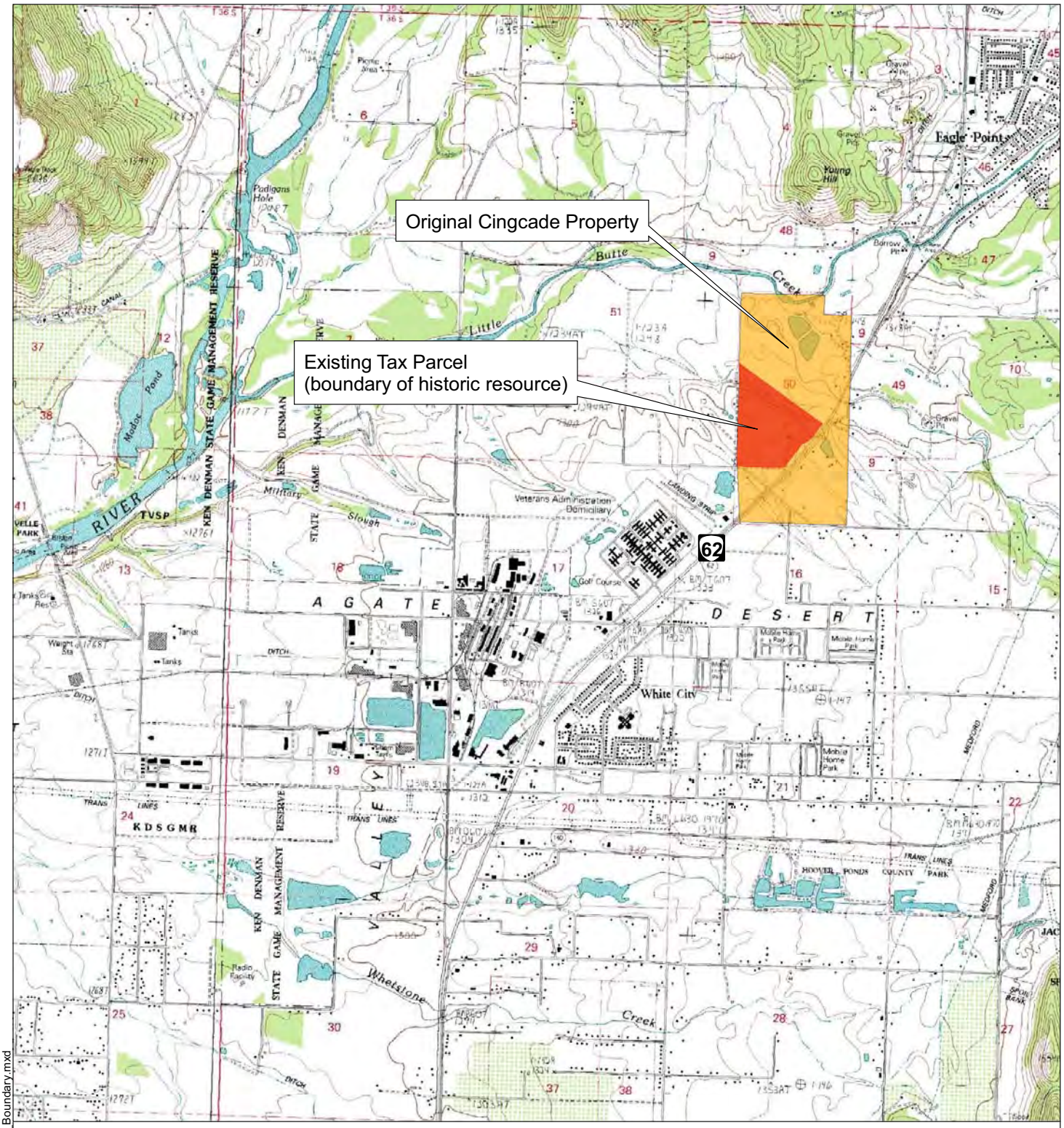
Paddock: A large rectangular paddock now used for horse training is located northwest of the primary barn. Although its construction and appearance could not be confirmed with a field visit, it could have existed during the property's period of significance and therefore it is assumed to be a contributing feature.

Roads: There are some unpaved roads on the property leading to the primary and secondary houses. The main road connects to Dutton Road near the western edge of the property and runs along the property's southern border. The driveway to the secondary house, built after 1977, connects to this road and runs straight north for a distance then jogs to the west and connects to the house. The driveway to the primary house begins at the corner of the property near OR 62 and heads north to the house and barn on a slightly curved path. The roads on the property have been modified over the years. Although they are compatible with the historic significance of the resource, they are non-contributing features.

Former Entrance Gate: There is an entrance gate near OR 62 on the driveway to the primary house. This gate is a modern, non-contributing feature.

Irrigation Canal/Stream: There is an unnamed canal/stream that runs along the northeastern boundary of the property. Unlike some of the more prominent irrigation canals in the Rogue River Valley that were entirely or largely manmade, this waterbody looks more like a natural seasonal stream that happens to be used for irrigation. It is shown as a seasonal tributary to Little Butte Creek on the 1930 Metsker Map. It was included in the Rogue River Valley Irrigation District on May 23, 1963. It is a contributing feature to the landscape as it most likely existed as a stream when the farmstead was established.

Ditch: A manmade ditch extends southwest from the house, contouring around the hillside and exiting the property to the south. The ditch crosses under the road that runs along the southern property line; this crossing is in a culvert. After crossing under the road, the ditch crosses OR 62 in a culvert and is presumed to continue along the north side of E Dutton Road. The ditch is heavily overgrown with shrubbery; an aerial photograph that was taken when un-irrigated grasses were brown shows a green swath downhill from the ditch (to the northeast), suggesting that the ditch is pervious. It is in poor condition. The age and history of the ditch could not be confirmed. Because it could have existed during the property's period of significance and because it is consistent with farm use, it is assumed to be a contributing feature.



Legend

Historic Resource

Extent of original Cingcade Property

Source: ODOT, USGS

NORTH

0 0.25 0.5 1 Miles

Cingcade House and Barn Complex

Map 1

November 2010

Highway 62 Corridor Project

Oregon Department of Transportation

K:\Hwy_62_MXD\Cultural\Cingcade_DOE_Map1_Boundary.mxd

Legend

Historic Resource Boundary
(same as taxlot boundary)

NORTH

60 W Dutton Road Cingcade House and Barn Complex

Map 2
November 2010

Highway 62 Corridor Project

Oregon Department of Transportation

K:\Hwy_62_MXD\Cultural\Cingcade_DOE_annotatedmap.mxd

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 LEVEL OF EFFECT FORM

Agency/Project: ODOT/Highway 62 DEIS	
Property Name: David Cingcade House and Barn Complex	
Street Address: 60 West Dutton Road	City, County: Eagle Point, Jackson County

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 2/9/2011

Comments:

IAN JOHNSON
503-986-0678
Ian.Johnson@state.or.us

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.

The Highway 62 DEIS addresses the 7.5-mile segment of OR 62 from its intersection with I-5 in Medford to Dutton Road north of White City. The purpose of the project is to reduce congestion on OR 62 to increase safety and improve operations. The project is currently compiling a Draft Environmental Impact Statement (DEIS) to evaluate a No Build Alternative and two Build Alternatives. The two Build Alternatives are similar; both would construct a limited-access highway to the west of OR 62 from the I-5 area to Dutton Road. They also include changes to the local street network. In the vicinity of Cingcade Complex, the Build Alternatives are identical and are simply referred to as the proposed project.

The David Cingcade House and Barn Complex was built in the 1890s. According to the determination of eligibility, it is significant as an early example of vernacular homestead architecture and also through its association with the early settlement, farming and ranching in the Eagle Point Area. While the original Cingcade farmstead covered 360 acres, the current historic resource is a 71-acre parcel. That parcel is located on the west side of OR 62 off of Dutton Road, adjacent to the northern terminus of the proposed project.

Potential Impacts

Map 1 is an aerial photograph showing the boundary of the historic resource and the proposed project design. The proposed bypass would be located along the southern edge of the Cingcade parcel, roughly along the alignment of West Dutton Road. The bypass would be a four-lane (two in each direction) limited-access highway with a center median and paved shoulders. The bypass right of way would also include an unpaved clear zone; in all, the bypass and its associated right of way would require the use of 3.1 acres of the historic resource. Because the proposed bypass would be located on Dutton Road, a new local street would be built along the north side of the bypass for properties whose driveways currently connect to Dutton Road. Map 1 shows a new driveway alignment on the Cingcade property; this represents the greatest potential impact to the property. If either Build Alternative is selected as the Preferred Alternative, ODOT would coordinate with the current property owners to determine the most appropriate design for the driveway relocation, which could result in lesser impacts than the design shown. As shown, the total right of way required for the proposed driveway would be 1.8 acres.

The proposed new driveway and bypass would cross an existing irrigation ditch that is a contributing resource (the ditch's history could not be verified; because it is consistent with the historic agricultural use of the land and because it could have existed during the property's period of significance, it is considered to be a contributing resource). An existing gravel driveway runs along the southern property boundary and crosses the ditch; at this crossing, the ditch is located in a culvert underneath the driveway. The proposed new crossings would also place the ditch in a culvert or similar structure that would not affect the hydrology or use of the ditch.

The proposed bypass would terminate in an interchange with the existing OR 62 just east of the Cingcade property. The new interchange would allow northbound-to-northbound and southbound-to-southbound movements between the bypass and OR 62. Northbound bypass traffic would simply merge with northbound traffic on the existing OR 62. Southbound traffic could either remain on the primary highway (the proposed bypass) or take an exit ramp that would cross over the top of the bypass and reconnect with the existing OR 62 through White City. The southbound exit ramp would be elevated above grade level and would be a more prominent feature in the viewshed than the existing highway.

Agency/Project: ODOT/Highway 62 DEIS	
Property Name: David Cingcade House and Barn Complex	
Street Address: 60 West Dutton Road	City, County: Eagle Point, Jackson County

Avoidance and Minimization Efforts

During the alternatives analysis for the project, some alternatives that did not directly impact the property were considered but dismissed. Those included building regional street improvements in the North Medford area; converting the existing OR 62 into a limited-access highway; and building a bypass around the east side of White City (and locating an interchange north of the Cingcade Complex). Traffic analyses showed that regional street improvements – widening and/or extending existing streets and building new streets – would not sufficiently reduce congestion on OR 62. Converting the existing OR 62 to a limited-access facility would have worked from a traffic standpoint, but impacts to residences and businesses on the highway (impacts resulting from relocating driveways, as well as impacts from additional right of way needed for the improved highway and new access roads) were found to be disproportionately higher than impacts resulting from the current Build Alternatives. Bypassing OR 62 to the east of White City was also considered, but the design would have required more right of way, it would have displaced more residences, and it would have created an undesirable barrier to future growth of White City. The current design, which would bypass OR 62 to the west of White City, was found to have the fewest adverse impacts and the greatest benefits, which is why it is currently being studied in the DEIS.

The current design is the result of careful balancing of the needs of natural resources as well as cultural resources. In the vicinity of the Cingcade Complex are some vernal pool complexes, some critical habitat for endangered species, and areas of wetlands. Earlier in the project, there was an alignment that would have been located south of the current design, further from the Cingcade Complex. This other alignment would have required the use of less of the Cingcade Complex, but it was fatally flawed because it would have required the use of some of the Veterans Administration's Southern Oregon Rehabilitation Center and Clinics land (the Veterans Administration would not have agreed to this use of their land). As a result of the fatal flaw, the secondary alignment was dismissed.

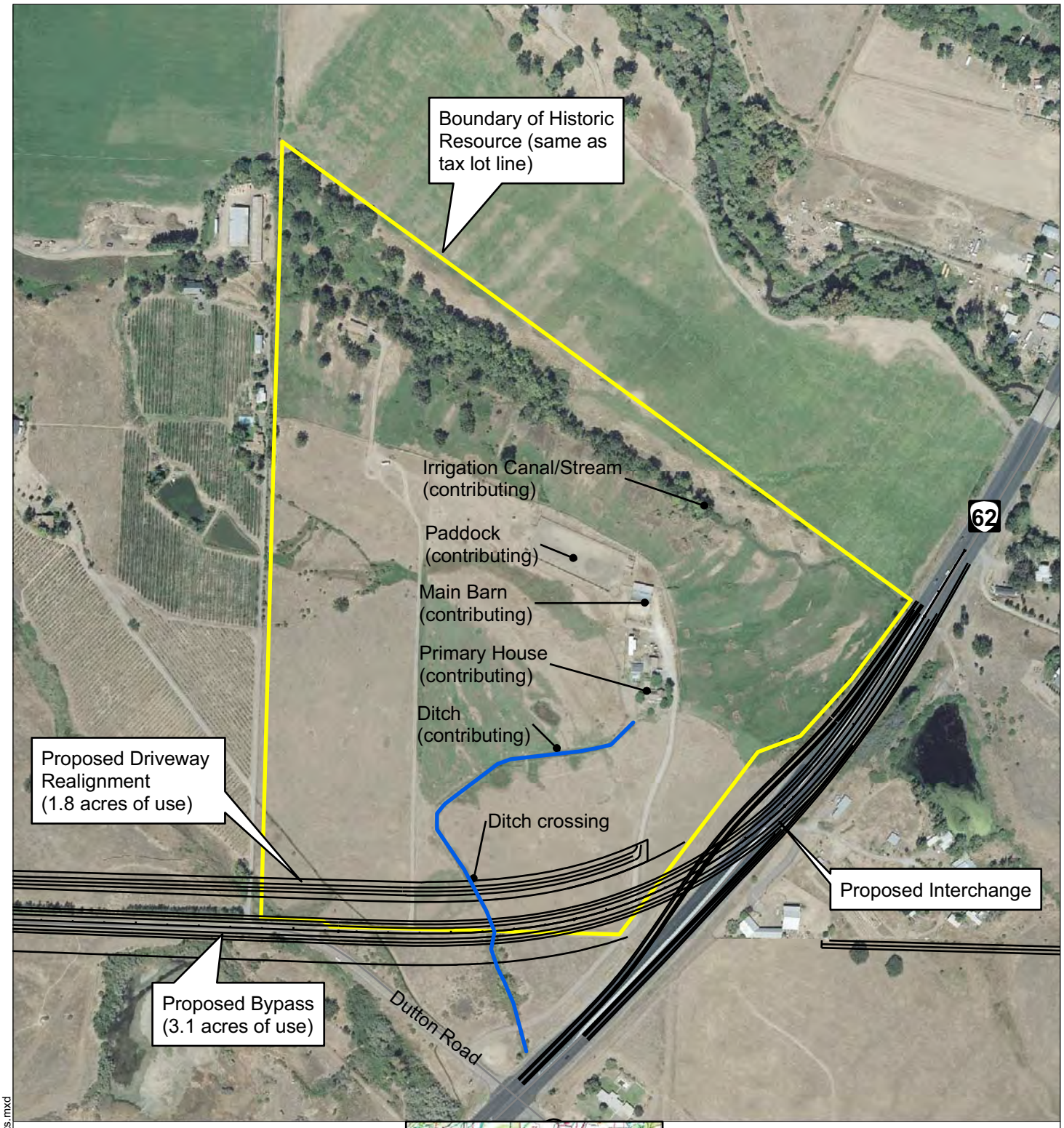
The project is currently entering the DEIS stage; if either of the Build Alternatives is selected as the Preferred Alternative, additional minimization efforts will be included in future design refinements. As noted above, the current driveway design shows the greatest potential impact to the property; future consultation with the property owners may result in a design with lesser impacts (resulting from reduced right of way needs). The bypass design also includes a cut slope in the area of the Cingcade Complex, as the southern portion of the Cingcade tax parcel slopes to the south. Right of way impacts could be reduced by using a retaining wall rather than a cut slope. Engineers may also find a way to shift the bypass alignment to the south, thus reducing the potential use of the property. Any changes to the proposed design would be documented in the project's Final Environmental Impact Statement (FEIS).

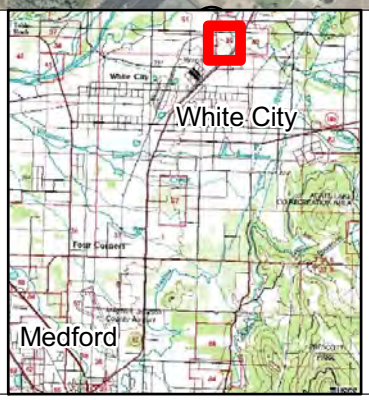
Findings

Although the proposed project would require the use of some of the Cingcade Complex and would change the landscape to the south and east, the project's overall impacts would not adversely impact the historic resource. The original Cingcade property comprised 360 acres; it is now 71 acres. The bypass would use 3.1 acres, or 4% of the property; at most, the bypass and driveway combined would use 4.9 acres, or 7% of the total acreage. The further reduction in the property acreage represents an incremental change that is not great enough to constitute an adverse impact.

Map 2 shows the topography of the Cingcade property. The proposed use would be located along the southern edge of the property, an area that slopes south away from the house and barn complex. The proposed bypass in that area would not be readily visible from the house or barns, as it would be located behind the slope. The proposed interchange on OR 62 would be visible from the house and barn, but it would be more than 450 feet from the house and barn. At this distance, the proposed project would represent a change in the views to the southeast, but the change would be relatively minor as OR 62 currently exists in that location. Changes to the surrounding landscape would not adversely affect the property's setting or context.

In conclusion, the two Build Alternatives would result in no historic properties adversely affected. Both would require the use of some of the Cingcade Complex, but this use would be minimal and would not adversely affect the historic resource or its setting. No buildings would be directly impacted by the proposed project, nor would the historic use of the property for farming or ranching be adversely affected. The Cingcade House and Barn Complex would retain its historic character and would still be an important example of vernacular architecture and of the early settlement and development of the Agate Desert.





Potential Impacts to 60 W Dutton Road

Map 1

November 2010

Highway 62 Corridor Project

NORTH

0 0.025 0.05 0.1 Miles

Oregon Department of Transportation

K:\Hwy_62_MXD\Cultural\Cingcade_FOE_Impacts.mxd

Legend

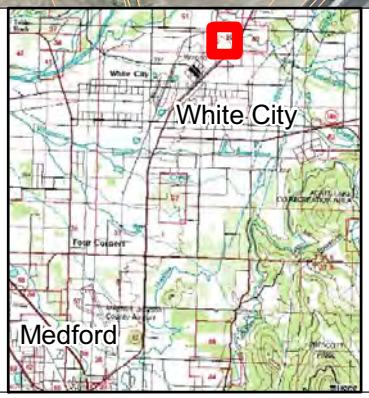
5-Foot Contour

Boundary of Historic Resource

Highway 62 Corridor Project

NORTH

0 125 250 500 Feet



Topography of 60 W Dutton Road

Map 2

November 2010

Oregon Department of Transportation

K:\Hwy_62_MXD\Cultural\Cingcade_FOE_Impacts.mxd

Oregon
Theodore R. Kulongoski, Governor

Department of Transportation
Transportation Building
355 Capitol St. NE, Rm. 301
Salem, OR 97301-3871

FILE CODE:

DATE: September 22, 2009

TO: Don Day, Confederated Tribes of the Grand Ronde Community of Oregon
Robert Kentta, Confederated Tribes of Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Michelle Eraut, FHWA
Anna Henson, ODOT R3 EPM
Jerry Vogt, ODOT R3 REC
Jessica Bochart, ODOT Archaeologist
Tobin C. Bottman, ODOT Archaeologist
Key # 13226, File Type C

FROM: Holly Stucker, Geo-Environmental Administrative Staff

SUBJECT: **Request for Concurrence**
Finding of No Historic Properties Affected (Archaeology)
US 62 Corridor Solutions EIS Project
Jackson County, Oregon
Key # 13226, Federal Aid # S002(022)PE

Attached is the signed Concurrence from SHPO on the above referenced project.

Oregon
Theodore R. Kulongoski, Governor

Department of Transportation
Transportation Building
355 Capitol St. NE
Salem, Oregon 97301

RECEIVED
AUG 20 2009
STATE HISTORIC PRESERVATION OFFICE
RECEIVED
AUG 20 2009

August 19, 2009

FILE CODE:

Jackson County

Eagle Point, Medford East, Medford West, Sams Valley Quads

T36S, R1W, Sec 8, 9, 16-20, 29, 30; T37S, R1W, Sec 6, 7, 18; T37S, R2W, Sec 13

Roger Roper
Deputy State Historic Preservation Officer
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97310-1271

Subject: **Request for Concurrence**
Finding of No Historic Properties Affected (Archaeology)
US 62 Corridor Solutions EIS Project
Jackson County, Oregon
Key # 13226, Federal Aid # S002(022)PE

SHPO CASE# 08-0505

Dear Mr. Roper,

The Oregon Department of Transportation (ODOT) proposes to reconstruct a 7.2 mile section of US 62 (Crater Lake Highway) between Medford and White City, in Jackson County, Oregon. Project plans include construction of a new north/south highway segment west of the current US 62 alignment, as well as modifications to existing interchanges.

Multiple cultural resource surveys have been undertaken in the vicinity of the current project area. A 'windshield reconnaissance' was conducted to determine if any high probability areas were present (Dames and Moore 1998). This reconnaissance identified no high probability areas. A subsequent pedestrian survey was conducted that included most of the current project area (Demuth et al. 2001). This survey identified a linear resource (Medco Haul Road) with associated logging components. However, the entire current project area had not been adequately investigated. Therefore, archaeologists with the Oregon State Museum of Anthropology (OSMA) conducted a pedestrian survey of the project area between July 23 and 24 and August 1 and 2, 2007 (O'Neill 2008). This survey identified one historic isolate and one prehistoric isolate. Six high probability landforms (Localities 1-6) were identified by this OSMA survey and subsurface exploratory investigations were conducted at each, including Locality 5 where a lithic isolate was identified during pedestrian survey. However, none of the sixty four probes excavated within the six localities yielded cultural materials. The archaeological investigations identified no archaeological sites evident within the project area and no further work is recommended.

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 US 62 Corridor Solutions EIS 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 Michelle Eraut, Environmental Program Manager with FHWA, at (503) 587-4716, 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 US 62 Corridor Solutions EIS project will have **No Historic Properties Affected (Archaeology)**.

SHPO Official **Date** 9/14/09

* 35JA693 SHPO concurs w/ Not Eligible

Copies with attachments:

Don Day, Confederated Tribes of the Grand Ronde Community of Oregon
Robert Kentta, Confederated Tribes of Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Key # 13226, File Type C

Copies without attachments:

Michelle Eraut, FHWA
Anna Henson, ODOT R3 EPM
Jerry Vogt, ODOT R3 REC
Jessica Bochart, ODOT Archaeologist
Tobin C. Bottman, ODOT Archaeologist

References:

Dames and Moore
1998 Highway 62 Corridor Solutions Project Technical Report 1: Archaeology, Cultural and Historic Resources. On file at the Oregon Department of Transportation, Salem.

Demuth, Kimberly, Marcia Montgomery, Laura Rooke, Russell Bevill and Michael Kelly
2001 Highway 62 Corridor Solutions Project North Medford Interchange: Historic, Cultural and Archaeological Resources Report. Entrix Inc., Seattle, and URS Corporation, Portland.

O'Neill, Brian
2008 Pedestrian Survey and Subsurface Reconnaissance of the US 62 Corridor Solutions Project, Jackson County. Museum Report 2008-065. University of Oregon, Eugene.

ATTACHMENT 4
FHWA Reporting Information for Section 4(f) *de minimis*
Highway 62 Corridor Solutions Project
David Cingcade House and Barn Complex
13226
X-NH-S022(022)

Route.	OR 62
Project Name.	Highway 62 Corridor Solutions Project
Project Length in Miles.	7.5
Has the project received Transportation Enhancements funds? Has an application for TE funds for this project been submitted? Or is it planned?	No TE funds have been received. ODOT may apply for TE funds at a later date (decision on whether to apply is still to be determined).
Type of project (bridge, intersection, new alignment, safety, widening). Select only one.	New Alignment
Complete project cost.	$210-240 million, depending on Preferred Alternative (not including right-of-way costs)
NEPA Class of action.	EIS
Number of Section 4(f) resources in the project.	4
List of all Section 4(f) resources in the project.	David Cingcade House and Barn Complex Camp White Station Hospital Bear Creek Greenway Denman Wildlife Area
De minimis mitigation (includes purchase of right-of-way consistent with the Uniform Act).	Purchase of right-of-way consistent with the Uniform Act; reduction of take to least amount needed.
De minimis impacts (e.g. will remove 5 existing parking spaces from 250 space parking lot; will convert x.x acres of Monument land to highway easement, will use 50 sq. ft of the SE corner of the property).	Will convert 3.1 acres to highway use and use an additional 1.8 acres for driveway realignment. Total historic resource is 71 acres. Will widen an existing crossing of an irrigation ditch (contributing resource).
Size of the de minimis use in acres.	4.9
Type of de minimis resource (Historic, Park, Recreation or Wildlife Refuge). Select only one.	Historic
Project status (general schedule—bid opening, completion of the environmental process).	NEPA completion by 2012 First phase to bid by Fall 2012
Anticipated construction start.	Spring 2013
Anticipated construction completion.	First phase: Fall 2015 Complete Project: unknown

Oregon
John A. Kitzhaber, M.D., Governor

Bucher

Department of Transportation
Highway Division/Technical Services
Geo-Environmental Section, MS#6
4040 Fairview Industrial Dr SE
Salem, OR 97302
Main Line: 503-986-3252
Fax: 503-986-3249

April 12, 2013

RECEIVED
APR 15 2013
FHWA
OREGON DIVISION

Chris Bucher, Operations Engineer
Federal Highway Administration
Oregon Division
530 Center Street, NE, Suite 420
Salem, Oregon 97301

Subject: **Section 4(f) *De Minimis* Finding for Recreational Facility (REVISED)**
Ken Denman Wildlife Area, Hall Tract Unit
OR 62: I-5 to Dutton Road
OR 62 from I-5 in Medford to Dutton Road in White City
Jackson County, Oregon
ODOT Key #13226
Federal-Aid #X-NH-S022(022)

Dear Mr. Bucher:

This letter requests FHWA approval of a Section 4(f) *de minimis* finding for the Ken Denman Wildlife Area associated with the OR 62: I-5 to Dutton Road Project. The project addresses congestion, safety, and operational problems on the 7.5-mile segment of OR 62 from its intersection with I-5 in Medford to Dutton Road north of White City. Following the publication of the Draft Environmental Impact Statement (DEIS), the Split Diamond Interchange, with Option C has been identified as the Preferred Alternative which includes some changes to the local street network. The DEIS identified a first phase of the project called the JTA Phase. The JTA Phase will not impact the Ken Denman Wildlife Area; however, completion of the full build Preferred Alternative is expected to have impacts as described in this finding.

This letter is a revision of our original submission on February 25, 2013. It now includes the proper public outreach, included in Appendix 2.

The Ken Denman Wildlife Area is comprised of three tracts: the Hall Tract (600 acres), Military Slough (1,198 acres), and the Bear Creek Tract (60 acres). Map 1 in Attachment 1 shows the location of the three tracts with respect to the Preferred Alternative. The boundaries of the three tracts, as shown in Map 1, are the geographic extent of the Section 4(f) resource. The Hall Tract is adjacent to the Preferred Alternative and is located on the west side of Agate Road, between Antelope Road and E Gregory Road near White City, Oregon. The Military Slough and Bear Creek Tracts are further north and west of the project area and will not be impacted by the Preferred Alternative. The Ken Denman Wildlife Area is considered a Section 4(f) property because it is publicly owned and is being managed to provide recreational and educational opportunities for the

public. It is open to all members of the public year-round, although some activities such as hunting are restricted to certain times of the year.

The *Ken Denman Wildlife Area Management Plan,* prepared by the Oregon Department of Fish and Wildlife (ODFW), includes the following statement about the Ken Denman Wildlife Area.

> The wildlife area is currently managed to protect, enhance and restore all fish and wildlife species and their habitats located on the wildlife area, and to provide a wide variety of wildlife-oriented recreational and educational opportunities to the public. The wildlife area contains many different types of habitats supporting a great diversity of plant and animal species. Important habitats include vernal pools, prairie grasslands, oak woodlands, riparian habitat and wetlands. A major function of the wildlife area's management is to provide waterfowl, upland bird and deer hunting opportunities. Fishing, hiking, birding and dog training are some of the other recreational activities offered to the public. The area is also an important resource for outdoor education. (page 2)

In the Hall Tract Unit, features include three parking lots at various locations around the perimeter of the Unit; the wildlife area's headquarters building and a wildlife viewing area off of E Gregory Road; and three check stations (see Attachment 1, Map 2). The check stations are self-serve kiosks; hunters are required to check in and out at any one of six such stations in the wildlife area. One unpaved parking lot and one check station are features located on the west side of Agate Road adjacent to the Preferred Alternative. The parking lot's boundaries are not clearly delineated, but the dirt/unvegetated area commonly used for parking is approximately 7,000 square feet in size. The parking lot's driveway connects directly to Agate Road. There are no formal trails in the Hall Tract Unit, but some informal trails lead from the parking lot into the wildlife area where numerous nearby ponds provide habitat for waterfowl sought by both hunters and birdwatchers.

The Preferred Alternative will build a four-lane limited-access bypass with a center median and paved shoulders. In the vicinity of the Hall Tract Unit, that bypass will use the existing Agate Road alignment. The western edge of the bypass right-of-way will be the eastern edge of the Hall Tract Unit, and there will be no use of any of the Hall Tract Unit by the bypass itself; however, because of access management policies, the connection between the existing parking lot and Agate Road will be eliminated.

As mitigation for closing the driveway to the parking lot, ODOT will provide an in-kind replacement parking lot on the north side of the Hall Tract Unit at the southern end of 11th Street, approximately 1,800 feet northwest of the existing parking lot (see

Attachment 1, Map 3). ODOT will also relocate the check station to the new parking lot and will add new directional signage to nearby streets to guide visitors to the new parking lot. The new parking lot will be a similar size as the existing parking lot and will provide equally convenient access to the ponds in the western portion of the Hall Tract Unit. Both the existing parking lot and the site of the new parking lot are in an area classified as "vernal pool complex" habitat type. The most common vegetation in this habitat type is introduced grasses (livestock overgrazing degraded the area prior to 1954, when ODFW acquired the property), but potential native plants to inhabit the habitat type include perennial bunchgrasses and forbs. There will be no net loss of habitat because ODOT will restore the existing parking lot in a manner consistent with ODFW's *Management Plan*. ODOT has coordinated with ODFW officials regarding the relocation of the parking lot and check station to ensure that this strategy will be sufficient mitigation for the parking lot driveway closure.

A DEIS was prepared for this project and was published in September 2012. A public hearing/open house was held on October 17, 2012. ODOT received two letters regarding the Denman Wildlife Area: one from the Rogue Valley Audubon Society and one from a private individual. While the private individual's letter expressed a generalized concern for wildlife living in the Denman Wildlife Area, the Audubon Society's letter specifically cited concerns about impacts to the wildlife habitat resulting from noise, emissions, and light pollution caused by motorized vehicles using the bypass. The Audubon Society's letter requested a more detailed analysis of impacts and stated that a *de minimis* conclusion is not justified.

The public comment period for the project's Section 4(f) *de minimis* impacts to parks occurred from March 21, 2013 to April 3, 2013 and no comments were received (see Attachment 2 for a complete description of public outreach and comments).

The ODFW has concurred that the impacts to the Ken Denman Wildlife Area, Hall Tract Unit are minor enough to be considered *de minimis* (see Attachment 3 for the letter from ODFW). The northern segment of the Preferred Alternative, which is the segment that would come closest to the Denman Wildlife Area, is not currently funded. When funding is secured and the design is refined for this segment, ODOT will work with the Rogue Valley Audubon Society to incorporate measures to avoid and mitigate impacts on birds where the bypass is adjacent to the Hall Tract to the extent practicable.

This submission includes the following four attachments: (1) Three maps of Section 4(f) property in association with Preferred Alternative; (2) Summary of public outreach and outcomes associated with proposed Section 4(f) *de minimis* finding; (3) Written correspondence from official with jurisdiction regarding Section 4(f) *de minimis* finding; and (4) FHWA Section 4(f) *de minimis* reporting information.

Please contact Chris Bell, at 503.986.3853, if you have questions pertaining to this finding. Upon approval, please transit the signed copy to this office (TLC, 4040 Fairview Industrial Drive), where we will distribute and process this according to protocol.

Sincerely,

James B. Norman
Environmental Planning Unit Manager

The FHWA makes a Section 4(f) *de minimis* finding for the Ken Denman Wildlife Area, Hall Tract Unit for the OR 62: I-5 to Dutton Road project as described in this document.

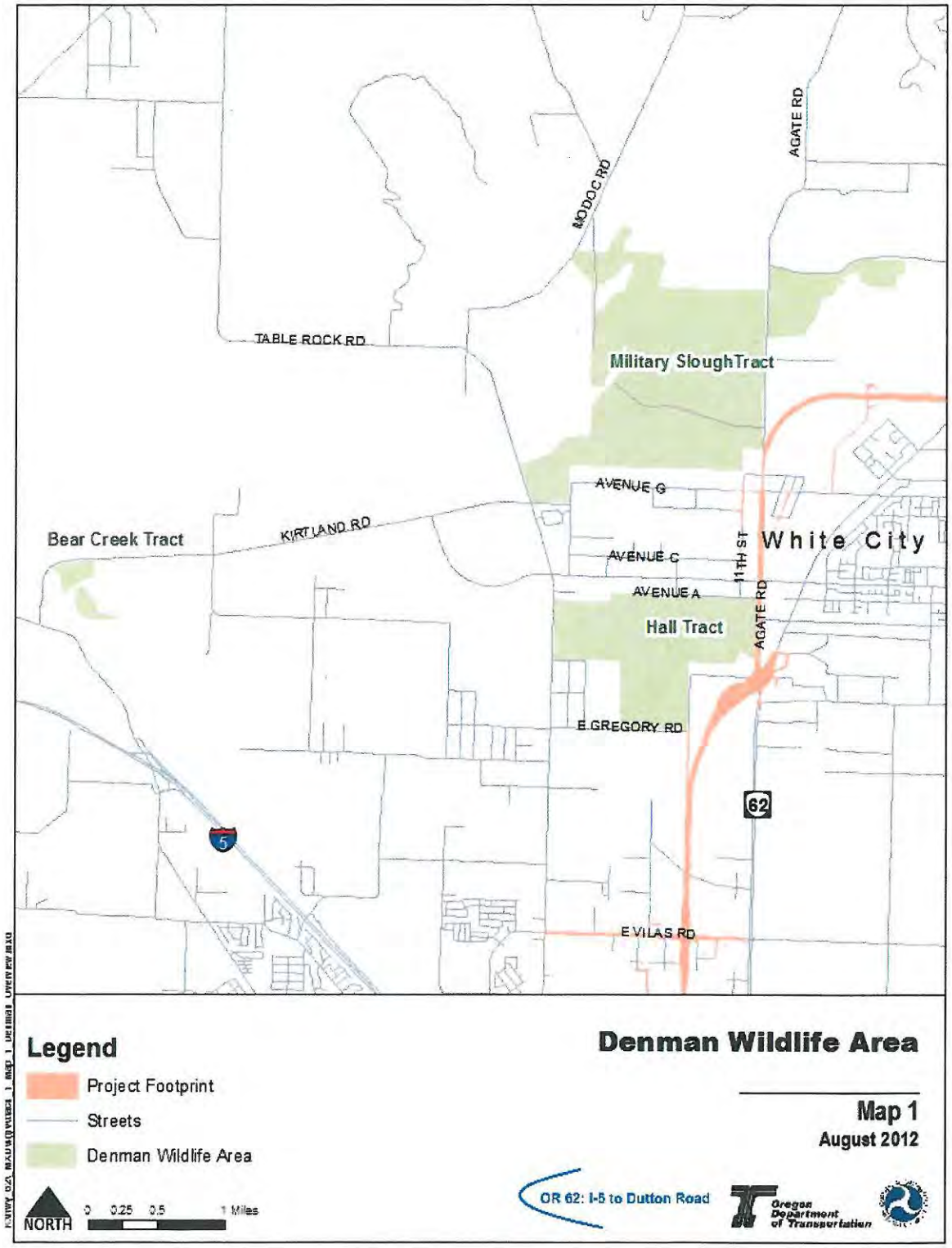
Phillip A. Ditzler — 4/16/2013
Phillip A. Ditzler — Date
Oregon Division Federal Highway Administration

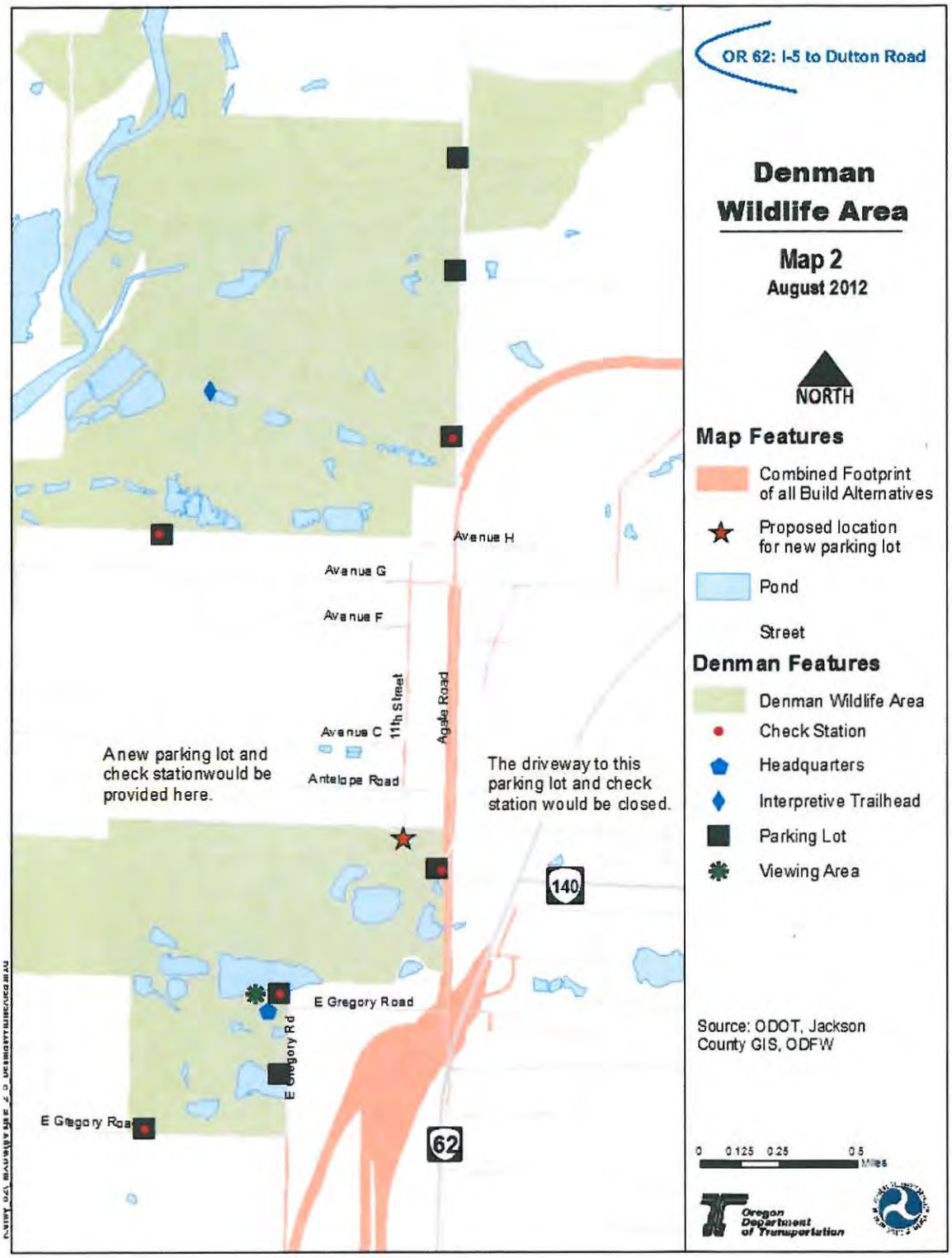
Attachments:

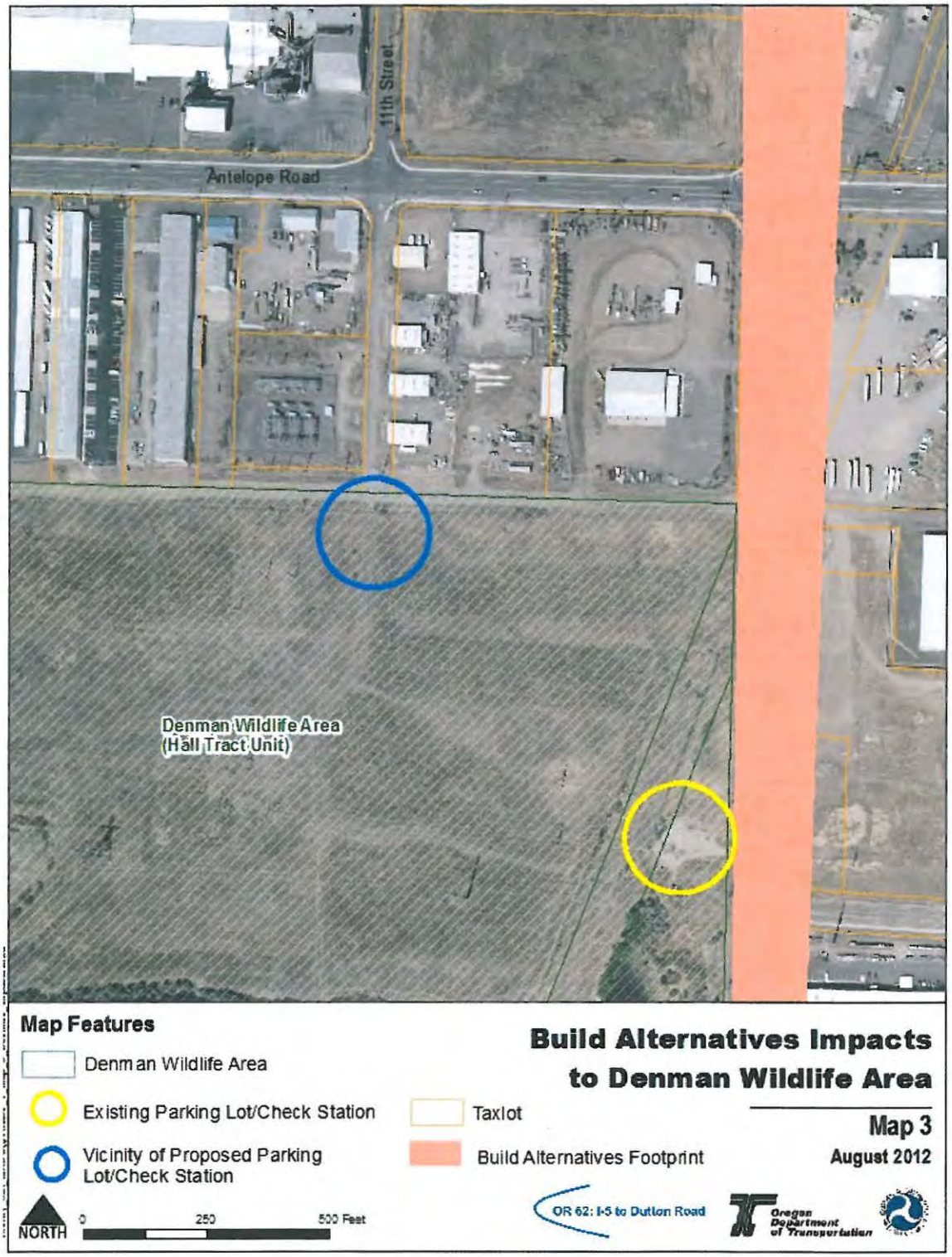
(1) Map 1: Overview of Denman Wildlife Area
Map 2: Map of Section 4(f) property which includes attributes and features and clearly indicates which portion of the property will be incorporated into the transportation project.
Map 3: Annotated aerial photograph showing Preferred Alternative impacts to Denman Wildlife Area.
(2) Section 4(f) *de minimis* Public Outreach Summary
(3) Written support from William Warncke, ODFW-ODOT Statewide Liaison and Official with Jurisdiction (OWJ) for proposed Section 4(f) *de minimis*.
(4) FHWA Reporting Information for Section 4(f) *de minimis*

Copies to:
Anna Henson, ODOT Environmental Project Manager
Chris Bell, ODOT Cultural Resource Program Coordinator

ATTACHMENT 1
Section 4(f) *de minimis* Property and Project Map
OR 62: I-5 to Dutton Road Project
Ken Denman Wildlife Area
13226
X-NH-S022(022)


AGATE RD
MODOC RD
TABLE ROCK RD
Military SloughTract
AVENUE G
Bear Creek Tract
KIRTLAND RD
AVENUE C
11TH ST
White City
AVENUE A
AGATE RD
Hall Tract
E GREGORY RD
62
5
E VILAS RD
Legend
Project Footprint
Streets
Denman Wildlife Area
NORTH
0 0.25 0.5 1 Miles
Denman Wildlife Area
Map 1
August 2012
OR 62: I-5 to Dutton Road
Oregon Department of Transportation


OR 62: I-5 to Dutton Road
Denman Wildlife Area
Map 2
August 2012
NORTH
Map Features
Combined Footprint of all Build Alternatives
Proposed location for new parking lot
Pond
Street
Denman Features
Denman Wildlife Area
Check Station
Headquarters
Interpretive Trailhead
Parking Lot
Viewing Area
Source: ODOT, Jackson County GIS, ODFW
0 0.125 0.25 0.5 Miles
Oregon Department of Transportation
Avenue H
Avenue G
Avenue F
Avenue C
11th Street
Agate Road
Antelope Road
A new parking lot and check station would be provided here.
The driveway to this parking lot and check station would be closed.
140
E Gregory Road
E Gregory Rd
E Gregory Road
62



Build Alternatives Impacts to Denman Wildlife Area

Map 3

August 2012

ATTACHMENT 2
Section 4(f) *de minimis* Public Outreach Summary
OR 62: I-5 to Dutton Road Project
Ken Denman Wildlife Area
13226
X-NH-S022(022)

The public comment period for the Section 4(f) *de minimis* assessments was held from March 21, 2013 to April 3, 2013. In addition to this public comment period, ODOT solicited public comment on the Section 4(f) *de minimis* assessments during the public comment period for the project DEIS. The DEIS included information about impacts to Section 4(f) resources and the fact that FHWA intended to consider those impacts *de minimis*, pending the receipt of public and agency comments. ODOT also accepted public comments throughout the project development. During the scoping and alternatives analysis phases of the project, ODOT held monthly project meetings which the public was welcome to attend. These meetings also included time for the public to voice their concerns or comments.

Public notice

A copy of the public notice requesting comments on the Section 4(f) *de minimis* assessment is included at the end of this attachment. It is the notice of public comment opportunity published in the Mail Tribune March 21, 2013.

Comment received on the proposed *de minimis*.

There were no comments received during the official public comment period for the Section 4(f) *de minimis* assessments.

During the DEIS public comment period, there were two letters received regarding potential impacts to the Denman Wildlife Area. One was from the Rogue Valley Audubon Society and the other was from a private individual.

The Rogue Valley Audubon Society expressed concern for specific bird species that inhabit the Hall and Military Slough Tracts and that are known to have low tolerance for noise and disturbance. Their letter stated that the bypass, which is the primary component of the Preferred Alternative, would be located very close to the wildlife habitat and the forecasted 20,000 vehicles per day using the bypass would create noise, emissions, and light impacts that could adversely impact the habitat and the species living in the area. The letter concludes by stating the following. "We request that the final EIS include a much more detailed analysis of the impact of disturbance, noise, and pollution on the wildlife habitat values the Hall and Military Slough Tracts, and include specific

mitigation strategies. Based on the very limited consideration of these issues in the DEIS, a *de minimis* conclusion regarding these impacts cannot be justified."

A private individual also submitted a letter stating, "I am very concerned about the impact on the birds that inhabit, or spend portions of the year at Denman Wildlife Area and surrounding locale."

Response to Comments.

The Section 4(f) *de minimis* finding does not mean a project would have no impact, only that the impact would be minor. The ODFW has concurred with the *de minimis* finding for the Denman Wildlife Area.

Literature on the impacts of highways on birds indicates that the highway could have impacts on birds and that measures can be taken to mitigate these impacts. Adverse impacts can include mortality (e.g., from vehicles hitting birds flying across a road or scavenging on road kill), habitat fragmentation (e.g., making a habitat parcel too small to provide a complete territory), and disturbance (e.g., noise and lights interfering with breeding). Mitigation measures can include avoiding plantings that encourage birds to cross travel lanes to reach food or cover and removing road kill, as well as other measures.

While the JTA Phase of the Preferred Alternative is funded, the remainder of the Preferred Alternative is not currently funded. When funding is secured and the design is refined for this segment, ODOT will work with the Rogue Valley Audubon Society to incorporate measures to avoid and mitigate impacts on birds where the bypass is adjacent to the Hall Tract. A dog training area is located where the bypass will be closest to the Military Slough Tract. ODOT will work with the Rogue Valley Audubon Society to incorporate avoidance and mitigation measures where the bypass is close to the Military Slough Tract, if use of the area for dog training is found not to make such measures unwarranted.

Notice published in the Mail Tribune
March 21, 2013

VERNON C. ROBERTSON have been appointed co-personal representatives of the the above-entitled estate. All persons claims against the estate are required to present the same, with proper vouchers, within four months after the date of first publication of this notice or they may be barred.

All persons whose rights may be affected by this proceeding may obtain additional information from the records of the court, the co-personal representatives, or the attorneys for the co-personal representatives, BROPHY, SCHMOR, BROPHY, PARADIS, MADDOX & WEAVER, LLP.

DATED AND FIRST PUBLISHED this 14th day of March, 2013.

JOHN C. HURT and
VERNON C. ROBERTSON
Co-Personal
Representatives

March 14, 21, 28, 2013

NOTICE TO INTERESTED PERSONS
No. 13-101-P-6
IN THE CIRCUIT COURT OF THE STATE OF OREGON FOR JACKSON COUNTY

IN THE MATTER OF THE ESTATE of John Palmer Murnane, Deceased.

Notice is hereby given that the undersigned has been appointed and has qualified as personal representative of the estate. All persons having claims against the estate are hereby required to present the same, with proper vouchers, within four months after the date of first publication of this notice as stated below, to the personal representative at c/o James A. Wickre, Attorney at Law, 816 West 8th St., Medford, Oregon 97501, or they may be barred.

All persons whose rights may be affected by the proceedings in this estate may obtain additional information from the records of the court, the personal representative or the attorney for the personal representative.

Dated and first published March 14, 2013.

William P. Haberlach
Personal Representative
JAMES A. WICKRE
OSB #743418
Attorney at Law
816 West 8th Street
Medford, OR 97501
(541) 772-3371

March 14, 21, 28, 2013

Employment Section....
We make your job search fast & easy!
541-776-4466

Notice of Public Comment Opportunity

OR62: I-5 to Dutton Road, Medford

Proposed Section 4(f) *de minimis* Impact Findings for Bear Creek Greenway, planned Midway Park and the Ken Denman Wildlife Area

The Draft Section 4(f) *de minimis* Impact Findings for the OR 62 I-5 to Dutton Road project, ODOT Key No. 13226, are currently available for public review and comment. *De minimis* impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not "adversely affect the activities, features and attributes" of the Section 4(f) resource.

The proposed project will construct a 7.5 mile access controlled expressway to serve as a bypass for existing OR 62. The project includes four new interchanges and changes to local streets and roads to accommodate the bypass. Based on an evaluation of project impacts, preliminary Section 4(f) *de minimis* findings have been drafted for: (1) the Bear Creek Greenway, (2) the planned Midway Park, and; (3) the Ken Denman Wildlife Area have been made.

A first phase of the OR 62: I-5 to Dutton Road project has been identified, called the JTA phase. Construction of the JTA phase is expected to begin in 2014. As funding is secured for subsequent phases of the project, those phases will be constructed. All three Section 4(f) resources are outside the JTA phase project area and therefore will not be impacted by the construction of this first phase. Phases subsequent to the JTA phase will impact all three Section 4(f) resources.

Copies of the Draft Section 4(f) *de minimis* Impact Finding are available upon request by contacting Anna Henson, Environmental Project Manager, at (541) 774-6376.

Comments regarding the above *de minimis* finding for the OR 62: I-5 to Dutton Road, Medford project are due April 3, 2013.

March 21, 2013

SUMMONS BY PUBLICATION
Case No. 12C0089E2
IN THE CIRCUIT COURT FOR THE STATE OF OREGON IN AND FOR THE COUNTY OF JACKSON

E, INC., its successors in interest and/or assigns, its successors in inter-
ns,
ff,

V HEIRS OF RANDY L. HODGES AKA RANDY LEE HODGES; NICOLE
DGES; RANDI LYNN HODGES; JP MORGAN CHASE, SUCCESSOR IN
WASHINGTON MUTUAL BANK; STATE OF OREGON; OCCUPANTS OF
S; AND THE REAL PROPERTY LOCATED AT 2991 INDIAN CREEK
COVE, OREGON, 97539
dant.
NDANT: THE UNKNOWN HEIRS OF RANDY L. HODGES AKA RANDY

of the State of Oregon, you are hereby required to appear and answer
led against you in the above-entitled Court and cause on or before the
days from the date of the first publication of this summons. The date of
in this matter is March 21, 2013. If you fail timely to appear and answer,

ATTACHMENT 3
Written Support from Official with Jurisdiction for Section 4(f) *de minimis*
OR 62: I-5 to Dutton Road Project
Ken Denman Wildlife Area
13226
X-NH-S022(022)

Oregon
John A Kitzhaber MD., Governor

Department of Fish and Wildlife
Wildlife Division
3406 Cherry Avenue NE
Salem, OR 97303
(503) 947-6300
FAX: (503) 947-66330
Internet: www.dfw.state.or.us/

April 5, 2013

Anna Henson
Oregon Department of Transportation
100 Antelope Road
White City, OR 97503

Subject: Section 4(f) *De Minimis* Finding for Recreation Area
Ken Denman Wildlife Area
ODOT/FHWA Project:
OR 62: I-5 to Dutton Road

Dear Ms. Henson,

This letter documents the Oregon Department of Fish and Wildlife (ODFW) support of the proposed Section 4(f) *de minimis* finding for the proposed impacts to the Ken Denman Wildlife Area resulting from the OR 62: I-5 to Dutton Road project. ODFW owns and manages the Hall tract of the wildlife area that will be impacted by the project, and is therefore the official with jurisdiction over this recreational resource. ODFW has reviewed the project's impact and mitigation measures and have concluded that it will not adversely affect the activities, features and attributes of the Ken Denman Wildlife Area.

ODFW understands that the project's Preferred Alternative will build a four lane-lane (two in each direction) limited access bypass using the existing Agate Road alignment. The western edge of the bypass right of way would be to the eastern edge of the Hall Tract Unit, and there would be no use of any of the Hall Tract Unit by the bypass itself. This portion of the bypass would close the access to a current parking lot that is used by hunters to access the Ken Denman Wildlife Area. This area also houses a check station and self service kiosk. As mitigation for the closing the driveway to the parking lot, the project would provide an in-kind replacement parking lot of similar size as the existing parking lot on the north side of the Hall Tract Unit at the southern end of 11th Street, approximately 1,800 feet northwest of the existing parking lot. ODOT would also relocate the check station to the new parking lot and would add a new directional signage to nearby streets to guide visitors to the new parking lot. This new parking lot would provide equally convenient access to the ponds in the western portion of the Hall Tract Unit. The abandoned parking lot will be restored to native habitat and impacts to native

habitat from the construction of the new parking lot will be mitigated on the Denman Wildlife Area.

Although the OR 62: I-5 to Dutton Road project will have some impacts on the Hall Tract Unit of the Ken Denman Wildlife Area (a Section 4(f) resource), ODFW agrees that the impacts will not adversely affect the activities, features, and attributes of the Ken Denman Wildlife Area. As a result, ODFW agrees with the proposed Section 4(f) assessment that the impacts are minor enough to be considered *de minimis*.

Sincerely,

William Warncke
ODFW-ODOT Statewide Liaison

Cc: Clayton Barber, ODFW Denman Wildlife Area Manager
Jon Germond, ODFW Habitat Resources Program Manager

ATTACHMENT 4
FHWA Reporting Information for Section 4(f) *de minimis*
OR 62: I-5 to Dutton Road Project
Ken Denman Wildlife Area
13226
X-NH-S022(022)

Route.	OR 62
Project Name.	OR 62: I-5 to Dutton Road Project
Project Length in Miles.	7.5
Has the project received Transportation Enhancements funds? Has an application for TE funds for this project been submitted? Or is it planned?	No TE funds have been received. ODOT may apply for TE funds at a later date (decision on whether to apply is still to be determined).
Type of project (bridge, intersection, new alignment, safety, widening). Select only one.	New Alignment
Complete project cost.	Projected construction and right-of-way costs, in 2023 dollars, are $370-440 million
NEPA Class of action.	EIS
Number of Section 4(f) resources in the project.	5
List of all Section 4(f) resources in the project.	David Cingcade House and Barn Complex Camp White Station Hospital Bear Creek Greenway Denman Wildlife Area Midway Park (planned)
De minimis mitigation (includes purchase of right-of-way consistent with the Uniform Act).	Construction of new, comparable parking area and relocation of check station kiosk. Mitigation also includes habitat restoration at the site of the displaced parking lot and installation of signs to guide visitors to the new parking lot.
De minimis impacts (e.g. will remove 5 existing parking spaces from 250 space parking lot; will convert x.x acres of Monument land to highway easement, will use 50 sq. ft. of the SE corner of the property).	Will close the driveway to an unpaved parking lot approximately 7,000 square feet in size (neither the parking lot boundary nor individual parking spaces are delineated); parking lot also includes a self-service check station for hunters.
Size of the *de minimis* use in acres.	0.16 acres
Type of *de minimis* resource (Historic, Park, Recreation or Wildlife Refuge). Select only one.	Recreation
Project status (general schedule—bid opening, completion of the environmental process).	NEPA completion by summer 2013 First phase to bid by summer 2013
Anticipated construction start.	Fall 2013
Anticipated construction completion.	First phase: Fall 2015; Complete Project: 2023

Oregon
John A. Kitzhaber, M.D., Governor

Department of Transportation
Highway Division/Technical Services
Geo-Environmental Section, MS#6
4040 Fairview Industrial Dr SE
Salem, OR 97302
Main Line: 503-986-3252
Fax: 503-986-3249

April 9, 2013

RECEIVED
APR 11 2013
OREGON DIVISION

Chris Bucher
Operations Engineer
Federal Highway Administration
Oregon Division
530 Center Street, NE, Suite 420
Salem, Oregon 97301

Subject: **Section 4(f) *De Minimis* Finding for Recreation Area (REVISED)**
Bear Creek Greenway
OR 62: I-5 to Dutton Road
OR 62 from I-5 in Medford to Dutton Road in White City
Jackson County, Oregon
ODOT Key #13226
Federal-Aid #X-NH-S022(022)

Dear Chris:

This letter requests FHWA approval of a Section 4(f) *de minimis* finding for the Bear Creek Greenway associated with the OR 62: I-5 to Dutton Road Project. The project addresses congestion, safety, and operational problems on the 7.5-mile segment of OR 62 from its intersection with I-5 in Medford to Dutton Road north of White City. Following the publication of the Draft Environmental Impact Statement (DEIS), the Split Diamond Interchange, with Option C has been identified as the Preferred Alternative, which includes some changes to the local street network. The DEIS identified a first phase of the project called the JTA Phase. The JTA Phase will not impact the Bear Creek Greenway; however, completion of the full build Preferred Alternative is expected to have impacts as described in this finding.

The Bear Creek Greenway is a 21-mile long recreational multi-use path designated as an "Oregon Recreation Trail." The Bear Creek Greenway extends from Ashland to Central Point on a narrow corridor of publicly owned land that follows Bear Creek, which is roughly adjacent to I-5, as shown on Map 1. The full extent of the Bear Creek Greenway is jointly managed by Jackson County, the six city governments in which it is located, and the nonprofit Bear Creek Greenway Foundation, in accordance with the *Bear Creek Greenway Management Plan*. The City of Medford owns, manages, and has jurisdiction over the segment of the Bear Creek Greenway within its city limits.

This letter is a revision of our original submission on February 25, 2013. It now includes the proper public outreach, included in Appendix 2.

Section 4(f) de minimis Use Description

In the project area, the Bear Creek Greenway path is located on parcels of land owned by the City of Medford and parcels owned by ODOT. For the purposes of the Section 4(f) analysis for this project, in consultation with FHWA, the geographical boundaries of the Bear Creek

Greenway are considered the 12-foot wide multi-use path, along with a 10-foot buffer on either side of the path. The publicly-owned parcels associated with the Bear Creek Greenway include no improvements other than the path itself. Management strategies for the parcels are focused on enhancing recreational opportunities on the path. In total, Section 4(f) consideration is being given to the 32-foot wide Bear Creek Greenway as it passes through this project's API.

Recreational activities on the multi-use path include bird watching, walking, jogging, bicycling and roller skating. The path also serves a transportation purpose and functions as a bicycle commuter route. Federal CMAQ funding has been utilized on portions of the Bear Creek Greenway. Some users of the path bicycle between the cities along it, while other users are local. Natural attributes of the multi-use path include the Bear Creek waterway and associated riparian zones.

The Preferred Alternative will modify the existing North Medford Interchange (NMI) on I-5 to accommodate movements to and from the proposed bypass. The interchange modifications will move the I-5 southbound off ramp closer to the Bear Creek Greenway and will displace three short segments, each approximately 200 feet long, of the Greenway path currently located on City of Medford-owned land, as shown on see Map 2. In these three locations, the Preferred Alternative will use a total of 0.1 acres of the Bear Creek Greenway Section 4(f) resource. As a part of the Preferred Alternative, ODOT will rebuild those three segments in the approximate locations shown on Map 2. The new segments will be the same width and will use similar construction methods as the rest of the Bear Creek Greenway path. These changes will not negatively impact the attributes, features, and activities that occur on the Bear Creek Greenway and will offer the same recreational opportunities as the existing path.

Other Section 4(f) Considerations

The Preferred Alternative will cause other changes to the Bear Creek Greenway path that do not constitute a Section 4(f) use. The Bear Creek Greenway crosses Bear Creek on a small bridge on the east side of I-5. The Preferred Alternative will shift the Greenway's existing bridge over Bear Creek to the east to accommodate the extension of the I-5 northbound on-ramp. The Greenway bridge is currently within ODOT I-5 right-of-way and will be shifted east onto land owned by ODOT. A new Greenway bridge over Bear Creek will be built prior to removing the existing bridge over Bear Creek to allow the path to remain open during the realignment work. The Bear Creek Greenway path connecting to both ends of the bridge will also be moved.

The Preferred Alternative will extend the I-5 on and off ramps, requiring new I-5 bridges over the multi-use path and Bear Creek. These bridges, which will be adjacent to the existing I-5 bridges, will completely span the Bear Creek Greenway path and will not constitute a Section 4(f) use. During construction of the I-5 bridges, the Bear Creek Greenway path will be subject to short-term temporary closures when necessary for public safety. Construction techniques and schedules have not yet been designed for the Preferred Alternative. Based on experience with similar projects, engineers have confirmed that only single-day (or shorter) path closures will be needed, and that those closures will be relatively infrequent. Path closures will be limited to periods when closing the path will be required to ensure public safety, such as when materials are being hoisted overhead or when other overhead construction activities occur. Path closures

for overhead construction work will last one day or less, and will be minimized to the greatest extent possible. In addition to path closures, construction crews may need to temporarily stop path traffic to allow construction equipment to cross the path. These periodic short-duration interruptions will last 15 minutes or less and will also be minimized.

Once detailed construction schedules are developed, the schedule for path closures will be coordinated with the City of Medford and Greenway representatives, and will be advertised to the public in advance. To the greatest extent possible, such closures will be scheduled for times when the path is less heavily used. ODOT will provide directional signage for alternate northbound and southbound routes around the closed segments of the path. Because recreational opportunities will still exist on the Bear Creek Greenway path, these closures are not expected to constitute a Section 4(f) use. ODOT, following consultation with FHWA, may work with the City of Medford as the official with jurisdiction to complete documentation that describes how the above would fit within the temporary occupancy exception described in 23 USC 774.13 (d).

The proposed northbound on-ramp will displace the access spur between the Bear Creek Greenway and Hilton Court. This access spur was constructed by ODOT in conjunction with the North Medford Interchange project. A second access is located on an unnamed spur road off of Biddle Road, approximately 600' north of Hilton Court as shown on Map 2. The displaced access spur is not part of the Bear Creek Greenway and is not considered a Section 4(f) resource. Because the second access of similar quality and convenience is located so close by (approximately 600' north), removing the Hilton Court access will not affect the features, attributes, and recreational activities on the Bear Creek Greenway. A potential mitigation strategy, as described in greater detail below, is to enhance signage guiding people to and from the Bear Creek Greenway, particularly in this area where access will change.

Avoidance, Minimization and Mitigation Measures

During project development, additional efforts were made to minimize and avoid impacts to the Bear Creek Greenway. When designing the Preferred Alternative, project engineers were directed to avoid or minimize impacts to the Bear Creek Greenway. Because the Bear Creek Greenway path is so close to I-5 in the project area, engineers were unable to design the interchange to completely avoid use of the resource and still comply with geometrical and operational standards. However, engineers were able to minimize the project footprint by modifying the design. In the vicinity of the Bear Creek Greenway, the Preferred Alternative's interchange ramps will be elevated. Those ramps were initially designed to be located on an earthen embankment, but project engineers changed the design to use a retaining wall, which will decrease the project's footprint.

In addition to avoidance and minimization efforts, ODOT plans to mitigate for the displaced access spur by adding signage. There are very few signs on the nearby street network to guide people to the Bear Creek Greenway path. Adding directional signs in and around the project area will make it easier for people to get to the Bear Creek Greenway path. Project engineers will coordinate with the City of Medford to determine the locations and types of directional signs.

A DEIS was prepared for this project and was published in September 2012. A public hearing/open house was held on October 17, 2012. There were no comments or letters received that stated concerns about this Section 4(f) *de minimis* finding that was proposed at that time. The Department of the Interior wrote a letter about Section 6(f) compliance that expressed concern about noise and visual impacts resulting from modifications to the North Medford Interchange. The noise and visual analyses contained in the DEIS have concluded that although there would be changes in noise level and landscape, those changes would be relatively minor.

The public comment period for the project's Section 4(f) *de minimis* impacts to parks occurred from March 21, 2013 to April 3, 2013 and no comments were received.

The Mayor of the City of Medford, the official with jurisdiction for the Bear Creek Greenway within the OR 62 project area, has concurred that the Section 4(f) impacts to the Bear Creek Greenway as described are minor enough to be considered *de minimis.* See Attachment 3 for his letter.

This submission includes the following four attachments: (1) Maps of Section 4(f) property in association with proposed project; (2) Summary of public outreach and outcomes associated with proposed Section 4(f) *de minimis* finding; (3) Written correspondence from official with jurisdiction regarding Section 4(f) *de minimis* finding; and (4) FHWA Section 4(f) *de minimis* reporting information.

Please contact Chris Bell, at (503) 986-3853, if you have questions pertaining to this request.

Sincerely,

James B. Norman
Environmental Planning Unit Manager

The FHWA makes a Section 4(f) *de minimis* finding for the Bear Creek Greenway for the OR 62: I-5 to Dutton Road project as described in this document.

Phillip A. Ditzler
Oregon Division Administrator
Federal Highway Administration

April 15, 2013
Date

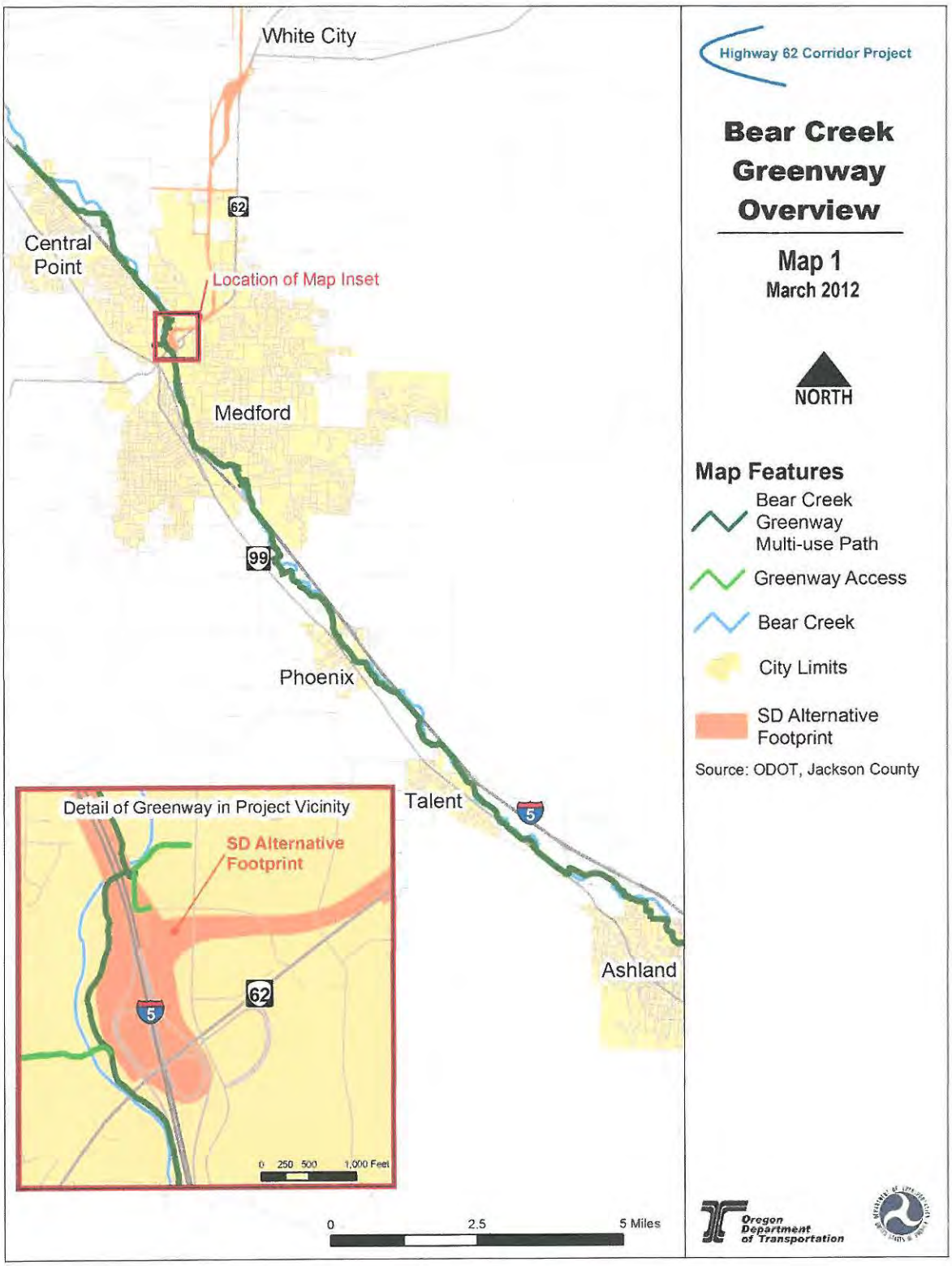
Attachments:

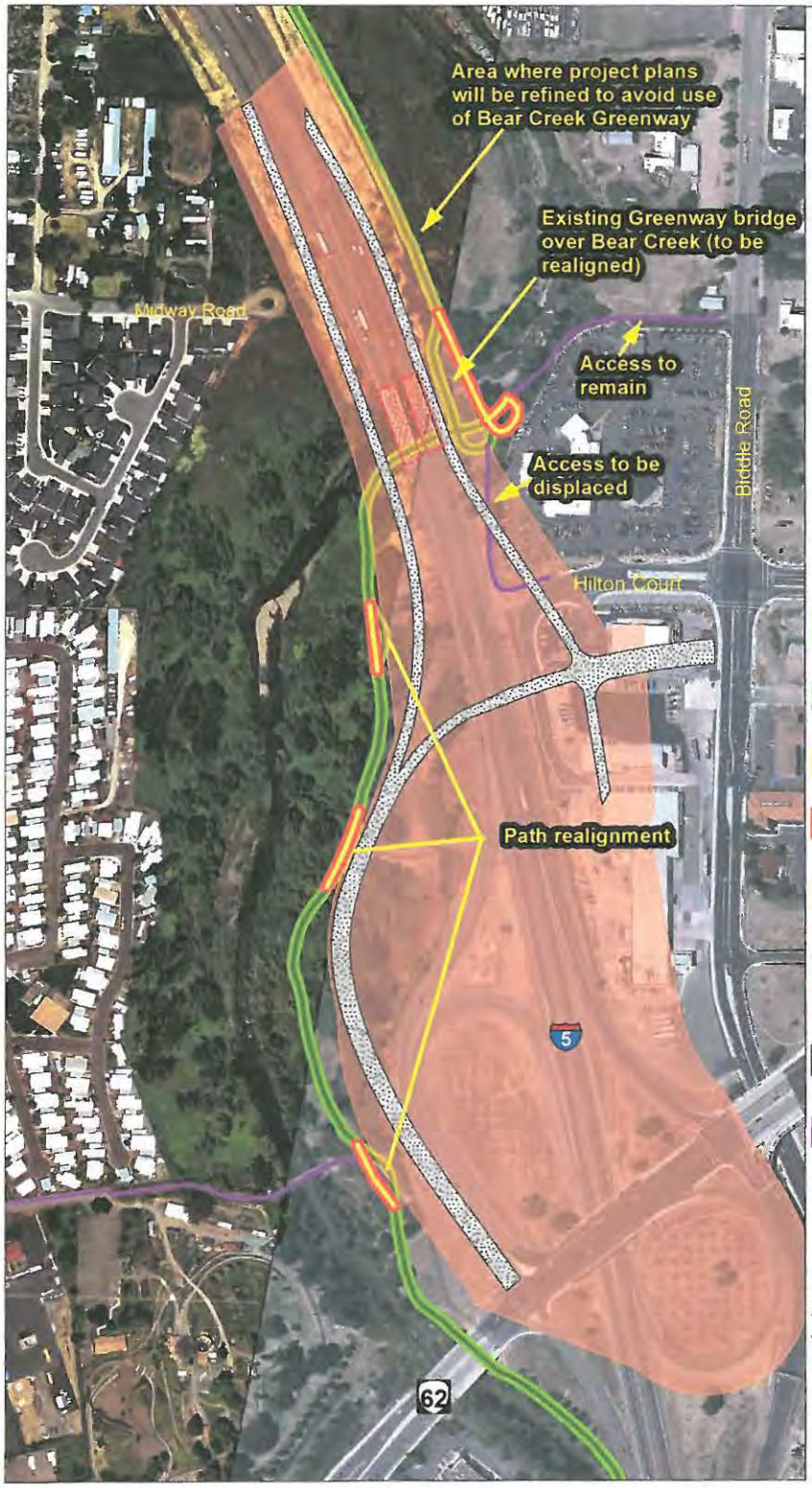
(1) Maps of Section 4(f) property
  Map 1: overview of BCG
  Map 2: impacts
(2) Section 4(f) *de minimis* Public Outreach Summary
(3) Written support from Gary Wheeler, Mayor of the City of Medford (Official with Jurisdiction (OWJ) for proposed Section 4(f) *de minimis*).
(4) FHWA Reporting Information for Section 4(f) *de minimis*

Copies to:

Anna Henson, ODOT Environmental Project Manager
Chris Bell, ODOT Cultural Resource Program Coordinator

ATTACHMENT 1
Section 4(f) *de minimis* Property and Project Maps
OR 62: I-5 to Dutton Road
Bear Creek Greenway
ODOT Key #13226
Federal-Aid #X-NH-S022(022)


White City
Highway 62 Corridor Project
Bear Creek Greenway Overview
Map 1
March 2012
NORTH
Central Point
Location of Map Inset
62
Medford
99
Phoenix
Talent
5
Ashland
Map Features
Bear Creek Greenway Multi-use Path
Greenway Access
Bear Creek
City Limits
SD Alternative Footprint
Source: ODOT, Jackson County
Detail of Greenway in Project Vicinity
SD Alternative Footprint
0 250 500 1,000 Feet
0 2.5 5 Miles
Oregon Department of Transportation



Highway 62 Corridor Project

SD Alternative Impacts to Bear Creek Greenway

Map 2

February 2013

NORTH

Map Features

- Section 4(f) Resource: 12' Multi-use Path and 10' Buffer
- Existing 12' Wide Multi-use Path
- Proposed Multi-use Path Realignment
- Proposed 10' Buffer
- SD Alternative Right of Way Footprint
- Existing 1-5 Bridges over Bear Creek and Multi-Use Path
- Proposed I-5 On/Off Ramp Realignments (not all ramps are shown)
- Access to Greenway

Note: The map area is at the edge of the aerial photographs and some distortion is present.

Sources: Jackson County Assessor, Jackson County GIS, ODOT

0 125 250 500 Feet

Oregon Department of Transportation

ATTACHMENT 2
Section 4(f) *de minimis* Public Outreach Summary
OR 62: I-5 to Dutton Road
Bear Creek Greenway
ODOT Key #13226
Federal-Aid #X-NH-S022(022)

The public comment period for the Section 4(f) de minimis assessments was held from March 21, 2013 to April 3, 2013. In addition to this public comment period, ODOT solicited public comment on the Section 4(f) *de minimis* assessments during the public comment period for the project DEIS. The DEIS included information about impacts to Section 4(f) resources and the fact that FHWA intended to consider those impacts *de minimis*, pending the receipt of public and agency comments. ODOT also accepted public comments throughout the project development. During the scoping and alternatives analysis phases of the project, ODOT held monthly project meetings which the public was welcome to attend. These meetings also included time for the public to voice their concerns or comments.

Public notice

A copy of the public notice requesting comments on the Section 4(f) *de minimis* assessment is included at the end of this attachment. This is the notice of public comment opportunity published in the Mail Tribune March 21, 2013.

There were no comments received on the proposed *de minimis*.

Notice published in the Mail Tribune
March 21, 2013

VERNON C. ROBERTSON, have been appointed co-personal representatives of the the above-entitled estate. All persons having claims against the estate are hereby required to present the same, with proper vouchers, within four months after the date of first publication of this notice as stated below, to the undersigned at the office of BROPHY, SCHMOR, BROPHY, PARADIS, MADDOX & WEAVER, LLP, 201 W. Main Street, 5th Floor, Medford, Oregon 97501, attorneys for the co-personal representatives, within four (4) months after the date of the first publication of this notice or they may be barred.

All persons whose rights may be affected by this proceeding may obtain additional information from the records of the court, the co-personal representatives, or the attorneys for the co-personal representatives, BROPHY, SCHMOR, BROPHY, PARADIS, MADDOX & WEAVER, LLP.

DATED AND FIRST PUBLISHED this 14th day of March, 2013.

JOHN C. HURT and
VERNON C. ROBERTSON
Co-Personal
Representatives

March 14, 21, 28, 2013

NOTICE TO INTERESTED PERSONS
No. 13-101-P-6
IN THE CIRCUIT COURT OF THE STATE OF OREGON FOR JACKSON COUNTY
IN THE MATTER OF THE ESTATE of John Palmer Murnane, Deceased.

Notice is hereby given that the undersigned has been appointed and has qualified as personal representative of the estate. All persons having claims against the estate are hereby required to present the same, with proper vouchers, within four months after the date of first publication of this notice as stated below, to the personal representative at c/o James A. Wickre, Attorney at Law, 816 West 6th St., Medford, Oregon 97501, or they may be barred.

All persons whose rights may be affected by the proceedings in this estate may obtain additional information from the records of the court, the personal representative or the attorney for the personal representative.

Dated and first published March 14, 2013.

William P. Haberlach
Personal Representative
JAMES A. WICKRE
OSB #743416
Attorney at Law
816 West 6th Street
Medford, OR 97501
(541) 772-3321

March 14, 21, 28, 2013

my attorney.

DATED AND FIRST PUBLISHED this 14th day of March, 2013.

Employment Section
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541-776-4466

Notice of Public Comment Opportunity
OR62: I-5 to Dutton Road, Medford
Proposed Section 4(f) *de minimis* Impact Findings for Bear Creek Greenway, planned Midway Park and the Ken Denman Wildlife Area

The Draft Section 4(f) *de minimis* Impact Findings for the OR 62 I-5 to Dutton Road project, ODOT Key No. 13226, are currently available for public review and comment. *De minimis* impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not "adversely affect the activities, features and attributes" of the Section 4(f) resource.

The proposed project will construct a 7.5 mile access controlled expressway to serve as a bypass for existing OR 62. The project includes four new interchanges and changes to local streets and roads to accommodate the bypass. Based on an evaluation of project impacts, preliminary Section 4(f) *de minimis* findings have been drafted for: (1) the Bear Creek Greenway, (2) the planned Midway Park, and; (3) the Ken Denman Wildlife Area have been made.

A first phase of the OR 62: I-5 to Dutton Road project has been identified, called the JTA phase. Construction of the JTA phase is expected to begin in 2014. As funding is secured for subsequent phases of the project, those phases will be constructed. All three Section 4(f) resources are outside the JTA phase project area and therefore will not be impacted by the construction of this first phase. Phases subsequent to the JTA phase will impact all three Section 4(f) resources.

Copies of the Draft Section 4(f) *de minimis* Impact Finding are available upon request by contacting Anna Henson, Environmental Project Manager, at (541) 774-6376.

Comments regarding the above *de minimis* finding for the OR 62: I-5 to Dutton Road, Medford project are due April 3, 2013.

March 21, 2013

SUMMONS BY PUBLICATION
Case No. 12C0695E2
IN THE CIRCUIT COURT FOR THE STATE OF OREGON
IN AND FOR THE COUNTY OF JACKSON
E, INC., its successors in interest and/or assigns, its successors in interest

ATTACHMENT 3
Written Support from Official with Jurisdiction for Section 4(f) *de minimis*
OR 62: I-5 to Dutton Road
Bear Creek Greenway
ODOT Key #13226
Federal-Aid #X-NH-S022(022)

CITY OF MEDFORD
411 WEST 8TH STREET
MEDFORD, OREGON 97501

OFFICE OF
THE CITY MAYOR
www.ci.medford.or.us

TELEPHONE (541) 774-2000
FAX: (541) 618-1700
E-mail: mayor@ci.medford.or.us

April 4, 2013

Subject: **Section 4(f) *De Minimis* Finding for Recreation Area**
Bear Creek Greenway
ODOT/FHWA Project:
OR 62: I-5 to Dutton Road

Dear Anna Henson,

This letter is to recognize that the City of Medford supports the proposed Section 4(f) *de minimis* assessment for the proposed impacts to the Bear Creek Greenway resulting from the OR 62: I-5 to Dutton Road project. The City owns and manages the segment of the Bear Creek Greenway that will be impacted by the project. Under the Joint Powers Agreement for the Bear Creek Greenway the City manages the segments it owns. Pursuant to that agreement and City Code and Regulations, the City has been delegated authority to administer the property on behalf of the City and therefore act as the Official with Jurisdiction over this recreational resource. The City has reviewed the project's impact and mitigation measures and has concluded that it will not adversely affect the activities, features and attributes of the Bear Creek Greenway.

The City understands that the project's Preferred Alternative will modify the southbound off-ramp of the I-5 North Medford Interchange, moving it closer to the Bear Creek Greenway. The existing earthen embankment between the Bear Creek Greenway and the off-ramp will be changed to a retaining wall, and three short segments of the path will be realigned. Further north, the Preferred Alternative will modify the I-5 northbound on-ramp, also moving it closer to the Bear Creek Greenway. The existing Bear Creek Greenway Bridge over Bear Creek will be shifted eastward to accommodate the off-ramp and the Greenway path on either side of the bridge will also be realigned. The Preferred Alternative will also displace the access spur between the Bear Creek Greenway and Hilton Court. This access spur was constructed by ODOT in conjunction with the North Medford Interchange project. A second access spur is located approximately 600' north of Hilton Court, off of an unnamed road; this second access will not be affected. As mitigation for the access displacement, ODOT will provide signage on the street network to help guide people to the Greenway path.

In addition to these permanent changes, there will also be some construction impacts, including short-term temporary path closures. These closures will last one day or less.

Although the OR 62: I-5 to Dutton Road project will require the use of some of the Bear Creek Greenway (a Section 4(f) resource), and it will have impacts on the Bear Creek Greenway, The

City agrees that the impacts will not adversely affect the activities, features, and attributes of the Bear Creek Greenway. As a result, the City of Medford agrees with the proposed Section 4(f) assessment that the impacts are minor enough to be considered *de minimis*.

Sincerely,

Gary Wheeler
Mayor

ATTACHMENT 4
FHWA Reporting Information for Section 4(f) *de minimis*
OR 62: I-5 to Dutton Road
Bear Creek Greenway
ODOT Key #13226
Federal-Aid #X-NH-S022(022)

Route.	OR 62
Project Name.	OR 62: I-5 to Dutton Road
Project Length in Miles.	7.5
Has the project received Transportation Enhancements funds? Has an application for TE funds for this project been submitted? Or is it planned?	No TE funds have been received. ODOT may apply for TE funds at a later date (decision on whether to apply is still to be determined).
Type of project (bridge, intersection, new alignment, safety, widening). Select only one.	New Alignment
Complete project cost.	Projected construction and right-of-way costs, in 2023 dollars, are approximately $440 million.
NEPA Class of action.	EIS
Number of Section 4(f) resources in the project.	5
List of all Section 4(f) resources in the project.	David Cingcade House and Barn Complex Camp White Station Hospital Bear Creek Greenway Denman Wildlife Area Midway Park (planned)
De minimis mitigation (includes purchase of right-of-way consistent with the Uniform Act).	Addition of directional signage in project vicinity; realignment of displaced portions of path.
De minimis impacts (e.g. will remove 5 existing parking spaces from 250 space parking lot; will convert x.x acres of Monument land to highway easement, will use 50 sq. ft. of the SE corner of the property).	Will displace three short segments of the Greenway path, thus using 0.1 acres of the Section 4(f) resource. Other impacts (which do not constitute a 4(f) use) include moving an existing bridge over Bear Creek and realigning the path at either end of the bridge; adding new I-5 bridges over the path; displacing an existing access to the path; and temporary, short-term path closures.
Size of the *de minimis* use in acres.	0.1 acre
Type of *de minimis* resource (Historic, Park, Recreation or Wildlife Refuge). Select only one.	Recreation
Project status (general schedule—bid opening, completion of the environmental process).	NEPA completion by summer 2013 First phase to bid by summer 2013
Anticipated construction start.	Fall 2013

Anticipated construction completion.	First phase: 2015 Complete Project: 2023

Bucher

Oregon
John A. Kitzhaber, M.D., Governor

Department of Transportation
Highway Division/Technical Services
Geo-Environmental Section, MS#6
4040 Fairview Industrial Dr SE
Salem, OR 97302
Main Line: 503-986-3252
Fax: 503-986-3249

RECEIVED
APR 15 2013
FHWA
OREGON DIVISION

April 12, 2013

Chris Bucher
Operations Engineer
Federal Highway Administration
Oregon Division
530 Center Street, NE, Suite 420
Salem, Oregon 97301

Subject: **Section 4(f) d*e minimis* Finding for Recreation Area (REVISED)**
Planned Midway Park
Oregon 62: I-5 to Dutton Road
Jackson County, Oregon
ODOT Key #13226
Federal-Aid #X-NH-S022(022)

Dear Mr. Bucher:

This letter requests FHWA approval of a Section 4(f) *de minimis* finding for the planned Midway Park associated with the OR 62: I-5 to Dutton Road Project. The project addresses congestion, safety, and operational problems on the 7.5-mile segment of OR 62 from its intersection with I-5 in Medford to Dutton Road north of White City. Following the publication of the Draft Environmental Impact Statement (DEIS), the Split Diamond Interchange, with Option C has been identified as the Preferred Alternative which includes some changes to the local street network. The DEIS identified a first phase of the project called the JTA Phase. The JTA Phase will not impact the Bear Creek Greenway; however, completion of the full build Preferred Alternative is expected to have impacts as described in this finding.

This letter is a revision of our original submission on February 25, 2013. It now includes the proper public outreach, included in Appendix 2.

The City of Medford plans to create Midway Park on undeveloped land that the city currently owns, located to the west side of I-5 near Midway Road. Map 1 shows the Midway Park Master Plan. The Midway Park Master Plan shows the park occupying the northern portion of tax lot 37-2W-13AD-201, with I-5 on its eastern edge and the residential neighborhood on its western edge. The park's northern boundary is roughly in line with the southern edge of Midway Road. The park's southern boundary does not correspond to a landmark or feature, but it is located approximately 520 feet south of the northern boundary. The dashed blue line on Map 1 shows the park boundaries and is the geographical extent of this Section 4(f) resource. Although the city has not yet identified funding for building the improvements, Medford intends to build the park within the next five or six years. The park is planned as a neighborhood park to provide outdoor

recreational opportunities for nearby residents. When completed, the park will include a dog park, playground, basketball court, restrooms, picnic areas, and parking. The park plans to include a berm along the east side of the park, adjacent to I-5 for noise reduction purposes. Representatives from the Medford Parks and Recreation Department confirmed that the planned berm is designed to reduce noise levels in the park because I-5 is less than 100 feet from the proposed park. The tax lot on which the park will be located is approximately 12 acres, but Midway Park will be located at the northern end of that tax lot and its associated improvements will cover approximately 3 acres.

The Preferred Alternative will extend the I-5 southbound off-ramp northward, which will effectively widen I-5 and require the use of approximately 0.15 acres of Medford-owned land on which Midway Park is planned to be built. Map 2 shows the proposed use. The use will be limited to displacing nearly all of the planned noise reduction berm. The planned recreational areas are further west, and there will remain ample space for all of the planned recreational activities. As a result, the Preferred Alternative will not adversely impact the recreational activities that are expected to occur in the planned Midway Park. To mitigate for the loss of the planned berm in Midway Park, ODOT will build a noise barrier between the park and I-5. The noise barrier will be substantially narrower than the proposed berm, so it can be located directly adjacent to I-5 without encroaching on the recreational areas of the park.

In addition to the mitigation strategy described above, ODOT has worked to minimize adverse impacts to the planned park. During the project development, project engineers were aware that the Medford Parks Department owned land adjacent to I-5 and engineers designed the Preferred Alternative to keep its footprint as small as possible and minimize impacts to this land. In the vicinity of Midway Park, the proposed project's I-5 ramps will be elevated. Those ramps were initially designed to be located on an earthen embankment, but project engineers changed the design to use a retaining wall, which will decrease the project's footprint.

A DEIS was prepared for this project and was published in September 2012. A public hearing/open house was held on October 17, 2012. ODOT did not receive any letters regarding impacts to the planned Midway Park.

The public comment period for the project's Section 4(f) *de minimis* impacts to parks occurred from March 21, 2013 to April 3, 2013 and no comments were received (see Attachment 2 for a complete description of public outreach and comments).

The Mayor of the City of Medford, the official with jurisdiction for Midway Park, has concurred that the Section 4(f) impacts to Midway Park as described are minor enough to be considered *de minimis*. See Attachment 3 for his letter.

This submission includes the following four attachments: (1) Two maps of Section 4(f) property in association with proposed project; (2) Summary of public outreach and

outcomes associated with proposed Section 4(f) *de minimis* finding; (3) Written correspondence from official with jurisdiction regarding Section 4(f) *de minimis* finding; and (4) FHWA Section 4(f) *de minimis* reporting information.

Please contact Chris Bell, at 503-986-3853, if you have questions pertaining to this finding. Upon approval, please transit the signed copy to this office (TLC, 4040 Fairview Industrial Drive), where we will distribute and process according to protocol.

Sincerely,

James B. Norman
Environmental Planning Unit Manager

The FHWA makes a Section 4(f) *de minimis* finding for the planned Midway Park for the OR 62: I-5 to Dutton Road project as described in this document.

Phillip A. Ditzler — 4/16/2013

Phillip A. Ditzler — Date
Oregon Division Federal Highway Administration

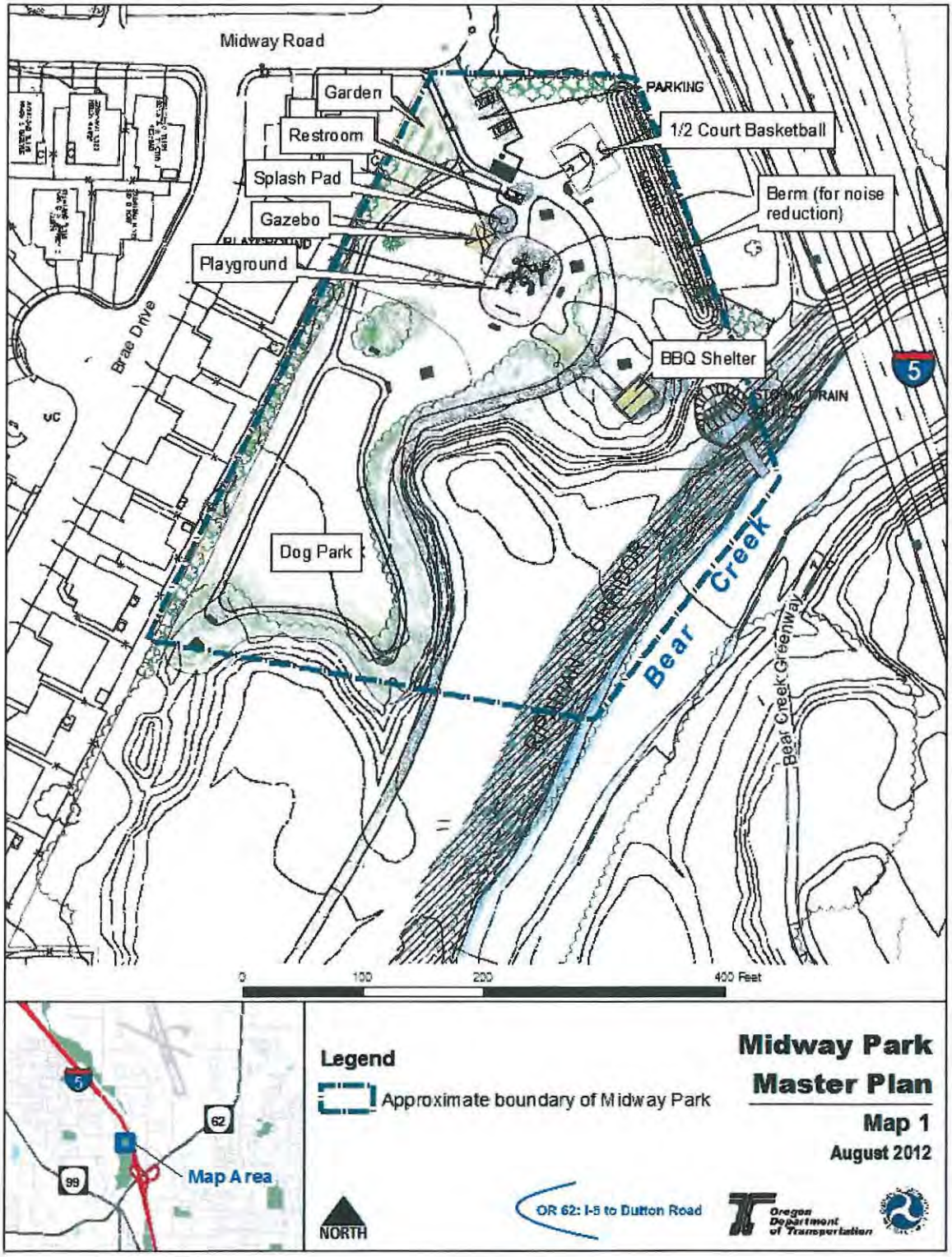
Attachments:

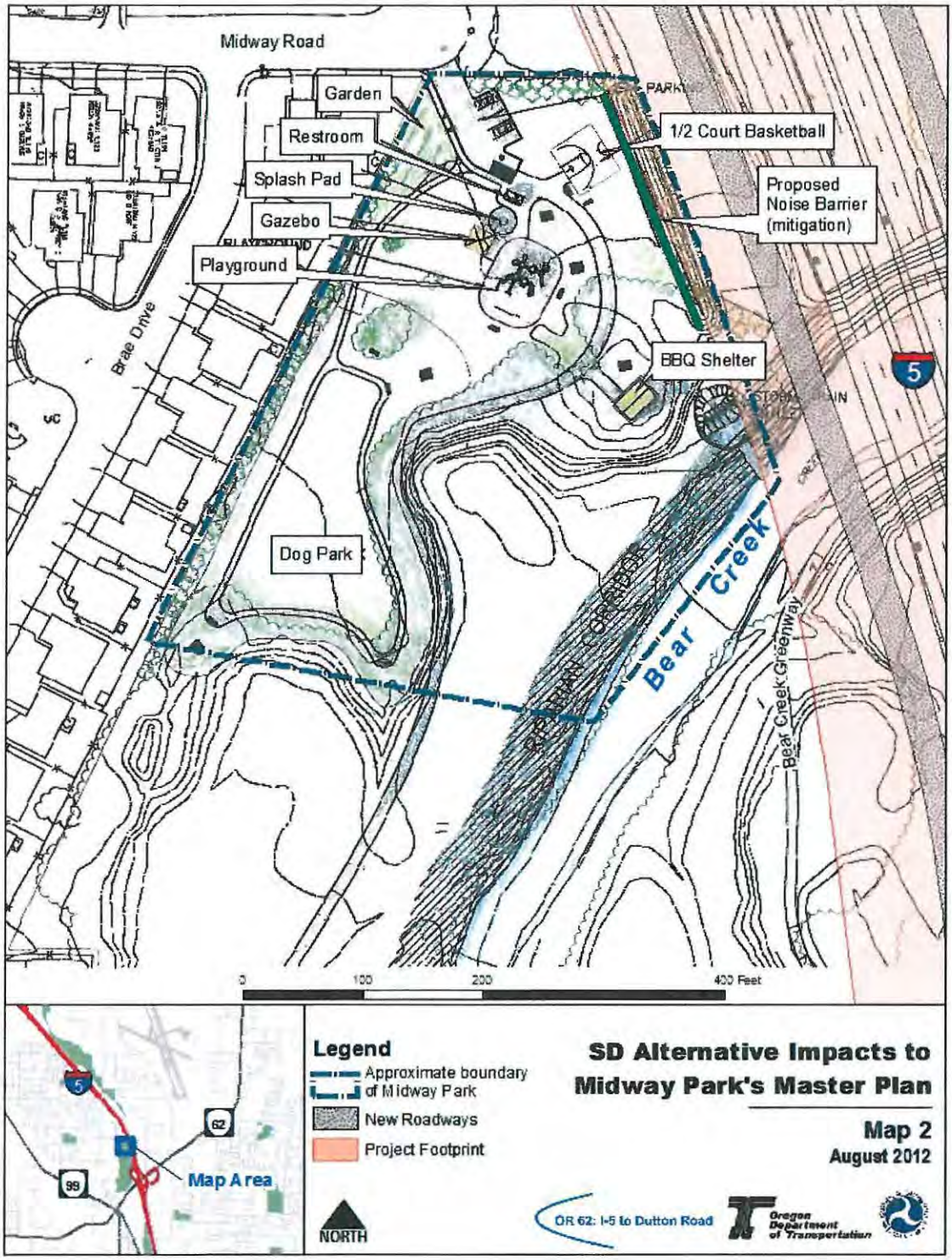
(1) Map 1: Section 4(f) property; and Map 2: Proposed use of Section 4(f) property
(2) Section 4(f) *de minimis* Public Outreach Summary
(3) Written support from Gary Wheeler, Mayor of the City of Medford and Official with Jurisdiction (OWJ) for proposed Section 4(f) *de minimis*.
(4) FHWA Reporting Information for Section 4(f) *de minimis*

Copies to:

Anna Henson, ODOT Environmental Project Manager
Chris Bell, ODOT Cultural Resource Program Coordinator

ATTACHMENT 1
Section 4(f) *de minimis* Property and Project Map
OR 62: I-5 to Dutton Road
Midway Park (planned)
ODOT Key # 13226
Federal-Aid # X-NH-S022(022)


Midway Road
Garden
Restroom
Splash Pad
Gazebo
Playground
PARKING
1/2 Court Basketball
Berm (for noise reduction)
BBQ Shelter
STORM DRAIN
Dog Park
Brae Drive
Bear Creek
Bear Creek Greenway
0
100
200
400 Feet
Legend
Approximate boundary of Midway Park
Map Area
NORTH
OR 62: I-5 to Dutton Road
Oregon Department of Transportation
Midway Park Master Plan
Map 1
August 2012


Midway Road
Garden
Restroom
Splash Pad
Gazebo
Playground
1/2 Court Basketball
Proposed Noise Barrier (mitigation)
BBQ Shelter
Dog Park
Brae Drive
Bear Creek
Bear Creek Greenway
5
0
100
200
400 Feet
Legend
Approximate boundary of Midway Park
New Roadways
Project Footprint
NORTH
Map Area
62
99
SD Alternative Impacts to Midway Park's Master Plan
Map 2
August 2012
OR 62: I-5 to Dutton Road
Oregon Department of Transportation

ATTACHMENT 2
Section 4(f) *de minimis* Public Outreach Summary
OR 62: I-5 to Dutton Road
Midway Park (planned)
ODOT Key # 13226
Federal-Aid # X-NH-S022(022)

The public comment period for the Section 4(f) de minimis assessments was held from March 21, 2013 to April 3, 2013. In addition to this public comment period, ODOT solicited public comment on the Section 4(f) *de minimis* assessment during the public comment period for the project DEIS. The DEIS included information about impacts to Section 4(f) resources and the fact that FHWA intended to consider those impacts *de minimis*, pending the receipt of public and agency comments. ODOT also accepted public comments throughout the project development. During the scoping and alternatives analysis phases of the project, ODOT held monthly project meetings which the public was welcome to attend. These meetings also included time for the public to voice their concerns or comments.

Public notice

A copy of the public notice requesting comments on the Section 4(f) *de minimis* assessment is included at the end of this attachment. It is the notice of public comment opportunity published in the Mail Tribune March 21, 2013.

There were no comments received regarding the proposed Section 4(f) *de minimis* for Midway Park.

Notice published in the Mail Tribune
March 21, 2013

Employment Section....
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Notice of Public Comment Opportunity
OR62: I-5 to Dutton Road, Medford
Proposed Section 4(f) *de minimis* Impact Findings for Bear Creek Greenway, planned Midway Park and the Ken Denman Wildlife Area

The Draft Section 4(f) *de minimis* Impact Findings for the OR 62 I:5 to Dutton Road project, ODOT Key No. 13226, are currently available for public review and comment. *De minimis* Impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not "adversely affect the activities, features and attributes" of the Section 4(f) resource.

The proposed project will construct a 7.5 mile access controlled expressway to serve as a bypass for existing OR 62. The project includes four new interchanges and changes to local streets and roads to accommodate the bypass. Based on an evaluation of project impacts, preliminary Section 4(f) *de minimis* findings have been drafted for: (1) the Bear Creek Greenway, (2) the planned Midway Park, and; (3) the Ken Denman Wildlife Area have been made.

A first phase of the OR 62: I-5 to Dutton Road project has been identified, called the JTA phase. Construction of the JTA phase is expected to begin in 2014. As funding is secured for subsequent phases of the project, those phases will be constructed. All three Section 4(f) resources are outside the JTA phase project area and therefore will not be impacted by the construction of this first phase. Phases subsequent to the JTA phase will impact all three Section 4(f) resources.

Copies of the Draft Section 4(f) *de minimis* Impact Finding are available upon request by contacting Anna Henson, Environmental Project Manager, at (541) 774-6376.

Comments regarding the above *de minimis* finding for the OR 62: I-5 to Dutton Road, Medford project are due April 3, 2013.

March 21, 2013

VERNON C. ROBERTSON, have been appointed co-personal representatives of the the above-entitled estate. [illegible] claims [illegible] require[illegible] OR[illegible] person[illegible] the [illegible] of BROPHY, SCHMOR, BROPHY, PARADIS, MADDOX & WEAVER, LLP, 201 W. Main Street, 5th Floor, Medford, Oregon 97501, attorneys for the co-personal representatives, within four (4) months after the date of the first publication of this notice or they may be barred.

All persons whose rights may be affected by this proceeding may obtain additional information from the records of the court, the co-personal representatives, or the attorneys for the co-personal representatives, BROPHY, SCHMOR, BROPHY, PARADIS, MADDOX & WEAVER, LLP.

DATED AND FIRST PUBLISHED this 14th day of March, 2013.

JOHN C. HURT and
VERNON C. ROBERTSON
Co-Personal
Representatives

March 14, 21, 28, 2013

NOTICE TO INTERESTED PERSONS
No. 13-101-P-6
IN THE CIRCUIT COURT OF THE STATE OF OREGON FOR JACKSON COUNTY

IN THE MATTER OF THE ESTATE of John Palmer Murnane, Deceased.

Notice is hereby given that the undersigned has been appointed and has qualified as personal representative of the estate. All persons having claims against the estate are hereby required to present the same, with proper vouchers, within four months after the date of first publication of this notice as stated below, to the personal representative at c/o James A. Wickre, Attorney at Law, 816 West 8th St., Medford, Oregon 97501, or they may be barred.

All persons whose rights may be affected by the proceedings in this estate may obtain additional information from the records of the court, the personal representative or the attorney for the personal representative.

Dated and first published: March 14, 2013

William P. Haberlach
Personal Representative
JAMES A. WICKRE
OSB #743418
Attorney at Law
816 West 8th Street
Medford, OR 97501
(541) 772-3371

March 14, 21, 28, 2013

my attorney.

DATED AND FIRST PUBLISHED this 14th day of March, 2013.

SUMMONS BY PUBLICATION
Case No. 126069E2
[illegible] THE CIRCUIT COURT FOR THE STATE OF OREGON
IN AND FOR THE COUNTY OF JACKSON
E, INC., its successors in interest and/or assigns, its successors in inter-

ATTACHMENT 3
Written Support from Official with Jurisdiction for Section 4(f) *de minimis*
OR 62: I-5 to Dutton Road
Midway Park (planned)
ODOT Key # 13226
Federal-Aid # X-NH-S022(022)

OFFICE OF
THE CITY MAYOR
www.ci.medford.or.us

CITY OF MEDFORD
411 WEST 8TH STREET
MEDFORD, OREGON 97501

TELEPHONE (541) 774-2000
FAX: (541) 618-1700
E-mail: mayor@ci.medford.or.us

April 4, 2013

Subject: **Section 4(f) *De Minimis* Finding for Recreation Area**
Midway Park
ODOT/FHWA Project:
OR 62: I-5 to Dutton Road

Dear Anna Henson,

This letter is to recognize that the City of Medford supports the proposed Section 4(f) *de minimis* assessment for the proposed impacts to Midway Park resulting from the OR 62: I-5 to Dutton Road project. The City of Medford owns the land where Midway Park will be located and has developed a master plan for the future park and is therefore the Official with Jurisdiction over this recreational resource. We have reviewed the project's impact and mitigation measures and have concluded that it will not adversely affect the activities, features and attributes of the future Midway Park.

The design for Midway Park includes a berm along the east side of the park, adjacent to I-5. This berm is designed to reduce noise levels in the park because I-5 is less than 100 feet from the future park. We understand that the project's Preferred Alternative will extend the I-5 southbound off-ramp northward, which will effectively widen I-5 and require the use of approximately 0.15 acres of parkland. This will displace nearly all of the noise-reduction berm but will not encroach on the ball field or other planned recreational areas. As mitigation for displacing the berm, ODOT will build a noise barrier between the park and I-5. Because the noise wall will be substantially narrower than the berm, it can be located directly adjacent to I-5 without encroaching on the park's planned recreational areas.

The City of Medford agrees that the impacts resulting from the project's Preferred Alternative are minor enough to be considered *de minimis*. The change from a noise-reducing berm to a wall will not adversely affect the park's planned activities, features, and attributes.

Sincerely,

Gary Wheeler
Mayor

Continuous Improvement – Customer Service

ATTACHMENT 4
FHWA Reporting Information for Section 4(f) *de minimis*

OR 62: I-5 to Dutton Road
Midway Park (planned)
ODOT Key # 13226
Federal-Aid # X-NH-S022(022)

Route.	OR 62
Project Name.	OR 62: I-5 to Dutton Road
Project Length in Miles.	7.5
Has the project received Transportation Enhancements funds? Has an application for TE funds for this project been submitted? Or is it planned?	No TE funds have been received. ODOT may apply for TE funds at a later date (decision on whether to apply is still to be determined).
Type of project (bridge, intersection, new alignment, safety, widening). Select only one.	New Alignment
Complete project cost.	Projected construction and right-of-way costs, in 2023 dollars, are approximately $370-440 million.
NEPA Class of action.	EIS
Number of Section 4(f) resources in the project.	5
List of all Section 4(f) resources in the project.	David Cingcade House and Barn Complex Camp White Station Hospital Bear Creek Greenway Denman Wildlife Area Midway Park (planned)
De minimis mitigation (includes purchase of right-of-way consistent with the Uniform Act).	Construction of a noise barrier in the approximate location of the planned berm on the northeastern edge of the park.
De minimis impacts (e.g. will remove 5 existing parking spaces from 250 space parking lot; will convert x.x acres of Monument land to highway easement, will use 50 sq. ft of the SE corner of the property).	Will require the use of 0.15 acres of the northeastern edge of land on which the park is planned, displacing a planned berm which is designed to reduce noise emanating from I-5.
Size of the *de minimis* use in acres.	0.15 acres
Type of *de minimis* resource (Historic, Park, Recreation or Wildlife Refuge). Select only one.	Park
Project status (general schedule—bid opening, completion of the environmental process).	NEPA completion by summer 2013 First phase to bid by summer 2013
Anticipated construction start.	Fall 2013
Anticipated construction completion.	First phase: Fall 2015 Complete Project: 2023

Appendix F National Historic Preservation Act: Section 106 Documentation

1. September 19, 2012, SHPO Concurrence on Finding of No Adverse Effect, OR 62: I-5 to Dutton Road (Medford) Project (Project Determination for Archaeology and Built Environment)

   Attachment #1: February 14, 2011, Interagency Notification of February 9, 2011 SHPO Concurrence on Determination of Eligibility and Finding of No Adverse Effect (Built Environment)

   Attachment #2: February 9, 2011, SHPO Concurrence on Determination of Eligibility and Finding of No Adverse Effect, David Cingcade House and Barn Complex (Built Environment)

   Attachment #3: April 19, 2011, Interagency Notification of April 6, 2011 SHPO Concurrence on Determination of Eligibility and Finding of No Adverse Effect, Camp White Station Hospital (Built Environment)

   Attachment #4: January 18, 1996, SHPO Concurrence on Determination of Eligibility, Camp White Station Hospital (Built Environment)

   Attachment #5: April 6, 2011, SHPO Concurrence on Determination of Eligibility (Amended) and Finding of Effect, Camp White Station Hospital (Built Environment)

   Attachment #6: August 27, 2012, SHPO Concurrence on Finding of No Historic Properties Affected, OR 62: I-5 to Dutton Road (Medford) Project (Archaeology)

   Attachment #7: September 14, 2009, SHPO Concurrence on Finding of No Historic Properties Affected, US 62 Corridor Solutions EIS Project[1] (Archaeology)

   Attachment #8: April 9, 2008, SHPO Concurrence on Determination of Eligibility, Burrill Mill Complex, Highway 62 Corridor Solutions EIS Project[1] (Built Environment)

2. Written Correspondence with Tribes (copies of Section 106 Findings).
   Findings that were transmitted with each cover memo are included in Section 1 of Appendix F and not duplicated in Section 2

   Summary of ODOT coordination with Tribes

   October 1, 2012, Agency Notification to Tribes of September 19, 2012 SHPO Concurrence on Finding of No Adverse Effect (Project Determination for Archaeology and Built Environment)

   August 29, 2012, Agency Notification to Tribes of August 27, 2012 SHPO Concurrence on Finding of No Historic Properties Affected (Archaeology)

   September 22, 2009, Agency Notification to Tribes of September 14, 2009 SHPO Concurrence on Finding of No Historic Properties Affected (Archaeology)

[1] This refers to the OR 62: I-5 to Dutton Road (Medford) Project; the project name was later modified.

Appendix F

1) September 19, 2012, SHPO Concurrence on Finding of No Adverse Effect, OR 62: I-5 to Dutton Road (Medford) Project (Project Determination for Archaeology and Built Environment)

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Highway Division/Technical Services
Geo-Environmental Section, MS #6
4040 Fairview Industrial Dr SE
Salem, Oregon 97302
Main Line: 503-986-3252
Fax: 503-986-3249

RECEIVED
SEP 27 2012
ODOT
GEO-ENVIRONMENTAL
RECEIVED
SEP 17 2012
OR SHPO

September 13, 2012

SHPO CASE# 12-1235

File Code:

Roger Roper
Deputy State Historic Preservation Officer
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97310-1271

Jackson County

Eagle Point, Medford East, Medford West, Sams Valley Quads

T36S, R1W, Sec 8, 9, 16-20, 29-31; T36S, R2W, Sec 36; T37S, R1W, Sec 6, 7, 18; T37S, R2W, Sec 1, 13

SUBJECT: Request for Concurrence
Finding of No-Adverse Effect
OR 62: I-5 to Dutton Road (Medford) Project
Jackson County, Oregon
ODOT Key No. 13226
Federal Aid No. S022(022)PE

The Oregon Department of Transportation (ODOT) prepared the following letter in compliance with Section 106 of the National Historic Preservation Act. The letter includes a combined Finding of No-Adverse Effect for historic properties (built environment and archaeological resources) for the OR 62: I-5 to Dutton Road (Medford) project.

Project Description:

The Oregon Department of Transportation (ODOT) is developing an Environmental Impact Statement (EIS) for the OR 62: I-5 to Dutton Road (Medford) project in Jackson County, Oregon. The project begins just west of the OR 62/I-5 interchange in Medford, Oregon, and extends approximately to the intersection of Dutton Road and OR 62 north of White City, in Jackson County, Oregon.

There are two build alternatives under consideration, as shown in Figures 1 and 2. Both alternatives include a new 7.5-mile, four-lane, access-controlled expressway to serve as a bypass of existing OR 62 from Medford to north of White City in Jackson County, Oregon. The project includes the bypass, four interchanges, and changes to local streets and roads to accommodate the bypass.

The SD Alternative would connect the proposed bypass directly to I-5 by modifying the existing North Medford interchange. The DI Alternative would connect the proposed bypass to the existing OR 62 just east of the North Medford interchange with a new

directional interchange. These proposed interchanges at the southern terminus of the proposed bypass are the primary differences between the two alternatives. Between Vilas Road and Agate Road, there are three different potential alignments for the bypass.

The areas of potential effect (APE) for archaeology and for the built environment are shown in Figures 3 and 4.

Consulting Parties:

Archaeology - Tobin C. Bottman, ODOT Cultural Resources Specialist, contacted Robert Kentta, Cultural Resources Director for the Confederated Tribes of Siletz and Eirik Thorsgard, Cultural Protection Coordinator for the Confederated Tribes of the Grand Ronde Community of Oregon and notified them of the intent and scope of this project.

Built Environment – Martha Richards of URS, on behalf of ODOT, coordinated a general public outreach and notification process about the project, including mention of the project effects at multiple public meetings. No specific consulting parties were invited or asked to participate in the project.

Summary of Resources Present:

Archaeology – Multiple cultural resource surveys have been undertaken in the vicinity of the OR 62: I-5 to Dutton Road (Medford) project area. A 'windshield reconnaissance' was conducted to determine if any high probability areas were present (Dames and Moore 1998). This reconnaissance identified no current project area (Demuth et al. 2001). This survey identified a linear resource (Medco Haul Road) with associated logging components. However at that time, the entire current project area had not been adequately investigated.

Much of the project area – generally the areas encompassing the JTA-funded portions of the project - was surveyed by archaeologists from the Oregon State Museum of Anthropology (OSMA) on July 23 and 24, and August 1 and 2, 2007 (O'Neill 2008). These investigations, consisting of pedestrian survey and exploratory subsurface excavations, identified one prehistoric and one historic archaeological isolate, neither of which are eligible for the National Register of Historic Places (NRHP) and no further investigations were recommended (O'Neill 2008:48). Upon further analysis of the historic isolate, it was determined to qualify as an archaeological site, 35JA693 (O'Neill 2009). Site 35JA693 is an approximately three meter diameter surface scatter of broken glass and crushed cans in the Agate Desert area of the project. The site was determined to be ineligible to the NRHP and no further protections are recommended. The Oregon SHPO concurred with a finding on No Historic Properties Affected (Archaeology) on September 14, 2009 (SHPO Case #08-0505).

OSMA conducted additional investigations on August 15 and 16, 2011 of additional areas for the JTA-funded portions of the project, (Baxter and O'Neill 2011). This survey focused on additional project segments in the vicinity of the Medford Airport and Medco Haul Road and proposed interchanges in the vicinity of Fowler Road and Gramercy Drive. This survey identified two prehistoric archaeological isolates and two historic archaeological isolates. None of the four archaeological isolates are eligible for the National Register of Historic Places, and no further work is recommended (Baxter and O'Neill 2011:18).

Built Environment – there were two cultural properties evaluated under Section 106, both of which resulted in findings of no adverse effect. The two properties, both located in White City, were the Camp White Station Hospital, now known as the Veterans Administration's Southern Oregon Rehabilitation Center and Clinics, located at 8495 OR 62, and the David Cingcade House and Barn Complex located at 60 West Dutton Road. Project effects on both of the properties include changes to the surrounding landscape as a result of the proposed expressway and its associated roads and interchanges. In addition, the project would require minor ROW acquisition from one property (the Cingcade Complex) and realignment of its non-historic driveway. Detailed descriptions of each cultural property and individual evaluation of the project's effects on each resource are provided in the attached supporting documentation.

Finding of Effect:

Archaeology - On August 19, 2009 ODOT provided to SHPO a Finding of No Historic Properties Affected (Archaeology). SHPO provided concurrence on September 14, 2009 (SHPO Case # 08-0505). While this document remains viable, the project scope was expanded and an additional Finding of No Historic Properties Affected (Archaeology) was submitted to SHPO on August 15, 2012.

Built Environment – On January 26, 2011, ODOT provided to SHPO a Finding of No Historic Properties Adversely Affected for the David Cingcade House and Barn Complex. SHPO provided concurrence on February 9, 2011. On March 22, 2011 ODOT provided to HPO a Finding of No Historic Properties Adversely Affected for the Camp White Station Hospital. SHPO provided concurrence on April 6, 2011.

Application of Section 106 Criteria for Identification and Evaluation of Historic Properties (36 CFR 800.4 and 5) indicates a finding of No-Adverse Effect for the OR 62: I-5 to Dutton Road (Medford) project. ODOT, acting as an agent of the Federal Highway Administration, requests your concurrence with a FINDING OF NO-ADVERSE EFFECT on historic properties for the OR 62: I-5 to Dutton Road (Medford) project. All supporting documentation is attached.

If you have any questions, please contact Michelle Eraut, Environmental Program Manager with FHWA, at (503) 316-2559, or James Norman, Environmental Planning Unit Manager with ODOT, at (503) 986-3514.

Sincerely,

James B. Norman
Environmental Planning Unit Manager
ODOT Geo-Environmental Section

The State Historic Preservation Office concurs that the OR 62: I-5 to Dutton Road (Medford) project will have a No Historic Properties Affected (Archaeology).

SHPO Official (Archaeology) 9/19/2012 **Date**

The State Historic Preservation Office concurs that the OR 62: I-5 to Dutton Road (Medford) project will have a No-Adverse Effect on Historic Properties (Built Environment).

SHPO Official (Built Environment) 9/19/2012 **Date**

Attachments:

Amended and signed Determinations of Eligibility and Findings of Effect (Built)
Findings of Effect – August 9, 2009, August 15, 2012 (Archaeology)
Baxter and O'Neill 2011

Copies to:

Briece Edwards, Confederated Tribes of the Grand Ronde Community of Oregon
David Harrelson, Confederated Tribes of the Grand Ronde Community of Oregon
Robert Kentta, Confederated Tribes of Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Michelle Eraut, FHWA
Chris Bell, ODOT
Tobin C. Bottman, ODOT
Anna Henson, ODOT
Project File
SHPO Tracking File

References Cited:

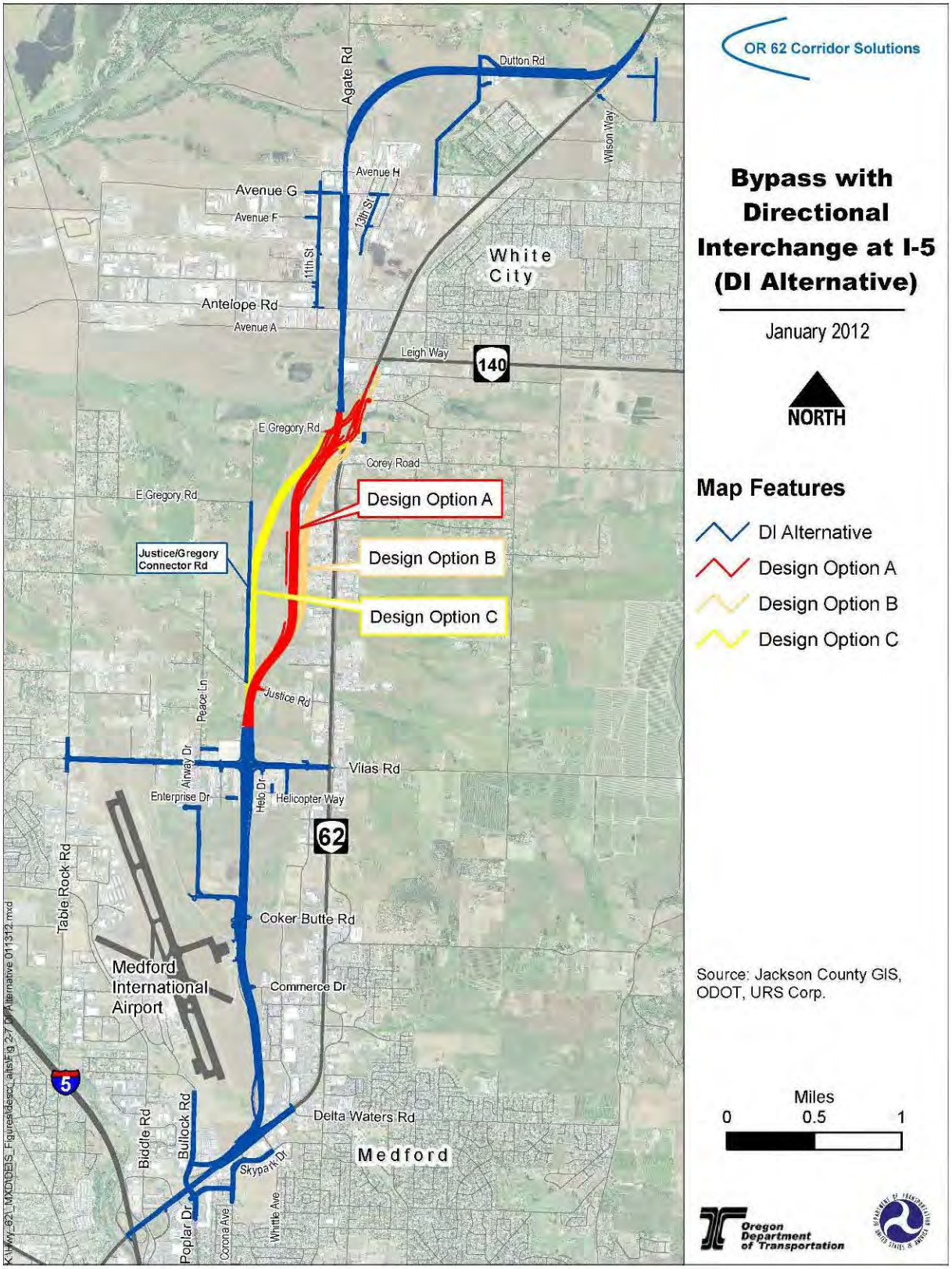
Baxter, Paul W. and Brian L. O'Neill
2011 Report of the US62 Corridor Solutions EIS, Unit 2, Phase 2 Pedestrian Survey, Jackson County (ODOT Key No. 17188; OSMA Report Number 2011-034). Oregon State Museum of Anthropology, University of Oregon, Eugene.

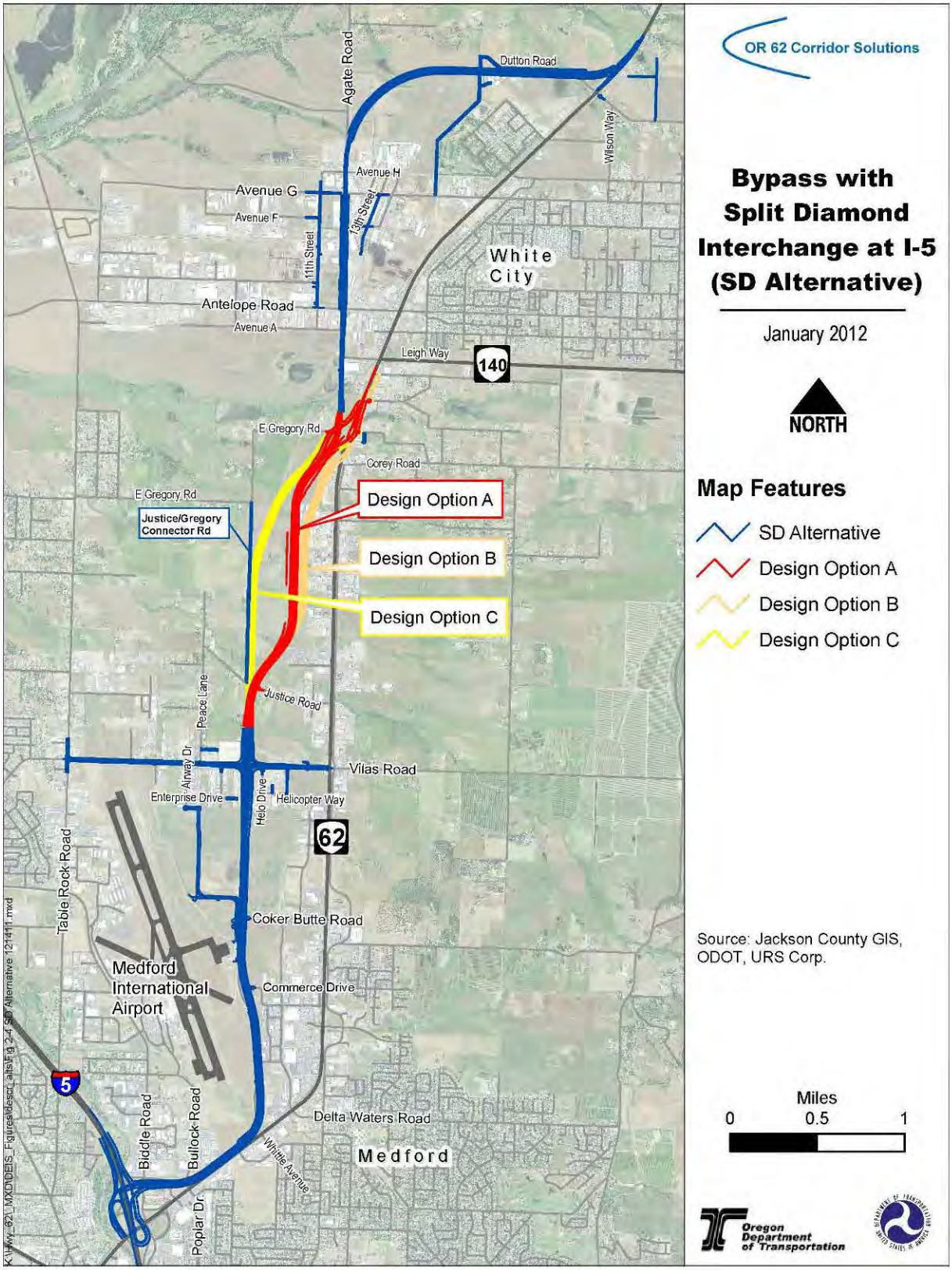
Dames and Moore
1998 Highway 62 Corridor Solutions Project Technical Report 1: Archaeology, Cultural and Historic Resources. On file at the Oregon Department of Transportation, Salem.

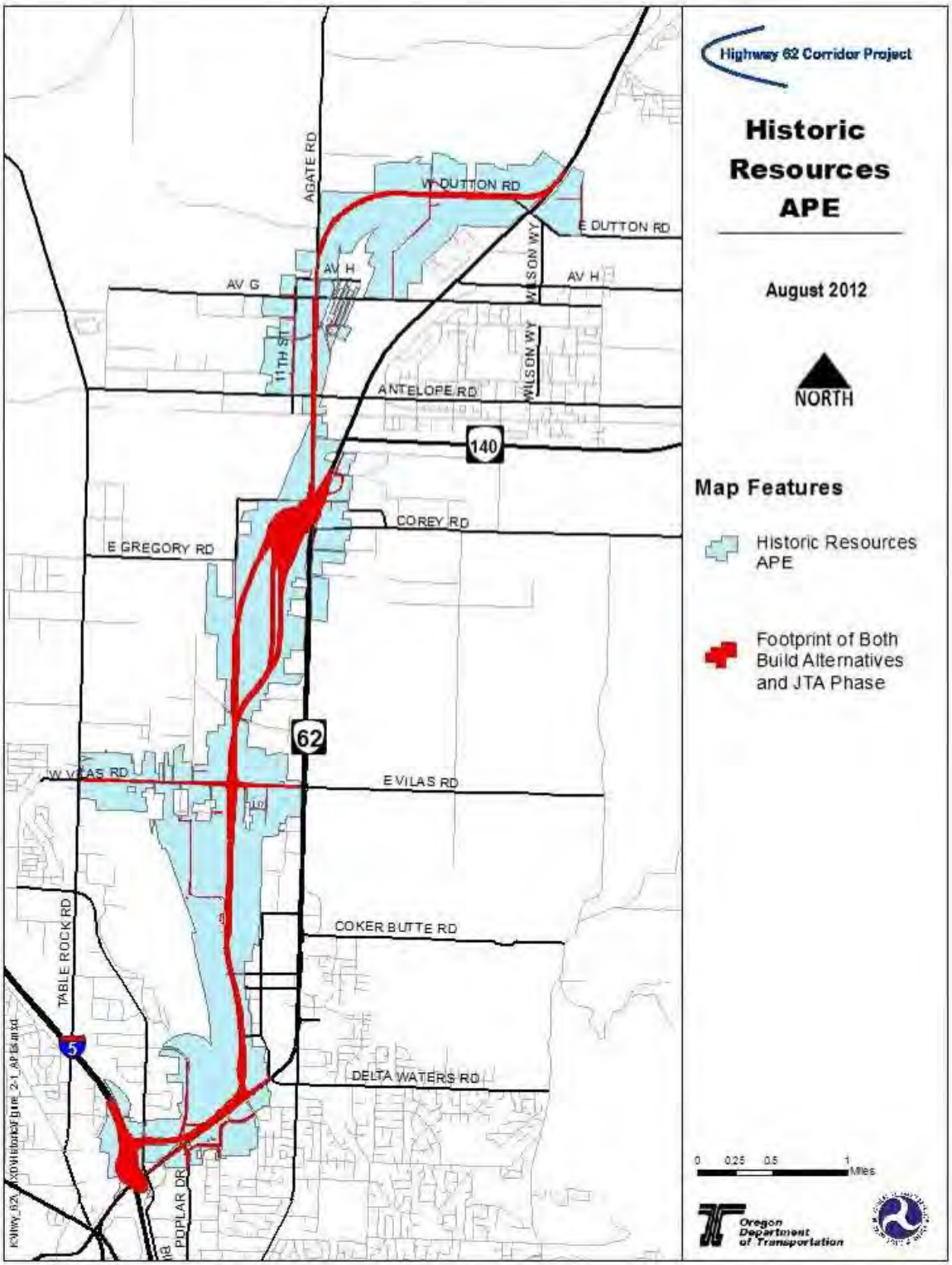
Demuth, Kimberly, Marcia Montgomery, Laura Rooke, Russell Bevill and Michael Kelly
2001 Highway 62 Corridor Solutions Project North Medford Interchange: Historic, Cultural and Archaeological Resources Report. Entrix Inc., Seattle, and URS Corporation, Portland.

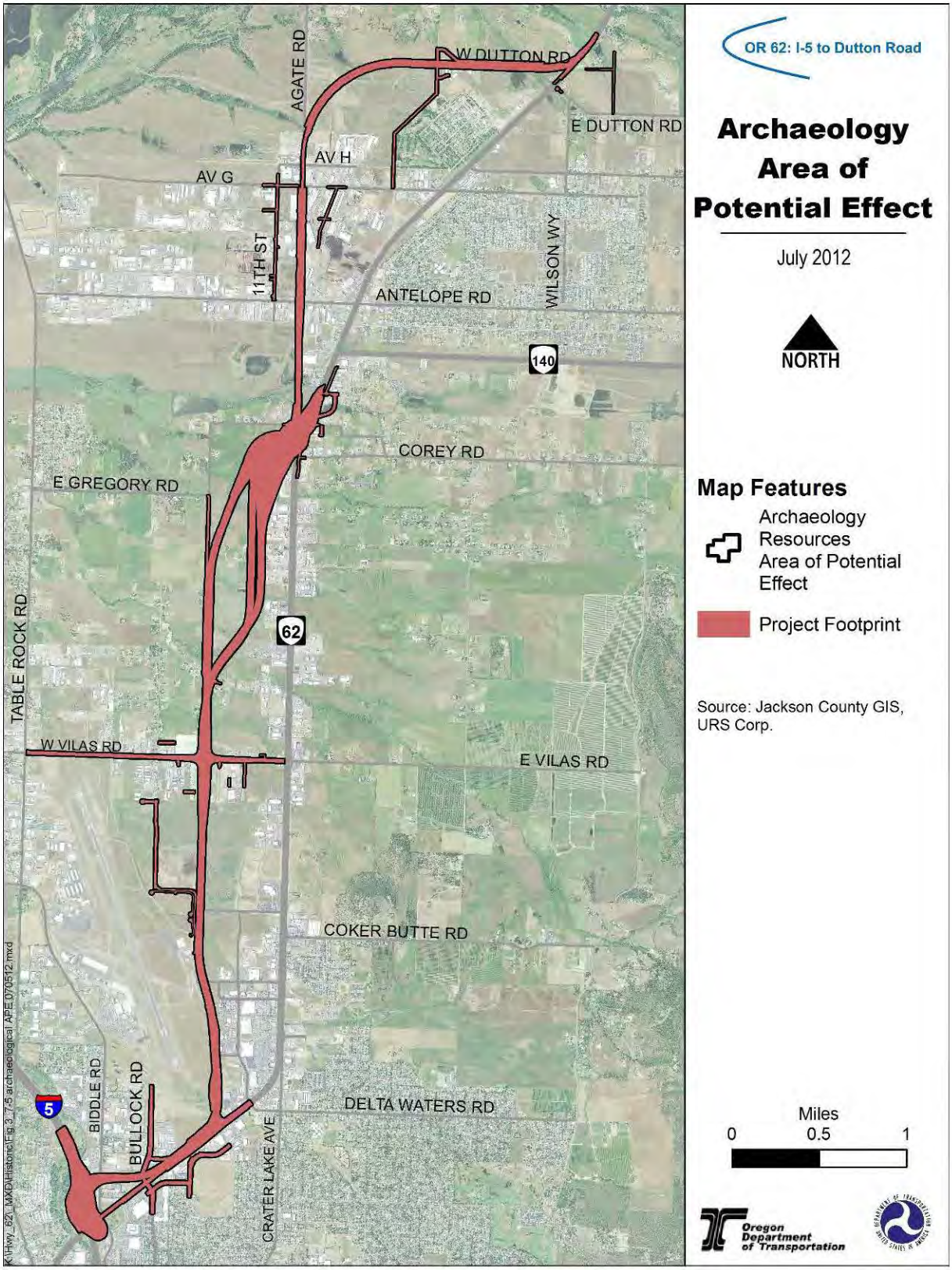
O'Neill, Brian
2008 Pedestrian Survey and Subsurface Reconnaissance of the US 62 Corridor Solutions Project, Jackson County. Museum Report 2008-065. University of Oregon, Eugene.

2009 US 62 Corridor Solutions EIS, Jackson County; Site 35JA693 Addendum (ODOT Key 13226). Oregon State Museum of Anthropology, University of Oregon, Eugene.


OR 62 Corridor Solutions
Bypass with Directional Interchange at I-5 (DI Alternative)
January 2012
NORTH
Map Features
DI Alternative
Design Option A
Design Option B
Design Option C
Source: Jackson County GIS, ODOT, URS Corp.
Miles
0
0.5
1
Oregon Department of Transportation
Dutton Rd
Agate Rd
Wilson Way
Avenue H
Avenue G
Avenue F
13th St
11th St
White City
Antelope Rd
Avenue A
Leigh Way
140
E Gregory Rd
Corey Road
Design Option A
Design Option B
Design Option C
Justice/Gregory Connector Rd
Peace Ln
Justice Rd
Airway Dr
Vilas Rd
Enterprise Dr
Helo Dr
Helicopter Way
62
Table Rock Rd
Coker Butte Rd
Medford International Airport
Commerce Dr
5
Biddle Rd
Bullock Rd
Delta Waters Rd
Medford
Skypark Dr
Poplar Dr
Corona Ave
Whittle Ave


OR 62 Corridor Solutions
Bypass with Split Diamond Interchange at I-5 (SD Alternative)
January 2012
NORTH
Map Features
SD Alternative
Design Option A
Design Option B
Design Option C
Source: Jackson County GIS, ODOT, URS Corp.
Miles
0
0.5
1
Oregon Department of Transportation
Dutton Road
Agate Road
Wilson Way
Avenue H
Avenue G
Avenue F
13th Street
11th Street
White City
Antelope Road
Avenue A
Leigh Way
140
E Gregory Rd
Corey Road
Design Option A
Design Option B
Design Option C
Justice/Gregory Connector Rd
Justice Road
Peace Lane
Airway Dr
Vilas Road
Enterprise Drive
Helo Drive
Helicopter Way
62
Table Rock Road
Coker Butte Road
Medford International Airport
Commerce Drive
5
Biddle Road
Bullock Road
Delta Waters Road
Whitte Avenue
Medford
Poplar Dr.


Highway 62 Corridor Project
Historic Resources APE
August 2012
NORTH
Map Features
Historic Resources APE
Footprint of Both Build Alternatives and JTA Phase
0 0.25 0.5 1 Miles
Oregon Department of Transportation
W DUTTON RD
E DUTTON RD
AGATE RD
AV G
AV H
WILSON WY
11TH ST
ANTELOPE RD
140
COREY RD
E GREGORY RD
62
W VILAS RD
E VILAS RD
COKER BUTTE RD
TABLE ROCK RD
5
DELTA WATERS RD
POPLAR DR


OR 62: I-5 to Dutton Road
Archaeology Area of Potential Effect
July 2012
NORTH
Map Features
Archaeology Resources Area of Potential Effect
Project Footprint
Source: Jackson County GIS, URS Corp.
Miles
0
0.5
1
W DUTTON RD
E DUTTON RD
AGATE RD
AV H
AV G
11TH ST
WILSON WY
ANTELOPE RD
140
COREY RD
E GREGORY RD
TABLE ROCK RD
62
W VILAS RD
E VILAS RD
COKER BUTTE RD
DELTA WATERS RD
5
BIDDLE RD
BULLOCK RD
CRATER LAKE AVE
K:\Hwy_62_MXD\Historic\Fig 3_7-5 archaeological APE 070512.mxd
Oregon Department of Transportation

Appendix F

Attachment #1: February 14, 2011, Interagency Notification of February 9, 2011 SHPO Concurrence on Determination of Eligibility and Finding of No Adverse Effect (Built Environment)

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Geo-Environmental Section
4040 Fairview Industrial Dr SE MS #6
Salem, OR 97302

FILE CODE:

DATE: February 14, 2011

TO: Chris Bell, Cultural Resources Program Coordinator
Anna Henson, Region 3 Environmental Project Manager
Michelle Eraut, FHWA Oregon Division
Key No. 13226, File Type E: Cultural Resources

FROM: Rebecca Littau, Geo-Environmental Administrative Staff RL

SUBJECT: **Section 106 Determination of Eligibility**
David Cingcade House and Barn Complex DOE (AMENDED)
David Cingcade House and Barn Complex FOE
Highway 62 Corridor Solutions EIS
Medford, Jackson County
Key No. 13226
Federal-Aid Number X-NH-S022(022)

Attached is the signed **Concurrences** from the State Historic Preservation Office for the above referenced project, **approved on Feb. 9, 2011**.

Appendix F

Attachment #2: February 9, 2011, SHPO Concurrence on Determination of Eligibility and Finding of No Adverse Effect, David Cingcade House and Barn Complex (Built Environment)

Oregon
John A. Kitzhaber, MD, 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

February 9, 2011

RECEIVED
FEB 10 2011

Mr. James Norman
ODOT Environmental
355 Capitol NE Rm 314
Salem, OR 97301

RE: SHPO Case No. 11-0194
ODOT Proj 13226 - Hwy 62 Corridor Solutions EIS

Dear Mr. Norman:

We have reviewed the materials submitted on the project referenced above, and we concur with the determination that the property is eligible for listing in the National Register of Historic Places. We also concur with the finding of no adverse effect for the proposed project.

This letter refers to above-ground historic resources only. Comments pursuant to a review for archaeological resources, if applicable, will be sent separately.

Unless there are changes to the project, this concludes the requirement for consultation with our office under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800). Please feel free to contact me if you have any questions, comments or need additional assistance.

Sincerely,

Ian P. Johnson
Historian
(503) 986-0678
ian.johnson@state.or.us

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Individual Properties

Agency/Project: ODOT/Highway 62 DEIS Key No. 13226 Federal-Aid Number X-NH-S022(022)	
Property Name: David Cingcade House and Barn Complex	
Street Address: 60 West Dutton Road	City, County: Eagle Point, Jackson County
USGS Quad Name: Eagle Point, OR	Township: Range: Section:
This property is part of a ☐District ☐Grouping/Ensemble (see instructions) Name of District or Grouping/Ensemble:	

This is an addendum to the Determination of Eligibility that was completed in 1996. The original house and barn continue to retain a relatively high degree of historic integrity. Although a stable and barn, and possibly a mobile home, have been added to the property, these changes are consistent with the property's historic use as a farmstead and do not adversely affect the setting or landscape. As a result, the house and barn complex are still considered eligible. The purpose of this addendum is to document the current state of the property and to define the period of significance, boundary, and contributing/non-contributing features – information that was not included in the 1996 DOE.

Cingcade House, North Elevation (1996 DOE)

Preliminary National Register Findings: ☐**National Register listed**

☒**Potentially Eligible:** ☒Individually ☐As part of District

☐**Not Eligible:** ☐In current state ☐Irretrievable integrity loss ☐Lacks Distinction ☐Not 50 Years

State Historic Preservation Office Comments:

☒**Concur** ☐**Do Not Concur:** ☐Potentially Eligible Individually ☐Potentially Eligible as part of District ☐Not Eligible

Signed _____ Date 2/9/2011

Comments:

IAN JOHNSON
503-986-0678
Ian.Johnson@state.or.us

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Individual Properties

Property Name: David Cingcade House and Barn Complex		
Street Address: 60 West Dutton Road		City, County: Eagle Point, Jackson County
Architect, Builder or Designer (if known):	Owner:	☒Private ☐Local Government ☐State ☐Federal ☐Other

Description of Property (including exterior alterations & approximate dates), Significance Statement, and Sources. (Use continuation sheets if necessary):

This is an addendum to the Determination of Eligibility that was completed in 1996. The original house and barn continue to retain a relatively high degree of historic integrity. Although a stable and barn, and possibly a mobile home, have been added to the property, these changes are consistent with the property's historic use as a farmstead and do not adversely affect the setting or landscape. As a result, the house and barn complex are still considered eligible. The purpose of this addendum is to document the current state of the property and to define the period of significance, boundary, and contriuting/non-contributing features – information that was not included in the 1996 DOE.

The David Cingcade House and Barn Complex is located on a roughly triangular 71-acre lot in the northwest quadrant of the intersection of W. Dutton Road and OR 62 just north of White City in Jackson County, Oregon. The house and barn complex are located slightly east of the center of the parcel. A second house is located near the northern point of the lot.

Period of Significance

The Period of Significance of the David Cingcade House and Barn Complex is the period during which David and Mary Cingcade lived there, between the 1880s and 1911. As stated in the 1996 Determination of Eligibility, the original Cingcade Ranch was settled as the 360-acre Levi Tinkham Donation Land Claim. David and Mary Cingcade built the house and barn between 1884 and 1895 and lived there until 1911, when they moved to Eagle Point. They then leased the ranch to their sons, Thomas and Charley, who ran the ranch jointly until 1923. Between 1923 and 1939, Charley converted the ranch to a sheep raising and dairy operation. The Cingcades sold what remained of the property in 1948.

Boundary of Historic Resource

The boundary of the current tax parcel associated with the house and barn complex is the boundary of the historic resource. Map 1 shows the approximate boundary of the Levi Tinkham Donation Land Claim (the original Cingcade Ranch) as well as the current tax lot. The 1996 Determination of Eligibility states that the resource's significance includes its association with the ranching and settlement of the Eagle Point/Agate Desert, and that its location and setting are important to the historic context. Although there is a second dwelling now located on the tax parcel, the entire tax parcel provides important context to the property and there is no justifiable reason for considering the boundary to be anything less than the entire 71-acre parcel. The portions of the original 360-acre ranch that have since been subdivided remain rural in character, but most of those parcels have been developed with houses and are therefore no longer associated with the Cingcade House and Barn Complex.

Description of Features

The David Cingcade House and Barn Complex includes a number of features and buildings, but only some of them are contributing features. Map 2 shows the locations of all known features; they include the following.

Primary House: The two-story Cingcade House was built c. 1895 and has changed little since the 1996 Determination of Eligibility. It is a contributing resource. Although close inspection was not possible (right of entry was not obtained), the house appears to continue to retain a reasonably good level of integrity and continues to convey a sense of its history as an eighteenth-century farmhouse.

Primary Barn: The barn, also dating to the 1890s, is located a short distance north of the house and does not appear to have changed much at all since the 1996 Determination of Eligibility. It is a contributing resource.

Garage: A garage is located on the north side of the house; as the 1996 Determination of Eligibility notes, it is a non-contributing resource.

New Barn: A small barn located north of the garage has been built in recent years. It is a short, gable-roofed building with enclosed walls. It is a non-contributing resource.

New Stable: A horse stable located north of the new barn has been built since the 1996 Determination of Eligibility. Although it is consistent with the property's use as a ranch, it is a modern, non-contributing structure.

SECTION 106: SUPPLEMENTAL PHOTOGRAPHS

Property Name: David Cingcade House and Barn Complex	
Street Address: 60 West Dutton Road	City, County: Eagle Point, Jackson County

View: Looking west from OR 62. From left to right: Primary House (at left, in trees), Garage (behind trees), new barn (white front-gabled structure), new stables (dark building in front of utility pole), mobile home (barely visible as a low structure), and Primary Barn.

View: Looking northwest from OR 62 along northeast property line. Irrigated field at right is neighboring property. Seasonal stream/canal is at left.

Description of Features (continued)

Mobile Home: A mobile home is located between the new stable and primary barn. It may be the mobile home that was first placed at the northern apex of the lot in 1977 and replaced in 1994 (see below). It is a non-contributing structure.

Secondary House: A manufactured house is located near the northern apex of the tax lot. It was placed there in 1994, and replaced a mobile home that had been put in the same location in 1977. It is a non-contributing structure.

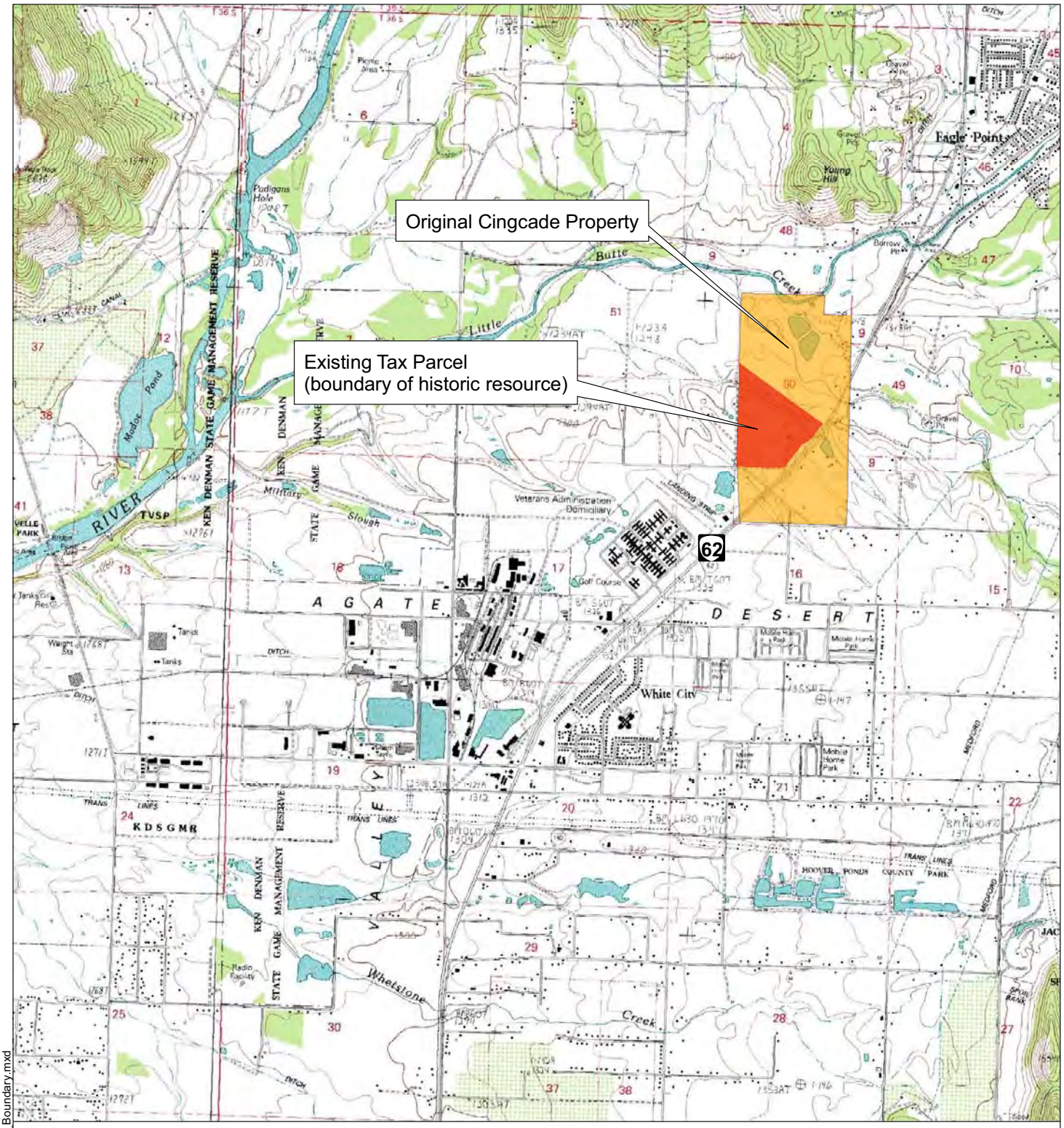
Paddock: A large rectangular paddock now used for horse training is located northwest of the primary barn. Although its construction and appearance could not be confirmed with a field visit, it could have existed during the property's period of significance and therefore it is assumed to be a contributing feature.

Roads: There are some unpaved roads on the property leading to the primary and secondary houses. The main road connects to Dutton Road near the western edge of the property and runs along the property's southern border. The driveway to the secondary house, built after 1977, connects to this road and runs straight north for a distance then jogs to the west and connects to the house. The driveway to the primary house begins at the corner of the property near OR 62 and heads north to the house and barn on a slightly curved path. The roads on the property have been modified over the years. Although they are compatible with the historic significance of the resource, they are non-contributing features.

Former Entrance Gate: There is an entrance gate near OR 62 on the driveway to the primary house. This gate is a modern, non-contributing feature.

Irrigation Canal/Stream: There is an unnamed canal/stream that runs along the northeastern boundary of the property. Unlike some of the more prominent irrigation canals in the Rogue River Valley that were entirely or largely manmade, this waterbody looks more like a natural seasonal stream that happens to be used for irrigation. It is shown as a seasonal tributary to Little Butte Creek on the 1930 Metsker Map. It was included in the Rogue River Valley Irrigation District on May 23, 1963. It is a contributing feature to the landscape as it most likely existed as a stream when the farmstead was established.

Ditch: A manmade ditch extends southwest from the house, contouring around the hillside and exiting the property to the south. The ditch crosses under the road that runs along the southern property line; this crossing is in a culvert. After crossing under the road, the ditch crosses OR 62 in a culvert and is presumed to continue along the north side of E Dutton Road. The ditch is heavily overgrown with shrubbery; an aerial photograph that was taken when un-irrigated grasses were brown shows a green swath downhill from the ditch (to the northeast), suggesting that the ditch is pervious. It is in poor condition. The age and history of the ditch could not be confirmed. Because it could have existed during the property's period of significance and because it is consistent with farm use, it is assumed to be a contributing feature.



Legend

Historic Resource

Extent of original Cingcade Property

Source: ODOT, USGS

NORTH

0 0.25 0.5 1 Miles

Cingcade House and Barn Complex

Map 1

November 2010

Highway 62 Corridor Project

Oregon Department of Transportation

K:\Hwy_62_MXD\Cultural\Cingcade_DOE_Map1_Boundary.mxd

Legend

Historic Resource Boundary
(same as taxlot boundary)

NORTH

60 W Dutton Road Cingcade House and Barn Complex

Map 2
November 2010

Highway 62 Corridor Project

Oregon Department of Transportation

K:\Hwy_62_MXD\Cultural\Cingcade_DOE_annotatedmap.mxd

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 LEVEL OF EFFECT FORM

Agency/Project: ODOT/Highway 62 DEIS	
Property Name: David Cingcade House and Barn Complex	
Street Address: 60 West Dutton Road	City, County: Eagle Point, Jackson County

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 2/9/2011

Comments:

IAN JOHNSON
503-986-0678
Ian.Johnson@state.or.us

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.

The Highway 62 DEIS addresses the 7.5-mile segment of OR 62 from its intersection with I-5 in Medford to Dutton Road north of White City. The purpose of the project is to reduce congestion on OR 62 to increase safety and improve operations. The project is currently compiling a Draft Environmental Impact Statement (DEIS) to evaluate a No Build Alternative and two Build Alternatives. The two Build Alternatives are similar; both would construct a limited-access highway to the west of OR 62 from the I-5 area to Dutton Road. They also include changes to the local street network. In the vicinity of Cingcade Complex, the Build Alternatives are identical and are simply referred to as the proposed project.

The David Cingcade House and Barn Complex was built in the 1890s. According to the determination of eligibility, it is significant as an early example of vernacular homestead architecture and also through its association with the early settlement, farming and ranching in the Eagle Point Area. While the original Cingcade farmstead covered 360 acres, the current historic resource is a 71-acre parcel. That parcel is located on the west side of OR 62 off of Dutton Road, adjacent to the northern terminus of the proposed project.

Potential Impacts

Map 1 is an aerial photograph showing the boundary of the historic resource and the proposed project design. The proposed bypass would be located along the southern edge of the Cingcade parcel, roughly along the alignment of West Dutton Road. The bypass would be a four-lane (two in each direction) limited-access highway with a center median and paved shoulders. The bypass right of way would also include an unpaved clear zone; in all, the bypass and its associated right of way would require the use of 3.1 acres of the historic resource. Because the proposed bypass would be located on Dutton Road, a new local street would be built along the north side of the bypass for properties whose driveways currently connect to Dutton Road. Map 1 shows a new driveway alignment on the Cingcade property; this represents the greatest potential impact to the property. If either Build Alternative is selected as the Preferred Alternative, ODOT would coordinate with the current property owners to determine the most appropriate design for the driveway relocation, which could result in lesser impacts than the design shown. As shown, the total right of way required for the proposed driveway would be 1.8 acres.

The proposed new driveway and bypass would cross an existing irrigation ditch that is a contributing resource (the ditch's history could not be verified; because it is consistent with the historic agricultural use of the land and because it could have existed during the property's period of significance, it is considered to be a contributing resource). An existing gravel driveway runs along the southern property boundary and crosses the ditch; at this crossing, the ditch is located in a culvert underneath the driveway. The proposed new crossings would also place the ditch in a culvert or similar structure that would not affect the hydrology or use of the ditch.

The proposed bypass would terminate in an interchange with the existing OR 62 just east of the Cingcade property. The new interchange would allow northbound-to-northbound and southbound-to-southbound movements between the bypass and OR 62. Northbound bypass traffic would simply merge with northbound traffic on the existing OR 62. Southbound traffic could either remain on the primary highway (the proposed bypass) or take an exit ramp that would cross over the top of the bypass and reconnect with the existing OR 62 through White City. The southbound exit ramp would be elevated above grade level and would be a more prominent feature in the viewshed than the existing highway.

Agency/Project: ODOT/Highway 62 DEIS	
Property Name: David Cingcade House and Barn Complex	
Street Address: 60 West Dutton Road	City, County: Eagle Point, Jackson County

Avoidance and Minimization Efforts

During the alternatives analysis for the project, some alternatives that did not directly impact the property were considered but dismissed. Those included building regional street improvements in the North Medford area; converting the existing OR 62 into a limited-access highway; and building a bypass around the east side of White City (and locating an interchange north of the Cingcade Complex). Traffic analyses showed that regional street improvements – widening and/or extending existing streets and building new streets – would not sufficiently reduce congestion on OR 62. Converting the existing OR 62 to a limited-access facility would have worked from a traffic standpoint, but impacts to residences and businesses on the highway (impacts resulting from relocating driveways, as well as impacts from additional right of way needed for the improved highway and new access roads) were found to be disproportionately higher than impacts resulting from the current Build Alternatives. Bypassing OR 62 to the east of White City was also considered, but the design would have required more right of way, it would have displaced more residences, and it would have created an undesirable barrier to future growth of White City. The current design, which would bypass OR 62 to the west of White City, was found to have the fewest adverse impacts and the greatest benefits, which is why it is currently being studied in the DEIS.

The current design is the result of careful balancing of the needs of natural resources as well as cultural resources. In the vicinity of the Cingcade Complex are some vernal pool complexes, some critical habitat for endangered species, and areas of wetlands. Earlier in the project, there was an alignment that would have been located south of the current design, further from the Cingcade Complex. This other alignment would have required the use of less of the Cingcade Complex, but it was fatally flawed because it would have required the use of some of the Veterans Administration's Southern Oregon Rehabilitation Center and Clinics land (the Veterans Administration would not have agreed to this use of their land). As a result of the fatal flaw, the secondary alignment was dismissed.

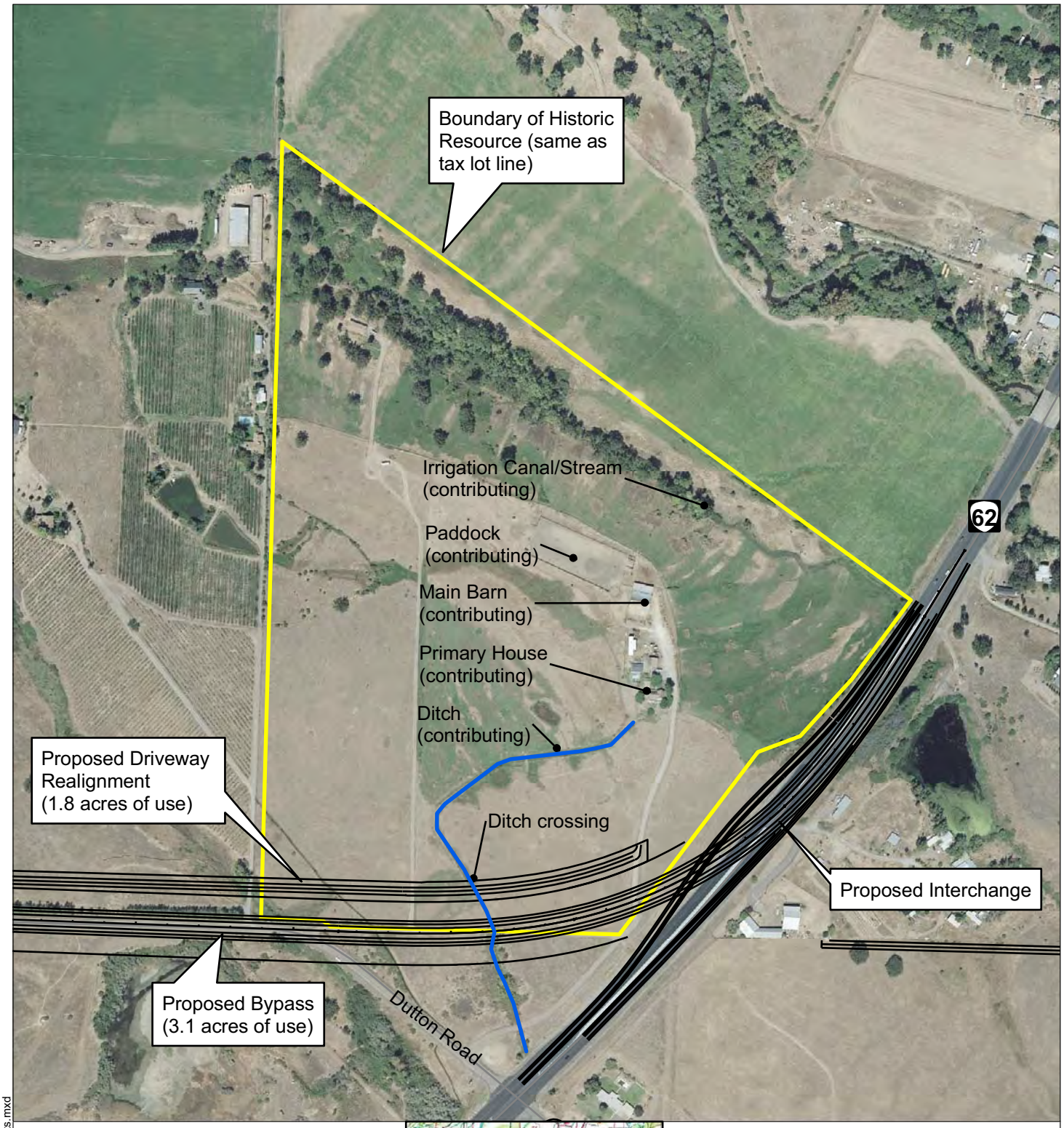
The project is currently entering the DEIS stage; if either of the Build Alternatives is selected as the Preferred Alternative, additional minimization efforts will be included in future design refinements. As noted above, the current driveway design shows the greatest potential impact to the property; future consultation with the property owners may result in a design with lesser impacts (resulting from reduced right of way needs). The bypass design also includes a cut slope in the area of the Cingcade Complex, as the southern portion of the Cingcade tax parcel slopes to the south. Right of way impacts could be reduced by using a retaining wall rather than a cut slope. Engineers may also find a way to shift the bypass alignment to the south, thus reducing the potential use of the property. Any changes to the proposed design would be documented in the project's Final Environmental Impact Statement (FEIS).

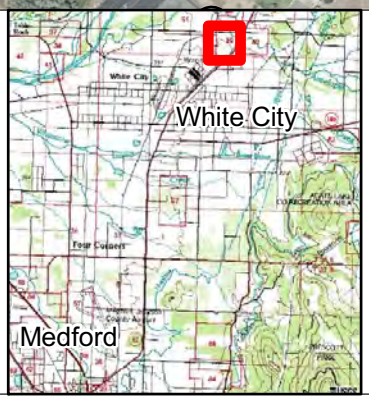
Findings

Although the proposed project would require the use of some of the Cingcade Complex and would change the landscape to the south and east, the project's overall impacts would not adversely impact the historic resource. The original Cingcade property comprised 360 acres; it is now 71 acres. The bypass would use 3.1 acres, or 4% of the property; at most, the bypass and driveway combined would use 4.9 acres, or 7% of the total acreage. The further reduction in the property acreage represents an incremental change that is not great enough to constitute an adverse impact.

Map 2 shows the topography of the Cingcade property. The proposed use would be located along the southern edge of the property, an area that slopes south away from the house and barn complex. The proposed bypass in that area would not be readily visible from the house or barns, as it would be located behind the slope. The proposed interchange on OR 62 would be visible from the house and barn, but it would be more than 450 feet from the house and barn. At this distance, the proposed project would represent a change in the views to the southeast, but the change would be relatively minor as OR 62 currently exists in that location. Changes to the surrounding landscape would not adversely affect the property's setting or context.

In conclusion, the two Build Alternatives would result in no historic properties adversely affected. Both would require the use of some of the Cingcade Complex, but this use would be minimal and would not adversely affect the historic resource or its setting. No buildings would be directly impacted by the proposed project, nor would the historic use of the property for farming or ranching be adversely affected. The Cingcade House and Barn Complex would retain its historic character and would still be an important example of vernacular architecture and of the early settlement and development of the Agate Desert.





Potential Impacts to 60 W Dutton Road

Map 1

November 2010

Highway 62 Corridor Project

NORTH

0 0.025 0.05 0.1 Miles

Oregon Department of Transportation

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Legend

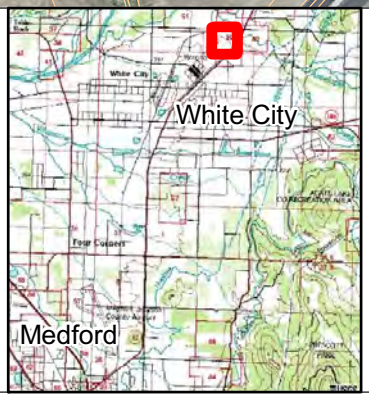
5-Foot Contour

Boundary of Historic Resource

Highway 62 Corridor Project

NORTH

0 125 250 500 Feet



Topography of 60 W Dutton Road

Map 2

November 2010

Oregon Department of Transportation

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Appendix F

Attachment #3: April 19, 2011, Interagency Notification of April 6, 2011 SHPO Concurrence on Determination of Eligibility and Finding of No Adverse Effect, Camp White Station Hospital (Built Environment)

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Geo-Environmental Section
4040 Fairview Industrial Dr SE MS #6
Salem, OR 97302

FILE CODE:

DATE: April 19, 2011

TO: Chris Bell, Cultural Resources Program Coordinator
Anna Henson, Region 3 Environmental Project Manager
Michelle Eraut, FHWA Oregon Division
Key No. 13226, File Type E: Cultural Resources

FROM: Rebecca Littau, Geo-Environmental Administrative Staff RL

SUBJECT: **Section 106 Determination of Eligibility**
Camp White Station Hospital DOE (AMENDED)
Camp White Station Hospital FOE
Highway 62 Corridor Solutions EIS
Medford, Jackson County
Key No. 13226
Federal-Aid No. X-NH-S022(022)
SHPO Case No. 11-0194

Attached is the signed **DOE and FOE** from the State Historic Preservation Office for the above referenced project, **approved on April 6, 2011**.

Oregon
John A. Kitzhaber, MD, 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

RECEIVED
APR 19 2011
ODOT
CEC-ENVIRONMENTAL

April 6, 2011

Mr. James Norman
ODOT Environmental
355 Capitol NE Rm 314
Salem, OR 97301

RE: SHPO Case No. 11-0194
ODOT Proj 13226 - Hwy 62 Corridor Solutions EIS

Dear Mr. Norman:

We have reviewed the materials submitted on the project referenced above, and we concur with the determination that the Camp White Station Hospital is eligible for the National Register of Historic Places. However, we cannot concur with the selected boundary at this time. The Oregon SHPO has a Programmatic Agreement in place with the Veteran's Administration that identifies the district as including the entire area defined in the submission and the space between the proposed southeast boundary to the Crater Lake Highway right-of-way. The area south of Kelly Road was included because broad lawns are a character-defining feature of the district.

This letter refers to above-ground historic resources only. Comments pursuant to a review for archaeological resources, if applicable, will be sent separately.

Unless there are changes to the project, this concludes the requirement for consultation with our office under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800) for above-ground historic properties. Please feel free to contact me if you have any questions, comments or need additional assistance.

Sincerely,

Ian P. Johnson
Historian
(503) 986-0678
ian.johnson@state.or.us

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Highway Division/Technical Services
Geo-Environmental Section, MS #6
4040 Fairview Industrial Dr SE
Salem, Oregon 97302
Main Line: 503-986-3252
Fax: 503-986-3249

March 22, 2010

File Code:

Roger Roper
Deputy State Historic Preservation Officer
Assistant Director, Heritage Programs
Oregon State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301

Subject: **Section 106 Determination of Eligibility**
Camp White Station Hospital DOE (AMENDED)
Camp White Station Hospital FOE
Highway 62 Corridor Solutions EIS
Medford, Jackson County
Key No. 13226
Federal-Aid No. X-NH-S022(022)
SHPO Case No. 11-0194

Mr. Roper,

Included with this letter are one amended Section 106 Determination of Eligibility and one Section 106 Finding of Effect for your review and concurrence. The resource documented is the Camp White Station Hospital (originally determined eligible in 1996), located adjacent to Highway 62 between Medford and White City in Jackson County. The purpose of this addendum is to document the current state of the property and the historic resource boundary for the purposes of Section 106 – information that was not included in the 1996 DOE. The Finding of Effect reflects the current project plans and its proximity to the hospital campus.

You should note that we submitted on January 26, 2011, receiving concurrence from your office on February 9, 2011, another property related to this project, the David Cingcade House and Barn Complex. This is the second of two historic resources which are subject to these effects. Should we receive concurrence from you on this resource (both amended eligibility and effect), and completion of the archaeological process, we will seek concurrence for the overall Section 106 effect, which we anticipate currently will be "no adverse."

Your prompt review of the attached document is appreciated. If you have any questions regarding this submittal, the above bolded section, or require further information, please

contact either Chris Bell at 503.986.3853 or Michelle Eraut, FHWA Environmental Program Manager, at 503.587.4716.

Sincerely,

James B. Norman
Environmental Planning Unit Manager

Attachments:

Camp White Station Hospital DOE (Original)
Camp White Station Hospital DOE (AMENDED)
Camp White Station Hospital FOE

Copies to:

Chris Bell, Cultural Resources Program Coordinator
Anna Henson, Region 3 Environmental Project Manager
Michelle Eraut, FHWA Oregon Division
Key No. 13226, File Type E: Cultural Resources

Appendix F

Attachment #4: January 18, 1996, SHPO Concurrence on Determination of Eligibility, Camp White Station Hospital (Built Environment)

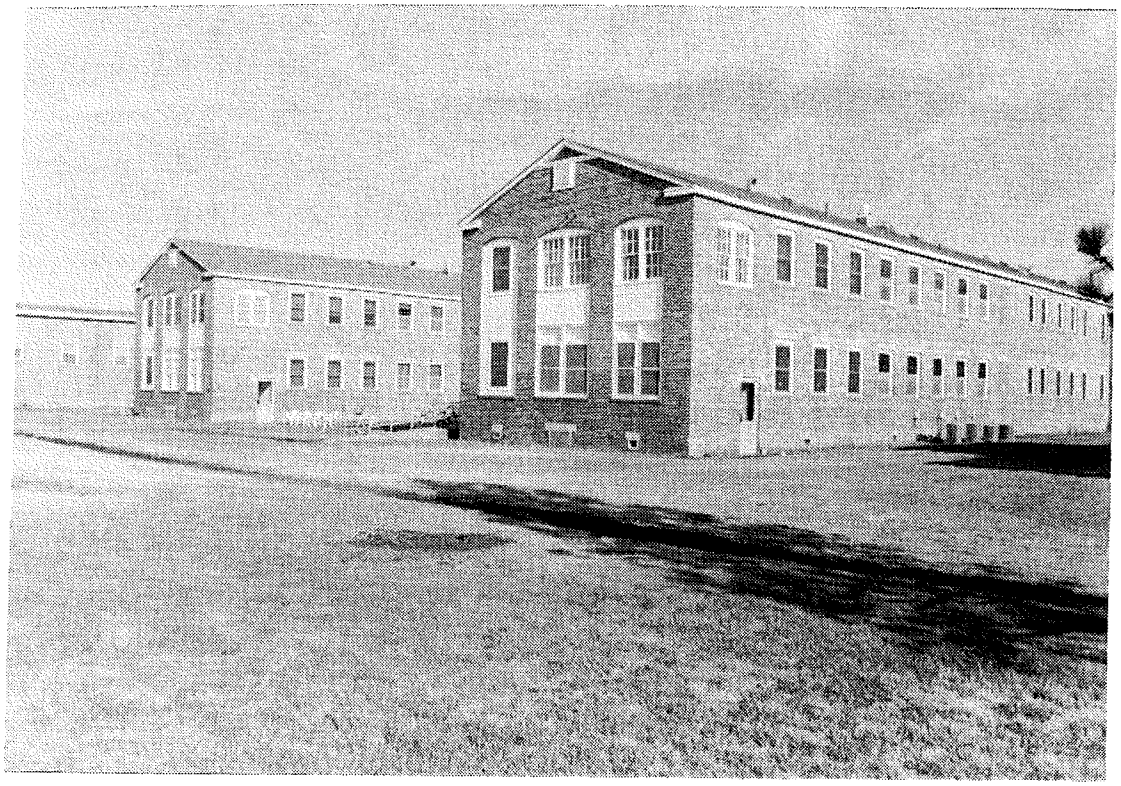
Oregon Department of Transportation

REQUEST FOR DETERMINATION OF ELIGIBILITY

Property Name Camp White Station Hospital [V. A. Domicilary] **Date of Construction** 1942

Address 8495 Highway 62 **County** Jackson

Primary Significance: Most intact surviving element of the WWII-era U. S. Army Camp White, an massive cantonment or training facility constructed from January to September 1942. Strong association with the impact of Camp White on the Medford-Jackson County region and the economic and social impacts of the base's construction, operation, and eventually,. the 1949 transformation of the Camp White Station Hospital into the Veteran's Affairs Domicilary.



Camp White Station Hospital [V. A. Domicilary]
Typical Hospital Ward buildings

Description: The Camp White Station Hospital [V. A. Domicilary] is a 145 acre compound encompassing approximately 61 major buildings, all but one of which date from the original Camp White period of use. The masonry hospital barracks are "H" shaped in plan, generally two stories with gable roofs. Wall construction is of hollow-clay tile with brick veneer. Windows, doors and trim are of wood, painted white. Support buildings, including shops, warehouses, churches, misc. barracks and office spaces are of wood-frame construction with asbestos shingle siding. Most wood frame structures are two-stories high, gable roof and similar in design to the Masonry buildings, forming a generally homogenous building compound laid out in formal pattern around park-like grounds.

Significance/Context: See Page 2 **Location: See Attached Map**

==========

In my opinion, the property X meets ___ does not meet the criteria for listing in the National Register of Historic Places.

Kg Cartis for HCK 1/18/96

Signature of Certifying SHPO Official/Title Date

==========

Significance: The Camp White Station Hospital [V. A. Domicilary] is significant under Criterion A as the single best remaining element of Camp George A. White, a U.S. Army Cantonment, or training facility, that was constructed in 1942. Noted Los Angeles architect Myron Hunt, of the firm of Hunt and Chambers was responsible for the design that was completed with the aid of some 200 draftsmen by early Fall 1941. Within two weeks of the bombing of Pearl Harbor and the declaration of war, Congress approved the funding for the construction of needed cantonments, including this one, and shortly thereafter the $27,000.000 contract for what became "Camp White" was awarded to a construction collective dubbed "Contractors Medford Cantonment" or CMC. CMC was a joint effort of five of the largest construction firms then operating in the Pacific Northwest.[1] Construction was begun in early January as the first of the Cantonments roads and underground services were begun. By August 15th 1942, following the round-the-clock work of an estimated 10,000 construction personnel, U.S. Army Camp White was formally transferred to the U.S. Army by the contractors. In September the Camp was dedicated and the 91st "Fir Tree" Division was formally re-activated to immediately commence training for overseas duty.

During its operation as a cantonment Camp White encompassed 43,000 acres, approximately 77 square miles, an area roughly sixteen times that of Medford, the largest city in Jackson County. Two huge training fields, the Beagle Range to the north and the Antelope Range to the south, were used for live-ammo artillery and tank training, gas mask training and a wide variety of other activities as portions of the Oregon countryside were transformed into practice beach heads at Normandy and elsewhere. The two ranges flanked a 1 mile wide and 4 mile long "building core" that held more than 1300 individual buildings providing housing, food and entertainment, repair and office facilities for a population of almost 40,000 men and women soldiers plus some 9,600 civilian day-workers. Camp White's military population made it the second largest city in Oregon, behind Portland.[2] In late 1943, as the major Division troop training was completed, unused barracks near the modern-day intersection of Table Rock Road and Pacific Avenue were converted into use as German Prisoner of War compound. The POW camp remained active, holding approximately 2,000 German enlisted men, until the conclusion of WWII. Following WWII, the Camp White building core, with its roads, sewer and electric systems in place, became the basis of the White City Industrial Park and the community of White City, now the largest unincorporated community in Jackson County.

The subject facility, the Camp White Station Hospital, was completed in Summer 1942 and provided a 1400 bed medical facility for both base personnel and their dependents. Built of what the Army termed "semi-permanent" construction, at war's end as the majority of Camp White was decommissioned and dismantled, attempts were made to convert the Station Hospital into some continuing Federal presence in the Rogue Valley. Following a lengthy series of proposals, most notably a failed legislative plan to move the Oregon State Hospital from Salem to Medford that ended with a gubernatorial veto from Gov. Earl Snell, the Department of Veteran's Administration was directed to transform the former Camp White Station Hospital into a Domicilary in late 1948, largely due the efforts of Oregon's Senator Wayne Morse. The Veteran's Administration facility opened on February 20th, 1949.

The Camp White Station Hospital [V. A. Domicilary] is significant under Criterion A for its association with the impacts of WWII in the Medford-Jackson County Area and the huge economic and population growth that the construction of Camp White brought to southern Oregon. In setting, use of materials, and overall character the facility accurately relates both its original construction and the associations for which it is significant.

Context: The Camp White Station Hospital [V. A. Domicilary] is the largest and most intact portion of U. S. Army Camp White still standing. As such it represents the best local example of the national war effort and the massive scale of government action precipitated by the U.S. entry into World War II. Following the decommissioning of Camp White in 1946, most of the facilities structures were dismantled or sold whole and relocated throughout the Pacific Northwest. With the exception of the Camp White Station Hospital compound, few other Camp White related structures remain in their original locations and none retains the integrity of use and design of the subject resource. Finally, as the process which saw the former hospital transformed into a Veteran's Administration facility approaches fifty-years, the Camp White Station Hospital [V. A. Domicilary] gains additional significance under Criterion A through its association with that effort.

Sources:

Clay, Scott and Atwood, Kay. Jackson County Cultural and Historical Resource Survey. Medford: Jackson County Planning Department, 1979/1991.

Kramer, George. Camp White: City in the Agate Desert. White City: Camp White 50th Anniversary Committee, 1992.

Medford Mail Tribune, misc. issues 1941-1949.

Researcher George Kramer, M.S., HRA, Eugene **Date** November 1995

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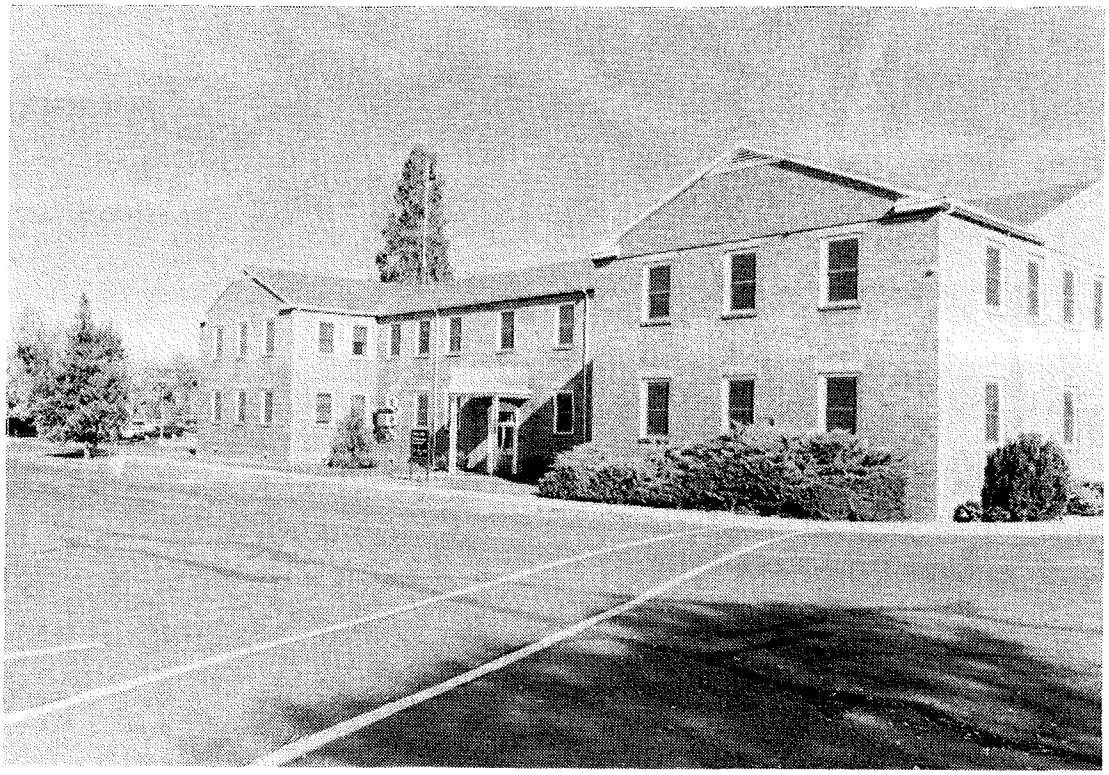
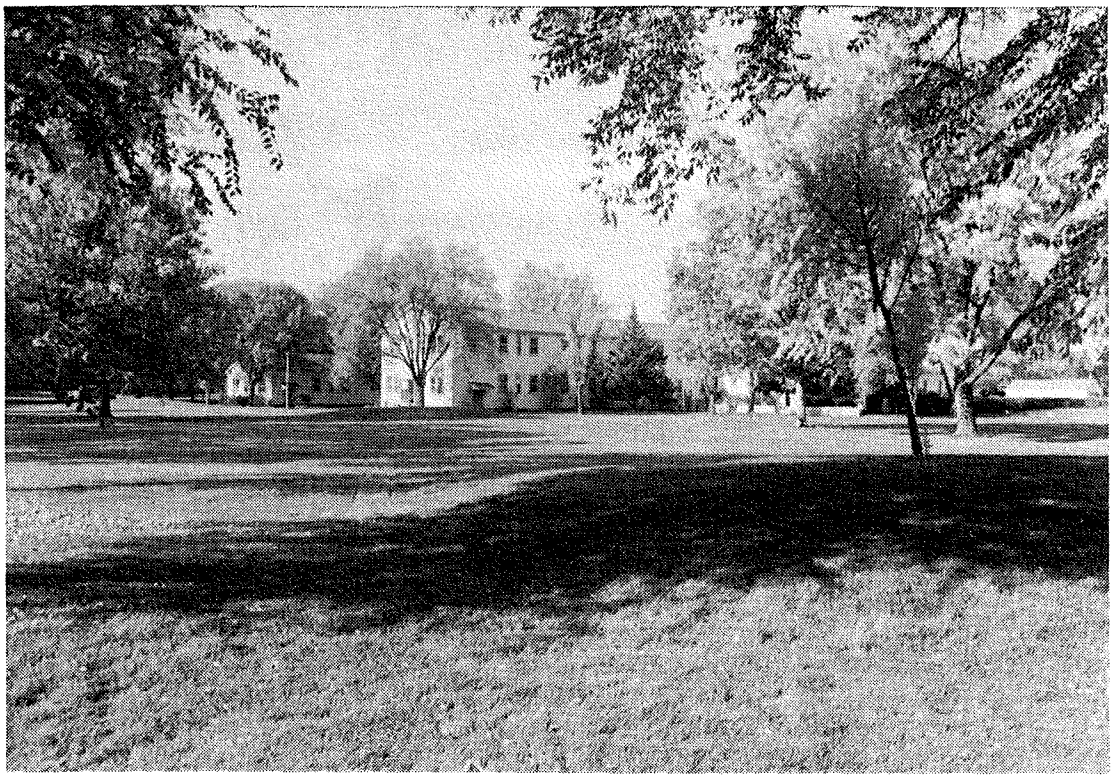
[1] These five firms were Sound Construction and Engineering, of Seattle; Peter Kiewit and Sons Company, Omaha; Morrison-Knudsen, Boise; Ford J. Twaits Construction and The Griffith Company, both of Los Angeles.

[2] Camp Adair, near Corvallis, with approximately the same population as Camp White, was also second to Portland but both camps were substantially larger than the 20,838 reported for Eugene in the 1940 Census. Oregon's third cantonment, Camp Adair near Bend, was substantially smaller in size than either Camp White or Camp Adair.

PHOTOGRAPHIC DOCUMENTATION
Camp White Station Hospital [V.A. Domicilary]

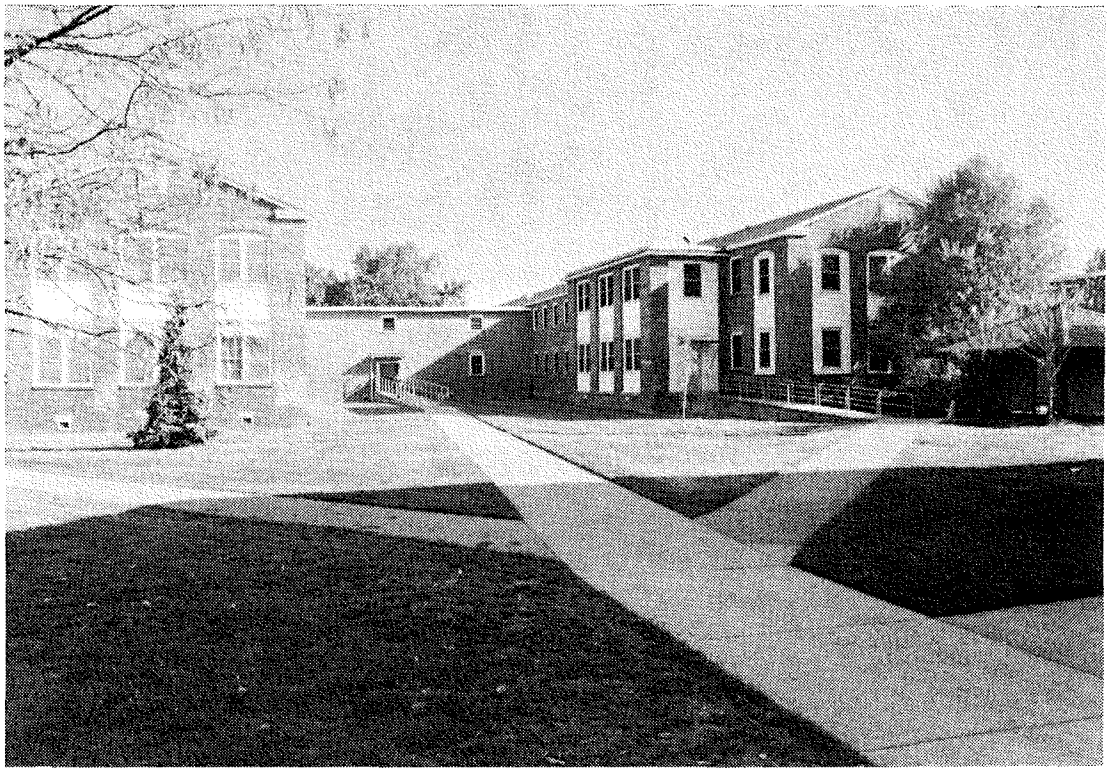


Administration Building

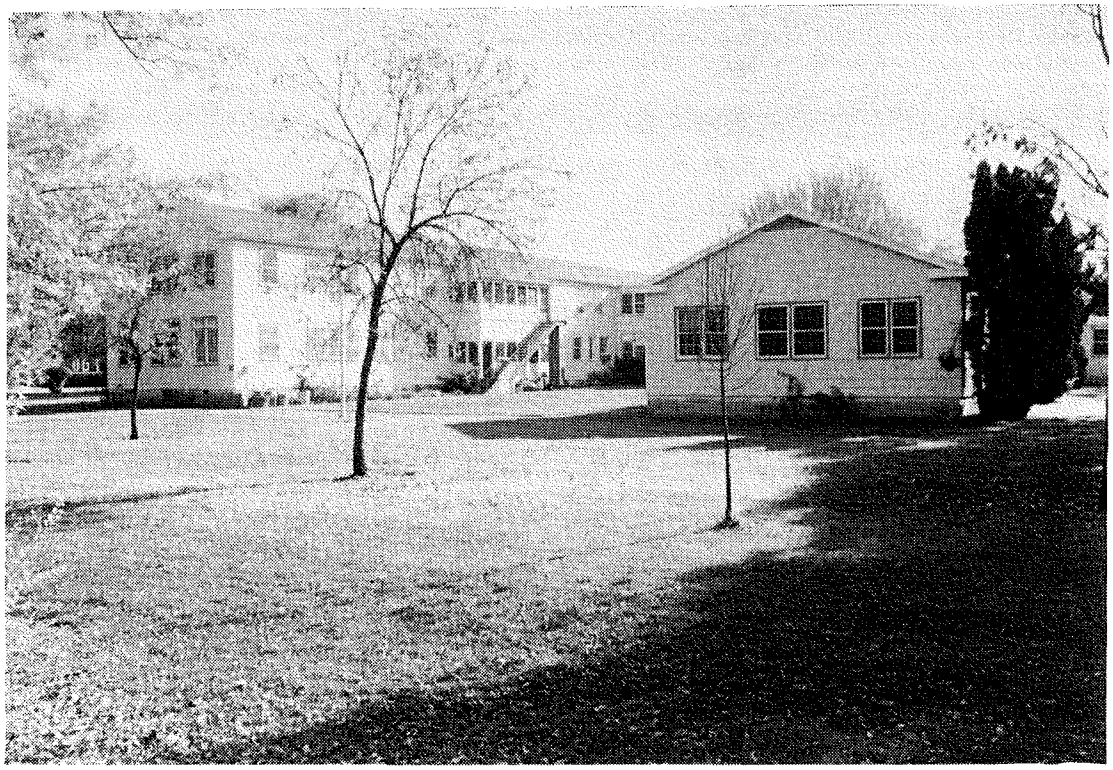


Wood Frame buildings and South Lawn

PHOTOGRAPHIC DOCUMENTATION
Camp White Station Hospital [V.A. Domicilary]

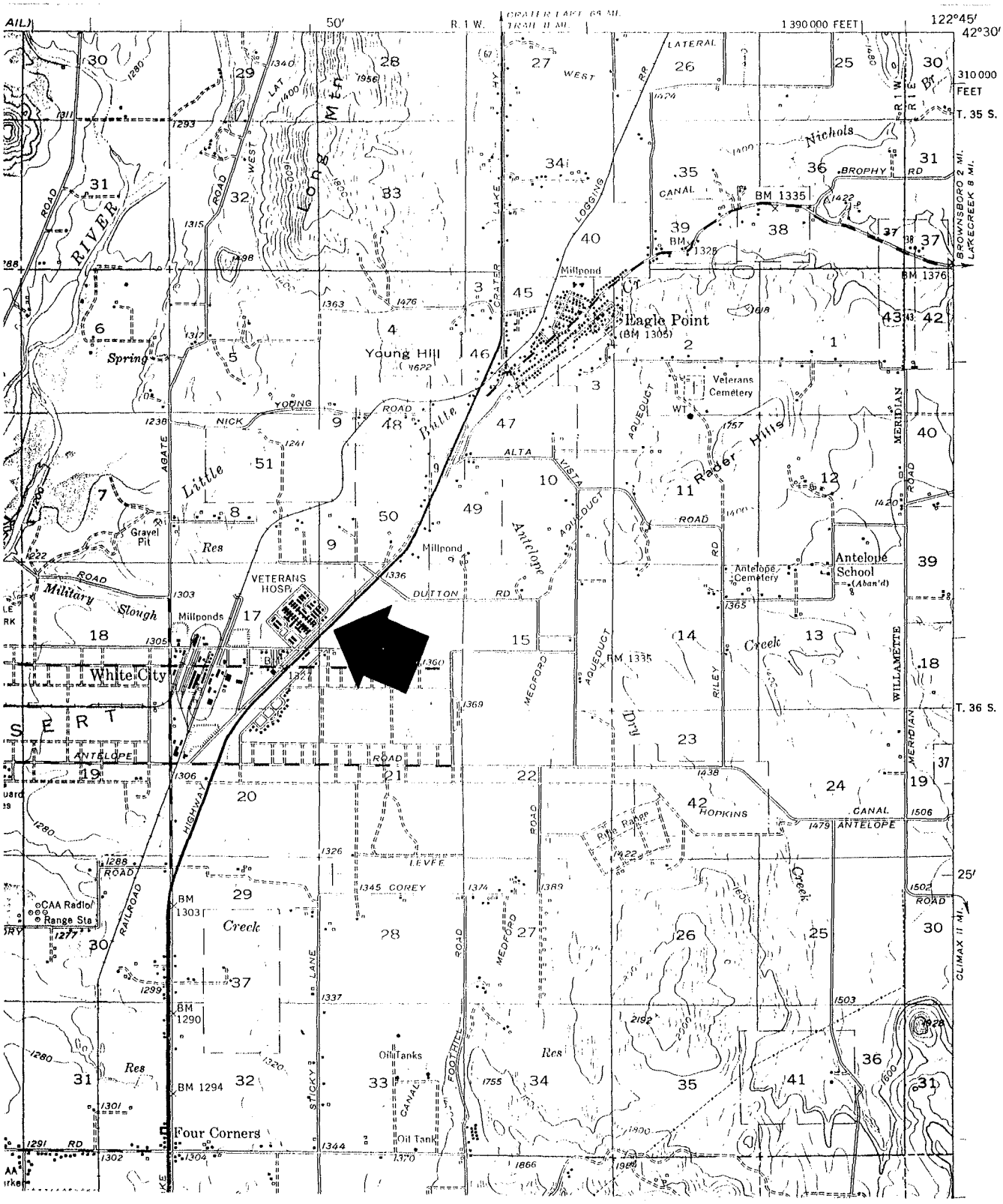


Interior Grounds and Pathways



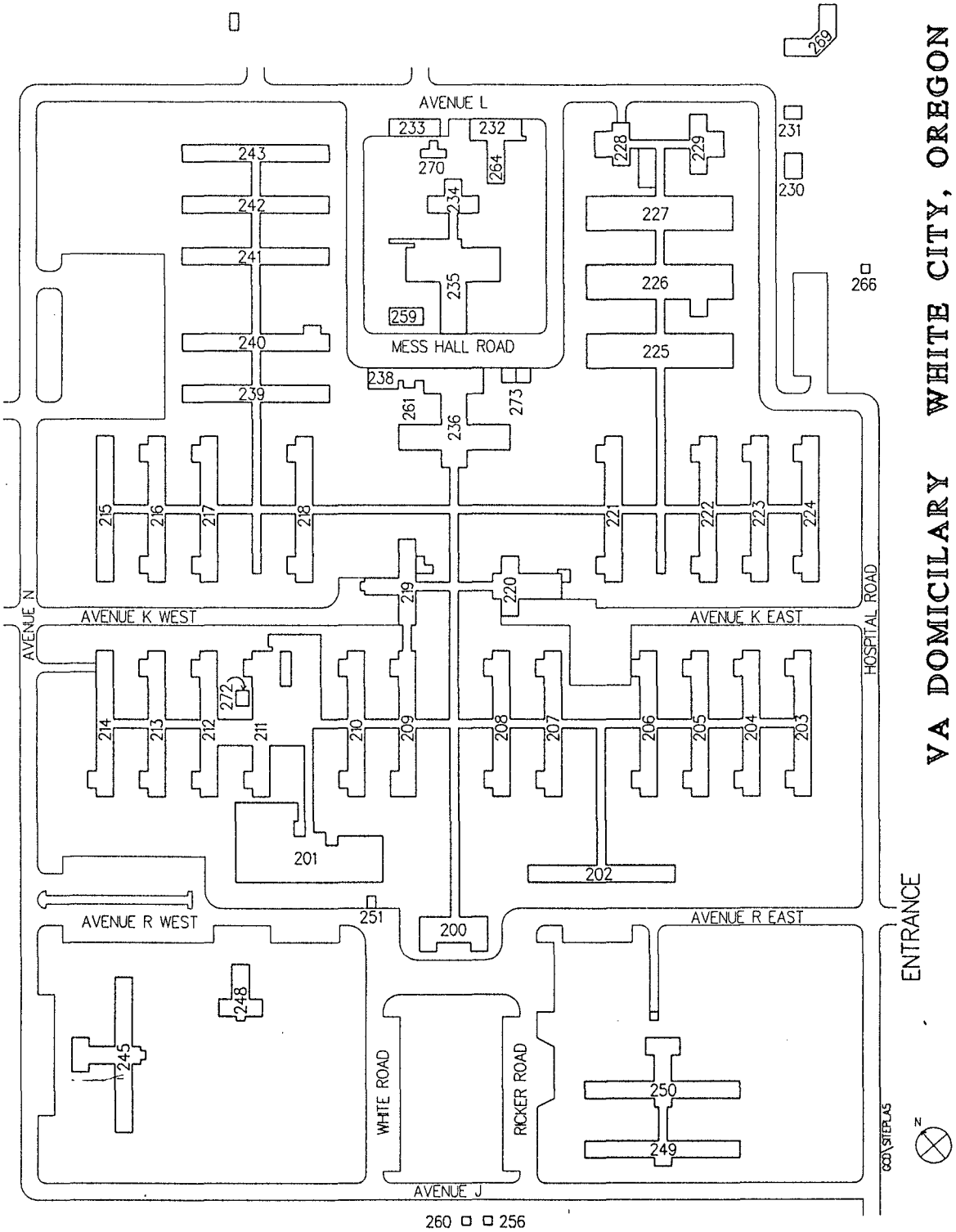
Wood Frame Barracks

LOCATION
Camp White Station Hospital [V.A. Domicilary]



Medford Quadrangle, Jackson County, Oregon (1954)
15 Minute Series, USGS

BUILDING PLAN
Camp White Station Hospital [V.A. Domicilary]



CONTEXT RESOURCES
for evaluation of
Camp White Station Hospital [V.A. Domicilary]

Please Refer to the Attached Inventory forms from the Jackson County
Cultural and Historical Resource Survey

Included Forms:

Camp White Artillery Range Bunkers, Form #67
Camp White Military Hospital, Form #97 [subject resource]

Appendix F

Attachment #5: April 6, 2011, SHPO Concurrence on Determination of Eligibility (Amended) and Finding of Effect, Camp White Station Hospital (Built Environment)

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Individual Properties

Agency/Project: ODOT / Highway 62 Corridor Solutions Project Key # 13226, Fed Aid # S022(022)	
Property Name: Camp White Station Hospital	
Street Address: 8495 OR 62	City, County: White City, Jackson County
USGS Quad Name: Eagle Point	Township: 36S Range: 1W Section:
This property is part of a ☐District ☒Grouping/Ensemble (see instructions) Name of District or Grouping/Ensemble: Camp White Station Hospital	
Number and Type of Associated Resources in Grouping/Ensemble: 46 contributing buildings, 10 non-contributing buildings.	

Current Use: VA Rehabilitation Center and Clinics	Construction Date: 1942
Architectural Classification / Resource Type: Classical revival	Alterations & Dates: 1946: Camp decommissioned;
Window Type & Material: Multi pane, double-hung windows with wood sash.	Exterior Surface Materials: Primary: Red brick with concrete lintels Secondary: Horizontal wood siding Decorative:
Roof Type & Material: Side gable with green asphalt shingles	
Condition: ☐Excellent ☒Good ☐Fair ☐Poor	Integrity: ☐Excellent ☒Good ☐Fair ☐Poor

Preliminary National Register Findings: ☐**National Register listed**

☒**Potentially Eligible:** ☐Individually ☒As part of District

☐**Not Eligible:** ☐In current state ☐Irretrievable integrity loss ☐Lacks Distinction ☐Not 50 Years

State Historic Preservation Office Comments:

☒**Concur** ☐**Do Not Concur:** ☐Potentially Eligible Individually ☐Potentially Eligible as part of District ☐Not Eligible

Signed _____ Date 4/6/2011

Comments:

Concur with determination, not boundary.

IAN JOHNSON
503-986-0678
Ian.Johnson@state.or.us

Surveyor/Agency: Martha Richards/URS Date Recorded: November 12, 2010

Property Name: Camp White Station Hospital		
Street Address: 8495 OR 62		City, County: White City, Jackson County
Architect, Builder or Designer (if known): Myron Hunt (architect), U.S. Army (builder)	Owner:	☐Private ☐Local Government ☐State ☒Federal ☐Other

Description of Property (including exterior alterations & approximate dates), Significance Statement, and Sources. (Use continuation sheets if necessary):

This is an addendum to the Determination of Eligibility that was completed in 1996. The purpose of this addendum is to define the boundary of the historic resource, information that was not included in the 1996 Determination of Eligibility. The Camp White Station Hospital, now known as the Veterans Administration Southern Oregon Rehabilitation Center and Clinics (VA SORCC), has not been significantly modified since it was determined eligible in 1996; it has retained its historic integrity and context and is therefore still considered to be eligible for listing on the National Register of Historic Places.

Boundary of Historic Resource

The boundary of the Camp White Station Hospital historic resource is the rectangular perimeter roads of Avenues J, L, and N, and Hospital Road as shown on the attached map from 1943. Those roads were part of the original Camp White, and as is apparent from the attached map from 1943, the buildings and roadway network within the perimeter roads remain intact. The Camp White Station Hospital complex is now used by the Veterans Administration for their SORCC; the VA SORCC tax parcel is an irregular pentagon that is approximately 145 acres. The area within the historic resource boundary is approximately 63 acres. Map 2 shows both the tax parcel boundary as well as the boundary of the historic resource.

The Camp White Station Hospital is a complex of brick buildings located within a local street network that was once part of the larger WWII-era George A. White U.S. Army cantonment, or training facility. The entire cantonment originally covered 43,000 acres or approximately 77 square miles. The facility was used from 1942 until the end of the war. After the war, the wood-frame buildings were sold; buyers were required to remove the buildings completely, leaving only cleared earth. Most of the land was also sold, and much of it became White City. The Federal Government retained ownership of the brick hospital complex and eventually converted it for use as a veterans facility, a use which continues today.

The tax parcel on which the hospital complex now sits is an irregular pentagon; there is no apparent reason for this particular geometry. As noted above, Camp White originally comprised a much larger area. The current tax parcel boundary is not associated with historic tax parcel divisions (those that existed prior to Camp White). The tax parcel includes the hospital complex as well as a perimeter of open space. When Camp White was in operation, that open space perimeter was undeveloped and not landscaped or irrigated. Those grounds are now developed as recreational facilities for the patrons of the VA SORCC and include a golf course, a baseball diamond, a meditation/quiet space, among other things. Although the grounds now provide important amenities to patrons of the VA SORCC, their current appearance is vastly different from their historic appearance. Because the surrounding grounds have been substantially altered and because they no longer contribute to the Camp White Station Hospital's historic context or setting, they are not considered part of the historic resource.

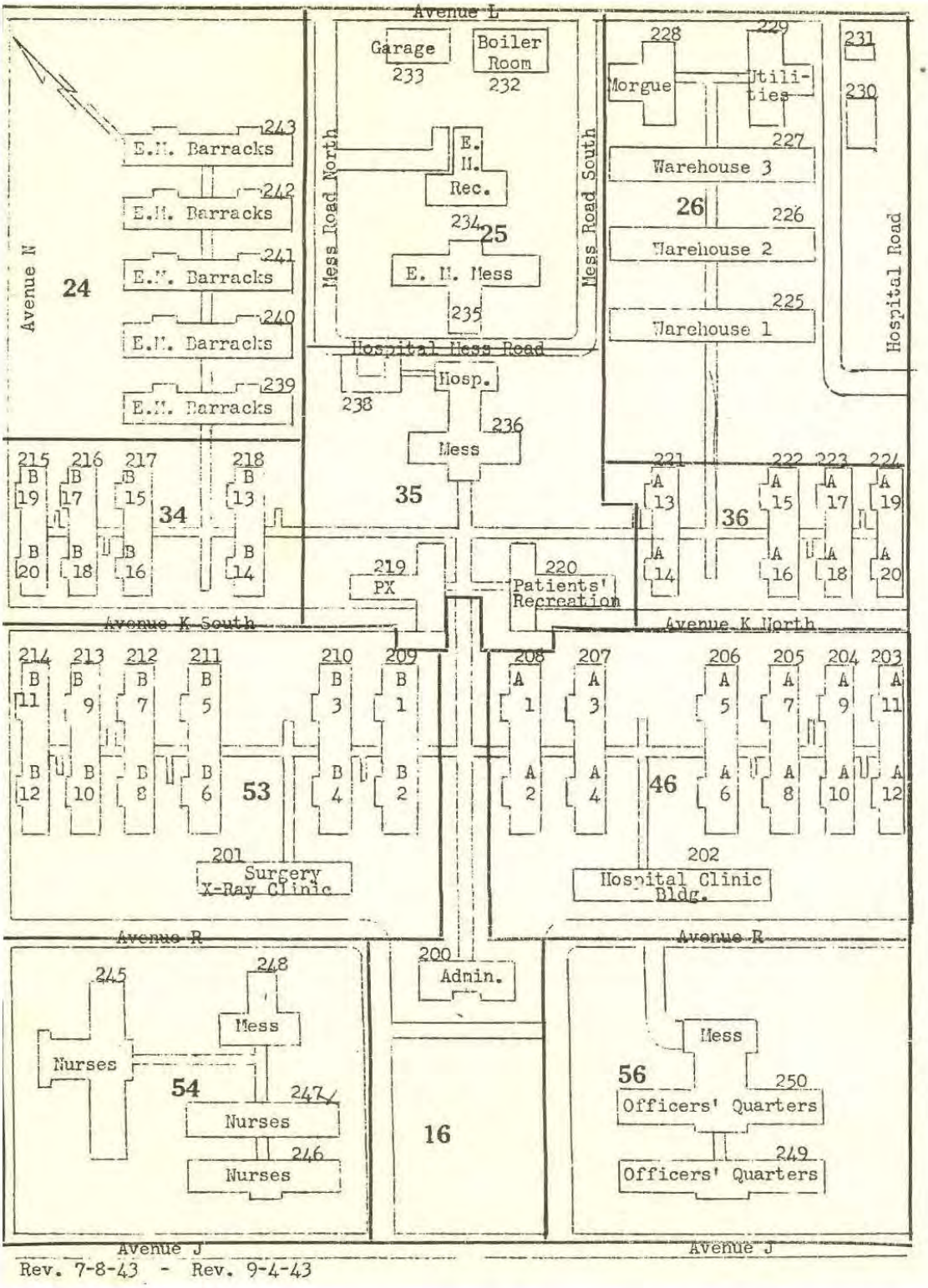
SECTION 106: SUPPLEMENTAL PHOTOGRAPHS

Property Name: Camp White Station Hospital	
Street Address: 8495 OR 62	City, County: White City, Jackson County

View: West façade of Building 202 (Hospital Clinic Building on Avenue R)

View: Northeast Corner of Warehouse 3 on Mess Road South

Property Name: Camp White Station Hospital	
Street Address: 8495 OR 62	City, County: White City, Jackson County



Map 1: 1943 map of Camp White Station Hospital (upper left corner is north; OR 62 would be located along the right side of the map)

Map Features

Camp White Station Hospital (Historic Resource Boundary)

VA SORCC tax parcel

Source: Jackson County GIS, ODOT

NORTH 0 0.05 0.1 0.2 Miles

Highway 62 Corridor Project

Oregon Department of Transportation

K:\Hwy_62_MXD\Cultural\Figure_4-7_VA_aerial.mxd

Camp White Station Hospital Historic Resource Boundary

Map 2

November 2010

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 LEVEL OF EFFECT FORM

Agency/Project: ODOT/ Highway 62 DEIS, Key No. 13226; Federal Aid No. X-NH-S022(022)	
Property Name: Camp White Station Hospital	
Street Address: 8495 OR 62	City, County: White City, Jackson County

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 _____

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 Camp White Station Hospital, now known as the Veterans Administration's Southern Oregon Rehabilitation Center and Clinics (VA SORCC) in White City, Oregon. It was determined eligible in 1996. An addendum to that DOE was prepared in November 2010 clarifying the boundary of the historic resource, which is slightly smaller than the VA SORCC tax parcel. The Camp White Station Hospital is located on the west side of OR 62, just south of Dutton Road in White City.

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 Camp White Hospital, 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 proposed project is located in Jackson County, Oregon. The project is to solve congestion and safety problems on a 7.5 mile stretch of OR 62, from approximately I-5 in Medford (near the North Medford Interchange) north through White City. The two Build Alternatives that are included in the Draft Environmental Impact Statement (DEIS) are similar: both would construct a limited-access bypass to the west of OR 62. There would also be minor changes to the local street network. These two alternatives have different interchange designs and alignment options, but in the vicinity of the Camp White Station Hospital, they are identical.

IDENTIFICATION AND DESCRIPTION OF THE HISTORIC RESOURCE

Camp White Station Hospital is the 63-acre complex of buildings left over from what was once Camp White, a WWII training facility that once consisted of more than 1,300 buildings on 43,000 acres. At its height of activity, Camp White accommodated a population of almost 40,000 men and women soldiers plus 9,600 civilian day-workers. After the war, the Federal Government auctioned most of the camp's buildings, with the requirement that they be completely removed from the site, and sold most land associated with Camp White. The Federal Government retained ownership of the Camp White Station Hospital , a complex of masonry hospital buildings and associated wooden repair/maintenance buildings, and eventually turned it into the VA SORCC. Land that was once part of Camp White, including some of the original roads and infrastructure, is now known as White City. White City's residential area is on the east side of OR 62 while the land on the west side of OR 62 is an industrial area. Directly north of the Camp White Station Hospital is a relatively new, light industrial complex. The rest of the area north of the Station Hospital is lightly developed with rural residences.

AVOIDANCE ALTERNATIVES CONSIDERED

Avenue G as Northern Terminus: The Highway 62 Corridor Solutions Project's original Purpose and Need statement stated that the northern terminus of the project would be at Avenue G in White City. Avenue G is an east/west street that is located south of the VA SORCC (see Map 1). Preliminary traffic analysis showed that terminating the project at Avenue G could result in congestion problems on OR 62 within White City – in a sense, the congestion problems that now exist in the southern part of the project area would be shifted north. Furthermore, ODOT recently implemented roadway improvements on OR 62 from Dutton Road north through Eagle Point. As a result, there was widespread interest from the public and within ODOT to extend the current project north to Dutton Road so that OR 62 would be modernized from I-5 north through Eagle Point.

Improve the Existing OR 62: This alternative considered but dismissed would have converted the existing highway to a limited-access facility. Driveways that now connect directly to OR 62 would have been rerouted to local streets, and streets that now intersect with OR 62 would have been redesigned to either end in a cul-de-sac or include an interchange. This design was dismissed because it would have displaced many of White City's commercial buildings that line OR 62. It would also have moved the entrance to the VA SORCC (the SORCC's primary entrance is at a signalized intersection on OR 62). Not only were the public and ODOT concerned about the direct impacts, but many White City residents expressed a desire to reduce OR 62's "barrier effect" on the town rather than to increase it. OR 62 currently bisects White City, creating a barrier between the residential area on the east side of OR 62 and the industrial area on the west side of OR 62. For these reasons, the alternative was dismissed.

Bypass White City to the East: This alternative considered but dismissed would have located the proposed bypass around the east side of White City. Northbound traffic would have encountered an interchange at the current intersection of OR 140 and OR 62; to continue north, one would have turned east on OR 140 and then north on a new bypass located at the eastern edge of White City. This alternative was dismissed because the OR 140/OR 62 interchange would have displaced a lot of commercial buildings, and the rest of the alignment would have displaced a number of residences and would have been an undesirable barrier to White City's future eastward expansion.

No Build Alternative: The No Build Alternative is included in the DEIS and has not been dismissed yet. However, as the project's Purpose and Need states, OR 62 is designated as a Statewide Expressway and parts of it are designated as a Freight Route. It is an important transportation facility that currently suffers from a high degree of congestion, which results in undesirable delay for the movement of freight and people. Because of the congestion, OR 62 has a bad safety record: congestion often results in increased crash rates.

EVALUATION OF EFFECTS

Map 1 shows an aerial photograph of the Camp White Station Hospital with the boundary of the historic resource and the proposed design for the Build Alternatives. The proposed bypass would be located north of the Camp White Station Hospital and would run east/west in this area. It would be a four-lane facility (two lanes in each direction) with a center median and paved shoulders. In this area, it would be located at grade level. The footprint shown on Map 1 is the total right of way width: the bypass itself plus the unpaved "clear zone" on either side. The bypass would displace W Dutton Road, a two-lane local street that intersects with OR 62 and ends in a cul-de-sac near the white-roofed buildings shown on Map 1. A new two-lane local street would be built to provide a new route to existing residences and businesses that currently have driveways to W Dutton Road. This street would be located along the northern side of the proposed bypass. Near where Dutton Road now ends, the new street would curve north then turn south and cross over the top of the bypass. South of the bypass, the new street would be located alongside the northwestern and western edges of the VA SORCC tax parcel, then it would continue south and intersect with Avenue G. The proposed project would not require the use of any of the Camp White Station Hospital property, nor would it use any of the VA SORCC tax parcel.

The proposed bypass and local street would change the landscape near the Camp White Station Hospital and would introduce an urban element to what is primarily a rural area. However, the bypass would be far enough from the historic resource that its introduction would not constitute an adverse effect (The distance from the northern corner of the historic resource to the proposed bypass is nearly 800 feet). The area has been urbanizing slowly, the light industrial complex to the north being the latest change. The existing conditions present a far different landscape than the WWII-era Camp White. Furthermore, for most viewers in the Camp White Station Hospital complex, the primary views would be of the two- and three-story buildings that comprise the complex. Preliminary noise studies show that traffic on the bypass would increase noise levels, but not to the point where a sound barrier or other mitigation strategy would be necessary. Therefore there would be no adverse effect resulting from changes to noise levels.

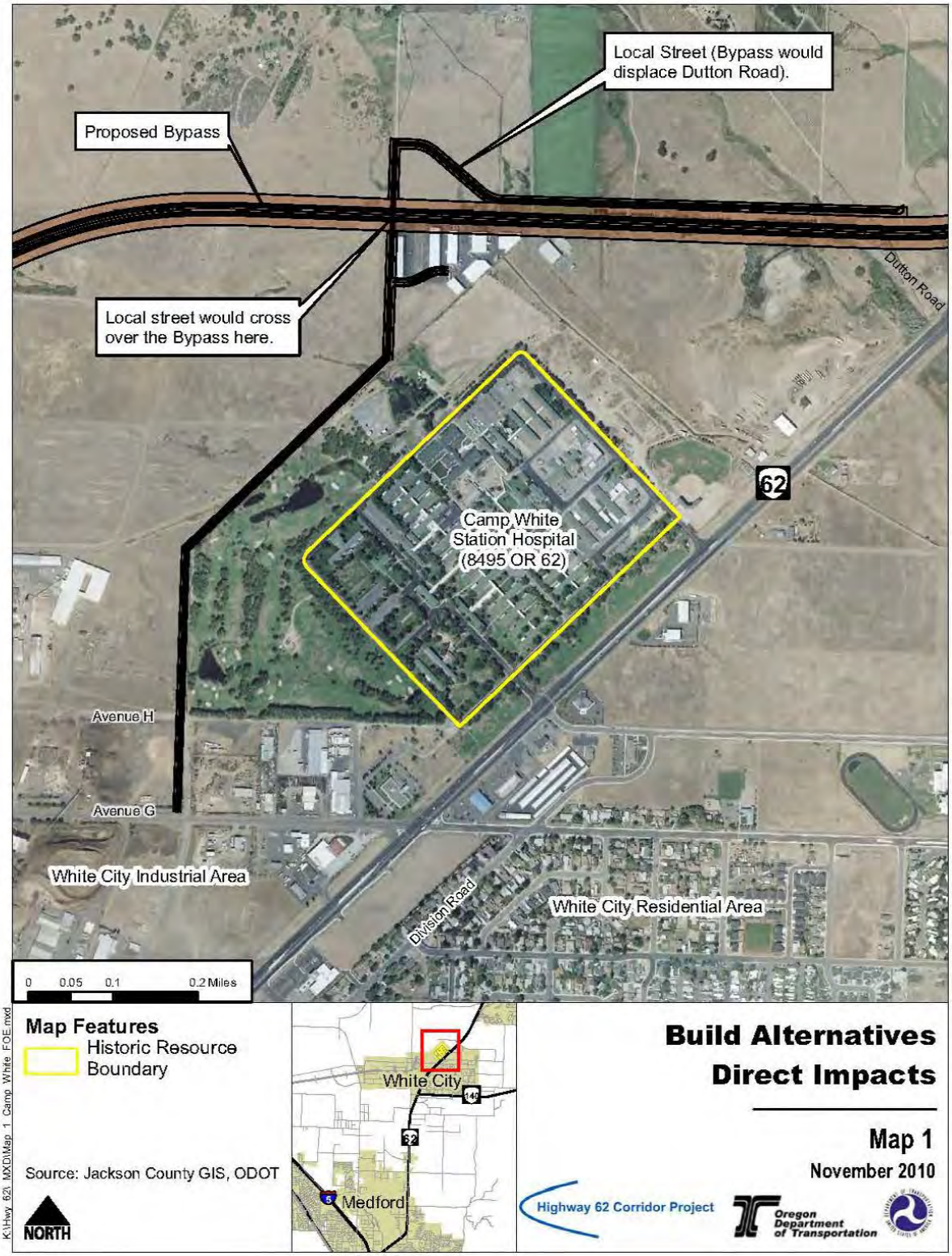
CONCLUSION

In conclusion, although the Build Alternatives would result in a change to the landscape near the Camp White Station Hospital as well as a change in noise levels, neither of those changes would be substantial enough to constitute an adverse effect on the historic resource. Therefore, it is the determination of the FHWA and ODOT that the proposed project has an effect, but the effect is "not adverse" according to the criteria set forth in 36 CFR 800.5.

SECTION 106 LEVEL OF EFFECT FORM

Continuation Sheet

Agency/Project: ODOT/ Highway 62 DEIS	
Property Name: Camp White Station Hospital	
Street Address: 8495 OR 62	City, County: White City, Jackson County



Surveyor/Agency: Martha Richards/URS Date Recorded: November 15, 2010

Appendix F

Attachment #6: August 27, 2012, SHPO Concurrence on Finding of No Historic Properties Affected, OR 62: I-5 to Dutton Road (Medford) Project (Archaeology)

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Highway Division/Technical Services
Geo-Environmental Section, MS #6
4040 Fairview Industrial Dr SE
Salem, Oregon 97302
Main Line: 503-986-3252
Fax: 503-986-3249

RECEIVED
AUG 28 2012
ODOT
GEO-ENVIRONMENTAL

RECEIVED
AUG 20 2012
OR SHPO

August 16, 2012

Roger Roper
Deputy State Historic Preservation Officer
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97310-1271

File Code:

SHPO CASE# 12-1235

Subject: **Request for Concurrence**
Finding of No Historic Properties Affected-(Archaeology)
OR 62: I-5 to Dutton Road (Medford) Project
Jackson County, Oregon
ODOT Key No. 13226, EA PE000754
Federal Aid No. S022(022)PE

Jackson County

Eagle Point, Medford East, Medford West, Sams Valley Quads

T36S, R1W,
Sec 8, 9, 16-20, 29-31;
T36S, R2W, Sec 36;
T37S, R1W, Sec 6, 7, 18;
T37S, R2W, Sec 1, 13

Dear Mr. Roper,

The Oregon Department of Transportation (ODOT) is developing an Environmental Impact Statement (EIS) for the OR 62: I-5 to Dutton Road (Medford) project in Jackson County, Oregon. The project begins just west of the OR 62/I-5 interchange in Medford, Oregon, and extends approximately to the intersection of Dutton Road and OR 62 north of White City, in Jackson County, Oregon (Figure 1). The EIS includes two Jobs in Transportation Act (JTA) phases, funded by the Oregon legislature – the OR 62: Corridor Solutions Unit 2, Phase 1 (Medford) project, ODOT Key No. 13994, Federal Aid No. S022(032) and the OR 62: Corridor Solutions Unit 2, Phase 2 project, ODOT Key No. 17188, Federal Aid No. S002(034). This document covers the entire EIS.

Multiple cultural resource surveys have been undertaken in the vicinity of the OR 62: I-5 to Dutton Road (Medford) project area. A 'windshield reconnaissance' was conducted to determine if any high probability areas were present (Dames and Moore 1998). This reconnaissance identified no high probability areas. A subsequent pedestrian survey was conducted that included most of the current project area (Demuth et al. 2001). This survey identified a linear resource (Medco Haul Road) with associated logging components. However at that time, the entire current project area had not been adequately investigated.

Much of the project area – generally the areas encompassing the JTA-funded portions of the project - was surveyed by archaeologists from the Oregon State Museum of Anthropology (OSMA) on July 23 and 24, and August 1 and 2, 2007 (O'Neill 2008). These investigations, consisting of pedestrian survey and exploratory subsurface excavations, identified one prehistoric and one historic archaeological isolate, neither of which are eligible for the National Register of Historic Places (NRHP) and no further investigations were recommended (O'Neill 2008:48). Upon further analysis of the historic isolate, it was determined to qualify as an

archaeological site, 35JA693 (O'Neill 2009). Site 35JA693 is an approximately three meter diameter surface scatter of broken glass and crushed cans in the Agate Desert area of the project. The site was determined to be ineligible to the NRHP and no further protections are recommended. The Oregon SHPO concurred with a finding on No Historic Properties Affected (Archaeology) on September 14, 2009 (SHPO Case #08-0505).

OSMA conducted additional investigations on August 15 and 16, 2011 of additional areas for the JTA-funded portions of the project, (Baxter and O'Neill 2011). This survey focused on additional project segments in the vicinity of the Medford Airport and Medco Haul Road and proposed interchanges in the vicinity of Fowler Road and Gramercy Drive. This survey identified two prehistoric archaeological isolates and two historic archaeological isolates. None of the four archaeological isolates are eligible for the National Register of Historic Places and no further work is recommended (Baxter and O'Neill 2011:18).

Based on the current project area, the findings from the Baxter and O'Neill (2011) survey report and past project surveys and the 2009 Finding of No Historic Properties Affected (Archaeology), indicate that this project will have no effect on archaeological resources. **However, if the scope of work for the project changes, 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 OR62: I-5 to Dutton Road (Medford) 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 Michelle Eraut, Environmental Program Manager with FHWA, at (503) 316-2559, 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 OR62: I-5 to Dutton Road (Medford) project will have **No Historic Properties Affected (Archaeology)**.

SHPO Official **Date** 8/27/12

Copies with attachments (Baxter and O'Neill 2011):

Robert Kentta, Confederated Tribes of Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Anna Henson, ODOT Region 3 EPM
Key # 13226, File Type C

Copies without attachments:

Tobin C. Bottman, ODOT Archaeologist

References:

Baxter, Paul W. and Brian L. O'Neill
2011 Report of the US62 Corridor Solutions EIS, Unit 2, Phase 2 Pedestrian Survey, Jackson County (ODOT Key No. 17188; OSMA Report Number 2011-034). Oregon State Museum of Anthropology, University of Oregon, Eugene.

Dames and Moore
1998 Highway 62 Corridor Solutions Project Technical Report 1: Archaeology, Cultural and Historic Resources. On file at the Oregon Department of Transportation, Salem.

Demuth, Kimberly, Marcia Montgomery, Laura Rooke, Russell Bevill and Michael Kelly
2001 Highway 62 Corridor Solutions Project North Medford Interchange: Historic, Cultural and Archaeological Resources Report. Entrix Inc., Seattle, and URS Corporation, Portland.

O'Neill, Brian
2008 Pedestrian Survey and Subsurface Reconnaissance of the US 62 Corridor Solutions Project, Jackson County. Museum Report 2008-065. University of Oregon, Eugene.

2009 US 62 Corridor Solutions EIS, Jackson County; Site 35JA693 Addendum (ODOT Key 13226). Oregon State Museum of Anthropology, University of Oregon, Eugene.

Appendix F

Attachment #7: September 14, 2009, SHPO Concurrence on Finding of No Historic Properties Affected, US 62 Corridor Solutions EIS Project[1] (Archaeology)

[1] This refers to the OR 62: I-5 to Dutton Road (Medford) Project; the project name was later modified.

Oregon
Theodore R. Kulongoski, Governor

Department of Transportation
Transportation Building
355 Capitol St. NE
Salem, Oregon 97301

RECEIVED
AUG 20 2009
STATE HISTORIC PRESERVATION OFFICE
RECEIVED
AUG 20 2009

August 19, 2009

FILE CODE:

Jackson County

Eagle Point, Medford East, Medford West, Sams Valley Quads

T36S, R1W, Sec 8, 9, 16-20, 29, 30; T37S, R1W, Sec 6, 7, 18; T37S, R2W, Sec 13

Roger Roper
Deputy State Historic Preservation Officer
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97310-1271

Subject: **Request for Concurrence**
Finding of No Historic Properties Affected (Archaeology)
US 62 Corridor Solutions EIS Project
Jackson County, Oregon
Key # 13226, Federal Aid # S002(022)PE

SHPO CASE# 08-0505

Dear Mr. Roper,

The Oregon Department of Transportation (ODOT) proposes to reconstruct a 7.2 mile section of US 62 (Crater Lake Highway) between Medford and White City, in Jackson County, Oregon. Project plans include construction of a new north/south highway segment west of the current US 62 alignment, as well as modifications to existing interchanges.

Multiple cultural resource surveys have been undertaken in the vicinity of the current project area. A 'windshield reconnaissance' was conducted to determine if any high probability areas were present (Dames and Moore 1998). This reconnaissance identified no high probability areas. A subsequent pedestrian survey was conducted that included most of the current project area (Demuth et al. 2001). This survey identified a linear resource (Medco Haul Road) with associated logging components. However, the entire current project area had not been adequately investigated. Therefore, archaeologists with the Oregon State Museum of Anthropology (OSMA) conducted a pedestrian survey of the project area between July 23 and 24 and August 1 and 2, 2007 (O'Neill 2008). This survey identified one historic isolate and one prehistoric isolate. Six high probability landforms (Localities 1-6) were identified by this OSMA survey and subsurface exploratory investigations were conducted at each, including Locality 5 where a lithic isolate was identified during pedestrian survey. However, none of the sixty four probes excavated within the six localities yielded cultural materials. The archaeological investigations identified no archaeological sites evident within the project area and no further work is recommended.

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 US 62 Corridor Solutions EIS 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 Michelle Eraut, Environmental Program Manager with FHWA, at (503) 587-4716, 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 US 62 Corridor Solutions EIS project will have **No Historic Properties Affected (Archaeology)**.

SHPO Official **Date** 9/14/09

* 35JA693 SHPO concurs w/ Not Eligible

Copies with attachments:

Don Day, Confederated Tribes of the Grand Ronde Community of Oregon
Robert Kentta, Confederated Tribes of Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Key # 13226, File Type C

Copies without attachments:

Michelle Eraut, FHWA
Anna Henson, ODOT R3 EPM
Jerry Vogt, ODOT R3 REC
Jessica Bochart, ODOT Archaeologist
Tobin C. Bottman, ODOT Archaeologist

References:

Dames and Moore
1998 Highway 62 Corridor Solutions Project Technical Report 1: Archaeology, Cultural and Historic Resources. On file at the Oregon Department of Transportation, Salem.

Demuth, Kimberly, Marcia Montgomery, Laura Rooke, Russell Bevill and Michael Kelly
2001 Highway 62 Corridor Solutions Project North Medford Interchange: Historic, Cultural and Archaeological Resources Report. Entrix Inc., Seattle, and URS Corporation, Portland.

O'Neill, Brian
2008 Pedestrian Survey and Subsurface Reconnaissance of the US 62 Corridor Solutions Project, Jackson County. Museum Report 2008-065. University of Oregon, Eugene.

Appendix F

Attachment #8: April 9, 2008, SHPO Concurrence on Determination of Eligibility, Burrill Mill Complex, Highway 62 Corridor Solutions EIS Project[1] (Built Environment)

[1] This refers to the OR 62: I-5 to Dutton Road (Medford) Project; the project name was later modified.

Oregon
Theodore R. Kulongoski, Governor

Department of Transportation
Transportation Building
355 Capitol St. NE
Salem, Oregon 97301

March 13, 2008

FILE CODE:

Roger Roper
Deputy State Historic Preservation Officer
Assistant Director, Heritage Programs
Oregon State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301

Subject: **Section 106 Determination of Eligibility**
Burrill Mill Complex
Highway 62 Corridor Solutions EIS
Medford, Jackson County
Key No. 13226
Federal-Aid Number X-NH-S022(022)

Mr. Roper,

Included with this letter is one Section 106 Determination of Eligibility for your review and concurrence. The resource documented is the Burrill Mill Complex, located adjacent to Highway 62 between Medford and White City in Jackson County. This mill complex was established in 1953, continuing in its original use until 1998. During that time, and subsequently, the integrity of the resource has been compromised to a point that it does not appear to be eligible for listing on the National Register of Historic Places.

Your prompt review of the attached document is appreciated. If you have any questions regarding this submittal, or require further information, please contact either myself of Michelle Eraut, FHWA Environmental Program Manager, at (503)587-4716.

Sincerely,

James B. Norman
Environmental Planning Unit Manager

Attachments:
Section 106 Determination of Eligibility: Burrill Mill Complex

Copies to:
Alex McMurry, Cultural Resources Program Coordinator
Jerry Marmon, Region 3 Environmental Project Manager
Michelle Eraut, FHWA Oregon Division
Key No. 13226, File Type E: Cultural Resources

OREGON INVENTORY OF HISTORIC PROPERTIES

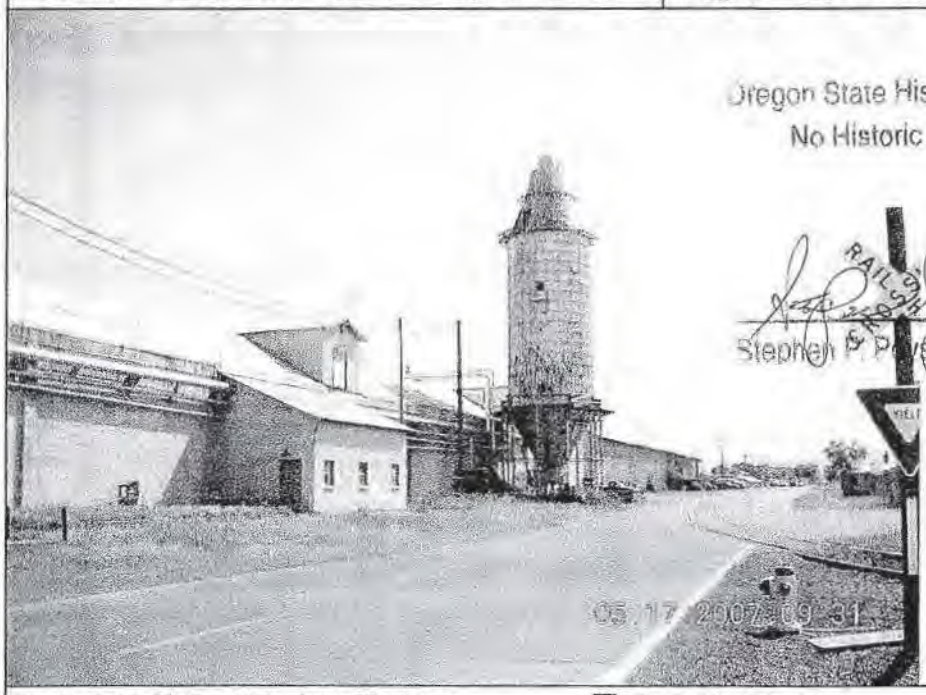
SECTION 106 DOCUMENTATION FORM

Individual Properties

Agency/Project: ODOT/ Highway 62 DEIS			
Property Name: Eugene F. Burrill Lumber Mill			
Street Address: 8425 Agate Road		City, County: White City, Jackson County	
USGS Quad Name: Eagle Point	Township:36S	Range:1W	Section:17
This property is part of a ☐District ☐Grouping/Ensemble (see instructions) Name of District or Grouping/Ensemble:			
Number and Type of Associated Resources in Grouping/Ensemble:			

Current Use: Incidental storage	Construction Date: 1953
Architectural Classification / Resource Type: Industrial / Lumber Mill	Alterations & Dates: various (see narrative)
Window Type & Material: 12-light awning sash	Exterior Surface Materials: Primary: Wood Secondary: Cinder Block Decorative:
Roof Type & Material: gabled, corrugated metal	
Condition: ☐Excellent ☐Good ☒Fair ☐Poor	Integrity: ☐Excellent ☐Good ☒Fair ☐Poor

View east along Avenue H



Oregon State Historic Preservation Office
No Historic Properties Affected

Stephen P. Poyser, Ph.D 4/9/08

Preliminary National Register Findings: ☐**National Register listed**

☐**Potentially Eligible:** ☐Individually ☐As part of District

☒**Not Eligible:** ☐In current state ☒Irretrievable integrity loss ☐Lacks Distinction ☐Not 50 Years

State Historic Preservation Office Comments:

☒**Concur** ☐**Do Not Concur:** ☐Potentially Eligible Individually ☐Potentially Eligible as part of District ☐Not Eligible

Signed _____ Date 4/9/08

Comments:

Surveyor/Agency: Martha Richards / URS Date Recorded: November 2007

OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Individual Properties

Agency/Project: ODOT/ Highway 62 DEIS	
Property Name: Eugene F. Burrill Lumber Mill	
Street Address: 8425 Agate Road	City, County: White City, Jackson County
USGS Quad Name: Eagle Point	Township:36S Range:1W Section:17
This property is part of a ☐District ☐Grouping/Ensemble (see instructions) Name of District or Grouping/Ensemble:	
Number and Type of Associated Resources in Grouping/Ensemble:	

Current Use: Incidental storage	Construction Date: 1953
Architectural Classification / Resource Type: Industrial / Lumber Mill	Alterations & Dates: various (see narrative)
Window Type & Material: 12-light awning sash	Exterior Surface Materials: Primary: Wood Secondary: Cinder Block Decorative:
Roof Type & Material: gabled, corrugated metal	
Condition: ☐Excellent ☐Good ☒Fair ☐Poor	Integrity: ☐Excellent ☐Good ☒Fair ☐Poor

View east along Avenue H

Preliminary National Register Findings: ☐**National Register listed**

☐**Potentially Eligible:** ☐Individually ☐As part of District

☒**Not Eligible:** ☐In current state ☒Irretrievable integrity loss ☐Lacks Distinction ☐Not 50 Years

State Historic Preservation Office Comments:

☐**Concur** ☐**Do Not Concur:** ☐Potentially Eligible Individually ☐Potentially Eligible as part of District ☐Not Eligible

Signed _____ Date _____

Comments:

Property Name: Eugene F. Burrill Lumber Mill		
Street Address: 8425 Agate Road		City, County: White City, Jackson
Architect, Builder or Designer (if known):	Owner:	☒Private ☐Local Government ☐State ☐Federal ☐Other

Description of Property (including exterior alterations & approximate dates), Significance Statement, and Sources. (Use continuation sheets if necessary):

The Eugene F. Burrill Lumber Mill is located on an L-shaped parcel on the northeast quadrant of the intersection of Agate Road and Avenue H in the White City Industrial Park in Jackson County. The mill facility consists of a variety of buildings, as well as the former timber/lumber storage yard; an aerial photograph is included in this Determination of Eligibility. The Eugene F. Burrill Lumber Company was founded in Prospect, Oregon in 1941 and moved to its present location in 1953. From 1953 until it closed in early 1998, the mill produced white fir and Douglas fir studs; when it closed, it was the last independently-owned mill in Jackson County. Like many lumber mills of its period, the Eugene F. Burrill Lumber Mill has evolved over the years, adding and removing log storage ponds, buildings, and other structures. Although this is one of the earliest lumber mills in the White City Industrial Park, it has not maintained a sufficient degree of integrity to consider it eligible for the National Register of Historic Places.

The Eugene F. Burrill Lumber Mill consists of an assemblage of buildings and structures. The oldest buildings – those dating from the early to mid-1950s – are located at the southwest corner of the site. At the southern end of the parcel facing Avenue H is a long, narrow gable-roofed building, shown at right in the photo on the previous page. This cinder block building with a corrugated metal roof was used for storage; it is nearly windowless on its southern façade and is open on its north side. It Directly east of this building is a second long and narrow gable-roofed rectangular building along Avenue H. This building has a corrugated metal roof and board and batten siding. It is the more distant building in the photo on the previous page. This building connects to another long, narrow rectangular building that is oriented north/south and includes a wing and two additions. This assemblage once held much of the milling equipment. Fronting Agate Road is a monitor-roofed rectangular wooden building. It has board and batten siding, twelve-light awning sash windows, and five large garage bays with recessed panel wooden doors on its west side. It is shown in the photograph on the following page. A steel sawdust burner is located near the northern edge of the mill site. Shown in photos on the following pages, it is a "wigwam" type of burner that is conical in shape, and appears to be missing the domed spark arresting screen typical of this type of burner. It includes underfire fan vents in the floor, an efficiency enhancement that was made in response to the Clean Air Act of 1970.

Photographs and maps of the lumber mill and its surroundings show that there was, during the mill's early years, a large log storage pond north of the main mill buildings. There were appear to have been a few additional mill buildings that no longer exist, along with a second sawdust burner that was located closer to the sawmill itself. The northern portion of the site was used for lumber and log storage; shadows of this use are still apparent in the current aerial photograph.

The lumber mill is located in the White City industrial area. The area now known as White City was once Camp White, a WWII military training camp. After the war, the camp was no longer needed and the buildings were auctioned off and the land cleared. Once the buildings were removed, the land was ripe for development: the military had left behind acres of vacant land that already had all of the necessary infrastructure. A large tract of land on the west side of Highway 62 was purchased in 1947 by the Southern Oregon Lumber Mart, a consortium of local sawmill operators formed specifically for the purpose of acquiring and developing the land into a lumber-related industrial area. The members of this consortium then proceeded to develop the area with lumber milling and processing businesses. The Burrill mill was among those early businesses. While the mill enjoyed many years of profitable business, changes in logging practices and timber availability during the 1980s and 1990s hurt the mill's economic viability. The mill went out of business in 1998 as a result. The mill's machinery and equipment were sold at auction after the mill's closing. The site is no longer used as a mill; it appears to be used for materials storage and other industrial activities.

While the Eugene F. Burrill Lumber Mill includes some buildings dating to the early development of the White City industrial area, the overall facility does not retain enough integrity to convey the sense of its history. Many early structures, including the log pond, one sawdust burner, and assorted buildings, were demolished or removed over the years in response to changes in milling technology and environmental regulations. A number of newer buildings dating from the 1970s and 1980s have been added to the site. This facility does not have sufficient significance – historical or architectural – to suggest that this reduced integrity should be overlooked. As a result, it should not be considered eligible for the National Register of Historic Places.

Property Name: Eugene F. Burrill Lumber Mill	
Street Address: 8425 Agate Road	City, County: White City, Jackson

References

Jackson County Assessor's Office. Tax Records.

Kramer, George. 1992. *Camp White: City in the Agate Desert*. Camp White 50th Anniversary Committee, White City, Oregon.

LaLande, Jeffrey. 1979. *Medford Corporation: A History*. Klocker Printing Company. Medford, Oregon.

Macomber, Paul. *Medford Mail Tribune*, "Burrill Will Close White City Mill." December 3, 1997.

Mihalyo, Daniel. 1997. *Wood Burners*. Princeton Architectural Press. New York, New York.

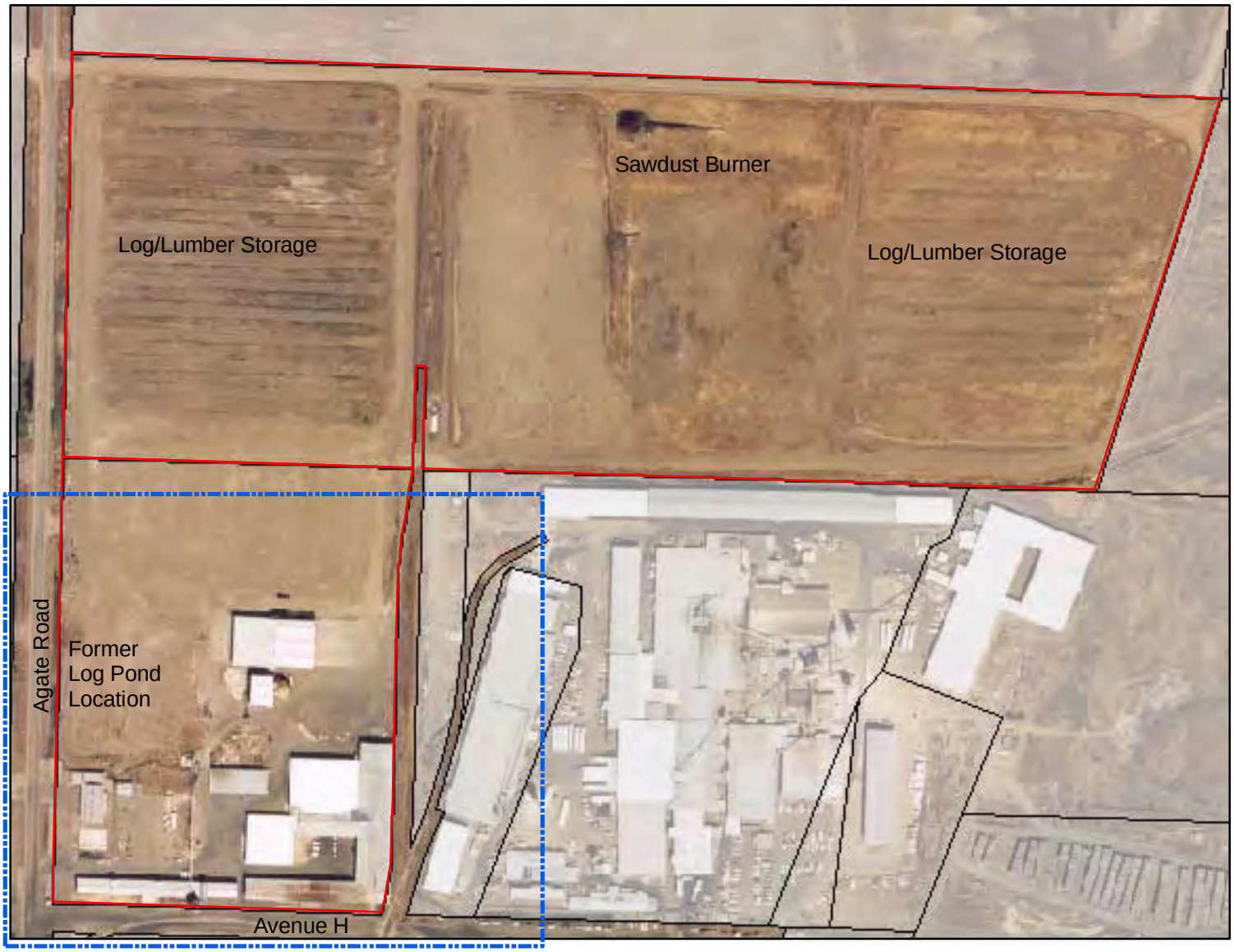
Quinn, Beth. *Medford Mail Tribune*, "Burrill Auctions Equipment: Lumber mill ends 40 years of making studs." May 6, 1998.

SECTION 106: SUPPLEMENTAL PHOTOGRAPHS

Property Name: Eugene F. Burrill Lumber Mill	
Street Address: 8425 Agate Road	City, County: White City, Jackson

View: c. 1953 mill building

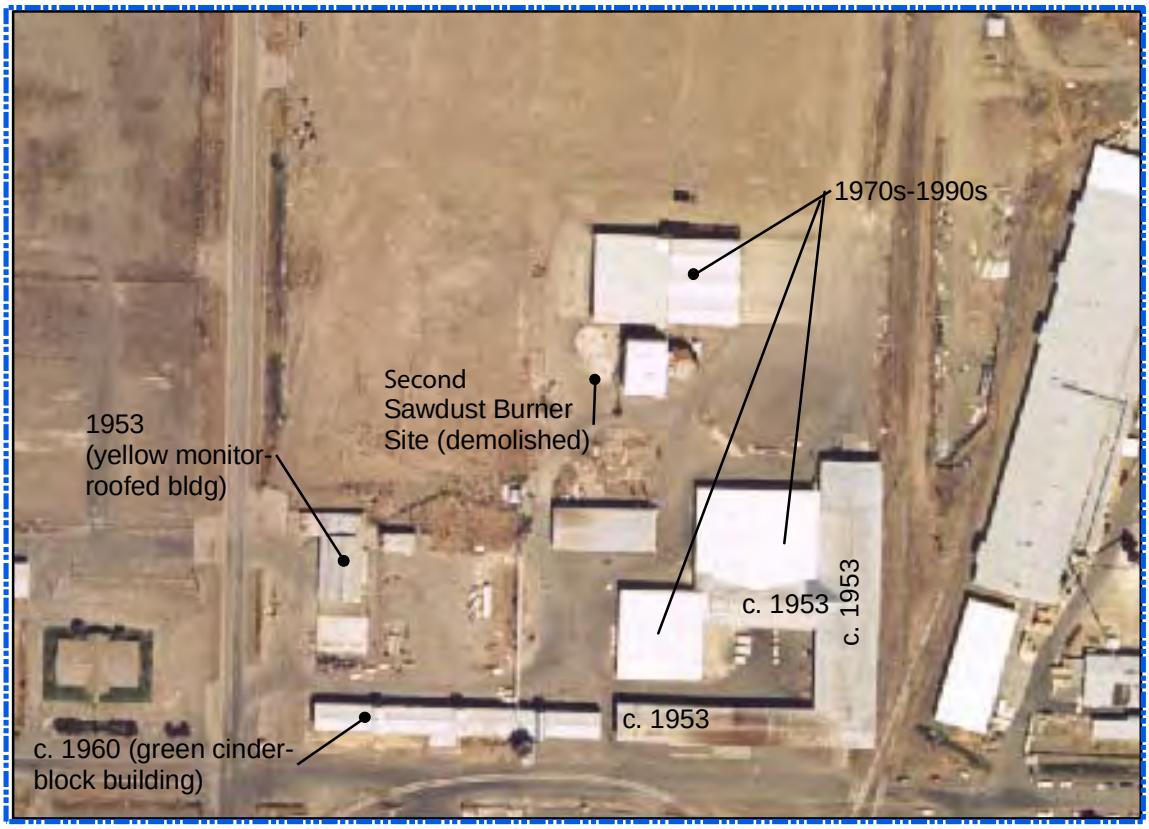
View: Sawdust burner exterior



Legend

Burrill Mill Site

Area of Map Detail

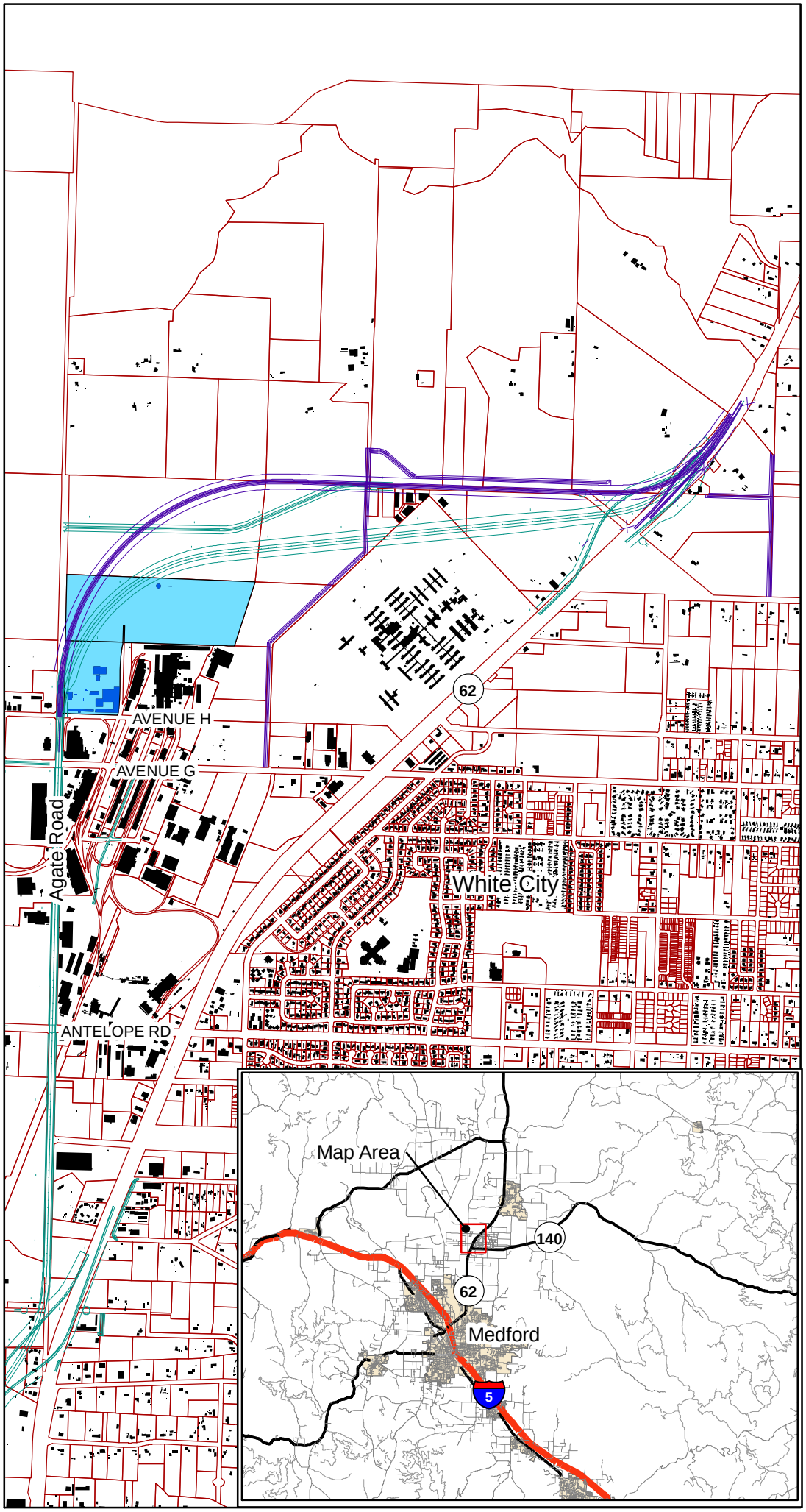


N

Highway 62 Corridor Project

Eugene F. Burrill Lumber Mill Location Map

November 2007



Legend

- Eugene F. Burrill Lumber Mill
- Burrill Mill Buildings
- Build Alternative Option 3B
- Build Alternative Option 3A
- Taxlots

N

Source: Jackson County GIS Data

Oregon Department of Transportation

Appendix F

2. Written Correspondence with Tribes (copies of Section 106 Findings).
   Findings that were transmitted with each cover memo are included in Section 1 of Appendix F and not duplicated in Section 2

   Summary of ODOT coordination with Tribes

   October 1, 2012, Agency Notification to Tribes of September 19, 2012 SHPO Concurrence on Finding of No Adverse Effect (Project Determination for Archaeology and Built Environment)

   August 29, 2012, Agency Notification to Tribes of August 27, 2012 SHPO Concurrence on Finding of No Historic Properties Affected (Archaeology)

   September 22, 2009, Agency Notification to Tribes of September 14, 2009 SHPO Concurrence on Finding of No Historic Properties Affected (Archaeology)

Summary of ODOT coordination with Tribes

- ODOT met with representatives of the Confederated Tribes of the Grand Ronde Community of Oregon to determine whether there were any Traditional Cultural Properties that would be impacted by the project. The Tribe did not identified any Traditional Cultural Properties near the project during these meetings.

- Meetings with the Confederated Tribes of the Grand Ronde Community of Oregon occurred on the following dates: April 7, 2006; June 23,2006; December 6, 2006; June 1,2007; November 26, 2007; May 12, 2008; November 5, 2008; August 27, 2009; December 11, 2009; May 3, 2011; November 10, 2011; and May 14 2012. During the 2011 and 2012 meetings, ODOT also discussed the JTA phase.

- ODOT met with representatives of the Confederated Tribes of Siletz to determine whether there were any Traditional Cultural Properties that would be impacted by the project. The Tribe did not identified any Traditional Cultural Properties near the project during these meetings.

- Meetings with the Confederated Tribes of Siletz occurred on the following dates: November 2, 2006; November 20, 2007; December 8, 2008; December 16, 2009; March 23, 2011; and March 21, 2012.

- Based on these meetings and coordination there are no Traditional Cultural Properties within the APE.

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Geo-Environmental Section
4040 Fairview Industrial Dr SE MS #6
Salem, OR 97302

FILE CODE:

DATE: October 1, 2012

TO: Briece Edwards, Confederated Tribes of the Grand Ronde Community of Oregon
David Harrelson, Confederated Tribes of the Grand Ronde Community of Oregon
Robert Kentta, Confederated Tribes of Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Michelle Eraut, FHWA
Chris Bell, ODOT
Tobin C. Bottman, ODOT
Anna Henson, ODOT

FROM: Amanda Sandvig, Geo-Environmental Administrative Specialist ASS

SUBJECT: **Request for Concurrence**
Finding of No-Adverse Effect
OR 62: I-5 to Dutton Road (Medford) Project
Jackson County, Oregon
ODOT Key No. 13226
Federal Aid No. S022(022)PE

Attached is the signed **Concurrence** from the State Historic Preservation Office for the above referenced project, **approved on 9/19/2012**.

Oregon
John A. Kitzhaber, MD, Governor

Department of Transportation
Geo-Environmental Section
4040 Fairview Industrial Dr SE MS #6
Salem, OR 97302

FILE CODE:

DATE: August 29, 2012

TO: Robert Kentta, Confederated Tribes of Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Anna Henson, ODOT Region 3 EPM
Tobin C. Bottman, ODOT Archaeologist
Key # 13226, File Type C

FROM: Rebecca Littau, Geo-Environmental Administrative Staff RL

SUBJECT: **Request for Concurrence**
Finding of No Historic Properties Affected-(Archaeology)
OR 62: I-5 to Dutton Road (Medford) Project
Jackson County, Oregon
ODOT Key No. 13226, EA PE000754
Federal Aid No. S022(022)PE

Attached is the signed **Concurrence** from the State Historic Preservation Office for the above referenced project, **approved on August 27, 2012**.

Oregon
Theodore R. Kulongoski, Governor

Department of Transportation
Transportation Building
355 Capitol St. NE, Rm. 301
Salem, OR 97301-3871

FILE CODE:

DATE: September 22, 2009

TO: Don Day, Confederated Tribes of the Grand Ronde Community of Oregon
Robert Kentta, Confederated Tribes of Siletz
Eirik Thorsgard, Confederated Tribes of the Grand Ronde Community of Oregon
Michelle Eraut, FHWA
Anna Henson, ODOT R3 EPM
Jerry Vogt, ODOT R3 REC
Jessica Bochart, ODOT Archaeologist
Tobin C. Bottman, ODOT Archaeologist
Key # 13226, File Type C

FROM: Holly Stucker, Geo-Environmental Administrative Staff

SUBJECT: **Request for Concurrence**
Finding of No Historic Properties Affected (Archaeology)
US 62 Corridor Solutions EIS Project
Jackson County, Oregon
Key # 13226, Federal Aid # S002(022)PE

Attached is the signed Concurrence from SHPO on the above referenced project.

Appendix G ESA Documentation

This appendix includes:

- Lists of Federal ESA species that could be present in the project area
- January 25, 2011 Programmatic Formal Consultation on the US Fish and Wildlife Service's Vernal Pool Conservation Strategy for Jackson County, Oregon
- December 21, 2010 Cover letter for the Biological Assessment submitted to the National Marine Fisheries Service
- March 20, 2013 Biological Opinion from the National Marine Fisheries Service
- December 22, 2011 Cover letter for the Biological Assessment submitted to the US Fish and Wildlife Service
- March 26, 2013 Biological Opinion from US Fish and Wildlife Service

FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES
AND SPECIES OF CONCERN
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE
WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON

LISTED SPECIES

Birds

Northern spotted owl	*Strix occidentalis caurina*	CH T

Invertebrates

Crustaceans:

Vernal pool fairy shrimp	*Branchinecta lynchi*	CH T

Plants

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

PROPOSED SPECIES

None

No Proposed Endangered Species	PE
No Proposed Threatened Species	PT

CANDIDATE SPECIES

Mammals

Terrestrial:

Fisher	*Martes pennanti*
North American wolverine	*Gulo gulo luscus*

Invertebrates

Insects:

Mardon skipper	*Polites mardon*

Plants

Siskiyou mariposa lily	*Calochortus persistens*
Whitebark Pine	*Pinus albicaulis*

SPECIES OF CONCERN

Mammals

Pallid bat	*Antrozous pallidus pacificus*
Townsend's western big-eared bat	*Corynorhinus townsendii townsendii*
Silver-haired bat	*Lasionycteris noctivagans*
Long-eared myotis bat	*Myotis evotis*
Fringed myotis bat	*Myotis thysanodes*
Long-legged myotis bat	*Myotis volans*

Yuma myotis bat	*Myotis yumanensis*

Birds

Northern goshawk	*Accipiter gentilis*
Tricolored blackbird	*Agelaius tricolor*
Western burrowing owl	*Athene cunicularia hypugaea*
Olive-sided flycatcher	*Contopus cooperi*
Yellow-breasted chat	*Icteria virens*
Acorn woodpecker	*Melanerpes formicivorus*
Lewis' woodpecker	*Melanerpes lewis*
Mountain quail	*Oreortyx pictus*
Band-tailed pigeon	*Patagioenas fasciata*
White-headed woodpecker	*PIcoides albolarvatus*
Oregon vesper sparrow	*Pooecetes gramineus affinis*
Purple martin	*Progne subis*

Reptiles and Amphibians

Northern Pacific pond turtle	*Actinemys marmorata marmorata*
Coastal tailed frog	*Ascaphus truei*
Common kingsnake	*Lampropeltis getula*
California mountain kingsnake	*Lampropeltis zonata*
Del Norte salamander	*Plethodon elongatus*
Siskiyou Mountains salamander	*Plethodon stormi*
Northern red-legged frog	*Rana aurora aurora*
Foothill yellow-legged frog	*Rana boylii*
Cascades frog	*Rana cascadae*

Fish

Jenny Creek sucker	*Catostomus rimiculus ssp.*
Pacific lamprey	*Lampetra tridentata*
Coastal cutthroat trout	*Oncorhynchus clarki ssp*

Invertebrates

Insects:

Denning's agapetus caddisfly	*Agapetus denningi*
Franklin's bumblebee	*Bombus franklini*
Siskiyou chloealtis grasshopper	*Chloaeltis aspasma*
Green Springs Mountain farulan caddisfly	*Farula davisi*
Sagehen Creek goeracean caddisfly	*Goeracea oregona*
Schuh's homoplectran caddisfly	*Homoplectra schuhi*
Siskiyou carabid beetle	*Nebria gebleri siskiyouensis*

Plants

Rogue canyon rock cress	*Arabis modesta*
Crater Lake rock-cress	*Arabis suffrutescens var. horizontalis*
Greene's mariposa lily	*Calochortus greenei*
Broad-fruit mariposa lily	*Calochortus nitidus*
Umpqua mariposa-lily	*Calochortus umpquaensis*
Howell's camassia	*Camassia howellii*
Baker's cypress	*Cupressa bakeri*
Clustered lady's-slipper	*Cypripedium fasciculatum*
Siskiyou willow-herb	*Epilobium siskiyouense*

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

DELISTED SPECIES

Birds

American Peregrine falcon	*Falco peregrinus anatum*
Bald eagle	*Haliaeetus leucocephalus*

Definitions:

Listed Species: An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future.

Proposed Species: Taxa for which the Fish and Wildlife Service or National Marine Fisheries Service has published a proposal to list as endangered or threatened in the Federal Register.

Candidate Species: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

Species of Concern: Taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service (many previously known as Category 2 candidates), but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing.

Delisted Species: A species that has been removed from the Federal list of endangered and threatened wildlife and plants.

Key:

E	Endangered
T	Threatened
CH	Critical Habitat has been designated for this species
PE	Proposed Endangered
PT	Proposed Threatened
PCH	Critical Habitat has been proposed for this species

Notes:

FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES AND SPECIES OF CONCERN UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON

Marine & Anadromous Species: Please consult the National Marine Fisheries Service (NMFS) (http://www.nmfs.noaa.gov/pr/species/) for marine and anadromous species. The National Marine Fisheries Service (NMFS) manages mostly marine and anadromous species, while the U.S. Fish and Wildlife Service manages the remainder of the listed species, mostly terrestrial and freshwater species.

Marine Turtle Conservation and Management: All six species of sea turtles occurring in the U.S. are protected under the Endangered Species Act of 1973. In 1977, NOAA Fisheries and the U.S. Fish and Wildlife Service signed a Memorandum of Understanding to jointly administer the Endangered Species Act with respect to marine turtles. NOAA Fisheries has the lead responsibility for the conservation and recovery of sea turtles in the marine environment and the U.S. Fish and Wildlife Service has the lead for the conservation and recovery of sea turtles on nesting beaches. For more information, see the NOAA Fisheries webpage on sea turtles http://www.nmfs.noaa.gov/pr/species/turtles/.

Gray Wolf: In 2008, the Service published a final rule that established a distinct population segment of the gray wolf (*Canis lupis*) in the northern Rocky Mountains (which includes a portion of Eastern Oregon, east of the centerline of Highway 395 and Highway 78 north of Burns Junction and that portion of Oregon east of the centerline of Highway 95 south of Burns Junction). Any wolves found west of this line in Oregon belong to the conterminous USA population [see 73 FR 10514]. On May 5, 2011, the Fish and Wildlife Service published a final rule – as directed by legislative language in the Fiscal Year 2011 appropriations bill – reinstating the Service's 2009 decision to delist biologically recovered gray wolf populations in the Northern Rocky Mountains. Gray wolves in Oregon are State-listed as endangered, regardless of location.

Endangered Species Act Status of West Coast Salmon & Steelhead

(Updated Aug. 11, 2011)

Species[1]			*Current Endangered Species Act Listing Status*[2]	*ESA Listing Actions Under Review*
Sockeye Salmon (*Oncorhynchus nerka*)	1	Snake River	***Endangered***	
	2	Ozette Lake	***Threatened***	
	3	Baker River	*Not Warranted*	
	4	Okanogan River	*Not Warranted*	
	5	Lake Wenatchee	*Not Warranted*	
	6	Quinalt Lake	*Not Warranted*	
	7	Lake Pleasant	*Not Warranted*	
Chinook Salmon (*O. tshawytscha*)	8	Sacramento River Winter-run	***Endangered***	
	9	Upper Columbia River Spring-run	***Endangered***	
	10	Snake River Spring/Summer-run	***Threatened***	
	11	Snake River Fall-run	***Threatened***	
	12	Puget Sound	***Threatened***	
	13	Lower Columbia River	***Threatened***	
	14	Upper Willamette River	***Threatened***	
	15	Central Valley Spring-run	***Threatened***	
	16	California Coastal	***Threatened***	
	17	Central Valley Fall and Late Fall-run	***Species of Concern***	
	18	Upper Klamath-Trinity Rivers	*Not Warranted*	
	19	Oregon Coast	*Not Warranted*	
	20	Washington Coast	*Not Warranted*	
	21	Middle Columbia River spring-run	*Not Warranted*	
	22	Upper Columbia River summer/fall-run	*Not Warranted*	
	23	Southern Oregon and Northern California Coast	*Not Warranted*	
	24	Deschutes River summer/fall-run	*Not Warranted*	
Coho Salmon (*O. kisutch*)	25	Central California Coast	***Endangered***	
	26	Southern Oregon/Northern California	***Threatened***	
	27	Lower Columbia River	***Threatened***	• Critical habitat
	28	Oregon Coast	***Threatened***	
	29	Southwest Washington	*Undetermined*	
	30	Puget Sound/Strait of Georgia	***Species of Concern***	
	31	Olympic Peninsula	*Not Warranted*	
Chum Salmon (*O. keta*)	32	Hood Canal Summer-run	***Threatened***	
	33	Columbia River	***Threatened***	
	34	Puget Sound/Strait of Georgia	*Not Warranted*	
	35	Pacific Coast	*Not Warranted*	
Steelhead (*O. mykiss*)	36	Southern California	***Endangered***	
	37	Upper Columbia River	***Threatened***	
	38	Central California Coast	***Threatened***	
	39	South Central California Coast	***Threatened***	
	40	Snake River Basin	***Threatened***	
	41	Lower Columbia River	***Threatened***	
	42	California Central Valley	***Threatened***	
	43	Upper Willamette River	***Threatened***	
	44	Middle Columbia River	***Threatened***	
	45	Northern California	***Threatened***	
	46	Oregon Coast	***Species of Concern***	
	47	Southwest Washington	*Not Warranted*	
	48	Olympic Peninsula	*Not Warranted*	
	49	Puget Sound	***Threatened***	• Critical habitat
	50	Klamath Mountains Province	*Not Warranted*	
Pink Salmon (*O. gorbuscha*)	51	Even-year	*Not Warranted*	
	52	Odd-year	*Not Warranted*	

1 The ESA defines a "species" to include any distinct population segment of any species of vertebrate fish or wildlife. For Pacific salmon, NOAA Fisheries Service considers an evolutionarily significant unit, or "ESU," a "species" under the ESA. For Pacific steelhead, NOAA Fisheries Service has delineated distinct population segments (DPSs) for consideration as "species" under the ESA.

Programmatic Formal Consultation on the U.S. Fish and Wildlife Service's Vernal Pool Conservation Strategy for Jackson County, Oregon

(FWS Reference Number 13420-2011-F-0064)

U.S. Department of the Interior
U.S. Fish and Wildlife Service
Oregon Fish and Wildlife Office
January 25, 2011

Signature: Monty Knudsen

Date Signed: 1/26/2011

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TABLE OF CONTENTS

INTRODUCTION 4
DEFINITIONS 6
CONSULTATION HISTORY 9
DESCRIPTION OF THE PROPOSED ACTION 9
General Parameters 12
Federal Clean Water Act Section 404 and State Removal-Fill Law Permitting 14
Approval and Implementation of Mitigation Projects 15
Voluntary Restoration and Enhancement Actions 16
Projects and Activities Not Covered Under Agency Permits 17
Mitigation Requirements 17
Basic Criteria for Establishment of Banks and Other Mitigation Projects 18
Site Suitability Criteria for Mitigation Projects 18
Impact and Crediting Ratios 20
Mitigation Site Base Ratios 20
Impact Site Ratios 21
Total Effective Mitigation Ratios 22
Using Credits in Combination 23
Performance Standards 23
Hydrology and Topography Standards 23
Vegetation Standards 24
Federally Listed Species 25
Monitoring of Performance Standards 26
STATUS OF THE SPECIES AND ENVIRONMENTAL BASELINE 28
Vernal pool fairy shrimp 28
Cook's Lomatium 32
Large-flowered Woolly Meadowfoam 33
Vernal Pool Fairy Shrimp 39
Cook's Lomatium 43
Large-flowered Woolly Meadowfoam 45
ANALYTICAL FRAMEWORK FOR JEOPARDY DETERMINATIONS 48
EFFECTS OF THE PROPOSED ACTION 54
CUMULATIVE EFFECTS 61
CONCLUSION 62
INCIDENTAL TAKE STATEMENT 63
TERMS AND CONDITIONS 65
Monitoring and Reporting of Effects 65
Best Management Practices 66
General Practices 66
Native Plant and Weed Management 67
Herbicide Use 68
Scheduled Maintenance or Repairs 68
Vegetation Sampling 69
Fairy Shrimp Sampling 71
Vernal Pool Restoration Inoculum Collection 71
Listed Plant Seed Collection and Restoration Methodology 73

Grazing 75
Reporting 76
CONSERVATION RECOMMENDATIONS 76
REINITIATION - CLOSING STATEMENT 76
LITERATURE CITED 77

LIST OF TABLES

Table 1. Native Plant Species in Agate Desert vernal pools and mounds 26
Table 2. Summary of Vernal Pool Habitat Integrity Classes in the Agate Desert. 41
Table 3. Amount of Fairy Shrimp Critical Habitat receiving protective measures, by CHU and type of protective measure. 42
Table 4. Acres of Vernal Pool Fairy Shrimp Critical Habitat, by CHU, by ownership, Providing Habitat Protection for Vernal Pool Fairy Shrimp, Cook's Lomatium and Large–flowered Woolly Meadowfoam. 42
Table 5: Acres of Critical Habitat, by CHU, by ownership, providing Habitat Protection for Cook's lomatium. 46
Table 6: Acres of Critical Habitat, by CHU, by ownership, providing Habitat Protection for Large–flowered Woolly Meadowfoam 47
Table 7. Service Focal Areas for Vernal Pool Conservation and Recovery 52
Table 8. Seed mixtures and plantings to be utilized for vernal pool restoration areas. 68
Table 9. Non-native, invasive plant species common to the Agate Desert vernal pool area. 69

LIST OF FIGURES

Figure 1. Agate-Winlo Soils in the Rogue Valley 11
Figure 2. Extent of Vernal Pool Complex Habitat around Vernal Pool Wetlands and Area of Vernal Pool Complex Habitat Affected by Projects. 13
Figure 3. Map of Designated Vernal Pool Fairy Shrimp Critical Habitat in the Agate Desert area. 36
Figure 4. Map of Designated Cook's Lomatium Critical Habitat in the Agate Desert area. 37
Figure 5. Map of Designated Large-flowered Woolly Meadowfoam Critical Habitat in the Agate Desert area. 38
Figure 6. Recovery Core Areas from the Draft Recovery Plan for Listed Species of the Rogue Valley Vernal Pools and Illinois Valley Wet Meadow Ecosystems. 51
Figure 7. Vernal Pool Habitat Focal Areas in Jackson County, Oregon. 53
Figure 8. Location of possible soil samples for restoration activities (see sample location information). 73

INTRODUCTION

This Biological Opinion (Opinion) is developed pursuant to section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S. C. 1531 *et seq.*)(Act) in response to requests for Intra-Service consultation from the U.S. Fish and Wildlife Service's (Service) Oregon Fish and Wildlife Office's (OFWO) Roseburg Field Office and for interagency consultation from the U.S Army Corps of Engineers (Corps). These requests for consultation focus on activities of the agencies related to conservation and development within vernal pool habitat near Jackson County, Oregon and the impacts of these activities on vernal pool complex (VPC) species listed under the Act, specifically: vernal pool fairy shrimp (*Branchinecta lynchi* (fairy shrimp or VPFS)); Cook's Lomatium (*Lomatium cookii* (Lomatium)); and large-flowered woolly meadowfoam (*Limnanthes flocossa ssp. grandiflora*) (meadowfoam)). Collectively, these species are referred to as the listed vernal pool species.

Activities of the Oregon Department of State Lands (DSL) and some private entities are also included in this Opinion by virtue of being interdependent and interrelated to the activities of the Corps and the Service, and/or being necessary components of the overall vernal pool conservation strategy for Jackson County, Oregon that will be implemented by those agencies.

This Opinion is a programmatic biological opinion: a broad suite of similar, related, and largely predictable activities and entities will be addressed in the Opinion and accompanying incidental take statement (ITS); the overall effect of these activities and associated impacts is expected to be consistent with and supportive of recovery of listed vernal pool species; and tracking of the impacts of individual projects and overall activities over time will be utilized to ensure this expectation is realized. However, the coverage afforded to specific activities by the ITS will vary, with some activities covered up-front *in toto* without project-level analysis or review, and with some activities covered only partially and requiring some additional project-level review in order to be in compliance with the Act via this Opinion.

In order to ensure that the cumulative effect of the activities and associated impacts covered in this Opinion are consistent with and supportive of recovery of listed vernal pool species, the Opinion is premised on implementation of an overall conservation strategy for vernal pool habitats and species. This strategy includes:

- Targets for vernal pool complex (VPC) habitat protection, restoration and enhancement;
- Guidance, best management practices, and performance standards for VPC and vernal pool species restoration and management;
- Prioritized use of credits available from conservation banks, mitigation banks, or equivalent conservation or mitigation projects (in conjunction with on-site best management practices and performance standards) as the most credible method to minimize the effects and significance of unavoidable impacts to listed vernal pool species that might result from otherwise lawful development activities in VPC;
- Thresholds, criteria, ratios and other factors that will determine establishment of appropriate credits and credit allocation to banks or equivalent conservation or mitigation projects, and appropriate and effective use of these credits to address the adverse impacts of development projects;

- Enabling Corps and/or DSL-approved wetland banks and credits established consistent with the above factors to also serve as species conservation banks and credits under the Act;
- Streamlined regulatory review and approval of certain conservation and development activities within VPC via use of a single suite of standards and processes by the Corps, DSL, and the Service, and programmatic permitting and compliance products by each agency, including this programmatic Opinion produced by the Service, as well as a Regional General Permit (RGP) and General Permit (GP) produced by the Corps and DSL, respectively; and
- Common expectations and reasonable certainty about the standards and requirements for engaging in VPC development and conservation activities for landowners, developers, habitat managers, and others.

Collectively, the components above represent the Service's preferred/priority conservation strategy (PCS) for listed VPC species in Jackson County, Oregon. The PCS is based on and is intended to support the Service's broader final recovery plan for vernal pool ecosystems of California and Southern Oregon (USFWS 2005). That recovery plan established specific goals, objectives and tasks to direct recovery efforts for vernal pool fairy shrimp, including the described recovery criteria and actions for the Klamath Mountains Vernal Pool Region (KMVPRA)(which covers Jackson County), tailored over time, to address more locally specific information and conditions. The criteria and actions that have been subsequently established by the Service for the KMVPRA include:

- Protection of approximately 2,000 acres of remaining and currently unprotected/unsecured VPC;
- Approximately 500 of those 2,000 acres should be protected in the form of conservation banks.
- Approximately 1,000 of the 2,000 acres should be protected in the form of conservation easements or agreements.
- Protected areas should consist of the largest, most functionally and physically intact, and highest quality VPC.
- Protected areas should be located within the historical range of the Agate-Winlo soil type.
- Enhancement of the quality and function of existing vernal pool habitat and restoration of the function of previously degraded habitat.

The PCS is also based on and is intended to support the Service's draft recovery plan for the listed species of the Rogue Valley Vernal Pool and Illinois Valley Wet Meadow Ecosystems (USFWS 2006). This draft recovery plan addresses recovery efforts for Cook's Lomatium and large-flowered woolly meadowfoam.

Projects implemented consistent with the PCS (as defined by being in compliance with this Opinion and the applicable reasonable and prudent measures and the terms and conditions of its ITS) will be prioritized and expedited for Service review, technical assistance, and regulatory

determinations. Projects that propose to use alternate strategies will not necessarily receive such prioritization and will need to demonstrate conservation of vernal pool species that is equivalent to or better than would be realized through the measures described in this Opinion.

DEFINITIONS

Agency Permits: For purposes of this Opinion, agency permits refer to a permit issued by the U.S. Army Corps of Engineers, pursuant to Section 404 of the Clean Water Act (CWA) of 1973, or a permit issued by the Oregon Department of State Lands, pursuant to the Oregon Fill and Removal Law (R-FL). These types of permits address impacts to wetlands—in these specific cases, vernal pools.

Augmentation: The introduction of a listed plant within 0.6 miles of an existing occurrence of that listed plant.

Combination Credits: Credits that have been approved by the Corps and DSL as wetland mitigation credits and by the Service as endangered species credits. Such credits may be used only once—for wetlands, for listed species, or for both concurrently. Following use for any of these purposes, they will be retired. Refer to definitions of Endangered Species Credit and Wetland Mitigation Credit, below.)

Conservation Banks: A site, or suite of sites, that contain natural resource values that are conserved and managed in perpetuity for specified endangered, threatened, or other at-risk species expressly for the purpose of offsetting impacts occurring elsewhere to the same resource values. The establishment, operation and use of a conservation bank are governed by a conservation bank agreement. In exchange for permanently protecting the bank lands and managing them for listed species, the conservation bank owners may sell credits to developers or others who need to compensate for the environmental impacts of their projects. (Also refer to Mitigation Banks, below.)

Conservation Easement: A recorded legal document established to conserve biological resources in perpetuity, and which requires certain habitat management obligations for the conservation bank lands. State regulations ORS 271.715 to 271.795 provide a useful, more detailed definition.

Conservation/Mitigation: For purposes of this Opinion, the terms conservation and mitigation are inter-changeable.

Endangered Species Credit (ESC): A unit of measure representing the quantification of species or habitat conservation values within a conservation bank or permittee-responsible mitigation project (see definition below) and which can be used to offset specified types and amounts of impacts to listed species that result from projects elsewhere. Through this Opinion, wetland mitigation credits approved by the Corps and DSL and that are consistent with all criteria for ESCs will also be considered to function as ESCs by the Service (Refer to definitions of Combination Credits, above and Wetland Mitigation Credits, below.)

Endowment: An investment fund maintained by a designated party approved by the Service as a non-wasting endowment to be used exclusively for the management of conservation bank lands in accordance with the management plan and the conservation easement.

Incidental Take: Any take of listed species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. (see *"Take"*). Incidental take may be authorized through section 7 or 10 of the Endangered Species Act.

Individual (or Permittee-Responsible) Mitigation Projects: Actions undertaken by a permittee to compensate for impacts resulting from a specific project. The permittee performs the mitigation after a permit is issued and before or concurrent with impacts for development. The permittee has ultimate legal and fiscal responsibility for implementation and success of the mitigation.

Listed Species: Species listed as threatened or endangered under the Endangered Species Act or under similar State laws that provide legal protection for species. In the case of this Opinion, Vernal pool fairy shrimp (*Branchinecta lynchi* (fairy shrimp)), Cook's Lomatium (*Lomatium cookii* (Lomatium)) and large-flowered woolly meadowfoam (*Limnanthes flocossa ssp. grandiflora*) (meadowfoam)).

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a water body, or change the use of a water body.

Mitigation Banks: A site, or suite of sites, where natural resources are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts to similar resources authorized by Federal or state permits. This general term is often used synonymously with more specific terms such as "wetland mitigation bank" or "conservation bank." Banks are established through a formal agreement or Instrument signed by the regulatory Agencies and a bank sponsor. Once a bank is approved, the sponsor performs the restoration, enhancement, or protection and management activities to generate credits which can be used to compensate for the environmental impacts of other projects.

Mitigation Project: For the purposes of this Opinion, individual or permittee-responsible mitigation, wetland mitigation banks, and conservation banks.

Occurrence: For purposes of this Opinion, a collection (population, patch, location, or occurrence) of the listed plant species. All individual plants within 0.6 miles of each other are considered to be a single occurrence.

Preferred/Priority Conservation Strategy (PCS): The collection of products, processes, and standards the Service will emphasize to support the final recovery plan for vernal pool ecosystems in Oregon and California, the draft recovery plan for the listed species of the Rogue Valley Vernal Pool and Illinois Valley Wet Meadow Ecosystems, and related locally specific criteria and actions subsequently established by the Service. Projects implemented consistent with the PCS will be prioritized and expedited for Service review, technical assistance, and

regulatory determinations. The PCS is summarized in the **Introduction** section of this Opinion and in more detail through the remainder of the document.

Protect and Manage Mitigation: Projects which result in permanent protection and maintenance of established habitat and species attributes via a conservation easement with a recognized land stewardship trust or equivalent, a long term management plan, and a secure ongoing funding source such as an endowment.

Qualified Mitigation Project: Mitigation projects that satisfy the applicable standards and criteria described in this Opinion (or that utilize standards determined by the Service to result in equivalent or better conservation of VPC habitat and species), thereby allowing them to be used under the terms of the Opinion to compensate for the environmental impacts of other projects.

Reintroduction: The introduction of plants, within the historical range, but outside of a known plant occurrence.

Restore and Manage Mitigation: Projects which re-establish functioning vernal pool topography, hydrology, and other species and habitat attributes that were degraded through previous activities. This applies to any area where pools have been filled, leveled, drained, or drowned, but the hardpan is still intact. The reestablished attributes are then permanently protected and maintained via a conservation easement with a recognized land stewardship trust or equivalent, a long term management plan, and a secure ongoing funding source such as an endowment.

Single and Complete Project: Consistent with 33 CFR 330.2(i), the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility and its constituent elements or phases will not be considered separate projects that can be reviewed or approved independently.

Take: As defined in the Act, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect a federally listed species, or to attempt to engage in any such conduct. Harass is defined as an intentional or negligent act that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.

Vernal Pool Complex Habitat (VPC): Any areas that seasonally pond water in which one or more of the listed species could exist. Such areas include, but may not be restricted to, vernal pools and swales. Vernal pools and swales are ephemeral wetlands that typically form in shallow depressions underlain by a substrate near the surface that restricts the percolation of water. They are characterized by a barrier to overland flow that causes water to collect and pond. These depressions fill with rainwater and runoff from adjacent areas during the winter and may remain inundated until spring or early summer, sometimes filling and emptying more than once during the wet season. Vernal pools and swales are frequently clustered into assemblages known as vernal pool complexes. Individual pools within a complex are mutually interdependent in supporting listed vernal pool species; when a species is extirpated from an individual pool, other pools in the complex may serve as re-colonization sources. Upland habitat, mounds and swales

around and within a vernal pool complex are essential to the hydrological and biological integrity of the complex. For purposes of this consultation, vernal pool complex habitat includes vernal pools and all surrounding upland mound areas within 100 feet from the edges of the vernal pools. (See Figure 2. for example.)

Wetland Mitigation Credit: A unit of measure (e.g., a functional or areal measure or other suitable metric) representing the aquatic habitat values or functions at a wetland mitigation bank, permittee-responsible wetland mitigation project, or other compensatory wetland mitigation site and that can be used to offset specified types and amounts of impacts to aquatic resources that result from projects elsewhere. The Corps and/or DSL determine how many credits would be generated by the proposed protection and restoration activities at the bank site, and approve their establishment and utilization under the requirements of the CWA and R-FL, respectively. Through this Opinion, wetland mitigation credits approved by the Corps and DSL and that are consistent with all criteria for ESCs will also be considered to function as ESCs by the Service (Refer to definitions of Combination Credits and ESCs, above.)

CONSULTATION HISTORY

This Opinion is based on information provided to the Service through discussions with Service staff, the Corps and DSL since the spring of 2007, and contained in the final recovery plan for vernal pool ecosystems of California and Southern Oregon (USFWS 2005) and draft recovery plan for the listed species of the Rogue Valley Vernal Pool and Illinois Valley Wet Meadow Ecosystems (USFWS 2006). Information obtained during site visits and meetings between Service staff, agency personnel, applicants, and other federal and state entities has been used. These meetings resulted in the development of measures outlined in the Description of the Proposed Action section below.

The Service determined formal consultation was appropriate since some activities specifically included in the proposed action (or that would occur as an outcome of those included activities) "may affect, likely to adversely affect" the threatened vernal pool fairy shrimp (*Branchinecta lynchi* (fairy shrimp)), designated critical habitat for fairy shrimp, and two plant species listed as endangered: Cook's Lomatium (*Lomatium cookii* (lomatium)) and large-flowered woolly meadowfoam (*Limnanthes floccosa ssp. grandiflora*) (meadowfoam)) (Listed Plants, collectively referred to as the listed vernal pool species). Critical habitat for the Listed Plants was designated by the Service on July 29, 2010 (USFWS 2010).

In the Opinion, the Service concludes that the proposed action is not likely to jeopardize the continued existence of the listed vernal pool species, or result in the destruction or adverse modification of fairy shrimp designated critical habitat or listed plant proposed critical habitat.

DESCRIPTION OF THE PROPOSED ACTION

As discussed in the Introduction, the proposed action includes a number of activities directly or indirectly and/or interdependently related to conservation and development within vernal pool habitat in the Agate Desert area of Jackson County, Oregon (Figure 1), as implemented by the Service, Corps, DSL and some nongovernmental entities. The primary objectives of the action are improved implementation of the Service's preferred/priority conservation strategy (PCS) for

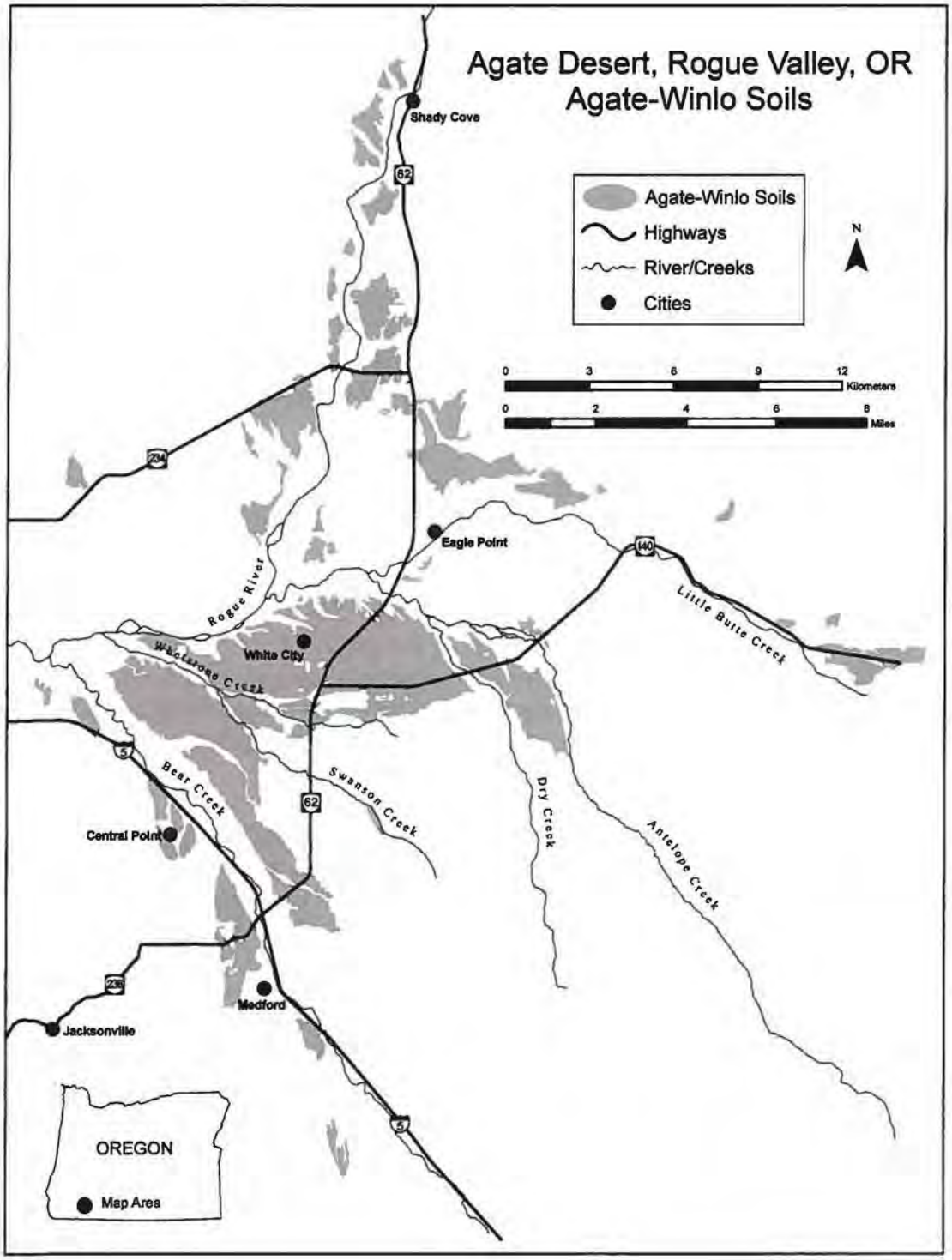
listed VPC species and increased likelihood that losses of VPC habitat to development occur in a manner consistent with and supportive of the PCS.

Specific components of the proposed action include:

1. Corps, Service, and DSL signing/approval of conservation banks, wetland mitigation banks, and equivalent permittee-responsible mitigation (collectively, mitigation projects) for vernal pool species and habitats;
2. Corps, Service, and DSL release of credits from individual banks and equivalent permittee-responsible mitigation.
3. Implementation of the Corps' Vernal Pool Wetlands RGP, individual Corps' permits for vernal pools, the Interdependent and Interrelated DSL Vernal Pool Wetlands General Permit and individual projects approved under these permits.
4. Mitigation sponsor/steward implementation of mitigation project activities and Corps and/or DSL permitting associated with such activities.
5. Other activities implemented by Federal or non-federal entities for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC and Corps and/or DSL permitting associated with such activities.
6. Other activities implemented by Federal or non-federal entities that the Service determines are necessary to support the PCS for listed VPC species.

Components 1-3 will be fully covered via an incidental take statement in this Opinion, without additional project-specific information, analysis, or review, although real-time reporting and periodic post-facto reviews will occur to provide the Service opportunity to monitor implementation of the Opinion. Components 4 - 6 may require project-level reviews. If so, this will occur in an expedited/streamlined fashion. (See **Approval and Implementation of Mitigation Projects, Voluntary Restoration and Enhancement Actions** and **Projects and Activities Not Covered Under Agency Permits** later in this document.)

Figure 1. Agate-Winlo Soils in the Rogue Valley



General Parameters

The general parameters, specific standards and criteria the components above must adhere to in order to be considered part of the proposed action and therefore covered under this Opinion are described below.

1. This Opinion will remain in effect for five years or until 110 acres of vernal pool wetlands (or up to 550 acres of VPC) are affected by development actions and associated mitigation actions, whichever occurs first. During this time an additional 110 acres of vernal pool wetlands (or up to 550 acres of VPC) may be affected by voluntary (non-mitigation) actions implemented for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC. When these time or acreage thresholds are reached, the Service may renew or revise the Opinion or reinitiate consultation if necessary or appropriate to support the objectives of the proposed action.

2. Single and complete projects that are not for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC may adversely affect less than 5 acres of vernal pools or less than 15 acres of VPC, whichever is less.

    a. These acreage thresholds include habitat filled or otherwise destroyed (directly affected) and habitat indirectly affected by the proposed action. Habitat indirectly affected includes all habitat supported by destroyed upland areas and swales, and all habitat otherwise damaged by impaired hydrology, physical and functional connectivity, human intrusion, introduced species, and pollution caused by the project (see Effects of the Proposed Action below).

    b. Where the reach of these effects cannot be determined definitively, all vernal pool complex habitat within 250 feet of proposed development should be considered to be affected. If any habitat within a vernal pool complex is affected, then all remaining habitat within the complex will be considered to be affected. (See Figure 2. for example.)

3. The Service assumes that all vernal pool wetlands are occupied by fairy shrimp, and that all activities which degrade or remove VPC habitat will adversely affect the species and therefore require incidental take authorization under the Act, either via the provisions of this Opinion or other available mechanisms, as applicable. Efforts undertaken at the initiative of project proponents to demonstrate that specific VPC sites are not occupied, or as required by the Service to measure baseline occupancy and species-based performance standards included in the proposed action will utilize Service-approved species survey protocols. In the first case (demonstrating non-occupancy), five consecutive years of survey data will be required. In the latter cases (determining baseline occupancy and compliance with performance standards), the length and frequency of survey efforts will vary depending on the specific VPC site and the issue the survey data will address. These specific survey requirements are described in subsequent sections of this Opinion.

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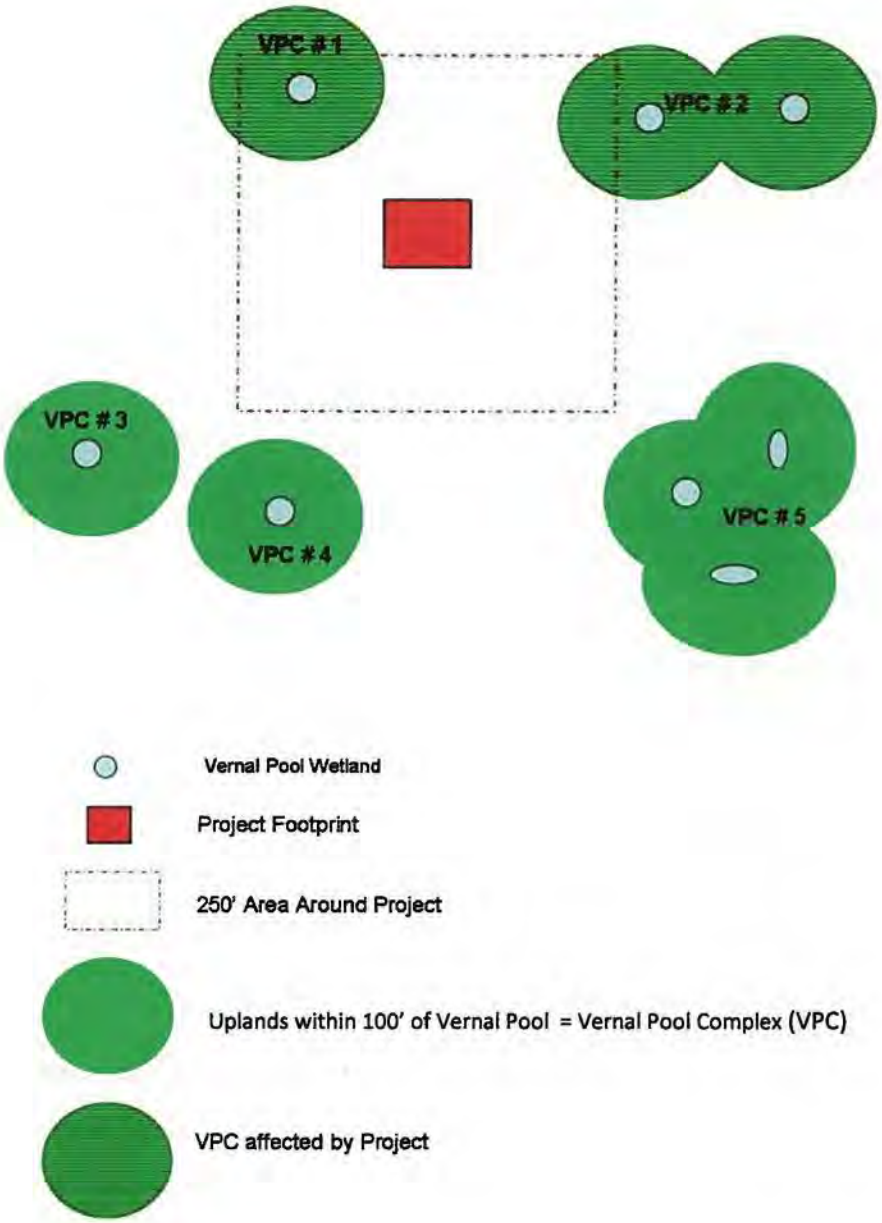
Figure 2. Extent of Vernal Pool Complex Habitat around Vernal Pool Wetlands and Area of Vernal Pool Complex Habitat Affected by Projects[1].



1 The 100' and 250' distances demonstrated above are considered default standards in the absence of site-specific conditions and information that suggest consideration of alternate measures.

4. Acreage for both impact site and/or mitigation site will be determined based on a jurisdictional delineation of the wetlands at each site, before and after the project is implemented.

5. Uplands between wetlands (pools) and within 100 feet from the edges of the pools must be included under the same land protection measures as the associated vernal pools. (See Figure 2. for example.)

6. All proposed impact and mitigation sites will be assessed using the Agate Desert Vernal Pool Function and Values Assessment Methodology (ESA 2007).

7. No project or activity may result in loss of any of the 13 currently known lomatium populations, 23 currently known large-flowered woolly meadowfoam populations or subsequently discovered populations of these species.

Federal Clean Water Act Section 404 and State Removal-Fill Law Permitting

Issuance of a Regional General Permit (RGP) or individual permits by the Corps under Section 404 of the Clean Water Act (CWA) of 1973, of an interdependent and interrelated General Permit (GP) issued by DSL pursuant to the Oregon Fill and Removal Law (R-FL)(collectively, Agency Permits), and implementation of the individual projects approved under any of these permits must meet the following criteria in order to be included in the proposed action addressed in this Opinion:

1. The Agency Permits apply within the geographic area identified in Figure 1. This area generally conforms to the boundaries of the Agate-Winlo soil series as mapped by the Natural Resources Conservation Service's Jackson County soil survey.

2. The Agency Permits authorize the discharge of fill material into waters of the United States for the following activities:
    a. commercial, residential, or industrial development;
    b. installation and maintenance of utilities, and infrastructure associated with such developments;
    c. road development and maintenance, including road crossings;
    d. wetland restoration and enhancement[2]; and
    e. sand, gravel, and aggregate removal except from within any active stream channel, bed or channel migration zone.

3. The Agency Permits authorize discharges into the following wetlands or other waters:
    a. vernal pool wetlands,
    b. ditches or other water conveyance structures constructed solely to drain vernal pool lands,
    c. roadside ditches that are not part of a stream tributary system,

2 This purpose includes activities associated with vernal pool mitigation projects, the creation of vernal pool mitigation/conservation banks and the associated habitat restoration and ongoing management activities to maintain mitigation/conservation areas and banks throughout the life of these areas.

d. channels excavated through uplands for irrigation water and return flows, and
e. palustrine emergent wetlands that were historically vernal pool wetlands.

4. The Agency Permits do not authorize discharges into the following waters of the U.S:
   a. wetlands associated with stream systems,
   b. streams (including those that have been manipulated or man-altered),
   c. bogs and fens,
   d. native wet prairie, and
   e. mature forested wetlands.

5. The Agency Permits are consistent with the previously described General Parameters of the proposed action and will apply requirements contained in the Mitigation Requirements, Performance Standards, Approval and Implementation of Mitigation Projects, Voluntary Restoration and Enhancement Actions, Monitoring and Reporting Requirements, and Best Management Practices sections described below in this Opinion and in the Reasonable and Prudent Measures and Terms and Conditions of the ITS to permitted projects, as applicable.

6. Individual projects covered under Agency Permits and that result in unavoidable impacts to listed species will be provided compliance with the Act through this Opinion if the Agency Permits and the individual projects satisfy all applicable criteria. Project-level review and approval by the Service will not be necessary except as noted in **Approval and Implementation of Mitigation Projects** and **Voluntary Restoration and Enhancement Actions.**

Approval and Implementation of Mitigation Projects

This Opinion will provide compliance with the Act for activities necessary to establish and implement qualified mitigation projects (see **Mitigation Requirements** later in this Opinion), specifically:

1. Service, Corps, and DSL approval of Instruments, credit releases, and equivalent actions necessary to implement the projects.

   This suite of activities will be fully covered by the ITS associated with this Opinion absent additional project-level review.

2. Management activities undertaken by the mitigation project sponsor or long-term steward necessary to achieve and maintain the objectives of the projects, including—

   - Activities necessary and appropriate to restore or enhance VPC habitat (including vegetation management, hydrologic and/or topographic alteration);

   - Activities necessary and appropriate to move, transplant, and introduce (or reintroduce) listed species from occupied, functional vernal pool habitat to unoccupied, functional vernal pool habitat; and

- Activities necessary and appropriate to maintain VPC habitat amount and function and vernal pool listed species occurrences (including livestock grazing, mowing, and/or prescribed burning).

This suite of activities will be covered under this Opinion subject to the following:

The mitigation project sponsor or long-term steward proposing to implement proposed restoration, enhancement, or maintenance activities (or the Corps or DSL if such activities will be covered under an Agency Permit or individual permit(s) from those agencies) will notify the Service and indicate whether the activities will achieve the objectives of a long-term management plan (LMP) that has been approved by the Service for the mitigation project and whether the activities and their impacts on vernal pool listed species and habitat are specifically described in the LMP—

- If the subject activities and impacts are specifically described in a Service-approved LMP, they will be fully covered by the ITS associated with this Opinion absent additional project-level review; or

- If the subject activities and impacts are not specifically described in the LMP, the mitigation project sponsor, long-term steward (or the Corps or DSL if such activities will be covered under an Agency Permit or individual permit from those agencies) will need to provide additional information to enable a project-level assessment by the Service of consistency with the LMP and relevant aspects of this Opinion, and; if determined consistent by the Service, will be covered via a project-specific ITS developed as an amendment to this Opinion.

Voluntary Restoration and Enhancement Actions

This Opinion will provide compliance with the Act for voluntary activities (not associated with mitigation projects) (see **Mitigation Requirements** later in this Opinion) implemented by other entities for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC. These activities include:

1. Activities necessary and appropriate to restore or enhance VPC habitat (including vegetation management, hydrologic and/or topographic alteration);
2. Activities necessary and appropriate to move, transplant, and introduce (or reintroduce) listed species from occupied, functional vernal pool habitat to unoccupied, functional vernal pool habitat; and
3. Activities necessary and appropriate to maintain VPC habitat amount and function and vernal pool listed species occurrences (including livestock grazing, mowing, and/or prescribed burning).

These activities will be covered under this Opinion subject to the following:

a. The entity proposing to implement the activities (or the Corps or DSL if such activities will be covered under an Agency Permit or individual permit from those agencies) will notify the Service and provide information necessary to enable a project-level assessment by the Service of consistency with this Opinion, and;

b. If determined consistent by the Service, will be covered via a project-specific ITS developed as an amendment to this Opinion.

Projects and Activities Not Covered Under Agency Permits

Other activities implemented by Federal or non-federal entities which are not covered by general or individual Corps or DSL permits but are determined by the Service to be necessary to support the PCS for listed VPC species and to ensure that any loss of VPC habitat to development occurs in a manner consistent with and supportive of the PCS may also be provided compliance with the Act subject to the following:

1. The entity proposing to implement the activities notifies the Service and provides information necessary to enable a project-level assessment by the Service of consistency with this Opinion, and;

2. If determined consistent by the Service, will be covered via a project-specific ITS developed as an amendment to this Opinion.

Mitigation Requirements

1. Mitigation actions will be necessary to minimize the effects and significance (to listed species) of adverse impacts that cannot be adequately avoided, eliminated, or reduced through other measures. Mitigation will consist of measures/actions that offset or compensate for adverse affects to listed species and critical habitat by protecting, restoring, and/or enhancing certain amounts of VPC habitat, and managing to maintain that habitat in perpetuity.

2. Use of habitat-based credits available from conservation banks, mitigation banks, or equivalent permittee-responsible conservation or mitigation projects is the most reliable and credible method to adequately reduce the effects and significance of unavoidable impacts and therefore will be required in order for activities that produce such impacts to be included in the proposed action considered in this Opinion.

3. Specific mitigation site ratios and impact site ratios will apply to the utilization of the habitat-based credits. These ratios (described in sections of this Opinion that follow) are established to ensure impacts to vernal pool habitat complex are offset or compensated for to an extent necessary to adequately contribute to reaching the conservation goal of 4,300 acres of protected VPC. They are also intended to deter impacts within areas of high functioning vernal pool habitat.

4. In order to qualify as mitigation under this Opinion, projects must also satisfy the requirements of the remaining sections under **Mitigation Requirements** as well as the requirements of the applicable components of the **Voluntary Restoration and Enhancement Actions** and **Terms and Conditions** sections described in this Opinion and ITS, or utilize standards determined by the Service to result in equivalent or better conservation of VPC habitat and species. Projects that satisfy these criteria will be referred to as qualified mitigation projects.

Basic Criteria for Establishment of Banks and Other Mitigation Projects

Conservation banks, mitigation banks, and equivalent permittee-responsible projects (hereafter collectively referred to as mitigation projects) proposed for use as mitigation for the purposes of this Opinion and the proposed action must be consistent with the guidance developed by the Service for the establishment, use and operation of conservation banks (USFWS 2003a).

To satisfy the permanent protection requirements, a mitigation project sponsor must establish a Service approved conservation easement and/or fee-simple donation in cooperation with a qualified land steward(s), a long-term management plan, and a secure funding source such as an endowment. These requirements must be met before the mitigation project receives final approval from the Service.

Any vernal pool wetland mitigation project determined to be adequate for the purposes of compliance with the Federal Clean Water Act and state Removal-Fill Law and that satisfies the applicable criteria of this Opinion for mitigation projects, will be considered adequate by the Service for the purposes of the **Mitigation Requirements** section of this Opinion. For example, a wetland mitigation bank approved for Clean Water Act compliance would also serve as a conservation bank for Endangered Species Act compliance. The Interagency Review Team (IRT) process and standards established for wetland mitigation banking, implemented consistent with this Opinion, will be utilized by the Service to formalize such a determination. Additional processes or documents specific to the Service will not be required. This includes situations in which the Service is a co-chair of an IRT established for review of a mitigation project specifically intended to serve both wetland and listed species purposes, and situations in which an IRT (with or without Service participation) evaluates a wetland-only mitigation project that has nonetheless been determined by the Service to satisfy the criteria of this Opinion.

It is also possible that a mitigation sponsor may choose to develop a mitigation project solely for the purposes of listed species. In this case, the Service would also utilize a similar IRT process.

Site Suitability Criteria for Mitigation Projects

1. Wetland components of mitigation projects must meet Corps jurisdictional criteria to be waters of the United States once the mitigation work is completed.

2. Mitigation projects must be of sufficient size to provide a high likelihood of maintaining ecological value and function in perpetuity. The actual size and conditions that will allow a specific parcel of land to satisfy the criteria above will vary depending on the specific impacts the project is intended to mitigate, and the current and likely long-term uses of adjacent and nearby lands. However, in general, it is assumed large, contiguous parcels of 70 acres or more of VPC have a higher likelihood of providing adequate functions over the long-term than smaller parcels when located within areas in which the surrounding land uses are not compatible with long-term VPC conservation. Smaller parcels may be adequate when they exist as ecologically connected "satellite" areas to the larger sites described above. Smaller parcels (10-70 acres) of VPC may also be adequate in isolation if they exist within

areas in which surrounding land uses are expected to be compatible with long-term VPC conservation.

To be acceptable under this Opinion, the total effective size of a mitigation project must therefore be at least 70 contiguous acres of VPC. Effective size means the agencies will consider adjacent, permanently protected parcels dedicated to vernal pool conservation as part of the acreage total even if they are owned and managed by another party. For example, a 10-acre mitigation proposal could be approved under this proposal if it has uninterrupted continuity of soils, water flows, and topography with an adjacent approved mitigation or conservation project of 60 acres.

3. The mitigation project parcel(s) must include sufficient area to maintain the hydrologic regime, soils, topography, and vegetative conditions providing suitable habitat for the typical suite of vernal pools species. This will necessitate inclusion of not only the wetland portion of the vernal pools, but also surrounding upland mounds and adjacent areas that adequately buffer the vernal pool habitats against ecological edge effects and effects from adjacent and nearby land us. This buffer or "protective fringe" will be particularly important with regard to protecting the vernal pool habitat from disruptions in water supply and hydrology, and degradation of the quality of the water within the vernal pool habitats. Generally, uplands between wetlands (pools) and within 100 feet from the edges of the pools must be included under the same land protection measures as the associated vernal pools.

4. All sites proposed as mitigation projects must demonstrate some level of occupancy by at least one of the listed species. This must include fairy shrimp occupancy of at least 10% of vernal pools by the time the site is approved. Proposed management actions can include introduction of additional listed species or enhancement of current population levels.

5. All sites proposed as mitigation projects must meet the 70th percentile ranking of the function assessment scores to qualify, or it must be demonstrated sustainable restoration or management could raise the site to meet this threshold level of functionality.

6. All mitigation project sites must have an intact hardpan layer. If the hardpan layer is perforated at the perimeter of the site, or if activities such as road crossings are anticipated that would perforate the hardpan, the area of the mitigation site that is within 100 feet of the edge of the hardpan shall generate half as many mitigation credits.

7. Mitigation projects proposed for lands that are already designated for conservation purposes must provide benefits to vernal pool habitats and species above and beyond those resulting from the current conservation status of the lands as determined by the Service.

8. To the extent possible, mitigation projects should be sited and/or managed in such a way those activities proposed for establishment and maintenance of the sites will not result in adverse effects to federally listed species or vernal pool habitats outside of the proposed area.

9. Mitigation projects may be composed of a single contiguous parcel of land or several geographically separate parcels provided each parcel satisfies the criteria described above.

10. Restoration of historically altered or lost vernal pool wetlands at all mitigation projects, even those primarily based on protection, is encouraged and will be credited as described above.

Impact and Crediting Ratios

The amount of offsetting actions (as defined in terms of ESCs, wetland mitigation credits, or combination credits) required to address impacts to listed species will depend on both the type of actions conducted and by the relative conservation values of the vernal pool sites being affected. More credits will be required to address impacts to vernal pools with higher conservation value and, similarly, more credits will be approved for mitigation projects with higher conservation value. Impacts and credits will be based on wetland acreage as determined through a Corps or DSL jurisdictional wetland delineation.

Mitigation Site Base Ratios

The following will be used to quantify credits generated by various conservation actions conducted at a mitigation project:

Protect & Manage	1.5:1= 1.5 acres of vernal pool wetland protected will be required to generate *one ESC or combination credit.*
Restore & Manage[3]	1:1= 1 acre of vernal wetland restored will be required to generate *one ESC or combination credit.*

For some situations in which the Service determines that a mitigation project will provide an especially high level of benefit to the conservation of vernal pool habitats and listed species, lower ratios (i.e. generation of additional credits) may be acceptable. This may occur when a mitigation project meets two or more of the following criteria:

- Includes actions that result in the successful reestablishment and/or enhancement of viable populations of both vernal pool fairy shrimp (VPFS) and at least one listed vernal pool plant species; for VPFS, occupancy of >25% of pools must initially exist and >30% of pools must be likely to be established and maintained (within natural range of variability) over time via proposed management actions[4]; for plants, a population of at least 500 plants must exist or a population of at least 200 plants must be established if a population does not currently exist and these populations must be likely to be maintained over time via proposed management actions;
- By virtue of the nature of the project, will serve as a significant demonstration of the viability of private-entity conservation banking for VP species and thereby encourage establishment

3 Specific to Restore and Manage, no more than 20% of the total credits generated through mitigation projects cumulatively, or credits based on 20 wetted acres cumulatively, whichever is less, shall result from restoration activities. It is expected that the Service and Corps will work together to track and monitor the approval and use of credits generated through restoration and, if the above thresholds are reached, to determine whether additional restoration-based credits could be approved. This determination will be based on an assessment of whether use of restoration-based credits result in substantial numbers of projects that yield < 60% protection of the vernal pool complex acres involved in the subject mitigation transactions and whether such projects are impairing attainment of the vernal pool recovery plan/conservation strategy target of protecting ~60% of remaining vernal pool complex acreage, and for that 60% to be comprised largely of the best remaining habitat.

4 Refer to note regarding determining occupancy under *Monitoring of Performance Standards*

of other such banks, and/or will in some other fashion represent a significant precedent for conservation of VP species;

- Protect >100 sponsor owned/managed acres of physically or functionally contiguous[5] VP complex habitat in an area that currently lacks a large, contiguous, protected block of habitat or where creation of such a block is otherwise determined to substantially benefit the conservation of VP species; and
- Completes the protection of a designated critical habitat unit or other geography prioritized for conservation of VP species by permanently preserving an area of VP complex habitat that otherwise represented a significant (by virtue of its size, quality, function, location, etc) gap in the protection of the subject critical habitat unit or priority geography.

It is expected that additional credits based on the above criteria will apply to a very limited number of mitigation projects; most will be subject to the mitigation site base ratios. However, even in situations where the criteria for additional credits are satisfied, at no time should the total credits (ESCs, wetland mitigation credits, or ESC/wetland combination credits) awarded to mitigation sites result in less than (~3):1 vernal pool complex ratio *(3 acres of vernal pool complex habitat protected per credit)*(or equivalent wetted-acre:wetted-acre ratio) for any mitigation site, project, or bank.

Impact Site Ratios[6]

The amount of offsetting actions (or equivalent credits) that will be required to address impacts will based on the relative conservation values of the vernal pool sites being impacted. More offsets will be required to address impacts to higher quality or higher conservation value vernal pools.

- 2 *ESCs or combination credits* will be required to offset impacts to one acre of vernal pool wetland for vernal pool impact sites where composite function assessment score is in lowest 30th percentile, and less than ½ acre of vernal pool wetland will be impacted.

- 2.5 *ESCs or combination credits* will be required to offset impacts to one acre of vernal pool wetland under any one of the following conditions:

  - composite function assessment score is in lowest 30th percentile and more than ½ acre of vernal pool wetland will be impacted;
  - the composite function assessment score is between the 30th and 70th percentiles;
  - vernal pool wetland within a designated critical habitat unit will be impacted; and
  - vernal pool wetland impacted is functionally part of [7] or physically contiguous with any VP complex of 10-30 acres

5 Parcel(s) of a size and configuration adequate to sustain the hydrological regime, soils, topography, and vegetative conditions that provide suitable habitat for the typical suite of vernal pool species. In this case, the sponsor owned/managed acreage must be capable of providing these conditions independent of the functions provided by any other adjacent or proximal ownership.

6 Also referred to as "multipliers" in some mitigation strategies.

7 Located and functioning on the landscape in such a way as to contribute to the hydrological regime, soils, topography, and vegetative conditions (that provide suitable habitat for the typical suite of vernal pool species) of the adjacent or proximal vernal pool complex.

- 3 *ESCs* <u>*or*</u> *combination credits* will be required to offset impacts to one acre of vernal pool wetland for vernal pool impact sites where the composite function assessment score is over 70th percentile or where vernal pool wetland impacted is functionally part of *(see footnote # 2)* or physically contiguous with any VP complex >30 acres.

- 3.5 *ESCs* <u>*or*</u> *combination credits* will be required to offset impacts to one acre of vernal pool wetland for vernal pool impact sites functionally part of or physically contiguous with any VP complex of >30 acres under special management designations described above.

    - This provision will not apply to the Corps or DSL for projects covered under an Agency Permit, but will apply to the project applicant in order for the particular project covered by the Agency Permit to be covered under this Opinion[8].

For any of the ratio criteria above based on physical or functional continuity with vernal pool complexes of certain sizes, the size of those complexes on the date this biological opinion is finalized will be used to determine if the stated threshold has been exceeded. For instance, if an impacted vernal pool occurs within a complex that was 30 acres in size on the date of this biological opinion, but by the time of the proposed impact has been reduced to 20 acres in size by previous degradation, criteria applicable to 30-acre complex will still apply to the proposed impact. The Service will utilize credible and best information available, either from its own sources or as provided by a project proponent or another party, to make this determination.

The methods for assessing and scoring vernal pool complexes as well as the composite function assessment score for previously inventoried vernal pool complexes are available in the Guidance Document on the USFWS website.

Total Effective Mitigation Ratios

In summary, the combination of impact site ratios (multipliers) and mitigation site base ratios will result in the following Total Effective Vernal Pool Mitigation Ratios:

- For the lowest quality functioning conservation value or lowest vernal pool habitat (as described above):
    - Three acres of preservation for one acre of impact; and/or
    - Two acres of restoration for one acre of impact.

- For the mid-range or medium quality functioning or conservation value vernal pool habitat—
    - 3.75 acres of preservation for one acre of impact; and/or
    - 2.5 acres of restoration for one acre of impact.

- For high quality functioning or high conservation value vernal pool habitat—
    - 4.5 acres of preservation for one acre of impact; and/or
    - 3 acres of restoration for one acre of impact.

- For the highest quality functioning or highest conservation value vernal pool habitat—

8 The agencies will be considered in compliance with the Act if the Agency Permits require 3 *ESCs* <u>*or*</u> *combination credits* to offset impacts to one acre of vernal pool wetland in these situations.

- 5.25 acres of preservation for one acre of impact; and/or
- 3.5 acres of restoration for one acre of impact.

Using Credits in Combination

Where there is overlap in the numbers of credits available for mitigating wetland impacts and those available for addressing impacts to listed species, those overlap credits *(i.e. combination credits)* may be used only once—for wetlands, for listed species, or for both concurrently. Following use for any of these purposes, they will be retired.

Performance Standards

Performance standards are necessary to support the goal of sustaining and/or improving high quality function of vernal pool wetland complex. The standards help target actions to improve and sustain highly functional vernal pools and mounded prairie habitat to sustain populations of appropriate native species, especially the listed species and the habitat characteristics needed for their continued survival (i.e., topography, hydrology and vegetative conditions).

These performance standards will apply during the establishment and regulatory life phases of mitigation projects. During the long-term, post-regulatory life of the mitigation project, these performance standards will also serve as the default performance standards unless alternate standards that achieve equivalent or better conservation are approved by the Service. In general, the Service expects that long-term performance standards will be designed to improve conditions for listed species and habitats over time as practicable and appropriate.

Exceptions to meeting the performance standards below may be allowed at the discretion of the Service (and Corps, if applicable) if the applicant provides monitoring data from appropriate reference sites to support a finding that regional factors such as drought or abnormal weather may be influencing the monitoring data and the data are within the expected normal variability of the region. Also, a mitigation provider may request utilization of a different reference site and reference data set for the standards below if such a change is more relevant to the particular mitigation project.

Hydrology and Topography Standards

The goal is to restore and sustain the natural range of variability in topography and hydrology of least-disturbed reference site vernal pools. An applicant may use the reference site data in the topography standard below, or request the agencies to approve an alternate reference data set that better matches the specific project.

1. Hydrology

- The acreage of vernal pool wetlands meeting the hydrology criterion in the Corps 1987 wetland identification and delineation manual and the Arid West Supplement on the mitigation or bank site shall not decline below the initial baseline acreage.
- Each vernal pool meets the hydrology criterion in the U.S. Army Corps of Engineers 1987 Wetland Identification and Delineation manual and approved supplements in effect at the date the mitigation project or was started or bank was established.

2. Vernal Pool Depth and Side Slope Steepness

- Eighty-five (85) percent of the vernal pools will have a mean high water depth of 4 to 11 inches in January. Mean high water can be determined by water depth measurements or upper extent of hydrophytic plants or vernal pool vegetation association.
- For restored vernal pools, the height of the top of mound to bottom of the vernal pool ranges between 22 and 32 inches and the side slopes for the vernal pool are no steeper than 7:1.

Vegetation Standards

The goal is to restore and maintain plant communities dominated by native species typical of least-disturbed reference site vernal pool wetlands and surrounding uplands. Specifics on the vegetation criteria described below can be found in the Guidance Document located at http://www.fws.gov/oregonfwo/FieldOffices/Roseburg. The outer boundary of a vernal pool shall be considered the same as the jurisdictional wetland boundary.

2. Vernal Pool Vegetation

- Absolute extent of exposed substrate is no more than 75 percent;
- Native vernal pool species relative percent cover (excluding substrate) is at least 70 percent.
- Non-native invasive species relative percent plant cover is no more than 15 percent; and,
- At least 15 native vernal pool species are present in existing vernal pools designated for protection and management and at least 10 native vernal pool species are present in restored and managed vernal pools. To be evaluated in the same sample of plots needed to meet the statistical confidence described below. See Table 1 for list of native vernal pool habitat plants.

2. Upland (Mound) Vegetation

- Native species relative percent plant cover is at least 25 percent;
- Medusahead (*Taeniatherum caput-medusae*) relative percent cover is no more than 25 percent,
- Non-native invasive species (other than Medusahead) total relative percent plant cover is no more than 25 percent;
- At least 20 native upland herbaceous species are present (Table 1),
- Less than five percent relative plant cover shall be comprised of woody species other than oak and/or chaparral; and,
- For areas dominated by chaparral[9] or oak at the beginning of the mitigation project, the relative cover of chaparral and/or stem count of oak shall be within 20 percent of the baseline amount at the end of the monitoring period[10].

9 Chaparral is defined as a native shrub community such as buckbrush (Ceanothus cunneatus) and may contain manzanita, native cherry, and madrone.

10 Oak and chaparral restoration actions, such as thinning can reduce the percent cover by more than 20 percent from the original baseline if action is planned as part of the original vernal pool habitat restoration strategy for the

Federally Listed Species

The goal is to sustain or increase local populations of listed and rare species.

1. Vernal Pool Fairy Shrimp Standard

- Long-term management of mitigation projects and conservation sites must result in improved conditions for and occupancy by vernal pool fairy shrimp:
  - Occupancy by vernal pool fairy shrimp must be increased to and maintained above 20 percent if a lower baseline level of occupancy exists at the time of establishment of the conservation site or bank[11];
  - Occupancy by vernal pool fairy shrimp must be increased and maintained at an increased level if occupancy at the time of establishment of the conservation site or bank is already at 20 – 30 percent;
  - Occupancy by vernal pool fairy shrimp must be maintained at the baseline level at the time of establishment of the conservation site or bank or improved if the baseline level of occupancy is 30 percent or greater.
  - Occupancy by vernal pool fairy shrimp will not fall below five percent of the performance standard occupancy level applicable to a conservation site or bank (or to less than the natural range of variability associated with that site if the range is greater than 5 percent).
  - The standards for vernal pool fairy shrimp occupancy must be satisfied within 5 years of the establishment of the conservation site or bank.
  - The number of vernal pools used to calculate vernal pool fairy shrimp occupancy rates will be established within five years of establishment of the conservation site or bank and approved by the Service.
  - The occupancy level will be determined by the percentage of documented vernal pools with vernal pool fairy shrimp presence based upon the results of the first five years of surveys (the "baseline level") using the approved species specific protocols.

2. Lomatium Standard

- Lomatium occupancy will be maintained within the natural range of variation. Occupancy will not fall below 5 percent of the established baseline level. The occupancy level will be determined by the average number of individual plants observed in the first five years of surveys using the approved species specific protocols.

3. Meadowfoam Standard

- Meadowfoam occupancy will be maintained within the natural range of variation. Occupancy will not fall below 5 percent of the established baseline level. The occupancy level will be determined by the average number of individual plants observed in the first five years of surveys using the approved species specific protocols.

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land parcel involved.

11 Refer to note about determining occupancy under *Monitoring of Performance Standards*

Monitoring of Performance Standards

1. Short-term (first 5-years of life of project):

   a. For all features (vegetation, hydrology/topography, uplands, and listed species)—annual monitoring until applicable standards satisfied for 3 consecutive years, then every other year. Non-performance in any year which requires remedial/corrective action, or non-performance in any 2-consecuitve years triggers re-start of annual monitoring.

   b. For VPFS— sample size of ½ to 1 pool per acre of complex (minimum 50 pools). Monitoring methodology should be designed to avoid error introduced by seasonal variation in the number of distinct pools. Preferably, this would be accomplished by utilizing a randomized sample grid of pools distributed throughout the bank and representative of the range of depth classes present during a year with normal rainfall. Adjustment of the sample locations may be needed during the first few years to establish the baseline. Other methods that yield equally or more accurate measures of occupancy may be appropriate.

   c. For all features— the requirement for 3 consecutive years may be partially satisfied by monitoring/surveys that occurred in year immediately prior to formal approval/establishment of project as long as accepted protocols and design used.

2. Long-term:

   a. For all features— 1 year effort in year 10 and every 5-yrs thereafter; **or** 2 (consecutive) year effort in year 10 and every 7 years thereafter; **or** every 5-yrs in years 5-15 and 1 year every 10-yrs thereafter,

   b. Non-performance which requires remedial/corrective action or non-performance in any 2-consecutive years triggers start of annual monitoring until performance re-established for 3 consecutive yrs; **or** triggers implementation of Service-approved contingency measures to re-establish performance within 2 yrs;

   c. For vernal pool fairy shrimp— as per Short-term above.

Table 1. Native Plant Species in Agate Desert vernal pools and mounds

Common Name	Scientific Name	Habitat
Plants		
American pillwort	*Pilularia americana*	vernal pools
Annual hairgrass	*Deschampsia danthonioides*	vernal pools
Austin's popcornflower	*Plagiobothrys austiniae*	vernal pool edges
Barestem biscuitroot; Indian celery	*Lomatium nudicaule*	Mounds
Bicolored lupine	*Lupinus bicolor*	Mounds
Blow-wives	*Achyracheana mollis*	Mounds
Bluebunch wheatgrass	*Pseudoroegneria spicata*	Mounds

Common Name	Scientific Name	Habitat
Bracted popcornflower	*Plagiobothrys bracteatus*	vernal pools
Bristly Pogogyne	*Pogogyne zizyphoroides*	Mounds
California goldfields	*Lasthenia californica*	vernal pool edges and mounds
California oatgrass	*Danthonia californica*	Mounds
California sandwort	*Minuartia californica*	vernal pool edges
Cascade calicoflower	*Downingia yina*	vernal pools
Common woolly meadowfoam	*Limnanthes floccosa* ssp. *floccosa*	vernal pools
Cook's lomatium; Cook's desert parsley	*Lomatium cookii*	vernal pools
Coyote thistle; Coyote rush-lily	*Eryngium petiolatum*	vernal pools
Dwarf woollyheads	*Psilocarphus brevissimus*	vernal pools
Dwarf woolly meadowfoam	*Limnanthes floccosa ssp. pumila*	vernal pool edges
Elegant tarweed	*Madia elegans*	Mounds
Fitch's tarweed	*Centromadia fitchii*	Mounds and pools
Fringe pod	*Thysanocarpus curvipes*	Mounds
Foothills desert parsley	*Lomatium utriculatum*	Mounds
Fulvous popcornflower	*Plagiobothrys fulvus*	Mounds
Green's popcornflower	*Plagiobothrys greenei*	vernal pool edges
Harvest brodeaia	*Brodeaia elegans*	Mounds
Henderson's bentgrass	*Agrostis hendersonii*	vernal pool edges
Herman's dwarf rush	*Juncus hemiendytus*	vernal pools
Iris leaved rush	*Juncus xiphiodes*	vernal pools
Junegrass	*Koeleria macrantha*	Mounds
Large-flowered woolly meadowfoam	*Limnanthes floccosa ssp. grandiflora*	vernal pools
Least mousetail	*Myosurus minimus*	vernal pools
Lemmon's needlegrass	*Achnatherum lemmonii*	Mounds
Menzies' larkspur	*Delphinium menziesii*	mounds (in oak woodland)
Miner's lettuce	*Claytonia perfoliata*	Mounds
Mules ears	*Wyethia angustifolium*	Mounds
Narrow-leaved montia	*Montia linearis*	Mounds
Oregon white Oak	*Quercus garryana*	Mounds
Oregon woolly-heads	*Psilocarphus oregonus*	vernal pools
Pacific foxtail	*Alopecurus saccatus*	vernal pools
Pointed rush	*Juncus oxymeris*	vernal pools
Poverty clover, cow's udder clover	*Trifolium depauperatum*	Mounds
Purple clarkia	*Clarkia purpurea*	Mounds
Quillwort	*Isoetes nuttallii*	vernal pools
Ribbed fringe-pod	*Thysanocarpus radians*	Mounds
Roemer's fescue	*Festuca roemeri*	Mounds
Rough-seeded popcornflower	*Plagiobothrys glyptocarpus* var. *glyptocarpus*	vernal pool edges
Rusty popcornflower	*Plagiobothrys nothofulvus*	Mounds
Slender clarkia	*Clarkia gracilis*	Mounds
Slender cottonweed	*Micropus californicus*	Mounds
Slender hareleaf	*Lagophylla ramosissima*	Mounds

Common Name	Scientific Name	Habitat
Slimpod rush	*Juncus diffusissimus*	vernal pools
Smooth goldfields	*Lasthenia glaberinna*	vernal pools
Soft rush	*Juncus effusus*	vernal pools
Southern Oregon buttercup	*Ranunculus austro-oreganus*	mounds (in oak woodland)
Spinster's blue-eyed mary	*Collinsia sparsiflora*	vernal pool edges and uplands
Stipitate popcornflower	*Plagiobothrys stipitatus*	vernal pools
Tehama navarretia	*Navarretia heterandra*	vernal pool edges
Toadrush	*Juncus bufonius*	vernal pools and along edges
Tomcat clover	*Trifolium willdenovii*	vernal pool edges
Turkey mullein	*Eremocarpus setigerus*	mounds and pools
Vinegar weed	*Trichostema lanceolatum*	mounds and pools
Water chick-weed	*Montia fontana*	vernal pools
Wedge-leaf buckbrush	*Ceanothus cuneatus*	Mounds
White brodiaea	*Triteleia hyacinthina*	mounds and pools
White-flowered navarretia	*Navarretia leucocephala* ssp. *Leucocephala*	vernal pools

STATUS OF THE SPECIES AND ENVIRONMENTAL BASELINE

Status of the species

Vernal pool fairy shrimp

Descriptions of the vernal pool fairy shrimp are found in 59 FR 48136, the publication of the final rule to list the species under the Act. Fairy shrimp are restricted to vernal pools, swales, and other seasonal pools in California and Jackson County, Oregon. Eng et *al.* (1990) and Simovich *et al.* (1992) provide further details on the life history and ecology of the vernal pool fairy shrimp.

Fairy shrimp have delicate elongate bodies, large stalked compound eyes, no carapace, and 11 pairs of swimming legs. They swim or glide gracefully upside down by means of complex beating movements of the legs that pass in a wavelike, anterior-to-posterior direction. Nearly all fairy shrimp feed on algae, bacteria, protozoa, rotifers, and bits of detritus. The females carry the eggs in an oval or elongate ventral brood sac. The eggs are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks. The "resting" or "summer" eggs are known as "cysts." They are capable of withstanding heat, cold, and prolonged desiccation.

When the pools refill in the same or subsequent seasons, some, but not all, of the cysts may hatch. The cyst bank in the soil may comprise the cysts from several years of breeding. The cysts hatch when the vernal pools fill with rainwater. The early stages of the fairy shrimp develop rapidly into adults. These non-dormant populations often disappear early in the season long before the vernal pools dry up.

The vernal pool fairy shrimp inhabits vernal pools with clear to tea-colored water, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. The vernal pool fairy shrimp has been collected from early December to early May.

After winter rainwater fills the pools, the populations are reestablished from diapaused cysts which lie dormant in the dry pool sediments. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Some of the cysts hatch immediately and the rest enter diapause and remain in the soil to hatch during later rainy seasons.

The fairy shrimp are imperiled by habitat loss caused by a variety of human-caused activities, primarily urban development, water supply/flood control projects, and conversion of land to agricultural use. Only a small proportion of the habitat of these species is protected from these threats. State and local laws and regulations have not been passed to protect these species, and other regulatory mechanisms necessary for the conservation of the habitat of these species have proven ineffective.

Vernal Pool Species Critical Habitat

On August 8, 2003, the Service issued a final rule designating critical habitat for 15 vernal pool species, including fairy shrimp. A total of approximately 1,184,513 acres of land falls within the boundaries of designated critical habitat. Approximately 7,574 acres occur in Oregon and 1,186,969 acres occur in California (USFWS 2003b). Due to legal challenges filed in 2004 the Service was court ordered to reconsider the final designation. On September 12, 2005, the Service issued a final rule addressing the issues raised by the court and finalized the designation of critical habitat for the 15 vernal pool species. Approximately 858,846 acres of land are now designated as critical habitat. The critical habitat designated in Oregon (7,574 acres) did not change (USFWS 2005)

Critical habitat is defined in Section 3 of the Act as:

> (i) The specific areas within the geographic area occupied by a species at the time it is listed in accordance with the Act, on which are found those physical or biological features
>
> (I) essential to the conservation of the species; and,
>
> (II) may require special management considerations or protection; and
>
> (ii) Specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.[12]

The physical or biological features include, but are not limited to, the following: (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. Our regulations at 50 CFR 424.12(b) further direct that when considering the designation of critical habitat, we are to focus on the principal biological or

[12] "Conservation," as defined by the Act, means the use of all methods and procedures that are necessary to bring an endangered or a threatened species to the point at which listing under the Act is no longer necessary.

physical constituent elements (PCE) within the defined area that are essential to the conservation of the species, and we are to list known PCEs with the critical habitat description. Our regulations describe known PCEs in terms that are more specific than the description of physical and biological features. Specifically, PCEs may include, but are not limited to, the following: roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species of plant pollinator, geological formation, vegetation type, tide, and specific soil types.

Because it is logistically difficult to determine how extensive the cyst or seed bank is at any particular site, and because hatched vernal pool crustaceans or above-ground vernal pool plants may or may not be present in all vernal pools within a site every year, we cannot quantify in any meaningful way what proportion of each critical habitat unit may actually be occupied by the vernal pool crustaceans or vernal pool plants. Therefore, areas of unoccupied habitat are probably interspersed with areas of occupied habitat in each unit. The inclusion of unoccupied habitat in our critical habitat units reflects the dynamic nature of the habitat and the life history characteristics of the vernal pool crustaceans and vernal pool plants. Unoccupied areas provide areas into which populations might expand, provide connectivity or linkage between groups of organisms within a unit, and support populations of pollinators and seed dispersal organisms. Both occupied and unoccupied areas that are designated as critical habitat are essential to the conservation of the species.

Based on our current knowledge of the life history and ecology of the 15 listed vernal pool species, the relationship of their essential life history functions to their habitat, and the ecological and hydrologic functions of vernal pool complexes, we determined that all of the 15 vernal pool species share the following two PCEs. These are:

(1) Vernal pools, swales, and other ephemeral wetland features of appropriate sizes and depths that typically become inundated during winter rains and hold water for sufficient lengths of time necessary for the 15 species to complete their life cycle.

(2) The geographic, topographic, and edaphic features that support aggregations or systems of hydrologically interconnected pools, swales, and other ephemeral wetlands and depressions within a matrix of surrounding uplands when taken together form hydrologically and ecologically functional units called vernal pool complexes. These features contribute to the filling and drying of the vernal pool, maintain suitable periods of pool inundation, and maintain water quality and soil moisture to enable the 15 vernal pool species to carry out their lifecycles.

Vernal Pool Fairy Shrimp Critical Habitat

Fairy shrimp is the only species addressed in the Service's 2003 critical habitat designation regarding vernal pool species occurring in Oregon. Four critical habitat units in Oregon are designated as essential to the conservation of fairy shrimp, and there are 29 units in California. The Oregon units are comprised of 7,574 acres in Jackson County (Figure 3). These units occur approximately 125 miles north of the nearest unit designated for this species in California. The Service identified critical habitat areas essential to the conservation of fairy shrimp to reflect the species geographic distribution and varying habitat types and species associations across its range. Maintaining fairy shrimp across their full geographic distribution would make the species

less susceptible to environmental variation or negative impacts associated with human disturbances or natural catastrophic events across the species entire range at any one time.

The following critical habitat unit descriptions are taken from the Service's final rule designating critical habitat for vernal pool species in California and southern Oregon (USFWS 2003b):

Unit 1A, B, C, D, E, F, and G, North Agate Desert Unit, Jackson County (2,130 ac)
This unit consists of seven subunits, all located to the north of Little Butte Creek. This unit represents the northern limit of the species' distribution. It is of sufficient size to sustain the natural ecosystem processes (*e.g.*, fires) that have historically influenced vernal pool habitat, and is separated from the nearest other unit designated for Oregon, Unit 4, by over 2 miles. Three of the subunits are west of the Rogue River, and the remaining four are to the east. All but one of these subunits is located to the south of U.S. Route 234 (Sam's Valley Highway). The one remaining unit is located to the east of the Rogue River, about 1.5 miles north of the confluence with Reese Creek.

Unit 2A, B, C, D, and E, White City East Unit, Jackson County (2,251 ac)
This unit consists of five subunits, located east of U.S. Route 62 (Crater Lake Highway) and south and southeast of Dutton Road. This unit provides the easternmost extent of the species' range in Oregon. It represents a significant component of the species' original range in the State and is of a sufficient size to sustain the natural ecosystem processes (*e.g.*, fires) that have historically influenced vernal pool habitat. The largest and easternmost of the subunits occurs just to the east and north of Agate Lake. It is separated by more than 1 mile from Unit 3, White City West, and by approximately 3.5 miles from the North Agate Desert Unit.

Unit 3A, B, and C, White City West Unit, Jackson County (2,301 ac)
This unit consists of three subunits, located west of Agate Road, south of the Rogue River, and east of Bear Creek. This unit contains the least fragmented intact examples of the original Agate Desert mounded vernal pool grassland habitat. It is of sufficient size to sustain the natural ecosystem processes (*e.g.*, fires) that have historically influenced vernal pool habitat; it is separated from the White City East Unit by more than 1 mile and from the Table Rocks Unit by over 1.5 miles. Taken together, the designated Agate Desert units (Units 1–3) comprise a functional vernal pool complex consisting of vernal pools, mounded grassland and associated uplands, where natural processes, including connectivity, function within or near the natural range of variability. Each of the three designated Agate Desert units is essential to the conservation of vernal pool fairy shrimp in the Agate Desert area.

Unit 4A and B, Table Rocks Unit, Jackson County (892 ac)
This unit consists of two subunits, located on two flat-topped mesas known as Upper and Lower Table Rocks, situated north and west of the Rogue River. These rimrock features are remnants of ancient lava flows that filled portions of the Rogue River nearly 10 million years ago. Subsequent erosion of softer geologic layers has left these harder andesite (volcanic rock) formations rising some 800 feet above the present Rogue Valley. Vernal pools on the Table Rocks differ from those of the Agate Desert, in that they are formed over an impervious layer of bedrock. This unit represents a unique habitat for vernal pool fairy shrimp in Oregon. The Table Rocks Unit is disjunct from the North Agate Desert Unit by over 2 miles, and from the White City West Unit by approximately 1.5 miles

The vernal pool habitat within these four units was selected based on information provided by a wetland function and values assessment and habitat integrity analysis completed in 1999. Information describing the physical (i.e., parcel size, presence of intact hydrology) and biological (i.e., species diversity, presence and composition of native vegetation) condition of the vernal pool habitat, species inventory information detailing the presence fairy shrimp, cook's lomatium and meadowfoam, and parameters describing the potential long term sustainability of habitat (defensibility of the parcel, ownership, and positioning of the parcel relative to nearby habitat parcels) was used to identify specific parcels for inclusion as critical habitat.

Cook's Lomatium

A perennial forb in the carrot family (Apiaceae), Cook's lomatium grows 15 to 50 centimeters (cm) (6 to 20 in) tall, from a slender, twisted taproot. Leaves are smooth, finely dissected, and strictly basal (growing directly above the taproot on the ground, not along the stems). One to four groups of clustered, pale yellow flowers produce boat-shaped fruits 8 to 13 mm (0.3 to 0.5 in.) long with thickened margins. The taproot can often branch at ground level to produce multiple stems. The branching taproot distinguishes Cook's lomatium from *Lomatium bradshawii* (indigenous to wet prairies from southern Willamette Valley, Oregon to southwest Washington) and *L. caruifolium var. denticulatum* (found in vernal pools in northern California). *L. utriculatum*, found on mounds adjacent to pools in the Agate Desert, is distinguished from Cook's lomatium by its more intense yellow flowers, the different shape of its involucel bracklets (leaf-like structures below the flowers), and thin-winged fruits. *L. tracyi*, occurring in California and the Illinois Valley, has a similar appearance to Cook's lomatium, but *L. tracyi* has slender-margined fruits and can grow on dry sites. Cook's lomatium has boat or pumpkin-shaped fruits and grows on seasonally wet sites (Lincoln Constance, pers. comm. April 17, 1992). Recent genetic research has shown Cook's lomatium to be most closely related to *L. bradshawii*. *L. marginatum* and probably *L. tracyi* are likely the next closely related species (Matthew Gitzendanner, pers. comm. August 1, 2002). In the Agate Desert, Cook's lomatium flowering and fruiting time occurs from approximately the beginning of May to mid-June.

Cook's lomatium was first collected in 1981 from vernal pools in the Agate Desert, Jackson County, Oregon. Additional populations were found at French Flat in the Illinois Valley, Josephine County, Oregon in 1988 (ONHP Database, 1998). Cook's lomatium is believed to occur at 13 locations in Jackson and 33 in Josephine County (ONHP Database, 2008). Of the 13 lomatium occurrences known from the Agate Desert area of Jackson County, three are robust and include over 10,000 plants within at least 7-acre areas of intact habitat. The largest occurrence includes over 500,000 plants and the largest area includes 53 acres of suitable habitat. Five of the 13 lomatium occurrences are small to moderate size and range from 25 to 300 plants. The last five lomatium occurrences are small (less than 25 plants) or have not been located in recent years and could be extirpated. Plants in the Illinois Valley/French Flat occurrences grow on seasonally wet soils. Slight morphological differences exist between Cook's lomatium occurrences in the Agate Desert and French Flat, but these differences are not considered significant enough to separate the species into subspecies. Recent genetic research found no evidence of significant genetic differences between the Agate Desert and French Flat Cook's lomatium populations, thus not warranting the separation of the species into subspecies (Matthew Gitzendanner, pers. comm. August 1, 2002). Cook's lomatium was listed as endangered on November 7, 2002.

Cook's Lomatium Critical Habitat

The Service published the final critical habitat rule for lomatium on July 21, 2010 (USFWS 2010, FR 75: 42490 - 42569). The final rule describes the location of approximately 7,100 acres of lomatium proposed critical habitat units; all located in Jackson and Josephine counties of Oregon. The Proposed critical habitat units for lomatium in Jackson County are shown on Figure 4.

The rule describes the primary constituent elements of the proposed critical habitat as:

(1) Vernal pools or ephemeral wetlands and the adjacent upland margins of these depressions that hold water for a sufficient length of time to sustain meadowfoam germination, growth, and reproduction, occurring in the Agate Desert vernal pool landscape. These vernal pools or ephemeral wetlands are seasonally inundated during wet years but do not necessarily fill with water every year due to natural variability in rainfall, and support native plant populations. Areas of sufficient size and quality are likely to have the following characteristics: a) elevations from 1,220 to 1,540 feet, b) association with the dominant native plants; and, c) minimum area of 20 acres to provide intact hydrology and protection from development and weed sources.

(2) The hydrologically and ecologically functional system of interconnected pools, ephemeral wetlands, or depressions within a matrix of surrounding uplands that together form vernal pool complexes within the greater watershed. The associated features may include the pool basin or depressions; an intact hardpan subsoil underlying the surface soils up to 0.75 m (2.5 ft) in depth; and surrounding uplands, including mound topography and other geographic and edaphic features, that support these systems of hydrologically interconnected pools and other ephemeral wetlands (which may vary in extent depending on site-specific characteristics of pool size and depth, soil type, and hardpan depth).

(3) Silt, loam, and clay soils that are of alluvial origin, with a 0 to 3 percent slope, primarily classified as Agate–Winlo complex soils, but also including Coker clay, Carney clay, Provig–Agate complex soils, and Winlo very gravelly loam soils.

(4) No or negligible presence of competitive nonnative invasive plant species. Negligible is defined for the purpose of this rulemaking as a minimal level of nonnative plant species that will still allow lomatium and/or meadowfoam to continue to survive and recover.

The need for space for individual and population growth, germination, seed dispersal, and reproduction is provided by PCEs 1 and 4; the need for soil moisture for growth, germination, reproduction, and seed dispersal is provided by PCE 2 (but not necessarily every year); the need for other nutritional or physiological requirements for the species is met by PCE 3; habitat free from disturbance that allows for sufficient reproduction and survival opportunities is provided by PCEs 1 and 4. All of the above described PCEs do not have to occur simultaneously within a unit for the unit to constitute critical habitat for lomatium and/or meadowfoam.

Large-flowered Woolly Meadowfoam

A delicate annual in the meadowfoam family (Limnanthaceae), large-flowered woolly meadowfoam grows 5 to 15 centimeters (cm) (2 to 6 in.) tall; with 5 cm (2 in.) leaves divided into 5 to 9 segments. The stems and leaves are sparsely covered with short, fuzzy hairs. The flowers, and especially the sepals, are densely covered with woolly hairs. Each of the five yellowish to white petals has two rows of hairs near their base. In the Agate Desert, Large-

flowered woolly meadowfoam flowering and fruiting time occurs in early spring, from March to mid-April.

Mason (1952) described three varieties of *Limnanthes floccosa*, but did not recognize *ssp. grandiflora* as distinct. Based on studies of specimens grown under controlled conditions from field-collected seed, these varieties were later elevated to subspecies and described two additional subspecies, *californica* and *grandiflora*. *Grandiflora* was further distinguished from the other subspecies of *L. floccosa* by a combination of: petal length 7.5 to 9 mm (0.30 to 0.35 in.); sepal length 8.5 to 9 mm (0.33 to 0.35 in.); sepal pubescence (dense on inner surface and sparse to absent on outer surface); sparsely hairy stems and leaves; two lines of hairs at the petal base; relative flowering time; and, occurrence relative to soil moisture. Over much of its range, *ssp. grandiflora* is sympatric or closely related with *L. floccosa ssp. floccosa*; however, *ssp. floccosa* grows on the slightly drier, outer fringes of the pools, whereas *ssp. grandiflora* grows on the relatively wetter, inner fringe of the pools.

Researchers knew of only about 15 occurrences of Large-flowered woolly meadowfoam in the Agate Desert at the time the species was listed as endangered (USFWS 2002). Currently there are 23 known meadowfoam occurrences in the Agate Desert area (Friedman, pers. comm. 2009). The continued existence of meadowfoam is endangered primarily by destruction of its habitat by urban development, including road, utility and power line construction and maintenance. Agricultural conversion, certain grazing practices, off-road vehicle use, and competition with nonnative plants also contribute to population declines. Large-flowered woolly meadowfoam was listed as endangered on November 7, 2002.

Large-flowered Woolly Meadowfoam Critical Habitat

The Service published the final critical habitat rule for meadowfoam on July 21, 2010 (USFWS 2010, FR 75: 42490 - 42569). The proposed rule describes the location of approximately 6,300 acres of meadowfoam proposed critical habitat units; all located in Jackson County, Oregon. The Proposed critical habitat units for meadowfoam are shown on Figure 5.

The rule describes the primary constituent elements of the proposed critical habitat as:

(1) Vernal pools or ephemeral wetlands and the adjacent upland margins of these depressions that hold water for a sufficient length of time to sustain meadowfoam germination, growth, and reproduction, occurring in the Agate Desert vernal pool landscape. These vernal pools or ephemeral wetlands are seasonally inundated during wet years but do not necessarily fill with water every year due to natural variability in rainfall, and support native plant populations. Areas of sufficient size and quality are likely to have the following characteristics: a) elevations from 1,220 to 1,540 feet, b) association with the dominant native plants; and, c) minimum area of 20 acres to provide intact hydrology and protection from development and weed sources.

(2) The hydrologically and ecologically functional system of interconnected pools, ephemeral wetlands, or depressions within a matrix of surrounding uplands that together form vernal pool complexes within the greater watershed. The associated features may include the pool basin or depressions; an intact hardpan subsoil underlying the surface soils up to 0.75 m (2.5 ft) in depth; and surrounding uplands, including mound topography and other geographic and edaphic features, that support these systems of hydrologically interconnected pools and other

ephemeral wetlands (which may vary in extent depending on site-specific characteristics of pool size and depth, soil type, and hardpan depth).

(3) Silt, loam, and clay soils that are of alluvial origin, with a 0 to 3 percent slope, primarily classified as Agate–Winlo complex soils, but also including Coker clay, Carney clay, Provig–Agate complex soils, and Winlo very gravelly loam soils.

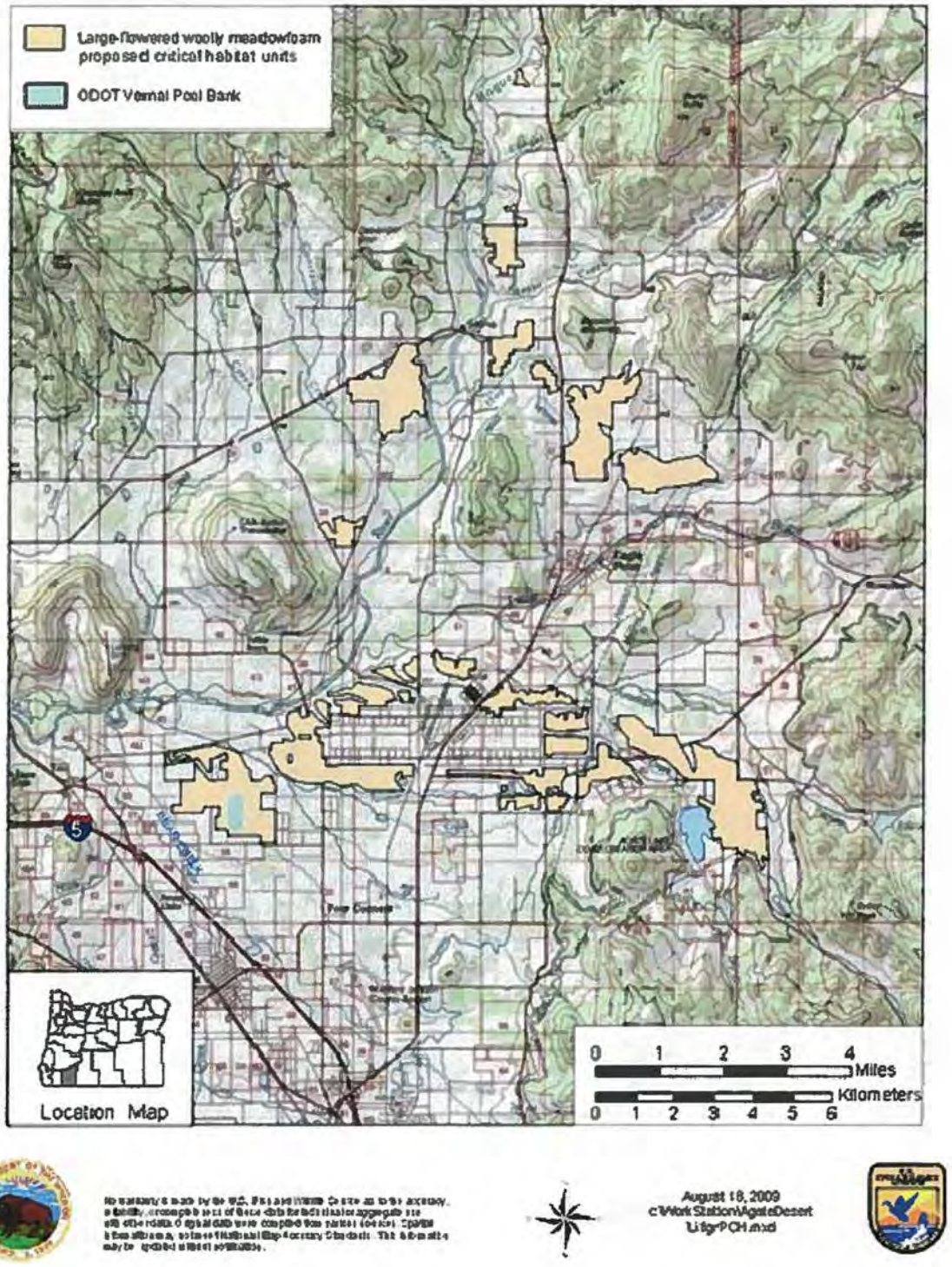
(4) No or negligible presence of competitive nonnative invasive plant species. Negligible is defined for the purpose of this rulemaking as a minimal level of nonnative plant species that will still allow lomatium and/or meadowfoam to continue to survive and recover.

The need for space for individual and population growth, germination, seed dispersal, and reproduction is provided by PCEs 1 and 4; the need for soil moisture for growth, germination, reproduction, and seed dispersal is provided by PCE 2 (but not necessarily every year); the need for other nutritional or physiological requirements for the species is met by PCE 3; habitat free from disturbance that allows for sufficient reproduction and survival opportunities is provided by PCEs 1 and 4. All of the above described PCEs do not have to occur simultaneously within a unit for the unit to constitute critical habitat for lomatium and/or meadowfoam.

Figure 3. Map of Designated Vernal Pool Fairy Shrimp Critical Habitat in the Agate Desert area.

Figure 4. Map of Designated Cook's Lomatium Critical Habitat in the Agate Desert area.

Figure 5. Map of Designated Large-flowered Woolly Meadowfoam Critical Habitat in the Agate Desert area.



Environmental Baseline

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all federal, state, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed federal projects in the action area that have undergone section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress. The following summarizes the environmental baseline for this consultation.

Vernal Pool Fairy Shrimp

Vernal pools are seasonal wetlands that form only in regions where specialized soil and climatic conditions exist. During fall and winter rains typical of modified Mediterranean climates, water collects in shallow depressions in areas where downward percolation of water is prevented by the presence of a duripan below the soil surface. Later in the spring when rains decrease and the weather warms, the both water evaporates and percolates downward, the pools generally disappear by May or June. These shallow depressions then remain relatively dry until late fall and early winter with the advent of greater precipitation and cooler temperatures. Vernal pools thus consist of unusual "flood and drought" habitat conditions to which certain plants and animals have specifically adapted.

The fairy shrimp are imperiled by habitat loss caused by a variety of human-caused activities, primarily urban development, water supply/flood control projects, and conversion of land to agricultural use. Only a small proportion of the habitat of these species is protected from these threats. State and local laws and regulations have not been passed to protect these species, and other regulatory mechanisms necessary for the conservation of the habitat of these species have proven ineffective.

The habitat of the fairy shrimp is highly fragmented throughout their range due to conversion of natural habitat for urban and agricultural uses. This fragmentation results in small isolated fairy shrimp populations. Ecological theory predicts that such populations will be highly susceptible to extinction due to chance events, inbreeding depression, or additional environmental disturbance (Gilpin and Soule 1986; Goodman 1987*a*, *b*). Should an extinction event occur in a population that has been fragmented, the opportunities for recolonization are thought to be greatly reduced due to physical (geographical) isolation from other (source) populations.

California

Holland (1978) estimated that between 60 and 85 percent of the vernal pool habitat in California had been destroyed by 1973. In the ensuing thirty years, a substantial amount of remaining habitat has been converted for human uses. The rate of loss of vernal pool habitat in the state has been estimated at two to three percent per year (Holland and Sain 1988). Rapid urbanization of the Central Valley of California currently poses the most severe threat to the continued existence of the listed vernal pool crustaceans. It is estimated that within 20 years 60 to 70 per cent of these will be destroyed by human activities (Coe 1988).

Oregon

Vernal pools are a prominent feature of the Agate Desert landform in the Agate Desert. They provide a link in the food chain for migrating waterfowl, shorebirds, birds of prey, frogs, toads, salamanders and pollinating insects. The Oregon Natural Heritage Information Center (ONHIC, formerly the Oregon Natural Heritage Program (ONHP)) conducted a study, funded by the Oregon Division of State Lands, completed in 1997 that provided a preliminary mapping and assessment of the integrity of the topography and vegetation of the vernal pools. ONHIC concluded that only 23 percent of the original vernal pool topography and hydrology in the Agate Desert remains intact where the vegetation is not severely altered. Residential, commercial, and industrial development, along with land leveling (primarily for agriculture), has altered nearly 60 percent of the historic range of the Agate Desert landform. The remainder of the habitat is either severely altered by historic and continuing land uses, or occurs along the fringes of the landform where vernal pools are weakly expressed. Results of the ONHIC study are presented in Table 2.

Originally, vernal pool habitat covered approximately 21,000 acres in the Agate Desert-Rogue River Plains region. Of the remaining 8,032.4 acres of vernal pool topography (intact, weakly expressed, or altered or weak), 59.2 percent is in the "*intact topography/hydrology and altered vegetation*" class and another 15.7 percent is in the "*intact topography/hydrology and severely altered vegetation*" class. This means that a total of 6,019.8 acres (74.9 %) has intact topography and hydrology. Only 2,012.6 acres (25.6 %) of the remaining habitat has altered or weakly expressed topography and hydrology (Table 2).

Communities of highly specialized autotrophic, non-vascular plants occupy the open spaces between higher plants in arid and semi-arid lands throughout the world. Although these crusts commonly occur, they have only recently been recognized as having a major influence on terrestrial systems. Soil crust communities are commonly a complex mosaic of cyanobacteria, algae, lichens, liverworts, mosses, fungi, and other bacteria.

Biological soil crusts are generally regarded as indicative of healthy landscapes due to the resistance they impart to the soil surface against wind and water erosion. On the Agate Desert, the crust appears to also function as living mulch by retaining soil moisture, fixing atmospheric nitrogen, and discouraging annual weed growth. The crust's structural matrix is generally left intact following low-intensity fire, indicating that a lightly burned crust still functions to maintain stability against erosive forces for both vascular plants and biological soil crusts during the recovery period. Several species of bryophyte have been collected and identified from the Agate Desert, suggesting the Agate Desert mound and pool topography contains characteristics of the club-moss carpet typical of grasslands in the North American mid-west.

Disturbance can directly and indirectly affect many aspects of the structure and function of biological soil crust communities, including cover, species composition, and carbon and nitrogen fixation. The impact of a given disturbance depends on its severity, frequency, timing, and type, as well as the climatic conditions during and after it occurs. There is no standard for measuring crust disturbance or recovery rates; the literature contains widely variable values for recovery, and either appears to show no pattern of recovery or often appear

contradictory. Agate Desert soil crusts have not been thoroughly examined, but early surveys suggest that their proper management may be a critical factor in maintaining habitat viability.

The recovery rate for biological soil crusts is widely variable. Two accepted methods with the best chance for success when a significant bryophyte layer is present are: 1) transplanting soil plugs, and 2) collecting, drying, and hand-broadcasting the dried bryophytic material over the appropriate substrate (John Christy pers. comm. 2005).

Table 2. Summary of Vernal Pool Habitat Integrity Classes in the Agate Desert.

Topography/Hydrology	Vegetation	Acres	% of Total Acres
Intact	Intact	0.0	0.0
Intact	Altered	4,755	23.1
Intact	Severely altered	1,263	6.1
Weakly expressed	Altered	1,507	7.3
Altered or weak	Severely altered	505	2.4
Undetermined		604	2.9
Leveled		3,516	17.0
Developed		8,474	41.1
Total		20,628	100.0

Vernal Pool Fairy Shrimp Critical Habitat

Table 3 and 4 provides a summary of efforts to protect, conserve or restore fairy shrimp critical habitat by CHU and ownership; and the type of efforts underway. CHU #1, at the present time, contains 100 acres benefiting from a conservation easement between The Nature Conservancy (TNC) and a private landowner. CHU #2, #3 and #4 have varying amounts of habitat protected by current ownership or land use restrictions. Approximately 31 designated critical habitat acres within CHU #2 and 14 acres within CHU #3 are being restored, enhanced, and conserved under the terms and conditions of various wetland fill and removal permits, pursuant to section 404 of the Clean Water Act.

As described in the vernal pool critical habitat description section above, the 7,574 acres of vernal pool habitat designated as critical habitat in Oregon was selected due to the high probability of long term sustainability of the function and habitat value, based on current biological and physical conditions present at the site.

Approximately 2,300 acres of fairy shrimp critical habitat are protected through ownership or conservation easement by federal, state or municipal agencies or TNC, or as compensatory mitigation for wetland impacts associated with the filling of vernal pool habitat within the Agate Desert area (Tables 3 and 4).

The Service is working with the Bureau of Land Management (BLM), Bureau of Reclamation (USBR), Oregon Department of Fish and Wildlife (ODFW), and Oregon Department of Transportation (ODOT) to finalize management plans for these areas which will provide more

protections for listed species and their associated habitats. Species and habitat surveys, wetland function and value assessments and restoration efforts are currently underway on these land parcels as part of efforts to conserve and protect critical habitat and the associated PCEs.

Table 3. Amount of Fairy Shrimp Critical Habitat receiving protective measures, by CHU and type of protective measure.

Unit	Size (acres)	Acres Protected	Type of Protection
CHU 1	2,130	200	-100 acre TNC conservation easement -250 acre Wildlands Conservation Bank
CHU 2	2,251	196	-34 acres protected as compensatory mitigation under section 404 of the CWA -154 acres managed by USBR -8 acres managed by ODOT
CHU 3	2,301	1,005	-197 acres owned by TNC -720 acres managed by ODFW with final management plan -8 acres protected as compensatory mitigation under section 404 of the CWA -80 acre ODOT bank
CHU 4	892	892	-Managed by BLM and TNC, management plans under consideration
Total	7,574	2,293	

Table 4. Acres of Vernal Pool Fairy Shrimp Critical Habitat, by CHU, by ownership, Providing Habitat Protection for Vernal Pool Fairy Shrimp, Cook's Lomatium and Large-flowered Woolly Meadowfoam.

Land Parcel	CHU#	Ownership/ Management	Acres Of Critical Habitat
Agate Reservoir	CHU 2	U.S. Bureau of Reclamation	154
Table Rocks	CHU 4	BLM/TNC	892
Agate Desert Preserve	CHU 3	The Nature Conservancy	53
Whetstone Preserve	CHU 3	The Nature Conservancy	144
Rogue River Plains Preserve	CHU 1	The Nature Conservancy	100
Wildlands	CHU 1	Wildlands, Inc.	100

Land Parcel	CHU#	Ownership/ Management	Acres Of Critical Habitat
Bank			
Denman Wildlife Area[13]	CHU 3	Oregon Department of Fish & Wildlife	720
Highway 140 SMA	CHU 2	Oregon Department of Transportation	8
ODOT Conservation Bank	CHU 3	Oregon Department of Transportation	80
Jackson County School District #9	CHU 2	Jackson County School District #9	25
Hornecker	CHU 2	Private	5
ODOT	CHU 2	Oregon Department of Transportation	4
City of Medford	CHU 3	City of Medford	3
Bear Creek Valley Sanitary Authority	CHU 3	City of Medford	5
Total			2,293

Cook's Lomatium

Reasons for decline of lomatium include industrial, commercial, and residential development, public utility construction and development of utility corridors, land conversion for agricultural uses, weed invasion, roadside spraying, and mowing (USFWS 2002).

The historical range of lomatium may have encompassed over 50 square miles in the Agate Desert area. The vernal pool habitat upon which this species depends has almost been completely eliminated in Jackson County, Oregon. An estimated 2,300 acres of lomatium habitat is present within the Agate Desert area. However, the 2002 ONHIC database showed that the area of known occupied habitat had decreased to an estimated 69 acres within the Agate Desert area (USFWS 2002).

Cook's lomatium habitat is currently protected from development at the Denman Wildlife Management Area, which is managed by ODFW; a Special Management Area (SMA) at

13 This Area is composed of the Military Slough Tract (1178 acres) and the Hall Tract (620 acres). A 12-acre wetland mitigation site is also located within the Military Slough Tract for impacts associated with the filling of 3 acres of wetlands at the Medford Airport.

Highway 140 in White City, managed by ODOT; and the Agate Desert and Whetstone Savanna Preserves managed by TNC (Table 5).

ODFW is conducting inventories of the Denman Wildlife Management Area to gain a better understanding of the quality of vernal pool habitat within the area. These inventories include surveys for native plants, including meadowfoam (Doino pers. comm. 2004). ODFW revised the current management plan of the area to address conservation needs for the meadowfoam (Stauff pers. comm. 2004). ODOT is coordinating specific management actions with the Service's Roseburg Office for the two plant species at the 8-acre SMA. The two plant species are protected from development by the state of Oregon's endangered species regulations.

Although habitat loss is the primary threat to Cook's lomatium, water projects may have an adverse effect on this species as well. Diversion or blockage of watershed runoff feeding the pools can result in premature dry-down before these plants are able to produce seeds prior to going dormant. Supplemental water from outside the natural watershed into vernal pools can change the habitat into a marsh-dominated or permanent aquatic community where marsh plants may out compete lomatium (Borgias pers. comm. 2004).

Physical barriers such as roads and canals may unsuitably deepen a vernal pool upstream of a barrier. Surface runoff can be altered by trenching and other activities that change amounts, patterns, and direction of runoff to ephemeral swales and pools.

Cook's Lomatium Critical Habitat

The habitat of the Lomatium is highly fragmented throughout its range due to conversion of natural habitat for commercial and agricultural uses. This fragmentation results in small isolated lomatium populations. Ecological theory predicts that such populations will be highly susceptible to extinction due to chance events, inbreeding depression, or additional environmental disturbance (Gilpin and Soule 1986; Goodman 1987*a*, *b*). Should an extinction event occur in a population that has been fragmented, the opportunities for recolonization are thought to be greatly reduced due to physical (geographical) isolation from other (source) populations.

Human population growth in Jackson County is occurring at a very rapid rate. Much of this growth is taking place near Medford and White City in the heart of the Agate Desert with an increase in residential, commercial, and industrial development and subsequent loss of vernal pool habitat. Several of the Jackson County and City of Medford development projects destroyed vernal pool habitat and eliminated populations of Cook's lomatium.

Invasion of nonnative annual plants in Agate Desert has altered native perennial plant communities (USFWS 2000) where lomatium grows. Introduced European grasses such as brome grass, medusahead, dogtail, and bluegrass have replaced native bunch grasses on mounds between vernal pools. Medusahead competes with lomatium on seasonally wet mounds between the pools. The seeds of lomatium are not able to germinate under the dense thatch produced by these introduced annual species.

Of the 2,300 acres of designated lomatium critical habitat present on the Agate Desert, approximately 588 acres of habitat are protected (Table 5).

Large-flowered Woolly Meadowfoam

Habitat loss and, to a lesser degree, certain livestock grazing practices, off-road vehicle use, and competition with nonnative plants, have decreased the acreage occupied by meadowfoam (USFWS 2000). An estimated 6,300 acres of habitat suitable for meadowfoam is present within the Agate Desert area. However, the species is not distributed across all of this acreage and occurrences of the species at specific locations have been found to vary from year to year.

Currently, 23 meadowfoam occurrences are known in the Agate Desert area of Jackson County. These occurrences range from 200,000 plants to five plants. The largest occurrences occupy an approximately 200-acre area of contiguous intact vernal pool complex. The smallest occurrence occupies just a few square feet of poor quality wetlands, formerly vernal pool habitat.

Mapped habitat for meadowfoam decreased from 198 acres in 1998 to 116 acres as reported in the ONHIC database (USFWS 2002a). Suitable meadowfoam habitat currently protected from development is located on the Denman Wildlife Management Area (the 620-acre Hall Tract and the 1,178-acre Military Slough Tract) and the recently created 80-acre ODOT vernal pool conservation bank area. ODFW conducted inventories of the Denman Wildlife Management Area to gain a better understanding of the quality of vernal pool habitat within the area. These inventories included surveys for native plants, including meadowfoam (Doino pers. comm. 2004). ODFW has also revised the management plan of the area to address conservation needs for the meadowfoam and received funding through section 6 of the Act to develop a restoration plan for vernal pool habitat within the wildlife management (Stauff pers. comm. 2008).

As described for Cook's lomatium, residential, commercial, and industrial development and development of game habitat at Denman Wildlife Area have eliminated large tracts of suitable habitat for this species (USFWS 2000).

Large-flowered Woolly Meadowfoam Critical Habitat

As with Lomatium, the habitat of the meadowfoam is highly fragmented throughout its range due to conversion of natural habitat for commercial and agricultural uses. This fragmentation results in small isolated lomatium populations. Ecological theory predicts that such populations will be highly susceptible to extinction due to chance events, inbreeding depression, or additional environmental disturbance (Gilpin and Soule 1986; Goodman 1987*a*, *b*). Should an extinction event occur in a population that has been fragmented, the opportunities for recolonization are thought to be greatly reduced due to physical (geographical) isolation from other (source) populations.

Community development pressure brought about much of this habitat loss. Much of this growth is taking place near Medford and White City in the heart of the Agate Desert with an increase in residential, commercial, and industrial development and subsequent loss of vernal pool habitat. Several of the Jackson County and City of Medford development projects destroyed vernal pool habitat and eliminated populations of meadowfoam.

Invasion of nonnative annual plants in Agate Desert has altered native perennial plant communities (USFWS 2000) where meadowfoam grows. Introduced European grasses such as brome grass, medusahead, dogtail, and bluegrass have replaced native bunch grasses on mounds

between vernal pools. Medusahead competes with meadowfoam on seasonally wet mounds between the pools. The seeds of meadowfoam are not able to germinate under the dense thatch produced by these introduced annual species.

Of the 6,300 acres of designated meadowfoam critical habitat present on the Agate Desert, approximately 1,373 acres of habitat are protected (Table 6).

Table 5: Acres of Critical Habitat, by CHU, by ownership, providing Habitat Protection for Cook's lomatium.

Land Parcel	CHU#	Ownership	Acres Of Critical Habitat
Highway 140 SMA	RV6	Oregon Department of Transportation	20
Agate Desert Preserve	RV6	The Nature Conservancy	53
Denman Wildlife Area[14]	RV6	Oregon Department of Fish & Wildlife	283
Whetstone Preserve	RV8	The Nature Conservancy	144
ODOT Conservation Bank	RV8	Oregon Department of Transportation	80
City of Medford	RV6	City of Medford	3
Bear Creek Valley Sanitary Authority	RV8	City of Medford	5
Total			588

14 This Area is composed of the Military Slough Tract (1178 acres) and the Hall Tract (620 acres). A 12-acre wetland mitigation site is also located within the Military Slough Tract for impacts associated with the filling of 3 acres of wetlands at the Medford Airport. A 19-acre wetland mitigation site is also proposed for the Hall tract, with implementation scheduled for summer of 2009.

Table 6: Acres of Critical Habitat, by CHU, by ownership, providing Habitat Protection for Large–flowered Woolly Meadowfoam

Land Parcel	CHU#	Ownership	Acres Of Critical Habitat
Wildlands Bank	RV3	Wildlands, Inc.	120
Parson's Easement	RV3	Private	40
Agate Reservoir	RV7	U.S. Bureau of Reclamation	154
Highway 140 SMA	RV6	Oregon Department of Transportation	20
Jackson County School District #9	RV6	Jackson County School District #9	25
Hornecker	RV6	Private	5
ODOT Dutton road mitigation area	RV6	Oregon Department of Transportation	4
Agate Desert Preserve	RV6	The Nature Conservancy	53
Denman Wildlife Area[15]	RV6	Oregon Department of Fish & Wildlife	720
Whetstone Preserve	RV8	The Nature Conservancy	144
ODOT Conservation Bank	RV8	Oregon Department of Transportation	80
City of Medford	RV6	City of Medford	3
Bear Creek Valley Sanitary Authority	RV8	City of Medford	5
Total			1,373

15 This Area is composed of the Military Slough Tract (1178 acres) and the Hall Tract (620 acres). A 12-acre wetland mitigation site is also located within the Military Slough Tract for impacts associated with the filling of 3 acres of wetlands at the Medford Airport. A 19-acre wetland mitigation site is also proposed for the Hall tract, with implementation scheduled for summer of 2009.

ANALYTICAL FRAMEWORK FOR JEOPARDY DETERMINATIONS

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this Opinion is made by evaluating the effects of the proposed Federal action in the context of the current status of fairy shrimp, lomatium and meadowfoam, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of the survival and recovery of these species in the wild.

The jeopardy analysis in this Opinion places an emphasis on consideration of the range-wide survival and recovery needs of the fairy shrimp, lomatium and meadowfoam and the role of the action area in the survival and recovery of these species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Adverse Modification Determination

In accordance with policy and regulation, the adverse modification analysis in this Opinion relies on four components: (1) the *Status of Critical Habitat*, which evaluates the rangewide condition of designated critical habitat for the fairy shrimp in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the *Environmental Baseline*, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how that will influence the recovery role of affected critical habitat units; and (4) *Cumulative Effects* which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on fairy shrimp critical habitat are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the fairy shrimp.

The analysis in this Opinion places an emphasis on using the intended range-wide recovery function of fairy shrimp critical habitat and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the adverse modification determination.

Service Vernal Pool Species Recovery Plan and Conservation Strategy for Jackson County, Oregon

The Service published a final recovery plan for vernal pool ecosystems of California and Southern Oregon in 2005 (USFWS 2005). The recovery plan sets out specific goals, objectives and tasks to direct recovery efforts for fairy shrimp. The Jackson County vernal pool area, known as the Klamath Mountains Vernal Pool Region, is composed of three core areas (Agate Desert, White City and Table Rocks) and is considered a zone 2 area (USFWS 2005). Recovery recommendations within Zones 2 and 3 are considered more flexible than Zone 1 area and recovery criteria specific to Zone 2 core areas may be modified on a case-by-case basis as information becomes available.

The overall recovery goal for fairy shrimp in the Klamath Mountains Vernal Pool Region is to protect 85 percent of the approximately 5,000 acres of remaining suitable vernal pool habitat (4,300 acres). As stated above, the Klamath Mountain vernal pool region should be a significant contributor to the recovery of vernal pool fairy shrimp. Protection of this amount of vernal pool habitat, because of the overlapping nature of the fairy shrimp, lomatium and meadowfoam in the Agate Desert, is expected to also meet the overall recovery objective for the listed plants. As such The Service has developed the following guidance for vernal pool conservation in this area:

- A minimum of 4,300 acres of vernal pool habitat should be protected through ownership, management; or conservation easement or agreement.
- This conservation effort should be distributed throughout the Agate Desert, White City and Table Rocks area. Table 7 and Figure 7 depict 17 focal areas the Service recommends for conservation efforts. The arrangement of the protected parcels shall allow for a network of protected parcels with a maximum distance of two miles from the nearest parcel.
    - Approximately 2,300 acres is currently protected See environmental baseline section below). Management plans for several of these protected areas need to be finalized and implemented.
    - Approximately 2,000 acres still need to be protected to meet the recovery objective for the Klamath Mountain Vernal Pool region.
        - A minimum of 500 acres should be protected in the form of conservation banks.
            - Conservation banks should be a minimum of 70 acres. Banks can be composed of discontinuous parcels, with a core parcel of a minimum of 50 acres.
            - Conservations banks or bank parcels shall be located within the historical range of the Agate-Winlo soil type.
        - A minimum of 1,000 acres should be protected in the form of conservation easements or agreements.

- Existing vernal pool habitat can be conserved and restored. Re-creation of vernal pool habitat (re-creation of surface topography where the underlying duripan layer is intact), may be considered on a case-by-case basis.

The Service is preparing the final recovery plan for the listed species of the Rogue Valley Vernal Pool and Illinois Valley Wet Meadow Ecosystems. The draft recovery objectives include protection and conservation of existing populations, research and promotion of natural ecosystem functions such as local hydrology and native vegetation to aid in the direct recovery for lomatium and meadowfoam. The Agate Desert includes nine high priority core areas for lomatium and meadowfoam (Figure 6). At least 85 percent of the suitable habitat acreage within these nine core areas should be protected to meet recovery objectives for the listed plants (USFWS 2006).

Figure 6 depicts the draft recovery core areas described within the draft recovery plan. The core areas were selected to direct focused restoration and conservation actions to achieve recovery for the two listed plant species. Core area boundaries were identified based on the location of listed plant occurrences, the distribution of appropriate vernal pool habitat and identification of vernal pool topography from aerial photography of the region. The listed plant core areas overlap to a high degree with vernal pool areas previously identified as core habitat for vernal pool fairy shrimp recovery (USFWS 2005).

Figure 6. Recovery Core Areas from the Draft Recovery Plan for Listed Species of the Rogue Valley Vernal Pools and Illinois Valley Wet Meadow Ecosystems.

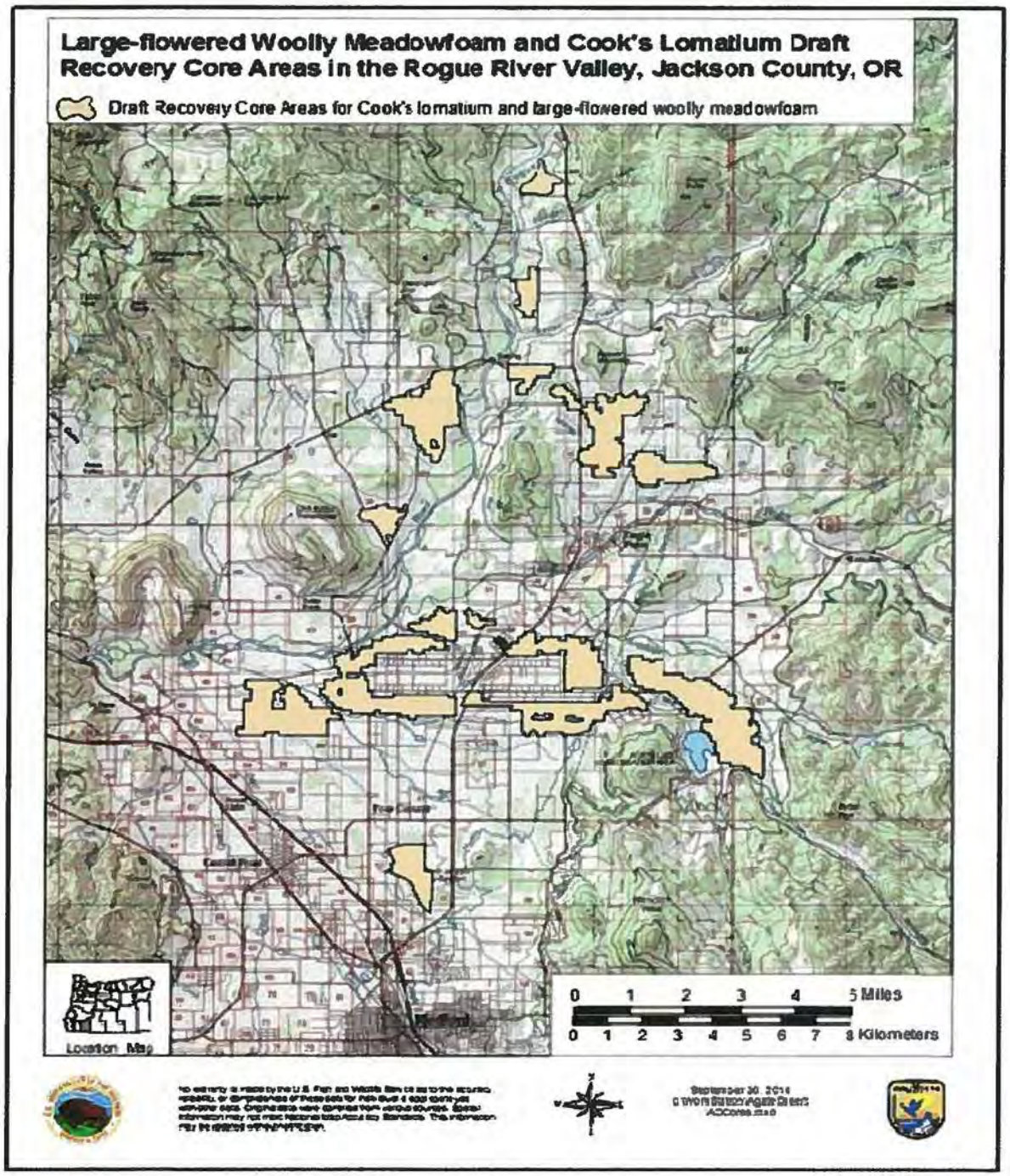


Table 7. Service Focal Areas for Vernal Pool Conservation and Recovery

ID #	Area	Target Acreage	Acreage currently protected
1	Table Rocks (upper & lower)	400	892
2	Sam's Valley	400	100
3	Shady Cove	400	0
4	Staley Road	200	0
5	Eagle Point north	400	130
6	Eagle Point south	100	0
7	Dutton Road	100	34
8	Brigham-Brown/Avenue H	100	0
9	Highway 140 corridor	100	10
10	Dry Creek, north of Hwy. 140	400	0
11	Agate Reservoir	200	154
12	Corey Road	100	0
13	Denman north (Military Slough)	400	400
14	Denman south (Hall Tract)	300	300
15	Table Rock Road/Antelope Road	300	61
16	Kirtland Road	200	20
17	Truax Road/Newland Road	200	224
Total Acres		4,300	2,325

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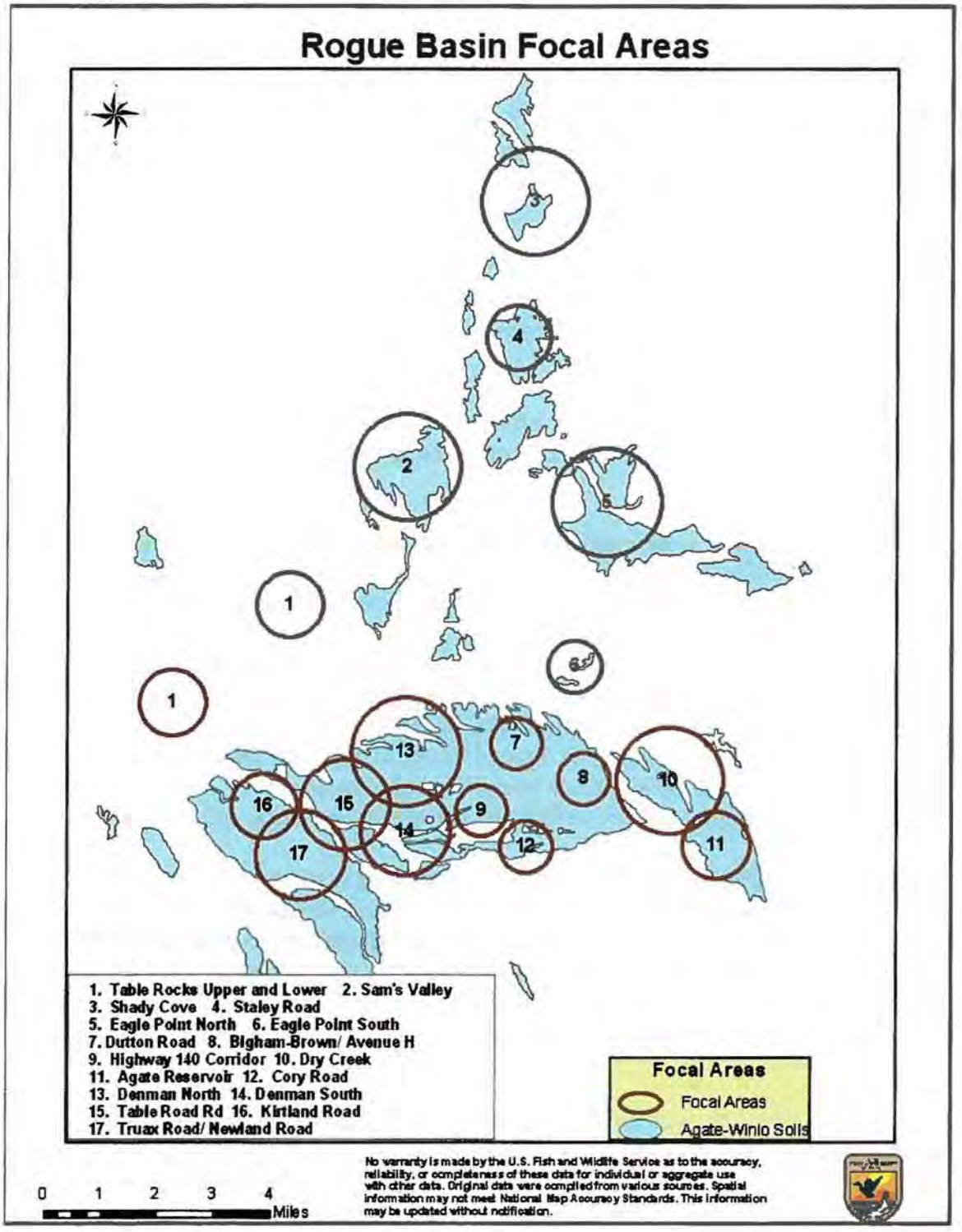
Figure 7. Vernal Pool Habitat Focal Areas in Jackson County, Oregon.



EFFECTS OF THE PROPOSED ACTION

Fairy Shrimp

Direct effects

Individual fairy shrimp and their cysts may be directly injured or killed by activities leading to the destruction (i.e., the filling of habitat) of the pools in which they exist and or by activities associated with protection, restoration and management of vernal pool habitat.

Indirect effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Individuals and their cysts may be injured or killed by several indirect effects:

- Changes in hydrology: In addition to the direct impacts associated with filling, development can have impacts on the hydrology of remaining habitat (e.g., pools/swales) and surrounding areas.

  Projects involving storm water drains, deep ripping, or the coverage of land surfaces with concrete, asphalt, or irrigated recreation parks, etc., can affect the amount and quality of water available to the perched water tables characteristic of vernal pool areas.

  Changes to the perched water table can lead to alterations in the rate, extent, and duration of inundation (water regime) of remaining habitat. The biota of vernal pools and swales can change when the hydrologic regime is altered (Bauder 1986, 1987). Survival of aquatic organisms like fairy shrimp is directly linked to the water regime of their habitat (Zedler 1987). Therefore, development near vernal pool areas may, at times, result in the failure of local sub-populations of vernal pool organisms, including fairy shrimp.

- Roads: Grading for roads may affect the water regime of vernal pool habitat, particularly when grading involves cutting into the substrata in or near habitat areas. Exposure of sub-surface layers of soil at road cuts may hasten the loss of water from adjacent habitat by mass flow through networks of cracks, lenses of coarser material, animal burrows, old root channels, or other macroscopic channels. Any decrease in the duration of inundation of habitat can affect the reproductive success of species present, including the listed vernal pool crustacean.

  Erosion associated with road building can contaminate vernal habitat through the transport and deposition of sediments into these areas. In addition, roads or other changes in drainage patterns could result in an increase in surface runoff and conversion of vernal pool habitat. Roads in or near the watersheds of habitat areas can lead to additional impacts through the introduction of chemically laden runoff (i.e., petroleum products) from the road surfaces.

Chemical contamination of habitat can kill listed species by poisoning. Roads in close proximity to habitat areas may encourage additional impacts through other human activities.

- Human intrusion: Development frequently results in human intrusion into surrounding areas. Human intrusion is a mechanism by which trash or hazardous waste can be introduced into remaining habitat areas (Bauder 1986, 1987). Disposal of waste materials can eliminate habitat, disrupt pool hydrology, or release substances into pools that are toxic or that adversely affect water chemistry. In addition, off-road vehicle use and other recreational activities associated with humans can lead to wheel ruts, soil compaction, increased siltation, destruction of native vegetation, introduction of undesirable non-native plants, and an alteration of pool hydrology.

- Pesticides/Herbicides: Development often results in the introduction of pesticides or herbicides into the environment. These chemical compounds are thought to have adverse effects on fairy shrimp and/or their cysts. Individuals may be killed directly or suffer reduced fitness through physiological stress or a reduction in their food base due to the presence of these chemicals.

- Introduced predators: Development may produce conditions that are favorable for exotic predators such as bullfrogs, and mosquito fish. The stomachs of bullfrogs captured in vernal pools near Chico, California were found to contain large numbers of vernal pool tadpole shrimp (Hayes, pers. com., 1993 in 59 **FR** 48136). Mosquito fish can be equally devastating as predators when introduced into vernal pool habitat. Thus, listed species and their cysts may be adversely affected by the introduction of exotic predators.

The proposed action may directly or indirectly affect all fairy shrimp associated with up to 220 acres of vernal pool wetland (or 1100 acres of vernal pool complex) in Jackson County, Oregon.

Of this acreage, 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact result from development actions and associated mitigation. Depending on the functional value of the involved wetlands and the applicable mitigation ratios, this will entail 20-38 acres of wetland negatively impacted by the development actions and 75-90 acres of wetland affected by protection, restoration, and management for associated mitigation. An additional 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact may be affected by voluntary (non-mitigation) actions implemented for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC.

The negative impacts resulting from development actions are anticipated to be permanent and to preclude the utilization of the affected habitat by vernal pool fairy shrimp. The impacts associated with both the required mitigation actions and non-mitigation voluntary actions are anticipated to be positive and beneficial for the conservation and recovery of the species. Short-term adverse affects resulting from these otherwise beneficial actions are inherently very near-term and temporary in nature (occurring over less than 5-years), and will be significantly constrained by the standards, practices, and conditions in this Opinion.

Vernal Pool Fairy Shrimp Critical Habitat

The primary constituent elements of fairy shrimp critical habitat are affected by 1) alterations in local hydrology, and 2) Introduction of invasive, non-native vegetation in the area. Hydrology and invasive species are closely associated.

Changes in hydrology (such as filling or draining of pools) will be exhibited by the loss of the typical wet/dry cycle of the pool and surrounding mound habitat area. Loss of this wet/dry cycle will result in the degradation and loss of function of the habitat in terms of providing the fairy shrimp with the necessary life cycle elements to sustain over the long term.

Introduction of invasive, non-native vegetation can alter the soil chemistry, compete for nutrients and crowd out native vernal pool plants. Alteration of hydrology can exacerbate the spread of, and provide a competitive edge to non-native vegetation in vernal pool habitat affected by a small change in hydrology.

The proposed action may directly or indirectly affect all fairy shrimp associated with up to 220 acres of vernal pool wetland (or 1100 acres of vernal pool complex) in Jackson County, Oregon.

Of this acreage, 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact result from development actions and associated mitigation. Depending on the functional value of the involved wetlands and the applicable mitigation ratios, this will entail 20-38 acres of wetland negatively impacted by the development actions and 75-90 acres of wetland affected by protection, restoration, and management for associated mitigation. An additional 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact may be affected by voluntary (non-mitigation) actions implemented for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC.

It is not possible to determine exactly how much of the acreages above will occur within designated critical habitat. An extrapolation based on the fact that approximately 80 percent of currently existing vernal pool habitat is contained within designated critical habitat for the vernal pool fairy shrimp could lead to the conclusion that a similar proportion of the impacts covered under this Opinion will occur with designated critical habitat. This would equate to 16-30 acres, 60-72 acres, and 88 acres of vernal pool wetland within critical habitat being affected by development actions, associated mitigation, and voluntary (non-mitigation) actions, respectively.

However, this Opinion also contains standards, criteria, and other factors intended to discourage development action in vernal pools designated as critical habitat and to incentivize mitigation and restoration actions within designated critical habitat. Therefore, the actual range of impacts to critical habitat is likely to be less than estimated above for development actions and equal to or greater than estimated above for mitigation, and voluntary (non-mitigation) actions.

The negative impacts resulting from development actions are anticipated to be permanent and to preclude the utilization of the affected habitat by vernal pool fairy shrimp. The impacts associated with both the mitigation actions and non-mitigation voluntary actions are anticipated to be positive and beneficial for the conservation and recovery of the species. Short-term adverse affects resulting from these otherwise beneficial actions are inherently very near-term and

temporary in nature (occurring over less than 5-years), and will be significantly constrained by the standards, practices, and conditions in this Opinion.

Cook's Lomatium

Direct effects

Individual lomatium plants may be directly harmed or killed by activities leading to the modification (i.e., the filling of habitat) of the pools in which they exist and or by activities associated with protection, restoration and management of vernal pool habitat.

Indirect effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Individual plants and their seed may be injured or killed by several indirect effects:

- Changes in hydrology: In addition to the direct impacts associated with filling, development can have impacts on the hydrology of remaining habitat (e.g., pools/swales) and surrounding areas.

- Loss of controls of non-native invasive plant species could result in over-shading and exclusion of Lomatium from patches.

- Projects involving storm water drains, deep ripping, or the coverage of land surfaces with concrete, asphalt, or irrigated recreation parks, etc., can affect the amount and quality of water available to the perched water tables characteristic of vernal pool areas.

The proposed action may directly or indirectly affect all Cook's lomatium associated with up to 220 acres of vernal pool wetland (or 1100 acres of vernal pool complex) in Jackson County, Oregon.

Of this acreage, 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact result from development actions and associated mitigation. Depending on the functional value of the involved wetlands and the applicable mitigation ratios, this will entail 20-38 acres of wetland negatively impacted by the development actions and 75-90 acres of wetland affected by protection, restoration, and management for associated mitigation. An additional 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact may be affected by voluntary (non-mitigation) actions implemented for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC.

The negative impacts resulting from development actions are anticipated to be permanent and to preclude the utilization of the affected habitat by lomatium. The impacts associated with both the mitigation actions and non-mitigation voluntary actions are anticipated to be positive and beneficial for the conservation and recovery of the species. Short-term adverse affects resulting from these otherwise beneficial actions are inherently very near-term and temporary in nature (occurring over less than 5-years), and will be significantly constrained by the standards, practices, and conditions in this Opinion.

The General Parameters included in this Opinion require that none of the above impacts will result in loss of any of the 13 currently known lomatium populations or any subsequently discovered populations. Adverse impacts will be in the form of decreases in the number of individual plants or in the spatial area of occurrences of the species. Depending on the specific nature of the action, such decreases will either be permanent or short-term and temporary as described above.

Cook's Lomatium Critical Habitat

The primary constituent elements of lomatium critical habitat are affected by 1) alterations in local hydrology, and 2) introduction of invasive, non-native vegetation in the area. Hydrology and invasive species are closely associated.

Changes in hydrology (such as the filling or draining of pools) will be exhibited by increases in the amount and percent cover by non-native plant species and/or loss of the wet/dry cycle which is vital to the functionality of the vernal pool habitat.

Introduction of invasive, non-native vegetation can alter the soil chemistry, compete for nutrients and crowd out native vernal pool plants. Alteration of hydrology can exacerbate the spread of, and provide a competitive edge to non-native vegetation in vernal pool habitat affected by a small change in hydrology.

The proposed action may directly or indirectly affect all Cook's lomatium associated with up to 220 acres of vernal pool wetland (or 1100 acres of vernal pool complex) in Jackson County, Oregon.

Of this acreage, 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact result from development actions and associated mitigation. Depending on the functional value of the involved wetlands and the applicable mitigation ratios, this will entail 20-38 acres of wetland negatively impacted by the development actions and 75-90 acres of wetland affected by protection, restoration, and management for associated mitigation. An additional 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact may be affected by voluntary (non-mitigation) actions implemented for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC.

It is not possible to determine exactly how much of the acreages above will occur within designated critical habitat. An extrapolation based on the fact that approximately 30 percent of currently existing vernal pool habitat is contained within designated critical habitat for Cook's lomatium could lead to the conclusion that a similar proportion of the impacts covered under this Opinion will occur with designated critical habitat. This would equate to 6-11 acres, 23-27 acres, and 33 acres of vernal pool wetland within critical habitat being affected by development actions, associated mitigation, and voluntary (non-mitigation) actions, respectively.

However, this Opinion also contains standards, criteria, and other factors intended to discourage development action in vernal pools designated as critical habitat and to incentivize mitigation and restoration actions within designated critical habitat. Therefore, the actual range of impacts

to critical habitat is likely to be less than estimated above for development actions and equal to or greater than estimated above for mitigation, and voluntary (non-mitigation) actions.

The negative impacts resulting from development actions are anticipated to be permanent and to preclude the utilization of the affected habitat by Cook's lomatium. The impacts associated with both the mitigation actions and non-mitigation voluntary actions are anticipated to be positive and beneficial for the conservation and recovery of the species. Short-term adverse affects resulting from these otherwise beneficial actions are inherently very near-term and temporary in nature (occurring over less than 5-years), and will be significantly constrained by the standards, practices, and conditions in this Opinion.

The General Parameters included in this Opinion require that none of the above impacts will result in loss of any of the currently known or subsequently discovered lomatium populations within critical habitat. Therefore, the function and value of critical habitat derived from occurrences of populations of the species will not be reduced.

Large-flowered Woolly Meadowfoam

Direct effects

Individual meadowfoam plants may be directly harmed or killed and their seed destroyed by activities leading to the modification (i.e., the filling of habitat) of the pool edge habitat where they occur and or by activities associated with protection, restoration and management of vernal pool habitat.

Indirect effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Individuals and their seed may be harmed or killed by several indirect effects:

- Changes in hydrology: In addition to the direct impacts associated with filling, development can have impacts on the hydrology of remaining habitat (e.g., pools/swales) and surrounding areas.

- Loss of controls of non-native invasive plant species could result in over-shading and exclusion of Lomatium from patches.

- Projects involving storm water drains, deep ripping, or the coverage of land surfaces with concrete, asphalt, or irrigated recreation parks, etc., can affect the amount and quality of water available to the perched water tables characteristic of vernal pool areas.

The proposed action may directly or indirectly affect all meadowfoam associated with up to 220 acres of vernal pool wetland (or 1100 acres of vernal pool complex) in Jackson County, Oregon.

Of this acreage, 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact result from development actions and associated mitigation. Depending on the functional value of the involved wetlands and the applicable mitigation ratios, this will entail 20-38 acres of wetland

negatively impacted by the development actions and 75-90 acres of wetland affected by protection, restoration, and management for associated mitigation. An additional 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact may be affected by voluntary (non-mitigation) actions implemented for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC.

The negative impacts resulting from development actions are anticipated to be permanent and to preclude the utilization of the affected habitat by meadowfoam. The impacts associated with both the mitigation actions and non-mitigation voluntary actions are anticipated to be positive and beneficial for the conservation and recovery of the species. Short-term adverse affects resulting from these otherwise beneficial actions are inherently very near-term and temporary in nature (occurring over less than 5-years), and will be significantly constrained by the standards, practices, and conditions in this Opinion.

The General Parameters included in this Opinion require that none of the above impacts will result in loss of any of the 23 currently known meadowfoam populations or any subsequently discovered populations. Adverse impacts will be in the form of decreases in the number of individual plants or in the spatial area of occurrences of the species. Depending on the specific nature of the action, such decreases will either be permanent or short-term and temporary as described above.

Large-flowered Woolly Meadowfoam Critical Habitat

The primary constituent elements of meadowfoam critical habitat are affected by 1) alterations in local hydrology, and 2) introduction of invasive, non-native vegetation in the area. Hydrology and invasive species are closely associated.

Changes in hydrology (such as the filling or draining of pools) will be exhibited by increases in the amount and percent cover by non-native plant species and/or loss of the wet/dry cycle which is vital to the functionality of the vernal pool habitat.

Introduction of invasive, non-native vegetation can alter the soil chemistry, compete for nutrients and crowd out native vernal pool plants. Alteration of hydrology can exacerbate the spread of, and provide a competitive edge to non-native vegetation in vernal pool habitat affected by a small change in hydrology.

The proposed action may directly or indirectly affect all meadowfoam associated with up to 220 acres of vernal pool wetland (or 1100 acres of vernal pool complex) in Jackson County, Oregon.

Of this acreage, 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact result from development actions and associated mitigation. Depending on the functional value of the involved wetlands and the applicable mitigation ratios, this will entail 20-38 acres of wetland negatively impacted by the development actions and 75-90 acres of wetland affected by protection, restoration, and management for associated mitigation. An additional 110 acres of vernal pool wetland (or 550 acres of vernal pool complex) impact may be affected by voluntary (non-mitigation) actions implemented for the dominant purposes of protecting, preserving, restoring, enhancing, or maintaining the habitat and listed species attributes of VPC.

It is not possible to determine exactly how much of the acreages above will occur within designated critical habitat. An extrapolation based on the fact that approximately 80 percent of currently existing vernal pool habitat is contained within designated critical habitat for large-flowered woolly meadowfoam could lead to the conclusion that a similar proportion of the impacts covered under this Opinion will occur with designated critical habitat. This would equate to16-30 acres, 60-72 acres, and 88 acres of vernal pool wetland within critical habitat being affected by development actions, associated mitigation, and voluntary (non-mitigation) actions, respectively.

However, this Opinion also contains standards, criteria, and other factors intended to discourage development action in vernal pools designated as critical habitat and to incentivize mitigation and restoration actions within designated critical habitat. Therefore, the actual range of impacts to critical habitat is likely to be less than estimated above for development actions and equal to or greater than estimated above for mitigation, and voluntary (non-mitigation) actions.

The negative impacts resulting from development actions are anticipated to be permanent and to preclude the utilization of the affected habitat by large- flowered woolly meadowfoam. The impacts associated with both the mitigation actions and non-mitigation voluntary actions are anticipated to be positive and beneficial for the conservation and recovery of the species. Short-term adverse affects resulting from these otherwise beneficial actions are inherently very near-term and temporary in nature (occurring over less than 5-years), and will be significantly constrained by the standards, practices, and conditions in this Opinion.

The General Parameters included in this Opinion require that none of the above impacts will result in loss of any of the currently known or subsequently discovered meadowfoam populations within critical habitat. Therefore, the function and value of critical habitat derived from occurrences of populations of the species will not be reduced.

CUMULATIVE EFFECTS

Cumulative effects are those impacts of future State, local, and private actions affecting endangered and threatened species that are reasonably certain to occur in the action areas. Future Federal actions will be subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project.

Because the vernal pool fairy shrimp are endemic to vernal pools in Jackson County, Oregon, the Service anticipates that a wide range of activities will be determined to affect these species. Such activities include, but are not limited to, urban, water, flood control, highway, and utility projects, chemical contaminants, as well as conversion of vernal pools to agricultural use. Many of these activities will be reviewed under section 7 of the Act as a result of the Federal nexus provided by section 404 of the Federal Water Pollution Control Act, as amended (Clean Water Act). The Service is currently unaware of any State, local, or private actions which, when considered in conjunction with the known environmental baseline for these species, would likely peclude the survival and recovery of the fairy shrimp.

CONCLUSION

Fairy Shrimp and Fairy Shrimp Critical Habitat

After reviewing the current status of the threatened vernal pool fairy shrimp; the environmental baseline for the area within the jurisdiction of the Service; the effects of the proposed action; and the cumulative effects; it is the Service's biological opinion that the proposed action, as described in this document, is not likely to jeopardize the continued existence of the species or to adversely modify fairy shrimp critical habitat.

This conclusion is based on the following:

- The general parameters, best management practices, standards, measures, other criteria, and the overall conservation strategy contained within the proposed action are based on and consistent with the goals and objectives of the Final Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon and associated strategies developed for Jackson County, Oregon.

- The general parameters, best management practices, standards, measures, other criteria of the proposed action are expected to significantly constrain the overall amount and extent of adverse affects to the species, to ensure that the majority of such adverse affects are near-term and temporary in nature (occurring over less than 5-years), and to promote a broader amount and extent of impacts that benefit the conservation and recovery of the species.

- The individual and combined effects of the activities included in the proposed action will therefore have a net positive impact on the species via— a) protection and maintenance of existing properly functioning habitats; b) restoration and enhancement of currently impaired habitats; c) increased occurrence of these beneficial activities in habitat areas (including critical habitat) identified as high-value/high-priority for conservation action; d) reduction of ongoing adverse impacts that are currently not subject to appropriate mitigation; and d) constraining remaining adverse impacts to scale, scope, and location determined by the recovery plan and associated local conservation strategy to be consistent with long-term survival and recovery of the species.

- Collectively, the above factors will result in the proposed action not appreciably reducing the size, distribution, or viability/productivity of vernal pool fairy shrimp at the local, regional, or rangewide scales, or not appreciably reducing the function and value of designated critical habitat or its primary constituent elements.

Cook's Lomatium, Large-Flowered Wooly Meadowfoam, and Designated Critical Habitat

After reviewing the current status of these endangered plant species; the environmental baseline for the area within the jurisdiction of the Service; the effects of the proposed projects; and the cumulative effects; it is the Service's biological opinion that the proposed projects, as described in this consultation document, are not likely to jeopardize the continued existence of these species or to adversely modify designated critical habitat.

This conclusion is based on the following:

- The geographic area covered by the proposed action does not include the entire range of Cook's lomatium in Oregon or the entire extent of designated critical habitat for the species in the state.

- None of the impacts associated with the proposed action will result in loss of any of the currently known or subsequently discovered populations of either species.

- The general parameters, best management practices, standards, measures, other criteria, and the overall conservation strategy contained within the proposed action are based on and consistent with the goals and objectives of the Draft recovery Plan for Listed Species of the Rogue Valley Vernal Pools and Illinois Valley Wet Meadow Ecosystems and associated strategies developed for Jackson County, Oregon.

- The general parameters, best management practices, standards, measures, other criteria of the proposed action are expected to significantly constrain the overall amount and extent of adverse affects to both species, to ensure that the majority of such adverse affects are near-term and temporary in nature (occurring over less than 5-years), and to promote a broader amount and extent of impacts that benefit the conservation and recovery of both species.

- The individual and combined effects of the activities included in the proposed action will therefore have a net positive impact on these species via— a) protection and maintenance of existing properly functioning habitats; b) restoration and enhancement of currently impaired habitats; c) increased occurrence of these beneficial activities in habitat areas (including critical habitat) identified as high-value/high-priority for conservation action; d) reduction of ongoing adverse impacts that are currently not subject to appropriate mitigation; and d) constraining remaining adverse impacts to scale, scope, and location determined by the recovery plan and associated local conservation strategy to be consistent with long-term survival and recovery of both species.

- Collectively, the above factors will result in the proposed action not appreciably reducing the size, distribution, or viability/productivity of Cook's lomatium or large-flowered woolly meadowfoam at the local, regional, or rangewide scales, or not appreciably reducing the function and value of designated critical habitat or its primary constituent elements.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harass is defined as an intentional or negligent act that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined to include significant habitat modification or degradation that results in death or injury to

listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.

Incidental take is any take of listed animal species which result from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered a prohibited taking provided that such taking is in compliance with this incidental take statement.

As discussed above, sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act and the implementing regulations prohibit the removal and reduction to possession of federally listed threatened or endangered plants or the malicious damage of endangered plants on areas under federal jurisdiction, or the destruction of endangered plants on non- federal areas in violation of state law or regulation or in the course of any violation of a state criminal trespass law. Neither incidental take authorization nor recovery permits are needed for implementation of the proposed action.

The measures described below are nondiscretionary, and must be implemented by the Service so that they become binding conditions of any grant or permit issued, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Service (1) fails to require adherence to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

The Service anticipates take of fairy shrimp in the form of harm, injury, and harassment to individual cysts and adults due to direct and indirect impacts in up to 220 acres of vernal pool wetland (or 1100 acres of vernal pool complex) in Jackson County, Oregon. The best scientific and commercial data available is not sufficient to enable the Service to estimate a specific amount of fairy shrimp adults or cysts that will be taken associated with this acreage.

However, as previously discussed: a) only the development actions occurring on 20-38 acres of wetland are anticipated to be permanent and to preclude the utilization of the affected habitat by vernal pool fairy shrimp in the future; b) the impacts associated with both the mitigation actions and non-mitigation voluntary actions are anticipated to be positive and beneficial for the conservation and recovery of the species; c) short-term adverse affects resulting from these otherwise beneficial actions are inherently very near-term and temporary in nature (occurring over less than 5-years), and will be significantly constrained; and d) the individual and combined effects of the activities included in the proposed action will have a net positive impact on the species. Therefore the amount of take that does occur is not anticipated to appreciably reduce the size, distribution, or productivity of vernal pool fairy shrimp in the short- or long-terms.

Moreover, some of the activities included in the proposed action, specifically components 4-6 under Description of the Proposed Action, will be subject to project- and site-specific assessments to better determine specific impacts, including amount and extent of take, and

consistency with this Opinion. Any take resulting from these activities is not authorized until such assessments have occurred. At that time, the Service will determine whether the amount and extent of take is covered under this Incidental Take Statement or should be subject a project-specific Incidental Take Statement developed as an amendment to this Opinion.

Effect of the Take

In the accompanying Opinion, the Service has determined that this level of anticipated take is not likely to result in extinction or a reduction of opportunity for recovery of fairy shrimp.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize incidental take of fairy shrimp:

1. The impact of habitat loss to vernal pool species shall be minimized;
2. Loss of listed vernal pool habitat shall be confined to the proposed project site, and habitat and associated upland remaining on site shall be protected from adverse impacts;
3. Loss of vernal pool fairy shrimp (adults and cysts) shall be minimized;
4. The baseline condition for vernal pool species shall be adequately tracked to ensure that impacts to vernal pool wetland and vernal pool complex habitat do not exceed the parameters of this Opinion; and
5. Actions to conserve and/or restore vernal pool complex shall be adequately tracked to ensure these actions result in a net gain of vernal pool complex function and value compared to baseline conditions.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the following terms and conditions, which implement the reasonable and prudent measures described above, must be complied with:

Monitoring and Reporting of Effects

1. Real-time reporting and periodic post-facto reviews of activities covered under components 1-3 of the Description of the Proposed Action will be necessary for the Service to adequately monitor implementation of this Opinion. These activities will be mostly related to Agency Permits and agency approval of mitigation banks, credits, and projects.

    - Within 90-days of implementation of this Opinion or at the time of Issuance of a RGP by the Corps, whichever occurs later, the Service and the agencies will have collaboratively developed and be ready to implement procedures and products necessary for the above.

2. For components 4-6 of the Description of the Proposed Action, reporting will occur as described under Approval and Implementation of Mitigation Projects (#2), Voluntary Restoration and Enhancement Actions, and Projects Not Covered Under Agency Permits.

Best Management Practices

The following guidelines and best management practices (BMPs) will be applied in the design, planning and implementation of development, restoration, and protection/conservation actions in VPC habitat.

General Practices

1. A formal project plan developed by project developers/applicants and approved by the Service will dictate and guide the activities of all projects. The project plan will be adequate to enable a project-level assessment by the Service of impacts to VPC habitat and species and consistency with this Opinion. The project plan will include all relevant BMPs described below and other elements described previously in this Opinion for the type of project that will occur.

2. All on-site construction personnel will receive instruction regarding the presence of listed species and the importance of and methods for avoiding impacts to these species and their habitat.

3. Actions undertaken on or near habitat that is intended or required to be protected must not adversely affect such habitat. Actions that have substantial potential to produce such adverse effects, and that will need to be eliminated or designed specifically to preclude these effects in order to be in compliance with this Opinion include: (a) alteration of existing topography or any other alteration or uses for any purposes, including the exploration for or development of mineral extraction; (b) placement of new structures; (c) dumping, burning, and/or burying of rubbish, garbage, or other wastes or fill materials; (d) building of new roads or trails; (e) killing, removal, alteration, or replacement of existing native vegetation; (f) placement of storm water drains; (g) fire protection activities not required to protect existing structures at the project site; and (h) use of pesticides, herbicides or other toxic chemicals.

4. Earth work will only occur during the dry summer months (i.e., from July 1 to September 30) to minimize the potential for both direct (e.g., surface destruction) or indirect (e.g., siltation or sedimentation) impacts to the site.

5. Fencing adequate to prevent impacts from vehicles during management activities will be placed and maintained around any vernal pool complex habitat that is intended or required to be protected. The construction contract specifications will require that tracked vehicles used for excavation of fill material will not enter any vernal pools on- or off-site; only rubber-tired vehicles may enter identified vernal pools and only during the dry season. If needed, heavy equipment (i.e., trucks, backhoes) will only have access to upland sites to prevent damage to sensitive habitat. A wetland biologist or soil scientist with local knowledge and experience working with vernal pool restoration on the Agate-Winlo soil complex will be on-site during periods of any construction activities in the restoration area or in the immediate vicinity of the mounded swale complexes to ensure compliance with all guidelines. This individual need not be present during construction only taking place on the development site.

6. A site sediment and erosion control plan will be prepared and implemented by a soil scientist and/or a qualified wetland biologist to prevent any sediment from entering adjacent vernal pools during and after construction and management actions. A copy of the site sediment and erosion control plan will be part of the permit application package.

7. Soil inoculum will be taken prior to construction/impacts from all pre-existing pools and depressions that have potential to support populations of vernal pool fairy shrimp. These samples will then be introduced into pools throughout the restoration area to transfer potential cysts into the restored habitat. Soil samples will be collected and dispersed by a qualified wetland biologist following the methods outlined by the Service below.

8. Native, naturally-occurring topsoils and any associated biological layers or cryptobiotic crusts will not be destroyed or buried, and the underlying duripan not disturbed during any grading activities. Waste fill material removed from a swale or pool will be hauled away to a designated upland disposal site.

Native Plant and Weed Management

1. All equipment will be washed before entering the restoration area.

2. Treatment for control of noxious and invasive weeds will occur through hand pulling, or other approved, hand-operated, mechanical means.

3. The upland mounds (except for sensitive and endangered species areas) will be hand raked only where appropriate to facilitate new seeds to germinate in early autumn (after minor rainfall). The upland mounds will be seeded with bunch grass and native forbs, such as Lemon's needlegrass, lupine, etc., (See Table 8).

4. Hand-collected native seed, obtained from local sources will be broadcast in the vernal pools, if necessary. The seeding and any hand raking deemed necessary will only occur during the fall after excavation, just prior to the rainy season (for best germination and survival). (See Table 8 for proposed seeding mix information)

5. A noxious weed management plan will be developed for the entire project area pursuant to the details outlined in the mitigation plan within six months of the start of construction.

a. Before the noxious weed management plan is developed, a list of primary target species will be identified (Table 9).

b. Before implementation, the final noxious weed management plan will be reviewed and approved by the Service.

Herbicide Use

As noted above, use of pesticides, herbicides or other toxic chemicals is an action with substantial potential to adversely affect habitat that is intended or required to be protected and, for this reason, treatment for control of noxious and invasive weeds is expected to occur through hand pulling, or other approved, hand-operated, mechanical means. However, in some situations such methods may not be effective and limited herbicide use may be appropriate. This will occur only following concurrence from the Service and subject to practices that minimize adverse impacts, including distance thresholds from pools or certain native or listed species, spot spray application, consideration of weather conditions, etc.

Scheduled Maintenance or Repairs

1. Any scheduled maintenance or repairs to the project area will be completed before the onset of the following rainy season. The wetland consultant will recommend the nature of the required corrective actions.

2. Any replacement plantings will be installed during the following dormant season.

3. Any amendments to the project plan will be documented and submitted to the regulatory agencies for review and approval.

Table 8. Seed mixtures and plantings to be utilized for vernal pool restoration areas[16].

Vernal Pool Mitigation Plantings		
Common / Scientific Name	Planting	Anticipated Quantity
Vernal Pools		
Western mannagrass (*Glyceria occidentalis*, OBL)	Seed	1.0 lbs. /acre
Saccate foxtail (*Alopecurus saccatus*, OBL)	Seed	1.0 lbs. /acre
Annual hairgrass (*Deschampsia danthoniodes*, OBL)	Seed	1.0 lbs. /acre
Cascade downingia (*Downingia yina*, OBL)	Seed	0.25 lbs. /acre
Water foxtail (*Alopecurus geniculatus*, OBL)	Seed	0.5 lbs. /acre
Coyote thistle (*Eryngium petiolatum*, OBL)	Seed	0.5 lbs. /acre
Stipitate popcornflower (*Plagiobothrys stipitatus*, OBL)	Seed	0.5 lbs. /acre
White brodiaea (*Triteleia hyacinchina*, FAC)	Seed/bulb	0.5 lbs. /acre
California goldfields (*Lasthenia californica*, FACU)	Seed	2.0 lbs. /acre

16 Plantings in this table are a guide. Other native species of local-provenance, include all guilds (grasses, forbs, annuals, perennials, early-mid-late season nectar producers to support viable pollinator species, etc.) may be appropriate.

UPLAND MOUND / MITIGATION BUFFER		
Buckbrush (*Ceanothus cuneatus*, NL)	Bareroot	
California brome (*Bromus carinatus*, NL)	Seed	4.0 lbs. /acre
California oatgrass (*Danthonia californica*, NL)	Seed	2.0 lbs. /acre
Roemer's fescue (*Festuca roemeri*, NL)	Seed	4.0 lbs. /acre
Two-colored lupine (*Lupinus bicolor*, NL)	Seed	1.5 lbs. /acre
Fitch's tarweed (*Hemizonia fitchii*, NL)	Seed	2.0 lbs. /acre
California goldfields (*Lasthenia californica*, FACU)	Seed	2.0 lbs. /acre
Lemmon's needlegrass (*Achnatherum lemmonii*, NL)	Seed	2.0 lbs. /acre
Purple clarkia (Clarkia purpuria, NL)	Seed	0.5 lbs/acre
Rusty popcornflower (*Plagobothrys nothofulvus*, NL)	Seed	0.5 lbs/acre

Table 9. Non-native, invasive plant species common to the Agate Desert vernal pool area.

Species	Method of Control
1. Yellow star thistle (*Centaurea solstitialis*)	Multiple hand removal, mowing or burning efforts (between June 1 and August 1); managed grazing; herbicide use[2]; and/or native plant re-seeding.
2. Medusahead (*Taeniantherum caput-medusae*)	Mowing or burning in spring (In May); managed grazing; and/or native plant re-seeding.
3. Curly dock (*Rumex crispus*)	Hand removal, mowing or burning (between May 15 and July 15); managed grazing; herbicide use[17]; and/or native plant re-seeding.
4. Seaside barley (*Hordeum marinum* ssp. *gussonianum*)	Frequent hand removal, mowing or burning (between May 15 and June 15); herbicide use[2]; managed grazing; and/or native plant re-seeding.
5. Stork's bill, fillary (*Erodium cicutarium/Erodium botrys*)	Frequent hand removal, mowing or burning (between May 1 and June 15); managed grazing; herbicide use[2]; and/or native plant re-seeding.
6. Italian rye grass (*Lolium multiflorum*)	Frequent mowing or burning (between June 1 and August 1); managed grazing; herbicide use[2]; and/or native plant re-seeding. Do not till.
7. Russian thistle, tumbleweed (*Salsola kali*)[18]	Hand removal, mowing or burning (between June 1 and September 1); managed grazing; herbicide use[2]; and/or native plant re-seeding.
8. Milk thistle (*Silybum marianum*)	Hand removal, mowing or burning (between May 1 and June 15); managed grazing; herbicide use; and/or native plant re-seeding.

Vegetation Sampling

1. Vegetation will be sampled to acquire the following data at sample plots or points:
    a. Relative (see definitions) percent cover of vegetation,
    b. Percent cover of exposed substrate (indicate soil, rock),

17 Herbicide use will require concurrence from the Service.

18 Russian thistle, while not prevalent in vernal pool habitat, could become a threat and should be managed when documented.

c. Relative (see definitions) percent cover of native, non-native, or non-native invasive plant species,
d. Relative percent cover of dead plant material (indicate leaves, thatch, woody debris), and
e. Relative percent cover of vegetation types (indicate grass, herb, moss, algae, etc.).

2. Vegetation results acquired from any third-party random sampling will corroborate with vegetation data results at the subject habitat.

3. Annual sampling will occur for five years after the completion of the initial restoration phase of the project. Monitoring site visits will be completed as necessary to evaluate the success of the project and identify corrective measures necessary to meet performance criteria to be attained by the end of the post-construction five-year maintenance and monitoring period.

4. Seeding success will be measured by visually estimating percent vegetative cover for each plant species observed within a five-foot radius for herbaceous ground cover. Tree and shrub success will be evaluated using stem counts.

5. A vegetation sampling report will be compiled each year and provided to the Service within 90 days of the conclusion of sampling. The report will include:

   a. A description of methods used to sample vegetation,

   b. Native vegetation establishment goals and status (as compared to the plant and weed composition of a reference site),

   c. Non-native invasive plant goals and status,

   d. A complete list of plant species encountered during the vegetation monitoring,

   e. Photographs and description of photo locations (permanent photo locations to document onsite conditions for progress and comparative purposes),

   f. A tabulation of the sum total of vegetation percent cover at each habitat type, indicating:

      i. Relative percent cover of vegetation.

      ii. Percent cover of exposed substrate.

      iii. Relative percent cover of native, non-native, or non-native invasive plant species.

      iv. Relative percent cover of dead plant material.

      v. A tabulation of target functions and values to demonstrate if goals are being met.

Fairy Shrimp Sampling

1. Except as otherwise approved by the Service, will be conducted consistent with vernal pool fairy shrimp survey and sampling procedures described at:

   http://www.fws.gov/oregonfwo/FieldOffices/Roseburg/Documents/Guidance-vernalpool-June08.pdf

2. Sampling for the presence of fairy shrimp will be conducted after the restoration phase as part of a monitoring program. This sampling will be conducted to recognized standards by a qualified individual and reported to the Service.

Vernal Pool Restoration Inoculum Collection

1. Collection of soil from vernal pools will not be conducted at any project site unless the surveyor receives prior written permission from the Service.

2. The following inoculum collection protocol will be utilized:

   a. Inoculum will be collected when it is dry to avoid damaging or destroying fairy shrimp cysts. A hand trowel or similar instrument will be used to collect the soil. Whenever possible soil will be collected in chunks. The trowel will be used to pry up intact chunks of soil rather than loosening soil by raking or shoveling. Criteria for the appropriate quantity of inoculum to be collected will be specified through coordination with the Service. Soil will not be collected from any ponds until approved by the Service.

   b. The soil from each pond will be stored individually in labeled bags or boxes that are adequately ventilated and archived out of direct sunlight to avoid the occurrence of fungus or excessively heating the soil.

   c. A minimum of 24 soil samples of approximately one square foot by approximately one inch in depth (144 cubic inches, or 2,360 cubic centimeters) each should be taken from each pool (see Figure 8), for a total sample volume of approximately 2 cubic feet (0.06 cubic meters) per pool. In the case of a large vernal pool (>0.05 acres), the Service may authorize the removal of more than 2 cubic feet of soil. If a pool has a diameter of less than 3 meters (~10 feet), the total soil sample taken should not exceed one cubic foot per pool.

   d. Samples should be collected from the following locations (See Figure 8):

      i. At least 8 soil samples should be taken from equidistant points along the longest transect of the pool, including a minimum of 1 sample from the edge of the pool.
      ii. At least 6 soil samples should be taken from equidistant points along the widest transect of the pool, including a minimum of 1 sample from the edge of the pool.

iii. If neither the longest nor widest transect encompasses the deepest part (or parts) of the pool, then at least 2 soil samples should be taken from the deepest part (or parts) of the pool.

iv. The remaining soil samples should be taken from pool edges; additional locations in the deepest part of the pool, and/or along the aforementioned transect lines.

e. The soil samples should be stored individually in paper bags or boxes labeled with the specific location within the pool from where each sample was taken. The paper bags or boxes containing the soil samples should be adequately ventilated and kept out of direct sunlight in order to prevent the occurrence of fungus or excessively heating the sample. A sketch of the pool showing the specific location of each sample should be included as documentation.

f. The sampler should provide the Service with all of the following information in writing for each sample site at least ten (10) working days prior to the anticipated start date of the collection work:

i. The precise location of the project site clearly delineated on either an original or high quality copy of a U.S. Geological Survey topographic map (exact scale, 7.5 minute, 1"=2,000 feet). The map should contain the project name, estimated area (acreage) of the project site and an estimated number or area (acreage) of pools/swales on the site, quad name, and county name.

ii. The names of all vernal pool biologists and associated personnel associated with the active collection of the samples.

g. The sampler should provide the Service the following information in writing no more than sixty (60) calendar days after completing the dry collection sampling:

i. The location of the project site clearly delineated on an original or high quality copy of a U.S. Geological Survey topographic map (1.5 minute, 1"=2,000 ft.)

ii. Two representative photographs illustrating the general landscape of each vernal pool site at the time of sampling. The following information should be legibly written on each slide with permanent ink: precise location on the project site, direction from which the photograph was taken, date of photograph, and initials of photographer.

iii. Careful labeling and record keeping are an important part of the collecting. Data collected during the collection visit, including: date, air temperature, weather conditions, average and maximum depth of each pool/swale, size (area in square meters) of each pool. A photograph of each pool for a visual record of the habitat type should also be included. Photographs should include a pool number, date, and brief description on the back of the photo.

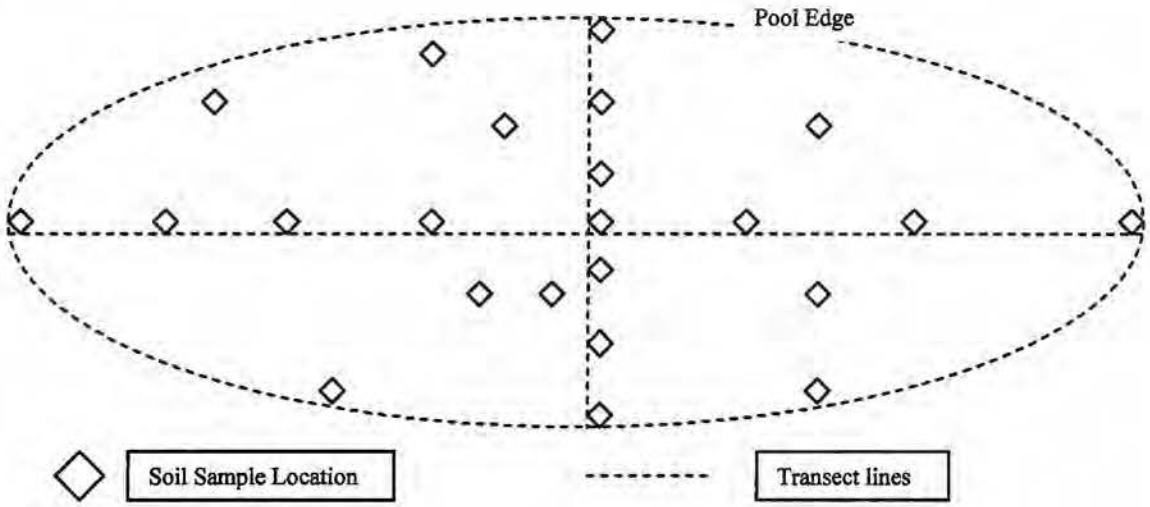
iv. Samples should be stored in a safe, cool, dry place, preferably in the dark.

v. Samples shall be stored a maximum of one season (year).

h. Specific circumstances may justify or necessitate revision of these survey guidelines. At the discretion of the Service, such a variance may be allowable under these guidelines if (1) the permittee explains in writing why a variance to the guidelines is needed, and (2) the Service concurs, in writing, with the variance request.

3. This soil collection protocol should not be used for collection of dry season cysts samples.

Figure 8. Location of possible soil samples for restoration activities (see sample location information).



Listed Plant Seed Collection and Restoration Methodology

Augmenting existing listed plant populations and establishing listed plants into new areas through seed is a more effective and preferable method than plant salvage and relocation. Relocation of the two listed plants has never been successfully achieved and is problematic due to difficulties in keeping plant tap roots intact and maintaining annual plants in restored habitat. Planting of seeds is also a more cost-efficient method than transplanting greenhouse grown plants.

Unless otherwise authorized by the Service in writing, this guidance will be utilized for seed collection of Cook's lomatium and large-flowered woolly meadowfoam in the Agate Desert area for purposes of seed storage at an approved facility or for restoration efforts:

1. The Service must receive and approve a seed collection plan prior to all seed-collection efforts. The entity conducting seed collection will provide the appropriate Service office (see Service Contacts section) with all of the following information in the seed-collection plan in

writing for each project site at least 10 working days prior to the anticipated start date of seed collection efforts. A seed collection plan should include:

a. Names of plant species to be collected;
b. Purpose of seed collection;
c. Timing of collections;
d. Collection methods;
e. Desired amount of seed;
f. Precise location of source populations and restoration site, preferably transmitted as an electronic file in a GIS format (preferably reported in UTM Zone 10 NAD 83 (Meters) coordinates), or clearly delineated on either an original or high quality copy of a U.S. Geological Survey topographic map (exact scale, 7.5 minute, 1"=24,000 ft.) with the quad name clearly indicated. Other information needed includes: (1) project name; (2) name of county in which the project site is located; (3) type of project (e.g., urban development, agricultural development, seed collection for long-term storage); (4) the estimated acreage of the project site and an estimate of the number and acreage of vernal pools/swales on the site;
g. Names of all vernal pool biologists and associated personnel conducting field work and their section 10(a)(1)(A) permit number(s); and
h. Desired goal of restoration effort.

2. Seed Collection Guidelines— The amount of seed that can be collected in the field during one collection in one year is rarely sufficient to establish a new population without depleting a population's seed source. To achieve sufficient seed for population establishment, it is recommended to collect small amounts of seed over multiple collections in multiple years or to propagate seed in a greenhouse. For plant populations that are less than 100 plants, even moderate seed collection can be detrimental to the population.

a. Collect from plant populations with a minimum of 300 flowering lomatium plants or from 300 meadowfoam plants,
b. Collect from plant occurrence nearest to restoration site,
c. Collect few seed from many plants rather all seed from a few plants to maximize the genetic complement of the original population,
d. Collect several times within the year,
e. Collect in multiple years, and
f. Bulk seed in greenhouse or approved seed-bulking site if necessary to obtain enough seed for population establishment.
g. Gather loose seed from Cook's lomatium and seed (nutlet) clusters of meadowfoam.
h. Collect seed by hand. Loose seed from plants or from ground may be gathered by hand or assisted by hand-held harvesting tools such as flails and hoppers (seed containers).
i. All seed will be bagged immediately, kept dry, and stored in coolers immediately.

3. Seed Collection Reporting:

a. An annual status report on the success of plant establishment, growth, and monitoring will be required for 10 years. A status report will be provided to the Service within 90 days of a seed collection effort or the completion of restoration monitoring efforts that includes:

i. The seed collection methods and strategies (equipment used, number of collections, targeted size of population)
ii. Locations of plant occurrences from where seed was collected,
iii. The amount of seed collected,
iv. Restoration description (if initiated)
v. Status of restoration efforts (if initiated). This should include success of establishment and loss.

Grazing

Livestock grazing within vernal pool habitat areas may be used as a vegetation management technique to maintain or improve habitat conditions for plants and wildlife. Grazing can provide beneficial effects for vernal pool species and habitat. These include:

- Grazing vernal pool complexes during the wet season leads to increased inundation periods for the pools, which provides better growing conditions for the native vernal pool plants and a better environment for vernal pool invertebrates (Marty 2005).
- Creation of microdepressions that increase habitat diversity for vernal pool plants and animals (Barry 1998).
- Reduction of thatch build up leading to better completion of native plants (Borgias 2004).

1. To achieve these possible beneficial effects of grazing, the objectives of implementing a vernal pool grazing management strategy will include:

   a. Maintain or improve habitat conditions in and around vernal pools and associated mounds;
   b. Maintain or increase diversity of native plant species; and
   c. Reduce or control the presence of invasive, non-native plant species.

2. The following best management practices will be included in a vernal pool grazing strategy:

   a. Livestock grazing may include different age classes of cattle, sheep and/or goats. Making changes in livestock type could be effective. Sheep tend to select and crop vegetation differently than cattle. Changes in species and age class of livestock with different effects on soil and vegetation could be used to introduce variation that may offer relief from grazing related stresses or change the competitive dynamics between plant species.
   b. Livestock grazing should be late fall/winter/early spring (November 1 through April 30).
   c. Livestock stocking rates should be calibrated to rainfall and temperature patterns each year in order to control thatch buildup but not adversely affect target native species. In general, this may be possible at 1-2 cow/calf pair per acre. Spread over the normal six month grazing period this translates to 6 to 12 animal units. The total annual forage production on Agate Desert soils amounts to approximately 800 pounds per acre (NRCS 1994). This amount of forage is just over the estimated requirements for a cow and calf pair for a month (i.e. 780 lbs [26 lbs./day] / "animal unit month" (AUM)). However, the

specific stocking rate for any site should be developed and adjusted based on results from monitoring vegetation response.

d. Livestock grazing areas will not be used as livestock holding areas or feedlots.
e. Salt or nutrient blocks will be placed in containers to minimize soil contamination.
f. Supplemental livestock feeding will not be allowed.
g. Livestock access to watering facilities away from vernal pools.
h. Rest/rotation of grazing areas.

Reporting

1. Management activity notes will be developed and available for Service review.

2. Post-construction review of completed work will be conducted to verify that the project plan was properly implemented. The results of this review will be described in a report provided to the Service for review. This report will also include:

   a. Any deficiencies to the original plan will be noted; and recommendations provided as to how these deficiencies might be addressed; and
   b. As-built drawings and other relevant information documenting that authorized impacts were not exceeded.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as suggestions from the Service regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information.

The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibilities for these species:

1. The Service should fund and support efforts to provide incentives to private landowners willing to conserve and protect vernal pool habitat in the Agate Desert area.

2. The Service should seek opportunities to partner with state and local governments in Jackson County to promote conservation and recovery efforts benefiting vernal pool associated species.

3. The Service should seek opportunities to introduce meadowfoam and lomatium seeds or plants onto willing private landowners properties. An assessment of the potential introduction site should include soil type, local hydrologic conditions and ability to sustain a viable local population over the long term (10 to 20 years).

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the project described in this biological opinion. As provided for in 50 CFR §402.16, reinitiation of formal consultation is required where

discretionary federal agency involvement or control over the action has been maintained (or is authorized by law), and if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take should cease pending reinitiation.

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U.S. Department of Transportation
Federal Highway Administration

Oregon Division

530 Center St.NE, Suite 100
Salem, Oregon 97301
(503)399-5749
(503)399-5838(fax)
www.fhwa.dot.gov/ordiv

December 21, 2010

In Reply Refer To:
HEO.3-OR

Mr. Kim Kratz
Oregon State Habitat Director
National Marine Fisheries Services
1201 NE Lloyd Boulevard, Suite 1100
Portland, Oregon 97232

RE: Oregon Highway 62 Corridor Solutions Project, I-5 to Dutton Road, Key # 13226
Biological Assessment Submittal

Dear Mr. Kratz:

Enclosed is a Biological Assessment (BA) to address the potential effects of the Oregon Highway 62 Corridor Solutions Project, I-5 to Dutton Road for compliance with Section 7 of the Endangered Species Act (ESA). The BA was prepared by a consultant and reviewed by the Oregon Department of Transportation (ODOT). The project is being partially funded by the Federal Highway Administration (FHWA), thus constituting the federal nexus for this project. ODOT, on behalf of FHWA, is responsible for project management and the administration of funds for the project. FHWA requests formal consultation for the project.

This BA presents a **may affect, likely to adversely affect** determination for the Southern Oregon/Northern California Coast (SONCC) ESU Coho salmon and also addresses Essential Fish Habitat as required under the Magnuson-Stevens Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267). This action **may affect, but would not likely adversely modify** designated critical habitat for the SONCC ESU Coho salmon. The conservation measures described in the submitted BA would limit any potential project-related effects to the project vicinity, and any negative impacts would be temporary, not resulting in any net change in function of the existing riparian habitat for the SONCC ESU Coho salmon.

We kindly request that you reference Federal-Aid # S002(022)/ODOT Key # 13226 on correspondence related to this project. Pre-consultation on this project began with Tom Loynes of your Southwest Oregon Habitat Branch in December 2008.

We appreciate you processing the biological opinion and EFH concurrence or recommendations no later than 135 days from receipt of this letter and accompanying BA. **If NMFS is not able to meet this timeline, please notify FHWA and ODOT as soon as possible, with an estimated date for delivery of the biological opinion.** If you have any questions, please contact Anna Henson, ODOT Region 3 Environmental Project Manager at 541-774-6376.

Sincerely,

Chris M. Bucher
Operations Engineer

Enclosure: Biological Assessment

cc, w/o encl:
NMFS (Tom Loynes, ODOT Liaison)
ODOT (Anna Henson, Region 3 Environmental Project Manager)
(Dick Leever, Project Leader)

CMB/rm

U.S. Department of Transportation
Federal Highway Administration

Oregon Division

530 Center Street NE, Suite 420
Salem, Oregon 97301
503-399-5749
503-399-5838 (fax)
www.fhwa.dot.gov/ordiv

October 20, 2011

In Reply Refer To:
HEO.3-OR

Mr. Kim Kratz
State Habitat Director
National Marine Fisheries Services
1201 NE Lloyd Boulevard, Suite 1100
Portland, Oregon 97232

RE: Oregon Highway 62 Corridor Solutions Project, I-5 to Dutton Road
Biological Assessment **Revision**
ODOT Key # 13226; Federal-Aid # S022(022)

Dear Mr. Kratz:

On December 21, 2010, the Federal Highway Administration (FHWA) requested formal consultation with the National Marine Fisheries Service (NMFS) for the Oregon Highway 62 Corridor Solutions project (Federal-aid #SO22(022)/ODOT Key #13226) and submitted a Biological Assessment. FHWA determined that the proposed project was likely to adversely affect Southern Oregon-Northern California Coho Salmon (Oncorhynchus kisutch) and their designated critical habitat. ODOT is now proposing the replacement of two additional culverts where Highway 62 crosses Lone Pine Creek as described in the enclosed Amendment. The new box culverts will meet the Oregon Department of Fish and Wildlife's fish passage criteria and will meet the SLOPES IV fluvial performance standard.

FHWA is requesting that the proposed culvert replacements be considered in combination with the original Section 7 consultation for the project. We believe the addition of the culvert replacements will not change the original project effect determinations. If you have any questions, please contact Anna Henson, ODOT Region 3 Environmental Project Coordinator at 541-774-6376.

Sincerely,

Chris M. Bucher
Operations Engineer

Enclosure: Biological Assessment Revision

cc, w/o encl:
NMFS (Tom Loynes, ODOT Liaison)
ODOT (Anna Henson, Region 3 Environmental Project Coordinator)
(Dick Leever, Project Leader)

CB/rm

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:
NWR-2010-6163

March 20, 2013

Phillip Ditzler
FHWA Division Administrator
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, Oregon 97301

Re: Endangered Species Act Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Conservation Recommendations for the Dutton Road Highway 62 Corridor, Middle Rogue River (5th field HUC: 1710030801-Bear Creek) and the Upper Rogue River (5th field HUC 1710030708-Little Butte Creek), Jackson County, Oregon (Federal ID # X-NH S022(022)) (Key Number #13226)

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 Federal Highway Administration's (FHWA) proposed funding for the construction of the Highway 62 Corridor Project 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 SONCC coho salmon (*Oncorhynchus kisutch*) or result in the destruction or adverse modification of designated critical habitat 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 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 three 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 in the Oregon State Habitat Office at 541.957.3380.

Sincerely,

for William W. Stelle, Jr.
Regional Administrator

cc: John Raasch, ODOT
Michelle Eraut, FHWA
Anna Hensen, ODOT
Doug Sharp, ODOT

Endangered Species Act Biological Opinion
and
Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Response
for the

Dutton Road Highway 62 Corridor
Middle Rogue River (5th field HUC: 1710030801-Bear Creek) and the Upper Rogue River (5th field HUC 1710030708-Little Butte Creek)
Jackson County, Oregon
(Federal ID # X-NH S022(022)) (Key Number #13226)

NMFS Consultation Number: NWR-2010-6163

Federal Action Agency: Federal Highway Administration

Affected Species and Determinations:

ESA-Listed Species	**ESA Status**	**Is the action likely to adversely affect this species or its critical habitat?**	**Is the Action likely to jeopardize this species?**	**Is the action likely to destroy or adversely modify critical habitat for this species?**
Southern Oregon and Northern California Coast coho salmon	T	Y	N	N

Fishery Management Plan that Describes EFH in the Action Area	**Would the action adversely affect EFH?**	**Are EFH conservation recommendations provided?**
Pacific Coast Salmon	Y	Y

Consultation
Conducted By: National Marine Fisheries Service
Northwest Region

Issued by: for William W. Stelle, Jr.
Regional Administrator

Date: March 20, 2013

TABLE OF CONTENTS

1. INTRODUCTION 2
1.1 Background 2
1.2 Consultation History 2
1.3 Description of the Proposed Action 2
1.4 Action Area 11
2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT 14
2.1 Approach to the Analysis 14
2.2 Range wide Status of the Species and Critical Habitat 16
2.2.1 Status of Listed Species 16
2.2.2 Status of Critical Habitat 28
2.3 Environmental Baseline 33
2.3.1 Species within the Action Area 38
2.3.2 Critical Habitat within the Action Area 40
2.4 Effects of the Action on Species and Designated Critical Habitat 41
2.4.1 Effects on the Environment 41
2.4.2 Effects to Species within the Action Area 44
2.4.3 Effects to Critical Habitat within the Action Area 48
2.5 Cumulative Effects 49
2.6 Integration and Synthesis 51
2.7 Conclusion 52
2.8 Incidental Take Statement 52
2.8.1 Amount or Extent of Take 53
2.8.2 Effect of the Take 55
2.8.3 Reasonable and Prudent Measures 55
2.8.4 Terms and Conditions 55
2.9 Conservation Recommendations 60
2.10 Reinitiation of Consultation 61
3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT 61
3.1 EFH Conservation Recommendations 62
3.2 Statutory Response Requirement 62
3.3. Supplemental Consultation 63
4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW 63
5. LITERATURE CITED 65
Appendix A. ODOT's Stormwater BMP Maintenance Tables 72

1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3 below.

1.1 Background

The National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) and incidental take statement portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531, et seq.), and implementing regulations at 50 CFR 402.

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801, *et seq*.) and implementing regulations at 50 CFR 600.

The opinion, incidental take statement, and EFH conservation recommendations are each in compliance with the Data Quality Act (44 U.S.C. 3504(d)(1) *et seq*.) and they underwent pre-dissemination review.

1.2 Consultation History

This biological opinion is based on information provided in the biological assessment (BA) received on December 23, 2010, from the Federal Highway Administration (FHWA) for an ESA section 7 formal consultation on its proposed funding of the construction of the Highway 62 Corridor Project. On January 1, 2012, FHWA submitted an amendment to the BA, which included additional components to the project. This Opinion is based on the information presented in the BA, the BA amendment, site visits, project meetings, and discussions with Ms. Anna Henson, an Environmental Project Manager for the Oregon Department of Transportation (ODOT) and Mr. Doug Sharp, a biologist with ODOT. The action area involves a section of the middle and upper Rogue River Basin, near Central Point, Oregon.

The FHWA determined that Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*) occur within the project area. The FHWA, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect SONCC coho salmon and not likely to adversely modify SONCC coho salmon critical habitat. This Opinion is based on the information presented in the BA and the BA amendment and developed through correspondence to obtain additional information and clarity.

1.3 Description of the Proposed Action

The FHWA proposed to fund transportation improvement project to be carried out by ODOT. The purpose of the proposed action is to address current and future highway capacity needs, improve intersection operations and provide enhanced transportation safety and multimodal (vehicle, mass transit, bike pedestrian paths, and rail) opportunities in the Highway 62 Corridor from I-5 in Medford, Oregon north to West Dutton Road in White City, Oregon. Highway 62 serves an important role in the state's transportation network; however, increasing traffic

volumes are causing congestion and delays, and safety statistics show that some parts of Highway 62 exceed statewide crash rates. In addition, there are limited provisions for multimodal operations on Highway 62.

Project Overview

The following section summarizes the proposed action, with an emphasis on Project components bearing on aquatic habitats and fisheries resources. A complete description of the proposed action is included in the Highway 62 Corridor Solutions Project - Aquatic Resources Technical Report (URS 2010b). The following discussion details the two Build Alternatives and three Design Options under consideration in the Draft Environmental Impact Statement (DEIS), as well as the construction phasing, which includes the Oregon Jobs and Transportation Act (JTA) phase, identified as the initial construction phase. The JTA phase can be constructed, regardless of which Build Alternative or Design Option is selected as the Preferred Alternative.

In general terms, the two build alternatives vary in how they convey traffic from I-5 onto Highway 62 and the proposed Bypass. The following sections discuss each Build Alternative in detail.

Split Diamond Build Alternative

The Split Diamond (SD) alternative involves providing direct access to the Bypass via a new interchange with I-5. The new interchange would require construction of two new, single-lane bridges over Bear Creek (tributary of the Rogue River) to carry the new I-5 northbound on-ramp and southbound off-ramp. The SD Alternative is the only Build Alternative that construction activities in proximity to Bear Creek.

Impacts to aquatic environments associated with construction of the SD Alternative include the following:

- Two new, single-lane bridges constructed over Bear Creek.
- Two temporary, construction bridges.
- Hydroacoustic effects, assuming pile driving is required for installation of new and temporary bridges. All pile driving will be outside of the channel, however, adjacent to the bank.
- Work area isolation/fish salvage of approximately 1,140 linear feet (28,500 square feet) of Bear Creek (up to four instances, once for each bridge), assuming pile driving is required for installation of new and temporary bridges.
- Loss of approximately 0.6 acres (431 linear feet) of riparian vegetation.
- Creation of approximately 12.29 acres of net new impervious surface area with contributing impervious surface area (CIA) of approximately 69 acres, necessitating between approximately 0.6 and 2.0 acres of treatment area.

Directional Interchange Build Alternative

The DI Alternative is a limited-access Bypass located west of Highway 62. The DI Alternative would not require any construction over/in Bear Creek, but will create impervious surface area in the Bear Creek drainage.

Impacts to aquatic environments associated with construction of the DI Alternative are limited to the following:

- Creation of approximately 12.29 acres of net new impervious surface area with CIA of approximately 40 acres

Common Design Features of the Build Alternatives (Commerce Drive to Dutton Road)

Stream Crossings

The proposed project involves the replacement of multiple existing culverts, new stream crossing culverts, and one segment of stream realignment. In order to be conservative about potential project impacts, this assessment assumes that the Build Alternative with the greatest impacts will be forwarded from the DEIS as the Preferred Alternative and the Design Option with the greatest number of crossings/size of crossings will be selected. While this is not likely to occur, by assessing impacts based on this assumption, actual project impacts will be less than assessed in this document. In-stream work covers a broad array of specific construction activities. Anticipated activities that will require work in the wetted, active channel are limited to realigning stream segments, installing new or replacement culverts, or conducting fish removal/salvage activities.

Lone Pine Creek Stream Realignment

Lone Pine Creek will be realigned from Highway 62 north (downstream) to the Rogue Valley International - Medford Airport's interior circulation road. This segment is approximately 400-feet in length and includes a culvert under the Medco Haul Road. Realignment is necessary to achieve the grade change between portions of Highway 62 and the proposed Bypass, which is aligned along the Medco Haul Road, without creating a fish passage barrier.

Lone Pine Creek, in this location, is channelized in a 400-foot long concrete-lined ditch, including a 40-foot culvert under the Medco Haul Road. This portion of the creek has no meanders and sparse to absent riparian vegetation. The new alignment will consist of the following components: a 300-foot long segment between Highway 62 and the Bypass, a 100-foot long segment culverted under the Bypass in a 12-foot by 6-foot box culvert, and a 60-foot segment between the Bypass and the airport's internal circulation road. All open segments of the stream will have a 12-foot bottom width comprised of native gravels and soils.

All open segments will be revegetated, though species selection will be restricted to prevent the new channel from attracting birds or waterfowl to comply with airport and FAA concerns. A revegetation plan will be developed concurrent with the FEIS. The new culverted reach will have embedded substrates to provide roughness and will be designed with a low flow channel to improve fish passage. The proposed culvert design meets NMFS' fluvial performance standards

of an opening that is more than 1.5 times the active channel width (ACW) for single-span structures. The ACW for the stream is seven feet; therefore, the culvert must have a minimum opening of 10.5 feet. The 12-foot opening exceeds our fluvial performance standard.

Limited-Access Bypass

The bypass would be located on the Medco Haul Road, approximately 2,400 feet west of and parallel to the existing Highway 62.

Between Justice and Gregory Roads, there are three Design Options (A, B, and C) under consideration. Each Design Option is common to both the SD and DI Build Alternatives, meaning that the selection of one alternative or the other will not influence which Design Option is preferred. The Design Options describe possible locations for a portion of the Bypass just north of Justice Road until it rejoins Highway 62 near Corey Road.

All three Design Options would include a directional interchange in the vicinity of the existing Highway 62/Agate Road intersection. The design options under consideration produce trade-offs between environmental impacts, particularly to vernal pool habitats, and financial and land use impacts to developed areas.

North of the Agate Road/ Highway 62 interchange, the Bypass would use the Agate Road right of way to avoid encroaching on the Denman Wildlife Management Area (WMA), would be elevated on fill and would cross over Antelope Road and Avenue G on structures. North of Avenue G, the Bypass would be located on a structure; after crossing over Avenue H, the Bypass would curve east, return to grade, and use the West Dutton Road right of way.

The Bypass would terminate in an interchange with the existing Highway 62 in the vicinity of the existing intersection of Highway 62 and West Dutton Road.

Local Street Modifications

The two Build Alternatives would include modifications to the local street network. In addition to those modifications described above, there would be modifications common to both Build Alternatives.

Rogue Valley International - Medford Airport Vicinity

The Rogue Valley International - Medford Airport currently has an internal circulation road around its perimeter. In places where the Bypass would use some of the right of way, this road would be realigned, with the new alignment located as close to the original alignment as possible. The bypass would necessitate the construction of surface street access to the cluster of buildings on the east side of the airport. At the southern terminus of Airway Drive, a new two-lane, east-west street, approximately 4,400 feet long, would be built, The new road would follow existing property boundaries and would require a new crossing over Upton Creek.

Vilas Road Vicinity

Vilas Road would be widened from its current three-lane cross section (one lane in each direction, plus a center turn lane) to five lanes between the existing Highway 62 and Table Rock Road. A number of local road improvements would be necessary to accommodate these changes, though the only effect on aquatic resources would result from the creation of net new impervious surface area.

White City Industrial Area

From the Agate Road interchange to a point just south of Avenue G, the Bypass would replace Agate Road. A number of local street improvements would be required to maintain freight mobility in this area, though the only effect on aquatic resources would result from the creation of net new impervious surface area.

Dutton Road Area

West Dutton Road would be displaced by the proposed bypass. A new frontage road would be built as a replacement. The new road would be located along the west and northwest edge of the Veterans Administration Southern Oregon Rehabilitation Center and Clinics (VA SORCC) property lines. The Bypass would cross three streams that are unnamed tributaries to Little Butte Creek, necessitating four new crossing structures and replacement of two existing crossing structures. The new frontage road would require one new crossing structure.

Construction Phasing

A project phasing plan will be included in the Final Environmental Impact Statement (FEIS), as details about the timing, design, and extent of future phases have not been determined yet.

JTA Phase Design

The JTA phase design is still being developed. The goal of the JTA phase is to build a bypass as far north as funding will allow. Design refinements are ongoing; as more detailed design information is available, more accurate cost estimates will be developed and engineers will be better able to assess the extent of the JTA phase design. In order to ensure that all potential impacts are evaluated and disclosed, our assessment assumes that the JTA phase would extend to Corey Road, its maximum possible extent.

The JTA phase would consist of a new limited-access Bypass using the alignments proposed in the Build Alternatives.

North of the proposed south terminus interchange, the bypass would use the Medco Haul Road following the same alignment as both build Alternatives, passing Commerce Drive and Coker Butte Road at grade. The JTA phase would cross over Vilas Road on an elevated structure, but would not include an interchange at Vilas Road. There would be no connection between the JTA phase and Vilas Road. The JTA phase would not include any of the changes to local roads in the vicinity of Vilas Road that are associated with the two Build Alternatives, nor would it include

widening Vilas Road. There would be no changes to existing driveways in the vicinity of Vilas Road.

As with the Build Alternatives, north of Justice Road there are three possible alignments: Design Options A, B, and C. The JTA phase alignment would be the same as the alignment of the Preferred Alternative identified in the DEIS, once selected. The three designs for the JTA phase would include an intersection with the existing Highway 62 where Agate Road and Highway 62 now intersect. The intersection design is still being developed, but it is likely to be a signalized intersection that provides for some free-flowing movements, as opposed to an interchange, which would allow complete free flowing transitions between the bypass and Highway 62.

Preliminary stormwater treatment design has only been completed for a portion of the project corridor. This designed segment is consistent with a portion of the JTA phase, extending from approximately Bullock Road in the south to approximately 1,000-feet south of the Vilas Road intersection. Within this designed segment, three bioretention facilities have been sited and sized to meet ODOT stormwater treatment criteria within the three drainage basins this design covers.

Future Phases

If the No Build Alternative is advanced from the DEIS as the Preferred Alternative, only the JTA phase of the project would be built. The JTA phase design would be refined but there would be no additional phasing plan, as the JTA phase would constitute the entirety of the project. If a Build Alternative is advanced as the Preferred Alternative, a detailed phasing plan will be developed. This phasing plan will include more definitive designs for the JTA phase and will also identify subsequent project phases during which the remainder of the proposed project would be constructed.

Split Diamond Alternative Construction Phasing

This assessment evaluates all Build Alternatives under consideration. The following information is based on conceptual-level design and very preliminary construction phasing. Construction methods have been conservatively estimated in approach and extent to allow for some modification in construction techniques while remaining within the range of effects considered in this Biological Opinion.

The new interchange necessitates placing the northbound onramp and the southbound off ramp from I-5 on new structures crossing Bear Creek. Consequently, a single lane structure will be constructed parallel and adjacent to the northeast and southwest sides of the existing I-5 bridges. In addition to the proposed new crossings, construction of the SD Alternative would require the construction of a single-lane, temporary work bridge located parallel to each new bridge. Installation of a temporary work bridge to the northeast (downstream) of the proposed I-5 onramp would necessitate removing and relocating an existing pedestrian footbridge associated with the Bear Creek Greenway Trail. Construction methods would follow ODOT specification for work over aquatic resources. As such, full containment of the bridges will be required during construction to prevent debris from entering the Bear Creek floodplain.

The limits of construction would be surveyed and flagged and “no work” areas within the limits of construction would be identified and demarked with flagging or fencing. Additionally, a

regulated work area would be established consistent with the delineated Ordinary High Water Elevation (OHWE). Activities within the regulated work area are restricted to specific construction tasks and may require approval from the project manager prior to execution of in-water work. Construction of erosion and sediment controls would be established in compliance with an approved Erosion and Sediment Control Plan (ESCP). Clearing of riparian vegetation within the limits of construction would occur, as needed, to accommodate the new, wider bridge structures and the temporary work bridges. Clearing would utilize equipment such as dozers, excavators, dump trucks, and possibly cranes or other specialized equipment to remove riparian trees. Large trees (≥ 12-inches diameter) removed from the riparian zone will be retained for use as in-stream restoration, either within the project corridor or another approved location.

Relocation of Bear Creek Greenway Trail Pedestrian Bridge

Construction of the new Bear Creek bridges would begin with the removal and relocation of the Bear Creek Greenway Trail Pedestrian Bridge. A new location has not been identified for the pedestrian bridge, but it would most likely be moved further downstream of the work area where it could easily tie into the existing trail on the east bank of Bear Creek. New abutments and interior bents would be installed in the new location to accommodate the existing bridge structure, and new trail along the western streambank would be installed to connect with the existing trail on this side of Bear Creek. The bridge will maintain its current configuration, spanning the wetted channel, but retaining one footing within the functional floodplain. The old abutments and bents would be removed from the 100-year floodplain to comply with the Federal Emergency Management Agency's (FEMA) balanced cut-fill and no-rise requirements.

Construction of the new interior bents may require pile driving, though the preferred installation method would be installation with a vibratory hammer or drilled shafts. The exact configuration and location of bents is currently unknown, but will comply with NMFS' fluvial performance standards (SLOPES IV 2008). Removal of the structure's existing bents will favor vibratory extraction. All work would need to comply with the ESCP and pollution control best management practices (BMP). The use of concrete and grout work proximate to aquatic resources may require additional containment. Use of impact hammers in proximity to Bear Creek, should they be necessary, will necessitate fish exclusion methods to minimize possible hydroacoustic impacts to protected species. Anticipated methods include establishing block nets within Bear Creek upstream and downstream of the zone where hydroacoustic impacts exceed the threshold for injury established by NMFS. Fish would then be removed from between the block nets using electrofishing techniques. Work will occur within ODFW's recommended in-water work window, which extends from June 15 through September 15 (ODFW 2008).

Construction of Temporary Work Bridges

Construction of the work bridges is included in our analysis to capture the widest range of possible impacts. The following construction methods are estimated and based on the existing level of design. The actual foundation type, number of piles, *etc*. will be determined during final design and after geotechnical explorations have been conducted.

Following relocation of the pedestrian bridge, construction of the temporary work bridges would commence. Construction would require clearing and grubbing of riparian vegetation of approximately 100 linear feet downstream (northeast) and approximately 70 linear feet upstream

(southwest) from the existing I-5 structures. The temporary work bridges will be comprised of four spans anticipated to be 20-feet in width by 50-feet in length. Both bridges would involve the installation of five (5) temporary bents, comprised of 12 piles per bent, within the floodplain of Bear Creek. The structures will span the wetted channel of Bear Creek, but will necessitate a temporary bent within the OHWE, which is within the estimated active channel width (ACW) of 80 feet. The final foundation design for the temporary footings has yet to be determined at this stage of design. However, conservative estimates would include the following two options: Driven piles: The work bridge would have 12 piles per bent, with five (5) bents total. At this time, it is unknown if a vibratory hammer can be used for installation of piles. This analysis assesses the use of an impact hammer. Proposed design would result in the installation of 24 piles per bridge being driven in proximity to the active channel and 12 piles within the active channel, but outside the wetted channel.

Spread footings: The interior bents (bents 2, 3, and 4) of the work bridge may be supported on spread footings. Anticipated dimension are likely 12-feet long, by four (4)-feet wide, by three (3)-feet deep. All footings would be located outside the wetted channel, but one footing would be required within the OHWE. Contact between green concrete and surface waters is not anticipated. However, should this method be selected, work area isolation measures consistent with ODOT's pollution control measures would be implemented.

Following construction of the temporary footings, the bridge piers would be constructed and the temporary decks installed. The bridges' approaches would then be connected to construction access and staging. The work bridge will require a stormwater collection system that connects to either an existing surface street system or to a temporary system. The work bridges will require full containment to prevent construction debris from falling into the creek.

All work will need to comply with the ESCP and pollution control BMPs. In particular, the use of concrete and grout work proximate to aquatic resources may require additional containment. Use of impact hammers in proximity to Bear Creek will necessitate fish exclusion methods previously described to protected species.

Construction of New I-5 Bridge Crossings

Following construction of the temporary work bridges, the footings for the new bridges would be constructed. The new bridges are three-span structures comprised of two exterior and two interior bents each. Span lengths are proposed in a 65-foot/85-foot/65-foot configuration, for a total length of 215 feet for each bridge. Exterior bents will be located out of the 100-year floodplain and interior bents will clear span the ACW, estimated at 80 feet, and the OHWE at the crossing locations. The functional floodplain width (2.2 x ACW) at the crossing locations is estimated at 176 feet, which is 39 feet less than the proposed structure width. Critical scour depth has not been determined at this stage of design.

Based on the current level of design, possible bridge footings would include one of the following three options:

- Driven piles: The new bridge would have six (6) 12-inch steel piles per bent, with four (4) bents total per bridge, driven to a maximum depth of 30 feet. At this time, it is

unknown if a vibratory hammer can be used for installation and removal of piles. This analysis assumes that an impact hammer would be used.

- Spread footings: The interior bent of the new bridge may be supported on spread footings. Anticipated dimension are likely 15-feet long, by 25-feet wide, by five (5)-feet deep. All footings would be located outside the OHWE, so contact between green concrete and surface waters is not anticipated. Selection of this method would necessitate work area isolation measures consistent with ODOT's pollution control measures.
- Drilled shafts: The new bridge would have four (4)-foot drilled shafts, with three shafts per bent, and a total of four bents.

Following construction of the new footings, the bridge piers would be constructed and the deck installed. The deck would then be paved and the bridge's approaches connected to I-5 and the Bypass interchange, respectively. Debris containment measures would then be removed from the new structures. The completed structure would then be connected to its new approaches and striped.

No in-water work would be required under the proposed approach. Use of impact hammers in proximity to Bear Creek will necessitate fish exclusion methods to minimize possible hydroacoustic impacts to protected species, as previously described.

Temporary Work Bridge Removal

Removal of the temporary work bridges will involve the removal of the deck sections, then removing the piles and/or spread footings. Debris containment and pollution control measures would then be removed. Piles will be removed using a vibratory hammer for extraction. Removal of piles located within the functional floodplain may necessitate fish exclusion methods, as previously described. Following removal, the banks and floodplain areas affected by the temporary bridges and surrounding the new bridges will be restored per the Site Restoration Plan.

Staging Areas and Access

Construction staging areas and construction access have yet to be identified for proposed activities. It is assumed that much of the staging for construction will be staged on existing roadway or adjacent impacted surfaces. No riparian tree removal is anticipated for staging and mobilization activities. It is also assumed that any staging areas will comply with the project's ESCP and will not constitute new impervious surface area within the action area. Similarly, construction access has not been developed at this stage of design. This assessment assumes that construction access will not require the creation of new impervious surface area within the action area and will comply with the project's ESCP and weed/invasive species control BMPs.

ODOT has committed to water quality treatment of all contributing impervious area (CIA) associated with the project. Should there be areas where stormwater treatment is not feasible or possible due to site constraints, ODOT will provide treatment to untreated impervious surface area located outside the project area as mitigation. Mitigation will be proposed on an acre for acre basin and at an equal to or greater ADT than the areas where treatment is not feasible.

Replacement of Lone Pine Creek box culverts

Currently, Lone Pine Creek flows beneath Hwy 62 in two 8-foot x 5-foot corrugated metal pipes (CMPs) that are approximately 170 feet in length. Active channel width is approximately 7 feet as measured below the existing culverts. Currently, water flows from the culverts into a concrete lined channel. As discussed in the BA, ODOT is proposing to realign the stream channel below the culvert. In doing so, ODOT will create a more natural stream bed using gravels and cobbles. ODOT is proposing to replace the 8-foot x 5-foot CMPs with two 10-foot x 6-foot reinforced concrete box culverts (RCBCs). The box culverts will be countersunk and approximately 1 foot of streambed material will be placed inside to match the existing flow line elevation. A custom formed concrete vault will transition flow from a 5-foot x 10-foot RCBC to the dual 10-foot x 6-foot RCBCs at the inlet. Wing walls will be constructed at the outlet along with a concrete apron. This will help to prevent down cutting and will also help hold the streambed material in the culvert. The new culverts will be approximately 50 feet longer than the existing culverts. This culvert will meet the NMFS fluvial standard for a multi-span structure.

1.4 Action Area

Action area means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). For this consultation, the action area is within the Middle Rogue River (5th field HUC: 1710030801-Bear Creek) and the Upper Rogue River (5th field HUC 1710030708-Little Butte Creek). The action area generally extends from the north end of the project at West Dutton road and an unnamed tributary to Little Butte Creek and follows the corridor south to the Bear Creek Bridge crossing at I-5. The action area on Bear Creek extends upstream and downstream 570 feet to account for direct and behavioral effects due to hydroacoustics. Downstream of Bear Creek, the action area extends to the Pacific Ocean due to the effects associated with stormwater. This section of the stream will be isolated with nets during pile driving activities.

Action area, due to work area isolation on the other streams with SONCC coho salmon presence are as follows:

1,140 linear feet in Bear Creek
630 linear feet in Lone Pine Creek,
400 linear feet Upton Creek,
275 linear feet in South Swanson Creek,
280 linear feet in North Swanson Creek, and
450 linear feet in Whetstone Creek.

The action area is used by adult and juvenile SONCC coho salmon for spawning, rearing and migration. SONCC coho salmon were listed under the ESA, protective regulations were issued on June 28, 2005 (70 FR 37160). Critical habitat was designated for SONCC coho salmon on May 5, 1999 (64 FR 24049). Chinook and coho salmon EFH is likely to be adversely affected by components of the project.

The “project area” is defined herein as all areas where project activities will occur and is alternately described as the “footprint” of all proposed activities. Specifically, the project area, as depicted in Figure 1, includes all areas where construction will occur, both new construction and

improvements to existing infrastructure; staging areas or other material storage areas; stormwater facilities and infrastructure, including new treatment facilities and updates to existing infrastructure.

The "action area" is defined by NMFS regulations as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 C.F.R. 402.02). As such, the proposed action includes all areas identified in the project area, but also the potential for upstream and downstream impacts from potential project impacts. The action area differs from the project area as follows:

- Potential downstream impacts from hazardous materials spills
- Potential downstream impacts from sedimentation and erosion
- Potential upstream and downstream impacts from pile driving hydroacoustic sources
- Potential upstream and downstream impacts from in-water work areas requiring fish salvage activities.

Erosion and sedimentation impacts and the potential for contaminants spills can result in downstream impacts outside the project construction footprint. The distance downstream in Bear Creek and other small streams in the project area would depend entirely on the nature, quantity, and duration of the contaminant introduced to the aquatic environment. Bell (1991), estimates that downstream effects from suspended sediment and turbidity can extend up to 1,500 linear feet from their point of introduction in small streams. This assessment uses Bell's estimate for possible downstream impacts as a conservative estimate for turbidity-related contaminants as well as highly volatile contaminants.

The potential use of pile driving techniques for the construction of footings for the Bear Creek bridge crossings associated with the SD alternative would potentially result in hydroacoustic effects extending upstream and downstream from the installation location (pile driving not occurring in the wetted channel). Following NMFS' guidance on hydroacoustic effects, it is assumed that hydroacoustic effects would extend, at most, 470 feet upstream from the edge of construction and no more than 320 feet downstream, based on the morphology of Bear Creek in the vicinity of proposed pile driving activities.

Work area isolation will be conducted on Bear Creek, during pile driving activities, should such methods be employed. Because the pile driving will occur upland, but adjacent to the stream, normal attenuation measures (*i.e.* bubble curtains) are not possible. However, since the piles will not be driven in the water, some attenuation will occur due to the intervening soils (attenuation is assumed to be comparable to a bubble curtain). The total length of stream that would need to be isolated to prevent injury to listed salmonids would be approximately 250 linear feet upstream and downstream from the pile driving location; total area is estimated at 20,000 square feet, based on an estimated wetted channel width of 40 feet. Habitat within this area is primarily comprised of riffles (~80%), with several lateral scour pools (~20%). The isolated work area to prevent behavioral effects to listed salmonids is estimated at 2,815 linear feet upstream and downstream of the pile driving activity. This distance is truncated by the geomorphology of the stream channel proximate to the bridge crossing, resulting in a total reach of 1,140 linear feet requiring isolation; total area is estimated at 28,500 square feet, based on an average wetted channel width of 25 feet.

Figure 1. Highway 62 Corridor Action Area (Downstream of Bear Creek the action area extends to the Pacific Ocean due to stormwater effects).

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with the United States Fish and Wildlife Service, NMFS, or both, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitat. Section 7(b)(3) requires that at the conclusion of consultation, the Service provide an opinion stating how the agencies' actions will affect listed species and their critical habitat. If incidental take is expected, section 7(b)(4) requires the consulting agency to provide an incidental take statement (ITS) that specifies the impact of any incidental taking and includes reasonable and prudent measures to minimize such impacts.

2.1 Approach to the Analysis

Section 7(a)(2) of the ESA requires Federal agencies, in consultation with NMFS, to insure that their actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. The jeopardy analysis considers both survival and recovery of the species. The adverse modification analysis considers the impacts on the conservation value of designated critical habitat.

"To jeopardize the continued existence of a listed species" means to engage in an action that would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02).

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 C.F.R. 402.02. Instead, we have relied upon the statutory provisions of the ESA to complete the following analysis with respect to critical habitat.[1]

We will use the following approach to determine whether the proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- *Identify the range wide status of the species and critical habitat likely to be adversely affected by the proposed action.* This section describes the current status of each listed species and its critical habitat relative to the conditions needed for recovery. For listed salmon and steelhead, NMFS has developed specific guidance for analyzing the status of the listed species' component populations in a "viable salmonid populations" paper (VSP; McElhany *et al.* 2000). The VSP approach considers the abundance, productivity, spatial structure, and diversity of each population as part of the overall review of a species' status. For listed salmon and steelhead, the VSP criteria therefore encompass the species' "reproduction, numbers, or distribution" (50 CFR 402.02). In describing the range-wide status of listed species, we rely on viability assessments and criteria in

[1] Memorandum from William T. Hogarth to Regional Administrators, Office of Protected Resources, NMFS (Application of the "Destruction or Adverse Modification" Standard Under Section 7(a)(2) of the Endangered Species Act) (November 7, 2005).

technical recovery team documents and recovery plans, where available, that describe how VSP criteria are applied to specific populations, major population groups, and species. For SONCC coho salmon we use the Technical Recovery Team's framework for assessing viability (Williams *et al.* 2008). We determine the range wide status of critical habitat by examining the condition of its physical or biological features (also called "primary constituent elements" or PCEs in some designations) – which were identified when the critical habitat was designated. Species and critical habitat status are discussed in Section 2.2.

- *Describe the environmental baseline in the action area*. The environmental baseline includes the past and present impacts of Federal, state, or private actions and other human activities *in the action area*. It includes the anticipated impacts of proposed Federal projects that have already undergone formal or early section 7 consultation and the impacts of state or private actions that are contemporaneous with the consultation in process. The environmental baseline is discussed in Section 2.3 of this opinion.
- *Analyze the effects of the proposed action on both species and their habitat*. In this step, NMFS considers how the proposed action would affect the species' reproduction, numbers, and distribution by considering, in the case of salmon and steelhead, their VSP characteristics. NMFS also evaluates the proposed action's effects on critical habitat features. NMFS will add the effects of the action to the environmental baseline (Section 2.3) and the cumulative effects (Section 2.4). The effects of the action are described in Section 2.5 of this opinion.
- *Describe any cumulative effects in the action area*. Cumulative effects, as defined in NMFS' implementing regulations (50 CFR 402.02), are the effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area. Future Federal actions that are unrelated to the proposed action are not considered because they require separate section 7 consultation. Cumulative effects are considered in Section 2.4 of this opinion.
- *Integrate and synthesize the above factors to assess the risk that the proposed action poses to species and critical habitat*. In this step, NMFS will assess whether the action, when added to the baseline and cumulative effects could reasonably be expected to: (1) appreciably reduce the likelihood of both survival and recovery of the species in the wild by reducing its numbers, reproduction, or distribution; or (2) reduce the value of designated or proposed critical habitat for the conservation of the species. These assessments are made in full consideration of the status of the species and critical habitat (Section 2.2). Integration and synthesis occurs in Section 2.6 of this opinion.
- *Reach jeopardy and adverse modification conclusions*. Conclusions regarding jeopardy and the destruction or adverse modification of critical habitat are presented in Section 2.7. These conclusions flow from the logic and rationale presented in the Integration and Synthesis Section (2.6).
- *If necessary, define a reasonable and prudent alternative to the proposed action*. If, in completing the last step in the analysis, NMFS determines that the action under consultation is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat, NMFS must identify a reasonable and prudent alternative (RPA) to the action (2.7). The RPA must not be likely to jeopardize the continued existence of ESA-listed species nor adversely modify their designated critical habitat and it must meet other regulatory requirements.

2.2 Range wide Status of the Species and Critical Habitat

This Opinion examines the status of each species that would be affected by the proposed action. The status is the level of risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. The species status section helps to inform the description of the species' current "reproduction, numbers, or distribution" as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the current function of the essential physical and biological features that help to form that conservation value.

One factor affecting the status of SONCC coho salmon, and aquatic habitat at large is climate change.

2.2.1 Status of Listed Species

For Pacific salmon and steelhead, NMFS commonly uses four parameters to assess the viability of the populations that, together, constitute the species: spatial structure, diversity, abundance, and productivity (McElhany *et al.* 2000). These "viable salmonid population" (VSP) criteria therefore encompass the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. When these parameters are collectively at appropriate levels, they maintain a population's capacity to adapt to various environmental conditions and allow it to sustain itself in the natural environment. These attributes are influenced by survival, behavior, and experiences throughout a species' entire life cycle, and these characteristics, in turn, are influenced by habitat and other environmental conditions.

"Spatial structure" refers both to the spatial distributions of individuals in the population and the processes that generate that distribution. A population's spatial structure depends fundamentally on habitat quality and spatial configuration and the dynamics and dispersal characteristics of individuals in the population.

"Diversity" refers to the distribution of traits within and among populations. These range in scale from DNA sequence variation at single genes to complex life history traits (McElhany *et al.* 2000).

"Abundance" generally refers to the number of naturally-produced adults (*i.e.*, the progeny of naturally-spawning parents) in the natural environment (*e.g.*, on spawning grounds).

"Productivity," as applied to viability factors, refers to the entire life cycle; *i.e.*, the number of naturally-spawning adults produced per parent. When progeny replace or exceed the number of parents, a population is stable or increasing. When progeny fail to replace the number of parents, the population is declining. McElhany *et al.* (2000) use the terms "population growth rate" and "productivity" interchangeably when referring to production over the entire life cycle. They also refer to "trend in abundance," which is the manifestation of long-term population growth rate.

For species with multiple populations, once the biological status of a species' populations has been determined, NMFS assesses the status of the entire species using criteria for groups of

populations, as described in recovery plans and guidance documents from technical recovery teams. Considerations for species viability include having multiple populations that are viable, ensuring that populations with unique life histories and phenotypes are viable, and that some viable populations are both widespread to avoid concurrent extinctions from mass catastrophes and spatially close to allow functioning as metapopulations (McElhany *et al.* 2000).

Status of SONCC coho salmon.

Spatial Structure and Diversity**.** This species includes all naturally-spawned populations of coho salmon in coastal streams from the Elk River near Cape Blanco, Oregon, through and including the Mattole River near Punta Gorda, California, and progeny of three artificial propagation programs (NMFS 2012b). Williams *et al.* (2006) designated 45 populations of coho salmon in the SONCC coho salmon ESU. These populations were further grouped into seven diversity strata based on the geographical arrangement of the populations and basin-scale genetic, environmental, and ecological characteristics (Table 1).

Table 1. SONCC coho salmon populations in Oregon. Williams *et al.* (2006) classified populations as dependent or independent based on their historic population size. Independent populations are populations that historically would have had a high likelihood of persisting in isolation from neighboring populations for 100 years and are rated as functionally independent (FI) and potentially independent (PI). Core population types are independent populations judged most likely to become viable most quickly. Non-core 1 population types are independent populations judged to have lesser potential for rapid recovery than the core populations. Dependent populations (D) are populations that historically would not have had a high likelihood of persisting in isolation for 100 years. These populations relied upon periodic immigration from other populations to maintain their abundance. Two ephemeral populations (E) are defined as populations both small enough and isolated enough that they are only intermittently present (McElhany *et al.* 2000, Williams *et al.* 2006, NMFS 2012).

Stratum	Population	Population Type
Northern Coastal	Elk River	FI Core
	Hubbard Creek	E
	Brush Creek	D
	Mussel Creek	D
	Euchre Creek	E
	Lower Rogue River	PI Non-Core 1
	Hunter Creek	D
	Pistol River	D
	Chetco River	FI Core
	Winchuck River*	PI Non-Core 1
Interior Rogue	Upper Rogue River	FI Core
	Middle Rogue/Applegate*	FI Non-Core 1
	Illinois River*	FI Core
Interior Klamath	Upper Klamath River*	FI Core
Central Coastal	Smith River*	FI core

* Populations that also occur partly in California.

NMFS considered the role each population is expected to play in a recovered ESU to determine population abundance and juvenile occupancy targets for all the populations in the SONCC coho salmon ESU. Independent populations are evaluated using a modified Bradbury (1995) framework. This model uses three groupings of criteria for ranking watersheds for Pacific salmon restoration prioritization: (1) Biological and ecological resources (Biological Importance); (2) watershed integrity and salmonid extinction risk (Integrity and Risk); and (3) potential for restoration (Optimism and Potential). Scores for Biological Importance are based on the concept of VSPs (McElhany *et al.* 2000), and are used to describe the current status of the population – population size, productivity, spatial structure, and diversity. "Core" populations were designated based on current condition, geographic location in the ESU, low risk threshold compared to the number of spawners needed for the entire stratum, and other factors. "Non-core 1" populations are in the moderate risk threshold, which is the depensation threshold[2] multiplied

[2] Williams (2008b) defines the depensation threshold as one spawner per km of stream with estimated rearing potential or Intrinsic Potential.

by four. NMFS chooses this target if the population is likely to ultimately produce considerably more than the depensation threshold, but less than the low risk threshold.

The draft recovery plan establishes the following criteria (Table 2) at the ESU, diversity strata, and population scales to measure whether the recovery objectives are met (NMFS 2012b).

Table 2. Biological recovery objectives and criteria for SONCC coho salmon.

VSP Parameter	Population Type	Recovery Objective	Recovery Criteria
Abundance	Core	Low risk of extinction.	The geometric mean of wild spawners over 12 years at least meets the "low risk threshold" of spawners for each core population
	Non-Core 1	Moderate or low risk of extinction.	The annual number of wild spawners meets or exceeds the moderate risk threshold for each non-core population
Productivity	Core and Non-Core 1	Population growth rate is not negative.	Slope of regression of the geometric mean of wild spawners over the time series ≥ zero
Spatial Structure	Core and Non-Core 1	Ensure populations are widely distributed.	Annual within-population distribution ≥ 80% of habitat (outside of a temperature mask)
	Non-Core 2 and Dependent	Achieve inter- and intra-stratum connectivity.	20% of accessible habitat is occupied in years following spawning of cohorts that experienced good marine survival
Diversity	Core and Non-Core 1	Achieve low or moderate hatchery impacts on wild fish.	Proportion of hatchery-origin spawners (pHOS) ≤ 0.10
	Core and Non-Core 1	Achieve life history diversity.	Variation is present in migration timing, age structure, size and behavior. Variation in these parameters is retained.

Abundance and Productivity. Although long-term data on abundance of SONCC coho salmon are scarce, available evidence from shorter-term research and monitoring efforts indicate that conditions have worsened for populations since the last formal status review was published (Good *et al.* 2005; NMFS 2012b). Because the extinction risk of an ESU depends upon the extinction risk of its constituent independent populations and the population abundance of most independent populations are below their depensation threshold, the SONCC coho salmon ESU is at high risk of extinction and is not viable (NMFS 2012b, Williams *et al.* 2008).

Limiting Factors. Threats from natural or man-made factors have worsened in the past 5 years, primarily due to four factors: small population dynamics, climate change, multi-year drought, and poor ocean survival conditions. Limiting factors include:

- Lack of floodplain and channel structure
- Impaired water quality
- Altered hydrologic function (timing of volume of water flow)
- Impaired estuary/mainstem function
- Degraded riparian forest conditions
- Altered sediment supply
- Increased disease/predation/competition
- Barriers to migration

- Adverse fishery-related effects
- Adverse hatchery-related effects

Major activities identified as responsible for the decline of SONCC coho salmon in Oregon and California include logging, road building, grazing, mining, urbanization, stream channelization, dams, wetland loss, beaver trapping, artificial propagation, over-fishing, water withdrawals, and unscreened diversions for irrigation (62 FR 24588). Enlarged populations of terns, seals, sea lions, and other aquatic predators in the Pacific Northwest have been identified as factors that may be limiting the productivity of some Pacific salmon and steelhead populations (Bottom *et al.* 2005, Fresh *et al.* 2005).

The SONCC Technical Recovery Team (TRT) identified 45 populations[3] that were historically present based on consideration of historical distribution, geographic isolation, dispersal rates, genetic data, life history information, population dynamics, and environmental and ecological diversity (Williams *et al.* 2006). In some cases, the SONCC-TRT also identified groups of populations referred to as "diversity strata" largely based on the geographical arrangement of the populations and basin-scale environmental and ecological characteristics. Of those 50 populations, one diversity strata and one population will be focused on in this analysis (Table 3) because it is the only ones with potential to be adversely affected.

Table 3. SONCC coho salmon diversity strata and populations potentially adversely affected within the action area.

Diversity Stratum	Population	Historical Classification
Rogue River Basin – Interior sub-basins	Upper Rogue River	Functionally Independent

On August 15, 2011, NMFS announced the results of a 5-year review for SONCC coho salmon (76 FR 50447). After reviewing new information on the viability of this species, ESA section 4 listing factors, and efforts being made to protect the species, NMFS concluded this species should retain its threatened listing classification. NMFS Southwest Region released a public draft of the SONCC coho salmon recovery plan on January 5, 2012 (NMFS 2012). Finalization of recovery goals, recovery actions, and the plan in general is not expected until early 2013. However, the underlying data and information the draft plan relies on is unlikely to change and all the methods used to derive conclusions are commonly accepted. Therefore, the draft recovery plan constitutes the best available scientific and commercial data. This opinion uses information from the public comment draft recovery plan for the status of the species and limiting factors analysis.

The draft recovery plan identified ESU viability criteria intended to ensure representation of the diversity throughout the ESU, buffer the ESU against potential catastrophic risks, and provide sufficient connectivity among populations to maintain long-term demographic and genetic

[3] "An independent population is a group of fish of the same species that spawns in a particular lake or stream (or portion thereof) at a particular season and which, to a substantial degree, does not interbreed with fish from any other group spawning in a different place or in the same place at a different season." NOAA Technical Memo NMFS-NWFSC-42,"Viable Salmonid Populations and the Recovery of Evolutionarily Significant Units" (June 2000).

processes. In order for the SONCC coho salmon ESU to be viable, every diversity stratum needs at least 50% of its independent populations to be viable, and the abundance of these viable independent populations collectively must be at least 50 percent of the total abundance modeled for all of the independent populations in that stratum (NMFS 2012). The independent populations chosen to meet the population viability criteria are called "core." All four of the populations in this analysis are designated as core in the recovery plan and therefore play a significant role in their diversity stratum and the recovery of the ESU.

Because the extinction risk of an ESU depends upon the extinction risk of its constituent independent populations (Williams *et al.* 2008) and the population abundance of most independent populations are below their high risk threshold, the SONCC coho salmon ESU is at high risk of extinction and is not viable (NMFS 2012). SONCC coho salmon have declined substantially from historic levels. Several populations in California are extirpated (Bear River, Middle Fork Eel River) or are nearly so. The recovery plan found 25 of the 30 independent and potentially independent populations had a high extinction risk with the remaining at a moderate risk. Productivity appears to be negative for most, if not all SONCC coho salmon populations. Negative productivity means the year classes of individuals are not replacing themselves.

Factors limiting the ESU-wide recovery of SONCC coho salmon (identified as stresses in the recovery plan) include adverse hatchery-related effects, impaired water quality, degraded riparian forest conditions, increased disease/predation/competition, altered sediment supply, lack of floodplain and channel structure, altered hydrologic function, barriers, adverse fishery-related effects, and impaired estuary/mainstem function (NMFS 2012). The recovery plan clarified which of these factors were most limiting for each population. The limiting factors for each affected population are detailed below.

The TRT developed a framework for assessing viability of SONCC coho salmon (Williams *et al.* 2008). This framework is intended to provide the viability assessment for determining viable salmonid populations (VSP). The primary purpose of the document is to produce biologically based viability criteria to guide the establishment of recovery goals. The TRT identified viability criteria for each population (Williams *et al.* 2008). Recovery strategies to achieve viable SONCC coho salmon must address multiple levels of biological organization, that is, they must address populations, diversity strata, and the species as a whole (Williams *et al.* 2008). Sufficient quantitative data was not available to complete a risk assessment for the entire SONCC coho salmon species; however the TRT was able to determine the current viability of the URR population. The effect of the action on the viability of those populations is useful in evaluating any change in risk to the ESU's survival and recovery. The TRT's framework will continue to guide and inform development of current viability and recovery objectives for all populations. This framework was also established to guide and inform future monitoring efforts to highlight data gaps and monitoring needs.

The SONCC viability framework developed by the TRT incorporates concepts from several different viability methodologies (Williams *et al.* 2008). The basic concept of viability usually addresses four parameters; abundance, productivity, diversity, and spatial structure. The TRT framework uses five criteria as surrogates for these parameters: (1) Effective population size/total population size, (2) population decline, (3) catastrophic population decline, (4) spawner density, and (5) hatchery influence (Table 4). Data on the last four generations of coho salmon informs this assessment and several of the criteria. The TRT established extinction thresholds for

high, moderate and low risk with the ultimate goal of achieving low risk for each category (Table 4). Within each criterion, several approaches may be used, for instance, the population decline criterion is assessed applying a linear regression to spawner abundance of the last four generations along with a plot of the running average of the last four generations. The overall extinction risk of a population is equal to the highest risk category of any individual criterion (Williams *et al.* 2008).

Table 4. Viability assessment criteria for the SONCC coho salmon population as described by the Technical Recovery Team (1996-2007) (Williams *et al.* 2008) with low risk threshold criteria.

Criterion	High Risk Threshold	Moderate Risk Threshold	Low Risk Threshold
Effective Population Size/Total Population Size	Generation size less than 250	Generation size between 250 and 2,500	Generation size > 2,500
Population Decline	Precipitous decline	Chronic decline or depression	No decline apparent or probable
Catastrophic Population Decline	Order of magnitude decline within one generation	Smaller but significant decline	Not apparent
Spawner Density	Less than 1 spawner per IPkm[1]	Between 1 and 20 spawners per IPkm[1]	≥ 20 spawners per IPkm[1]
Hatchery Influence	Hatchery fraction > 5%		Hatchery fraction < 5%

[1]IPkm is the intrinsic potential of a stream and is a modeled index of a potential habitat suitability based on the underlying geomorphology and hydrology of the watershed for rearing juvenile SONCC coho salmon. The output of this model is in terms of IP per kilometer and written as IPkm.

Upper Rogue River Population

Bear Creek and Little Butte Creek are within the URR SONCC coho salmon population (Williams *et al.* 2006). The Bear Creek and Little Butte Creek watersheds contain the majority of the tributary habitat in the URR. A few additional watersheds that contain significant URR coho salmon habitat include Elk Creek, Big Butte Creek, and Evans Creek. We consider the SONCC coho salmon inhabiting these larger watersheds to be sub-populations to the URR population. The TRT identified the URR population as functionally-independent. The URR population is one of three independent populations comprising the genetic diversity substrata of the Interior Rogue basin. As functionally independent, the URR population's role in SONCC coho salmon recovery is to meet spawner abundance targets and provide recruits to nearby populations.

Peak coho salmon smolt outmigration occurs in late April (ODFW 2004). Adult coho salmon begin entering at the mouth of the Rogue River in late September to mid-October (Weitkamp *et al.* 1995). The majority of coho salmon adults migrate past the former Gold Ray Dam location between mid-October and mid-November. Nearly 90% of the adults have passed the Gold Ray Dam site before December each year.

The TRT used available data to describe the URR population's viability (Williams *et al.* 2008). The TRT concluded the URR population was at "moderate risk of extinction" based on the risk associated with spawner density and the influence of hatcheries (Table 5). The TRT's 2008 viability assessment is based on Gold Ray Dam counting data through 2007. To assess the

current viability of the URR population to the present, NMFS extended the viability assessment using the TRT framework and analysis to include Gold Ray Dam counting data from 2008 and 2009 that was not available to the TRT (Table 5). The Gold Ray Dam data set was terminated in 2009 as a result of the 2010 removal of Gold Ray Dam. The fish counts at Gold Ray Dam (2 miles downstream of the Bear Creek confluence) provide the best quantitative information available for URR SONCC coho salmon abundance. These counts do not include URR coho salmon returning to Evans Creek or Rogue River tributaries between Evans Creek and the former Gold Ray Dam site.

Table 5. Viability assessment of the Upper Rogue River SONCC coho salmon population as described by the Technical Recovery Team (1996-2007) (Williams *et al.* 2008) and NMFS viability assessment using the most recent data representing the last four generations (1998-2009).

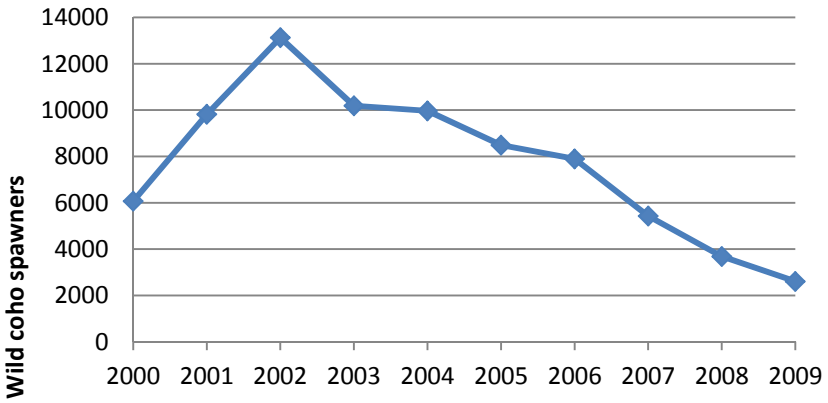
Criterion	**Extinction Risk Determination (TRT-2008)**	**NMFS Extinction Risk Determination (2012)**
Effective Population Size/Total Population Size	Low Risk	Low Risk
Population Decline	Low Risk	Moderate Risk
Catastrophic Population Decline	Low Risk	Low Risk
Spawner Density	Moderate Risk	Moderate Risk
Hatchery Influence	Moderate Risk	Moderate Risk

To identify extinction risk in 2012 (Table 5), NMFS supplemented the TRT determination with more recent data. SONCC coho salmon abundance has continued to decline since the TRT's determination in 2008 (Table 6). The TRT's 2008 viability assessment for the URR population identified the effective population size/total population size to be at low risk. Even with continued declines in 2008 and 2009, the last four generations are still above the criterion's low risk 2,500 threshold. Thus, the URRR population is at a low risk of extinction from the effective population size criterion.

Table 6. Counts of total (jacks, wild and hatchery adult) SONCC coho salmon at Gold Ray Dam, 1993-2009, (was located two miles downstream of the Bear Creek confluence).

Year (counts from 9/15-1/31)	**SONCC coho salmon at Gold Ray Dam**
1993-94	3,486
1994-95	10,699
1995-96	13,518
1996-97	13,599
1997-98	15,750
1998-99	6,044
1999-2000	7,722
2000-2001	28,791
2001-2002	32,962
2002-2003	34,154
2003-2004	17,179
2004-2005	21,702
2005-2006	14,632
2006-2007	11,368
2007-2008	8,735
2008-2009	2,442
2009-2010	2,958

The TRT found low risk in the population decline criterion. However, the addition of data from 2008 and 2009 changes the current determination. The population trend has been negative each year of the last two generations (6 years). The population trend for the last 12-year period (four generations) has been downward based on the 3-year running average, but the population is still above 500 (Figure 2). Another linear trend line places the population on a decreasing trend (Figure 3) where the slope of the regression line is approximately negative 0.04 (-4%). A mean declining rate of greater than 10% is indicates a high extinction risk (Williams *et al.* 2008). The declining trend indicates this population is at moderate risk for extinction.



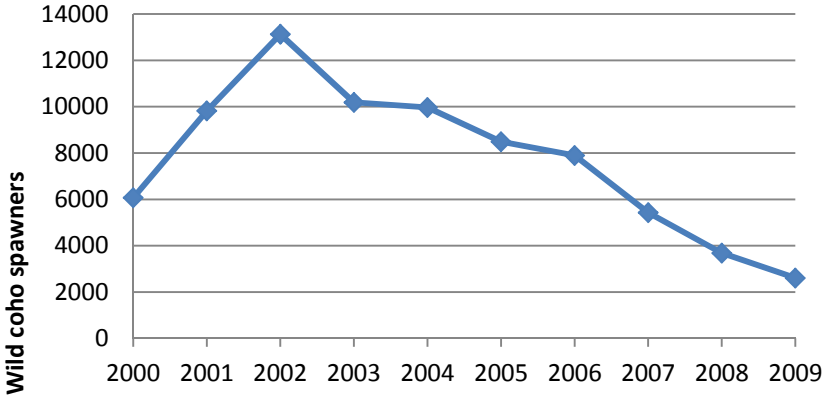
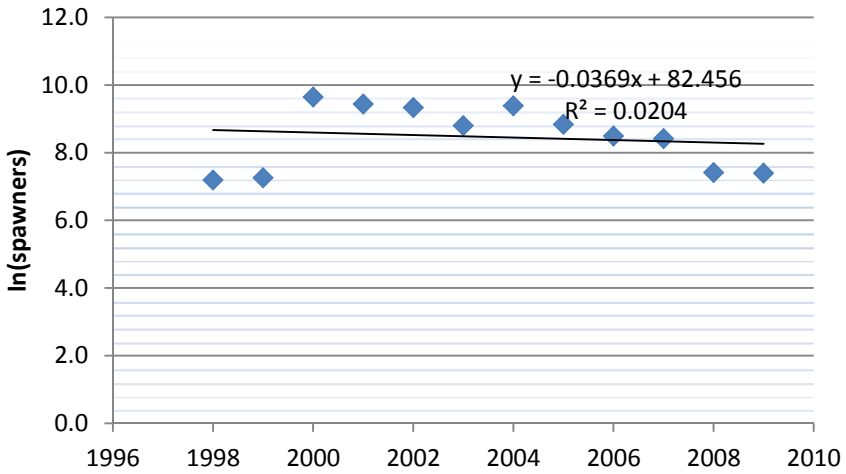


Figure 2. Three-year running average abundance of the Upper Rogue River SONCC coho salmon population based on available data for the last four generations (1998 to 2009).



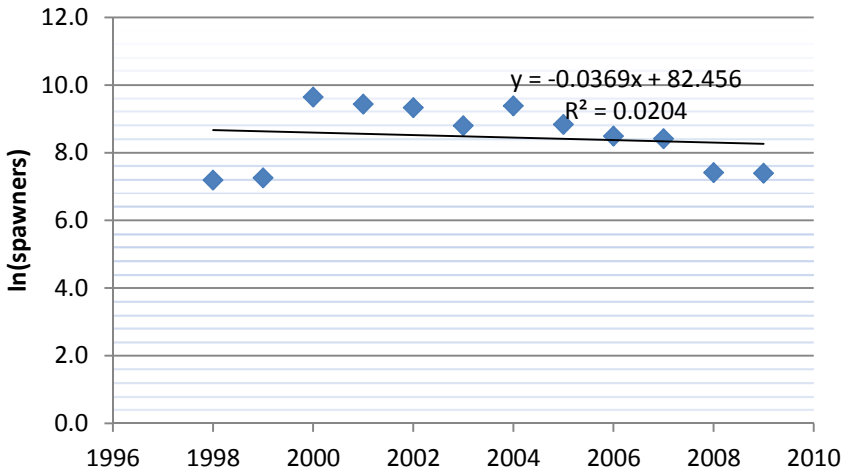


Figure 3. Trend in Upper Rogue River spawner abundance (ln transformed annual abundance) over the past four generations (1998 – 2009) including regression line fitted to data indicating a decreasing trend.

The TRT determined that the population was a moderate risk based on spawner density (spawners/linear distance). The TRT determined that this population had 9.8 spawners/IPkm[4] (mean from 1996 -2007 data - 7,011 spawners). The continued downward trend in population abundance has resulted in 9.3 spawners/IP km (using a mean abundance of 6,688) through 2009, which is still in the moderate risk category. The TRT determined the influence of hatchery fish spawning in the wild also placed this population at moderate risk. Hatchery influence has not changed, thus this criterion is still in the moderate risk category.

When reviewing dam count data, analyses must consider stressors impacting URR SONCC coho salmon prior to the earliest data. Anthropogenic stressors impacted the population for decades prior to the earliest data collection (Gold Ray Dam counts began in 1942) (Figure 4). By the

[4] IPkm is the intrinsic potential of a stream and is a modeled index of a potential habitat suitability based on the underlying geomorphology and hydrology of the watershed for rearing juvenile SONCC coho salmon. The output of this model is in terms of IP per kilometer and written as IPkm.

1940s, commercial fisheries, dam construction, water conveyance structures, mining, and stream habitat alterations collectively impacted the population. Although the current status of the URR SONCC coho salmon population is improved relative to its lowest abundance in the 1960s and 1970s, the declining trend over the last four generations warrants alarm (Figures 2, 3, and 4).

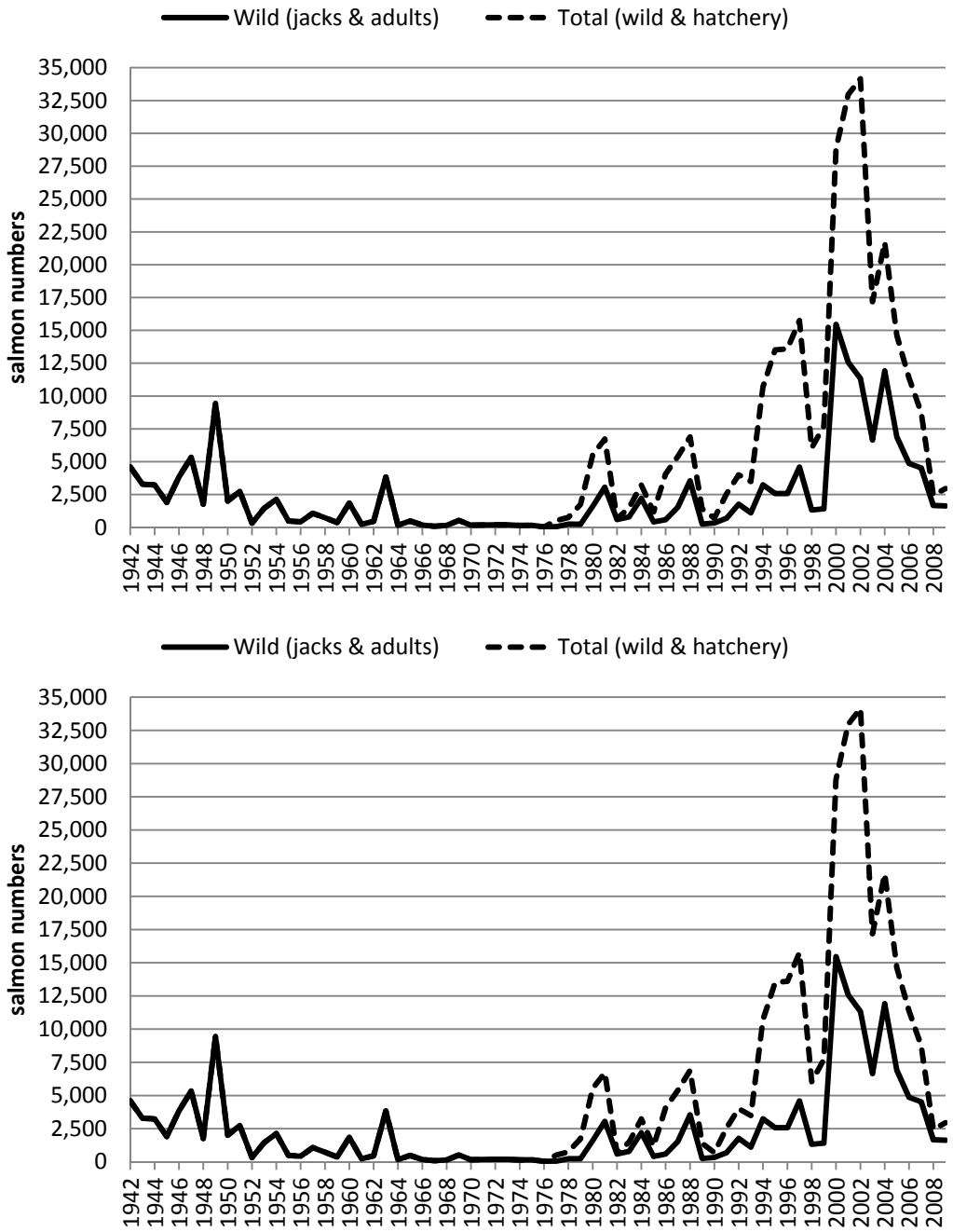


Figure 4. Upper Rogue River SONCC coho salmon population abundance based on the Gold Ray Dam counts from 1942 to 2009. Wild (jacks and adults) and hatchery fish are represented in the data.

The population's risk status is not only informed by the VSP criteria but also by a limiting factors assessment. Limiting factors for coho salmon in the Rogue River basin have been identified three times. In 2006, the Rogue Basin Coordinating Council performed a limiting factors assessment for all watersheds in the Rogue River Basin (Bredikin *et al.* 2006). In 2008, ODFW convened a panel of fisheries and watershed science experts as an initial step in the State of Oregon's development of a recovery plan (ODFW 2008). NMFS' 2012 public draft SONCC coho salmon used these two sources of information, along with other data, to determine which factors were the principal stresses. Because the recovery plan incorporated the previous assessments and several other sources, this opinion will use its results.

For the URR population, the public draft recovery plan found the juvenile life stage the most limited and specifically mentioned winter rearing habitat. Altered hydrologic function, degraded riparian forest conditions, impaired water quality, lack of floodplain, channel structure and barriers are the key limiting factors. Degraded riparian forest conditions are closely linked with the lack of floodplain and channel structure. The value of these factors are reduced due to stream channelization and manipulation, wetland fill, and riparian vegetation removal, all of which are attributed to agricultural practices, urbanization, forest management, and transportation infrastructure. Hydrologic functions have been altered by the many storage and irrigation projects in the basin. Many of the dams associated with these projects are fish passage issues. The most pervasive water quality concern is summer stream temperature, which has been impaired by poor riparian conditions (reduced shade), irrigation withdrawal (reduced flow volume), and poor channel structure (reduced pool depths). The actions resulting in these conditions, if they continue into the foreseeable future; and, when added to other anthropogenic activities and ecological factors that may continue over the coming decades, could increase the threats this species faces. Considering all of the information presented above, the URR population is currently at low to moderate risk due to effective population size, spawner densities, and population decline.

2.2.2 Status of Critical Habitat

We review the status of designated critical habitat affected by the proposed action by examining the condition and trends of essential physical and biological features throughout the designated area. These features are essential to the conservation of the listed species because they support one or more of the species' life stages (*e.g.*, sites with conditions that support spawning, rearing, migration and foraging).

Climate change, as described in the above, is likely to adversely affect the quality and function of the physical and biological features of designated critical habitats in the Pacific Northwest. These effects are likely to include, but are not limited to, depletion of cold water habitat and other variations in quality and quantity of tributary spawning, rearing and migration habitats and estuarine areas. The quality of critical habitat considered in the opinion has generally declined during the era of European settlement the due to depletion of cold water habitat and other variations in quality and quantity of spawning, rearing and migration habitats associated with development of riverine and estuarine areas (NMFS 2012).

Critical habitat for SONCC coho salmon includes all areas accessible to any life-stage up to long-standing, natural barriers and adjacent riparian zones (64 FR 24049). Habitat impairments recognized as factors leading to decline of the species were included in the original listing notice

for SONCC coho salmon: (1) Channel morphology changes; (2) substrate changes; (3) loss of in-stream roughness; (4) loss of estuarine habitat; (5) loss of wetlands; (6) loss/degradation of riparian areas; (7) declines in water quality; (8) altered streamflows; (9) fish passage impediments; and (10) elimination of habitat (62 FR 24588). The critical habitat designation listed the need for special management considerations or protection may be needed. Included among the activities that may require special management considerations were irrigation water withdrawals and returns, along with, dam operation and maintenance (64 FR 24049).

The specific critical habitat analyzed in this opinion is the designated critical habitat for SONCC coho salmon within the Bear Creek watershed (HUC 1710030801) and Little Butte Creek watershed (HUC 1710030708). The SONCC coho salmon life cycle can be separated into five essential habitat types: (1) Juvenile summer and winter rearing areas; (2) juvenile migration corridors; (3) areas for growth and development to adulthood; (4) adult migration corridors; and (5) spawning areas (Table 10). Within these areas, essential features of SONCC coho salmon critical habitat are included in Table 7. Critical habitat affected by the action provides the essential physical and biological features that provide for the conservation of several different SONCC coho salmon populations.

Table 7. Physical and biological features of critical habitats designated for SONCC coho salmon, and corresponding species life history events.

Physical and Biological Features		Species Life History Event
Site	**Site Attribute**	
Spawning and juvenile rearing areas	Cover/shelter Food (juvenile rearing) Riparian vegetation Space Spawning gravel Water quality Water quantity	Adult spawning Embryo incubation Alevin development Fry emergence Fry/parr growth and development Fry/parr smoltification Smolt growth and development
Juvenile migration corridors	Cover/shelter Food Riparian vegetation Safe passage Space Substrate Water quality Water quantity Water temperature Water velocity	Fry/parr smoltification Smolt growth and development Smolt seaward migration
Areas for growth and development to adulthood	Ocean areas – not identified	Adult growth and development Adult sexual maturation Smolt/adult transition
Adult migration corridors	Cover/shelter Riparian vegetation Safe passage Space Substrate Water quality Water quantity Water temperature Water velocity	Adult sexual maturation Adult “reverse smoltification” Adult upstream migration

Within the Rogue River basin, the designated critical habitat supports the conservation of the URR independent population and the potential subpopulations residing in the Bear Creek and Little Butte Creek watersheds. Previous reviews of relative habitat values and priorities provide information for a critical habitat analysis. The Southwest Oregon salmon restoration initiative, as part of the Coastal Salmon Recovery Initiative (CSRI) described “coho salmon core” areas and “high value” areas (RVCOG 1997). Core areas contain high quality habitat capable of sustaining coho salmon spawning and rearing year around. High value areas are stream sections that appear suitable for coho salmon spawning and rearing, whether or not fish are present. Within the Little Butte Creek watershed, the SF Little Butte Creek sub-watershed was identified as a coho salmon core area by ODFW. It is also a Key Watershed in the Northwest Forest Plan for Federal land management. SF Little Butte Creek comprises 58% of the coho salmon core stream miles identified in the URR population. This core area is also approximately 16% of the total core area identified in the Rogue River basin. This sub-watershed is identified as a priority for maintaining and protecting coho salmon populations (RVCOG 1997). Approximately 47% of the URR population’s high value coho salmon areas are located in the Bear Creek watershed. The Bear

Creek high value habitat comprises approximately 26% of all the high value areas identified in the Rogue River basin. This information leads us to conclude that the critical habitat within the Rogue River basin has high conservation value.

Bear Creek and Little Butte Creek sub-populations**.** The Upper Rogue River SONCC population likely has six to eight sub-populations, two of which are the Bear Creek sub-population and the Little Butte Creek sub-population. Historic fisheries information for Bear Creek and its tributaries indicate a much different situation than currently exists. Early accounts of salmon populations described a market fishery collecting wagonloads of salmon to ship to California (RVCOG 2001). It is unclear what species were harvested; these were possibly Chinook salmon rather than coho salmon or, more likely, a combination of both. Whatever the species, there were large numbers of salmon in the system. The intrinsic potential (IP) of a stream is a modeled index of a potential habitat suitability based on the underlying geomorphology and hydrology of the watershed for rearing juvenile SONCC coho salmon (Figure 5). There is indication that the historical habitat conditions could have supported large coho salmon populations (Williams *et al.* 2006). Although the high IP scores within Bear Creek and Little Butte Creek do not necessarily predict abundance or productivity, they certainly indicate that the stream channel characteristics under natural conditions, likely supported high quality habitat that could provide for good survival, productivity, and abundance of juvenile SONCC coho salmon.

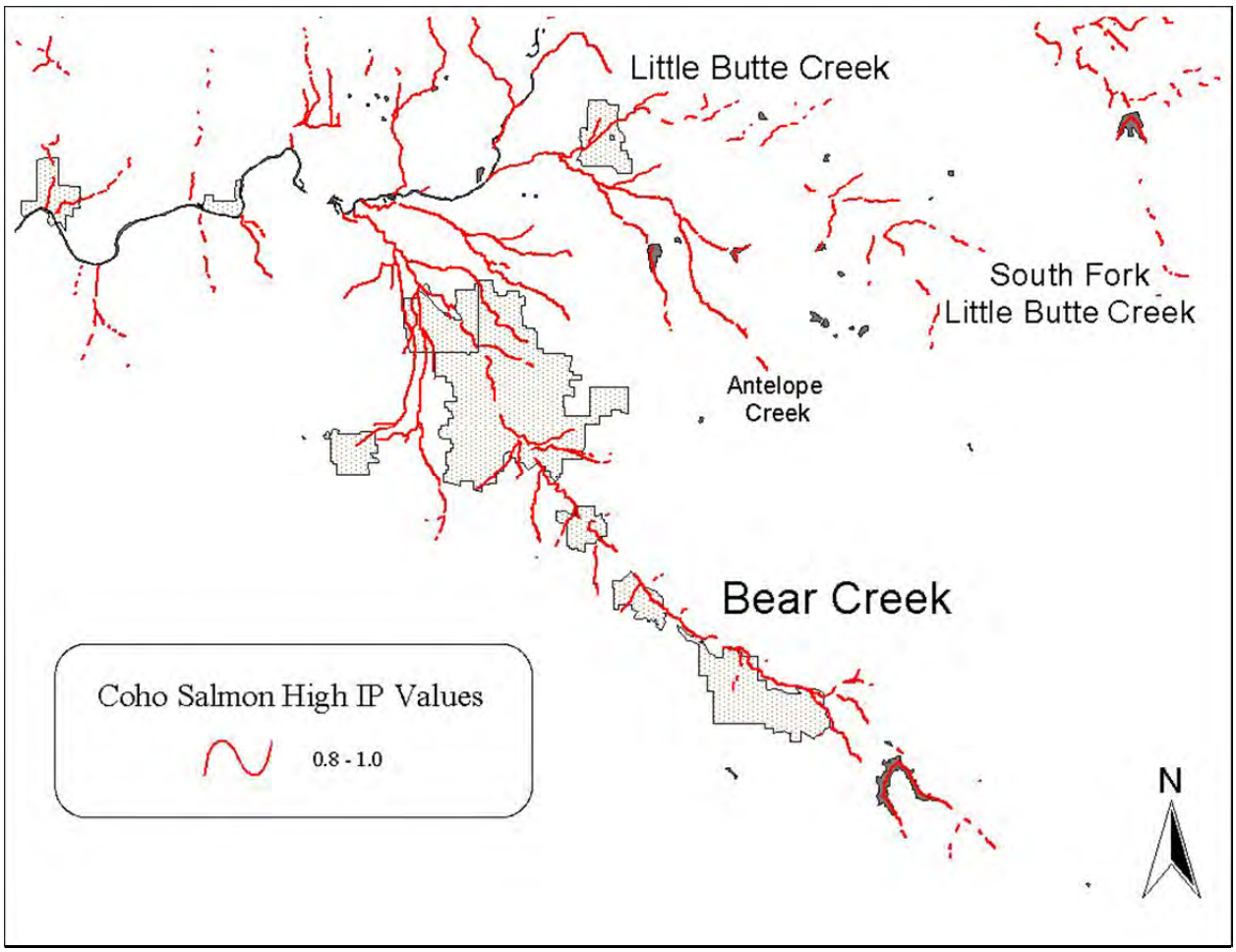


Figure 5. Map showing areas of high IP for coho salmon within the Bear Creek and Little Butte Creek watersheds.

Little Butte Creek sub-population**.**

Presently, abundance of SONCC coho salmon is depressed in the Bear Creek watershed, primarily due to degradation of stream habitat. Smolt trapping surveys have demonstrated few coho salmon are surviving in the watershed (ODFW 2006). In six years, 227 coho salmon smolts were captured with half the years resulting in none captured (Table 8). The ODFW smolt-trapping program in Bear Creek was discontinued after 2006.[5] Adult spawning counts have not occurred regularly in Bear Creek, but when they do, they have demonstrated low numbers of coho salmon spawning in the watershed.[6] The Bear Creek watershed assessment reported that production of coho smolts is within approximately 3.7 coho/mile of habitat in the Bear Creek mainstem (RVCOG 2001). Fish passage issues have been identified in the watershed and coho are known to have limited access in some years.

[5] Email from Jay Doino, Oregon Department of Fish and Wildlife, to Chuck Wheeler, NMFS (July 28, 2009) (discussing smolt trapping in Bear Creek), forwarded to Tom Loynes, NMFS (October 20, 2009).
[6] ODFW Random coho coastal spawning fish survey annual summaries.

Table 8. SONCC coho salmon smolts caught and smolt production estimates by ODFW during trapping operations near the mouth of Bear Creek, 2001-2006. (ODFW data).

YEAR	TOTAL	ESTIMATED SMOLT OUTPUT
2001	0	100
2002	1	2,194
2003	14	197
2004	0	0
2005	0	0
2006	212*	1,843*

*The data for 2006 was taken from the Upper Bear Creek trapping site near Phoenix

The Rogue Basin Coordinating Council (Bredikin *et al.* 2006) performed a limiting factors assessment on Bear Creek. The assessment considered Bear Creek to be "adequate" for gravel and pool/riffle ratio, "moderate" for migration barriers and "limited" for water temperature, water chemistry, sediment, water quantity, wood, stream complexity, and channel modification. Adequate is defined as robust watershed health with only minimal restoration activities needed to improve existing conditions. Moderate means a lower than desired watershed health with moderate to significant levels of restoration activities needed to improve existing conditions. These limiting factors will be the focus of the following analysis.

2.3 Environmental Baseline

The "environmental baseline" includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

It is also likely that climate change will play an increasingly important role in determining the abundance of ESA-listed salmonid species, and the conservation value of designated critical habitats, in the Pacific Northwest. During the last century, average regional air temperatures increased by 1.5°F, and increased up to 4°F in some areas (USGCRP 2009). Warming is likely to continue during the next century as average temperatures increase another 3 to 10°F (USGCRP 2009). Overall, about one-third of the current cold-water fish habitat in the Pacific Northwest is likely to exceed key water temperature thresholds by the end of this century (USGCRP 2009).

Precipitation trends during the next century are less certain than for temperature but more precipitation is likely to occur during October through March and less during summer months, and more of the winter precipitation is likely to fall as rain rather than snow (ISAB 2007, USGCRP 2009). Where snow occurs, a warmer climate will cause earlier runoff so stream flows in late spring, summer, and fall will be lower and water temperatures will be warmer (ISAB 2007, USGCRP 2009).

Higher winter stream flows increase the risk that winter floods in sensitive watersheds will damage spawning redds and wash away incubating eggs (USGCRP 2009). Earlier peak stream

flows will also flush some young salmon and steelhead from rivers to estuaries before they are physically mature, increasing stress and the risk of predation (USGCRP 2009). Lower stream flows and warmer water temperatures during summer will degrade summer rearing conditions, in part by increasing the prevalence and virulence of fish diseases and parasites (USGCRP 2009). Other adverse effects are likely to include altered migration patterns, accelerated embryo development, premature emergence of fry, and increased competition and predation risk from warm-water, non-native species (ISAB 2007).

The earth's oceans are warming, with considerable inter-annual and inter-decadal variability superimposed on the longer-term trend (Bindoff *et al.* 2007). Historically, warm periods in the coastal Pacific Ocean have coincided with relatively low abundances of salmon and steelhead, while cooler ocean periods have coincided with relatively high abundances (Scheuerell and Williams 2005, Zabel *et al.* 2006, USGCRP 2009). Ocean conditions adverse to salmon and steelhead may be more likely under a warming climate (Zabel *et al.* 2006).

The proposed action occurs primarily within the Bear Creek sub-watershed (HUC 1710030801). Northern portions of the project drain to the Little Butte Creek sub-watershed (HUC1710030708).

The Middle Rogue River watershed is located in the Klamath Physiographic Province in southwestern Oregon. The boundaries of the watershed are formed by a ridge line which travels along the Cascade Mountains to the north and east, and the Siskiyou – Klamath Mountains to the south and west. Geographically and politically, the watershed is located within Jackson, Douglas, and Josephine counties in southwest Oregon, just north of the California border.

The Upper Rogue River watershed is also located in the Klamath Physiographic Province and bounded by the same geographic features. Politically, the watershed is located primarily within Jackson County, with a small portion occurring in Klamath County.

Streams within the action area include Bear Creek, Lone Pine Creek, Upton Creek, Swanson Creek, Whetstone Creek, Jack Creek and three unnamed tributaries to Little Butte Creek. Also present in the project corridor are numerous ditches that convey irrigation water or stormwater runoff. The following section discusses the existing environmental conditions in the aquatic habitats categorized by sub-watersheds and their tributaries, or by tributaries that drain directly to the Upper Rogue River watershed.

Bear Creek Sub-Watershed

Bear Creek is located in a wide alluvial valley, flowing northwest approximately 28 river miles from its headwaters at Emigrant Creek through the cities of Ashland and Medford, to its confluence with the Rogue River. The Rogue River-Bear Creek confluence is approximately 7.9 RM downstream of the project location. The Bear Creek sub-watershed drains approximately 384 square miles. Because of its proximity to I-5 and other urban features, the Bear Creek channel and associated floodplain have been heavily manipulated and the stream is generally confined to a narrow meander.

The uplands of the Bear Creek sub-watershed consist of highly erodible soils that result in high natural suspended sediment loads (MB&G 2004). Extensive agricultural and urban development

in the sub-watershed have contributed additional sediment load. The cumulative result of these practices is poor water quality caused by elevated turbidity, and embedded substrates that have become generally unsuitable for spawning salmonids and incubating eggs. This has caused an overall reduction in population productivity and abundance. Within the action area, Bear Creek's in-stream substrate is composed primarily of bedrock, cobble, and gravel, with local concentrations of highly embedded small boulders and cobbles that limit spawning and rearing habitat for fish (RVCOG 1995). Off-channel habitat in Bear Creek is non-existent in the action area, and in-stream large woody debris (LWD) is lacking in sufficient quantities to create stream channel complexity and adequate refugia for juvenile salmonids (RVCOG 1995). This also limits production, because coho salmon are particularly reliant on off-channel habitat.

Along Bear Creek, riparian zones have been narrowed and/or degraded to the extent that LWD recruitment potential is very low, and shading and other riparian functions are compromised system-wide (MB&G 2001). Riparian areas within the vicinity of the project are generally narrow, typically one to three mature trees in width, with agricultural fields or development encroaching on the edges. Many reaches have only Himalayan blackberry (*Rubus armeniacus*) thickets growing immediately adjacent to the active channel (Shapiro 2001). In the action area, Bear Creek flows through the linear Bear Creek Greenway, which is intended to provide an unbroken riparian corridor along approximately 30 miles of the stream (MB&G 2001), and which may serve to provide long-term protection of the riparian zone. The creek is constrained and channelized south (downstream) of the Highway 62 bridge crossing by I-5 to the east and commercial and retail development to the west. Upstream of the Highway 62 crossing, the creek is less constrained, until the I-5 crossing, which consists of two parallel bridge structures. Continuing generally north (downstream), the creek is regularly constrained by I-5, commercial development, agricultural land uses, and surface streets.

The Bear Creek sub-watershed is subject to irrigation diversion, upland and riparian vegetation clearing, and the addition of impervious surface, resulting in substantial changes to natural flow regimes (Shapiro 2001). Analysis of a storm hydrograph for Bear Creek at a downstream gauging station reveals flashy flows following precipitation events. High flows occur in the summer as water is released from Emigrant Reservoir, and in the spring and summer irrigation diversions can cause water levels to drop below normal base flow levels. This results in a highly variable flow regime which can reduce habitat quality; high flows scour the stream channel and limits habitat availability, while low flows de-water habitat components (Shapiro 2001). These changes to stream flow and water quality further limit population productivity and abundance.

Lone Pine Creek, Tributary to Bear Creek

Lone Pine Creek flows approximately 2.2 miles from the Roxy Ann Peak foothills (east of the project study area) to its terminus at Bear Creek west of the airport. The stream channel is highly confined through much of its lower reaches, and has been extensively modified by commercial and residential development. The natural stream channel has been replaced with concrete lining in several stretches, including portions within the project area. Riparian setbacks are minimal due to encroachment by private landowners. Water quality in Lone Pine Creek is poor and water temperatures exceed 303(d) criteria during the summer with monthly average maximum water temperatures near the project study area exceeding 74ºF (DEQ 2006). Flows in Lone Pine Creek are ephemeral and ground-disturbing activities contribute to heavy sediment loads and high turbidity (Bear Creek Watershed Council 2001).

Lone Pine Creek supports low-quality riparian and aquatic habitats. The lack of shading riparian vegetation and low flows during summer contribute to water temperatures that approach the upper incipient lethal temperature for adults and juvenile salmonids (McCullough 1999), and likely act as thermal barriers. Because of a lack of riparian vegetation, Lone Pine Creek within the project study area is considered "severely degraded" in terms of the quality of habitat provided for aquatic and terrestrial animals (Wetland Consulting 2002). The bottom substrate of Lone Pine Creek within the project study area is generally silty with some concrete-lined sections and no suitable spawning habitat.

Numerous barriers to fish passage exist within Lone Pine Creek, both above, within, and below the project area. These barriers negatively impact population spatial structure. Culverts with water depths less than one-inch, extensive culverted reaches, and airport security fencing within the stream channel can all be found within the action area. Nonetheless, steelhead have been documented using Lone Pine Creek within the project study area, and Chinook salmon have been recorded just outside of the project study area (MB&G 2004). Lone Pine Creek is channeled beneath the ground at Highway 62, and thus fish passage beyond the highway is prevented. No salmonids were observed during any of the site reconnaissance visits.

Upton Creek, Tributary to the Middle Rogue River Watershed

Upton Creek, also labeled as Upton Slough or Midway Creek on some maps, lies north of Lone Pine Creek and flows northwest for approximately 9.2 miles, terminating at the Rogue River. Upton Creek has been highly modified, and is piped underground across much of the project study area. However, Upton Creek receives abundant surface and sub-surface drainage and plays a major role in stormwater filtration (Bear Creek Watershed Council 2001). Encroachment by private landowners has greatly reduced the quality and extent of riparian habitat. Water quality has not been sampled by the Oregon Department of Environmental Quality, (DEQ), and associated road building, has greatly increased sediment load and turbidity within Upton Creek. Upton Creek is stagnant in many areas, and large algal mats are common. The stream channel is completely rip-rapped west of Highway 62 near the Tower Business Park, and no aboveground water flow was evident during the June 2004 site reconnaissance. Illegally dumped trash was also noted at several points during the June 2004 and June 2010 site reconnaissance visits.

Aquatic habitat within Upton Creek is generally considered poor. Water temperatures are high, flow is low to stagnant, algal mats are common, turbidity is high, and the bottom substrate is silt and sand, precluding use by spawning salmonids. Shading riparian vegetation is absent along most reaches within the project study area, and no LWD was noted within the stream during several site visits. Large trees that might allow for natural recruitment of LWD are absent from the portion of Upton Creek within the project study area. Barriers to fish passage are numerous and include shallow flows through culverts at Highway 62 and the rip-rapped channel near the Tower Business Park on the east side of Highway 62.

Riparian vegetation around Upton Creek ranges from non-existent (*e.g.*, graded bare soil near the Tower Business Park) east of Highway 62 to dense thickets of Himalayan blackberry, cattail (*Typha spp.*), and scattered Pacific willow (*Salix lasiandra*) and black cottonwood (*Populus trichocarpa*) between Highway 62 and the Medco Haul Road.

Whetstone Creek, Tributary to the Rogue River

Whetstone Creek flows directly into the Rogue River. Water quality has not been measured, but is believed to exceed Clean Water Act 303 (d) criteria for temperature and likely exceeds for sedimentation as well (MB&G 2004). In some reaches, the stream channel has been significantly realigned to accommodate commercial development (*e.g.*, northwest of Lotus Lane and at the intersection of Leigh Way and Highway 62). Water flow is variable and Whetstone Creek is stagnant at some locations. Whetstone Creek was observed to pond up behind a culvert on the west side of Highway 62, creating an area of deep turbid water surrounded by dense stands of reed canarygrass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), and cattails. The bottom substrate is silty throughout, except for scattered locations with boulder-sized construction debris. Riparian conditions are variable, but generally poor with substantial encroachment by private landowners.

As with the other streams within the project study area, aquatic habitat quality in Whetstone Creek and its tributaries is poor. However, Whetstone Creek does support summer-run steelhead, although whether they regularly occur within the project study area is questionable as the ponds at the Ken Denman Wildlife Management Area, downstream of the project study area, act as fish passage barriers (MB&G 2004). Whetstone Creek provides habitat for warmwater species, and also supports an unusually large number of wetlands that provide habitat for a variety of species (Bear Creek Watershed Council 2001).

Riparian habitats along Whetstone Creek and its tributaries are generally poor within the project study area. Monotypic stands of reed canary grass, poison hemlock (*Conium maculatum*) and blackberry are common. Young willow, Oregon ash (*Fraxinus latifolia*), and black cottonwood are also present in some areas. In residential and commercial areas, the riparian area has largely been replaced by rip-rap, construction debris, or non-native landscaping plants. Over time this leads to a lack of large sized riparian vegetation and large wood for instream habitat.

Swanson Creek, Tributary to Whetstone Creek

North of Upton Creek lies Swanson Creek, which has two branches that cross Highway 62 and the proposed bypass alternative, identified as Swanson Creek (south) and Swanson Creek (north). Swanson Creek is itself a tributary to Whetstone Creek, which discharges to the Middle Rogue River. Water quality in Swanson Creek has not been systematically surveyed, but is believed to exceed 303(d) criteria for both temperature and sedimentation (DEQ 2006). The bottom substrate of both branches is mostly silt and decaying organic matter; gravel beds or other suitable substrates for salmonid spawning are absent.

Swanson Creek (south) is not as heavily channelized as other streams in the project study area, but Swanson Creek (north) flows through an artificial channel. Riparian vegetation and large wood is largely absent from the portion of Swanson Creek that flows through the project study area.

In spite of degraded habitat conditions, steelhead have been documented west of the project study area in Swanson Creek as recently as 2000 (MB&G 2004). However, given the low quality of aquatic habitat and the numerous barriers to fish passage, including thermal barriers, velocity barriers, and absolute physical barriers, it is unlikely that salmonids currently use the portions of

Swanson Creek within the project study area. Swanson Creek does support warmwater species, including sunfish, larval bullfrogs, and invertebrates such as water boatman (*Hemiptera, Corixidae*).

Riparian conditions are severely to moderately degraded along Swanson Creek within the project study area (Wetland Consulting 2002). Private landowners have encroached into the riparian zone, especially west of Highway 62, where most of the riparian area has been mowed and consists of lawn-like expanses of grass. Small stands of young willow, black cottonwood, and Oregon ash occur in a thin strip east of Highway 62; although relatively small in extent, these narrow forested stands represent some of the best remaining riparian habitat in the project study area.

Little Butte Creek, Tributary to the Rogue River

Little Butte Creek sub-watershed is a 17-mile long tributary of the Rogue River, located in the Upper Rogue River watershed. Its drainage basin consists of approximately 373 square miles (354 square miles of Jackson County, and another 19 square miles in Klamath County). The north fork of the creek begins at Fish Lake, while the south fork begins near Brown Mountain. The two forks flow generally west until they meet near Lake Creek. The creek then flows through the communities of Brownsboro, Eagle Point, and White City, finally emptying into the Rogue River about three miles west of Eagle Point. Elevations within the watershed range from 1,204 feet at its confluence with the Rogue River, up to 5,713 feet at the source of the South Fork on Brown Mountain (Little Butte Creek Watershed Council 2003).

The entire mainstem has exceeded DEQ standards for temperature, oxygen saturation, fecal coliform (bacteria), and turbidity (DEQ 2008). Overall, high temperature is the most common problem in the Little Butte Creek watershed (Little Butte Creek Watershed Council 2003). This is most likely caused by depleted riparian zones and water diversion. Large amounts of water are diverted from Little Butte Creek to aid in irrigation and water storage. Systems of canals deliver the water to nearby Howard Prairie Lake and the Klamath River watershed, Agate Lake, and the Rogue Valley (Little Butte Creek Watershed Council 2003). Degraded habitat conditions limit production of SONCC coho salmon in this sub-watershed.

2.3.1 Species within the Action Area

Upper Rogue River SONCC coho salmon

The history of the URR population of SONCC coho salmon and how they have reached this at-risk status is typical of many other SONCC coho salmon populations. SONCC coho salmon from the URR population were substantially impacted by many threats resulting from the development of the landscape for agricultural use, urbanization, and various resource extractive activities. Estimates of the coho salmon run in 1800s were over 100,000 for the Rogue River (Meengs and Lackey 2005). Two of the most intensive early threats included commercial fisheries harvest in the river and dam building. In 1892, the highest reported annual harvest, an estimated 58,000 coho salmon, were harvested and canned from the Rogue River (Figure 6).

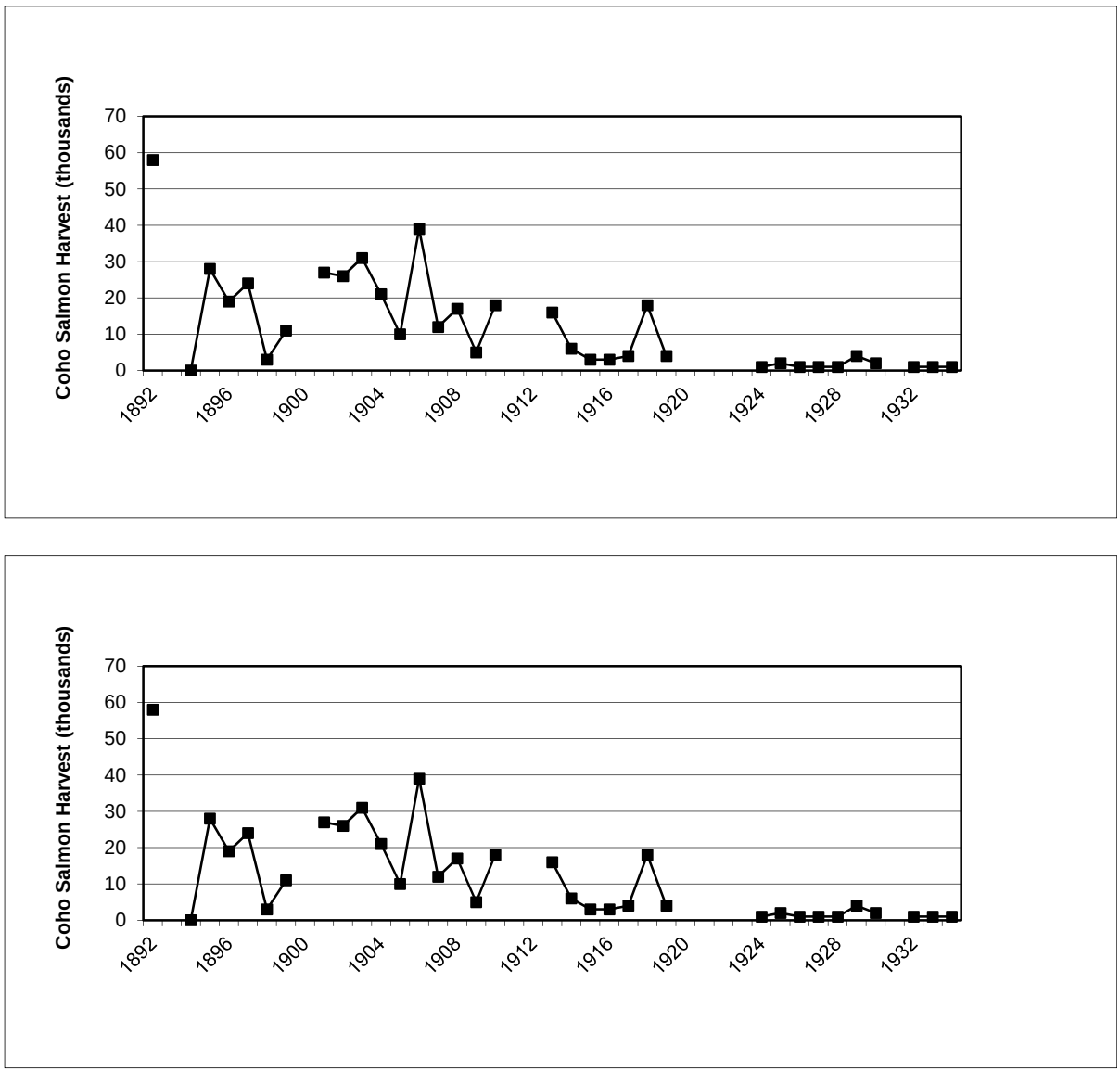


Figure 6. Annual commercial harvest of coho salmon in the Rogue River estimated from cannery data (data from Mullen 1981).

Construction of dams, such as Savage Rapids Dam, Gold Hill Dam, and Gold Ray Dam, all on the mainstem Rogue River, created additional challenges for the returning adult spawners and the outmigrating smolts (USFWS 1981). Unscreened diversions and poorly functioning fish ladders associated with dams had additional impacts on juvenile and adult life stages, reducing the number of coho salmon surviving to reproduce. The Lost Creek Dam, which began operation in 1977, eliminated access to suitable coho salmon habitat.

Additional habitat alterations started in the 1800s, with the development of the upper Rogue River valley and continue with the development of water diversions, floodplain development, stream channelization, riparian forest removal, timber management, road building, increased pollutants from urbanization and subsequent stormwater runoff, introduction of non-native species such as predators and competitors, and floodplain gravel mining. All of these habitat

altering actions served to reduce the productivity and survival of coho salmon by reducing availability of rearing and spawning habitat, reducing the function and quality of remaining habitat, and completely eliminating some habitat. Areas in the middle valley of the upper Rogue River that were once potential fringe habitat due to high summer air and possibly water temperatures became poorly suited habitat due to the loss of riparian vegetation shading the streams and the loss of associate wetlands due to filling and channelization.

Bear Creek. The URR SONCC population likely has six to eight sub-populations, one of which is the Bear Creek sub-population. Historical fisheries information for Bear Creek and its tributaries indicate a much different situation than is true currently. Early accounts of salmon populations described a market fishery collecting wagonloads of salmon to ship to California (RVCOG 2001). It is unclear what species were harvested; these were possibly Chinook salmon rather than coho salmon or, more likely, a combination of both. Whatever the species, there were large numbers of salmon in the system.

Historical data is limited for the Bear Creek coho salmon population. Spawning surveys for coho salmon are difficult to conduct due to the water conditions that time of year. Coho salmon runs past Gold Ray Dam ranged from 320 to 9,440 adults during this survey period.

Another approach to assess historical population potential of a watershed is the use of the IP model. The IP model indicates Bear Creek could have supported a sizable sub-population of coho salmon (Figure 5) (Williams *et al.* 2006). Although the high IP score within Bear Creek does not necessarily predict abundance or productivity, it certainly is an indication that the stream channel characteristics under natural conditions likely supported high quality habitat that could provide for good survival, productivity, and abundance of juvenile SONCC coho salmon. Bear Creek contains approximately 23% of all of the IP stream reaches that exceed 0.66 (high IP) within the geographic area of the URR population. Some areas of the upper Rogue River Basin valley floor tributaries contained high IP values, but may have always had summer rearing habitat limitations due to high water temperatures (Williams *et al.* 2006). Even if these reaches were limited summer rearing habitat, these areas were high quality winter rearing habitat.

2.3.2 Critical Habitat within the Action Area

Bear Creek Watershed. SONCC coho salmon use Bear Creek watershed for spawning, migration, and juvenile rearing. The physical and biological features that support these life stages are listed above in Table 6. Past and present impacts on the condition and function of the physical and biological features (described in the Species Section) have degraded the current condition of several SONCC coho salmon critical habitat in the Bear Creek watershed portion of the action area. Impacts from agriculture, forestry, grazing, irrigation impoundments and withdrawals, residential development, road building, and urbanization have degraded the following physical and biological features in Bear Creek watershed to the point they are limiting the conservation role of this critical habitat: (1) Floodplain connectivity; (2) riparian vegetation; (3) water quality; (4) water quantity; (5) water temperature; and (6) cover/shelter. These physical and biological features will be the focus of the critical habitat analysis.

Little Butte Creek Watershed. SONCC coho salmon use Little Butte Creek watershed for spawning, migration, and juvenile rearing. The physical and biological features that support the life stages are listed above in Table 7. Past and present impacts on the condition and function of

the physical and biological features (described in the Species Section) have degraded the current condition of several SONCC coho salmon critical habitat physical and biological features in the Little Butte Creek watershed portion of the action area. Impacts from agriculture, forestry, grazing, irrigation impoundments and withdrawals, residential development, and road building have degraded the following physical and biological features in the Little Butte Creek watershed to the point they are limiting the conservation role of this critical habitat: (1) Floodplain connectivity; (2) riparian vegetation; (3) water quality; (4) water quantity; (5) water temperature; and (6) cover/shelter. These physical and biological features will be the focus of the critical habitat analysis.

2.4 Effects of the Action on Species and Designated Critical Habitat

"Effects of the action" means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

2.4.1 Effects on the Environment

In-water construction activities in Bear Creek, Lone Pine Creek, Upton Creek, South Swanson Creek, North Swanson Creek, and Whetstone Creek will occur after work area isolation. The effects of culvert removal and installation, bridge construction, stormwater, and vegetation removal and ground disturbance are discussed below.

Work Area Isolation. Cofferdams will be constructed to isolate the work area during construction. This will exclude fish from the work area, keep sediment and turbidity inside the work area, and still allow fish passage through the site. Although in-water work area isolation is a conservation measure intended to reduce potential effects to water quality and fish from instream construction, fish present in the work isolation area will be captured, handled, and released.

Bear Creek. Some SONCC coho salmon juveniles could be in the isolated work area. Approximately 1,140 linear feet of Bear Creek, for a total of approximately 28,500 square feet of pool-glide-riffle habitat will be isolated.

Lone Pine Creek. Some SONCC coho salmon juveniles could be in the isolated work area. Approximately 400 linear feet of Lone Pine Creek, for a total of approximately 2,400 square feet of glide habitat will be isolated. The other culvert project will isolate 230 feet of Lone Pine Creek for a total of 1,610 glide habitat.

Upton Creek. Some SONCC coho salmon juveniles could be in the isolated work area. Approximately 400 linear feet of Upton Creek, for a total of approximately 3,200 square feet of glide-riffle habitat will be isolated.

South Swanson Creek. Some SONCC coho salmon juveniles could be in the isolated work area. Approximately 275 linear feet of South Swanson Creek, for a total of approximately 1,100 square feet of glide-riffle habitat will be isolated.

North Swanson Creek. Some SONCC coho salmon juveniles could be in the isolated work area. Approximately 280 linear feet of North Swanson Creek, for a total of approximately 1,100 square feet of glide-riffle habitat will be isolated.

Whetstone Creek. Some SONCC coho salmon juveniles could be in the isolated work area. Approximately 450 linear feet of Whetstone Creek, for a total of approximately 3,600 square feet of glide-riffle habitat will be isolated.

Work area isolation and dewatering will concentrate suspended sediment inside the cofferdam, reduce dissolved oxygen (during fish salvage operations) and increase water temperature (during fish salvage operations). For all isolation events, approximately 41,510 square feet of stream substrate (gravels, cobbles and fines) will be isolated, which will kill invertebrates within the isolation area. The 41,510 square feet is a very small portion of the total action area and benthic invertebrates will likely repopulate within a few of months after construction is complete. The ODOT proposes to complete the in-water work for this project during the period of June 15 to September 15 for all streams and tributaries impacted by this project. Duration of isolation of work areas in Bear Creek will be approximately 2 weeks. Duration of isolation of work areas in the Lone Pine, Upton, North Swanson, south Swanson, and Whetstone Creeks will be approximately 8 weeks. Conservation measures addressing containment, pollution and sediment control, and temporary water management are described in section 6 of the BA.

Total Suspended Solids, Turbidity, and Sedimentation. In-water construction activities, such as work area isolation, culvert removal, culvert installation, vegetation removal. pile driving, pile removal, drilled shaft construction, bent removal and ground disturbance are likely to temporarily increase erosion, concentrations of total suspended solids (TSS) and turbidity. Work area isolation and conservation measures discussed in section 6 of the BA will ensure that this exposure will be minimized.

The largest negative effects to stream substrate will likely be from instream construction in Bear, Lone Pine, Upton, North Swanson, South Swanson, and Whetstone Creeks. Projects that disturb the streambank or channel, such as installation or removal of piles, culverts, or coffer dams will temporarily increase suspended sediments. These sediment releases will vary in duration from few hours to a day or more, but will subside as disturbed materials in the construction area resettle. Some aggradation of fine sediment will occur in substrates, primarily in stream reaches used by SONCC coho salmon for migration and rearing. Fine, redeposited sediments have the potential to reduce primary and secondary productivity (Spence *et al.* 1996) and cover (Bjornn and Reiser 1991) for juvenile coho salmon.

Sediment effects from the culvert installation and removal, and site restoration will be minimized due to ODOT's use of BMPs during construction to reduce the amount of sediment entering Bear, Lone Pine, Upton, North Swanson, south Swanson, and Whetstone Creeks. All exposed soils will be revegetated, and only a small amount of work (culvert removal and installation) will occur in the active stream channel.

Fluvial Alteration. The addition of hardened structures (*i.e.* bridge bents) within a fluvial channel will increase flow velocities, encourage scouring, and limit the natural movement of bedload materials, thus causing habitat loss and sub-lethal adverse effects on aquatic and semi-aquatic species. With the installation of a bridge and culverts that span the functional floodplains, the water velocities should only increase slightly at very high flow events. Installing bridges and culverts that span beyond the functional floodplain will maintain water flowing naturally through the project site. The bents associated with these bridges will only interact with the flow during events at and above the OHWL elevation. Therefore, no adverse effects on SONCC coho salmon are expected.

Stormwater Management. Stormwater runoff from the highway system, including roads, culverts, and bridges, delivers a wide variety of pollutants to aquatic ecosystems, such as nutrients, metals, petroleum-related compounds, sediment washed off the road surface, and agricultural chemicals used in highway maintenance (Driscoll *et al.* 1990; Buckler and Granato 1999, Colman *et al.* 2001, Kayhanian *et al.* 2003). These ubiquitous pollutants are a source of potent adverse effects to ESA-listed salmon even at ambient levels (Loge *et al.* 2006, Hecht *et al.* 2007, Johnson *et al.* 2007, Sandahl *et al.* 2007, Spromberg and Meador 2006).
Increased impervious surface and resulting stormwater management will result in discharged stormwater to tributaries of the Rogue River. The proposed project will have a total CIA of 204 acres. Only a portion of this CIA applies to the initial JTA portion of this project.

The proposed stormwater facilities include 3 large bioretention ponds. Taken together, these facilities are sized to accommodate the entire volume of runoff from the CIA associated with the JTA portion of the project.

Project stormwater treatment was designed using the Kitsap County BMP sizing calculator (http://www.kitsaplid.org/uploads/Kitsap%20BMP%20Sizing%20Calculator%2003-10-10.xls) which in this case were more conservative than ODOT or NMFS design standards. After the project is completed, there will be a net reduction of pollutants and metals entering the Little Butte Creek and Bear Creek systems.

Chemical Contamination. As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. The NMFS expects that the use of machinery will result in a small amount (a few ounces) of oil and hydraulic fluid being leaked during operations. The magnitude of these leaks will likely be very low because of the implementation and enforcement of pollution control plans.

Anytime machinery is operated in close proximity to a stream, there is some chance a large fuel spill or hydraulic line rupture will occur. We believe the probability of this occurring is very low, but not discountable. If a spill of this nature were to occur, its volume could likely be as little as a few ounces or as much as 50 gallons. If there is a leak, it is typically small, resulting in only a few ounces being released. Any spills on the work bridge will be contained due to the edge of the work bridge being curbed with plastic sheeting placed under the deck. The concentration of fuel would be high within the isolation area, but the spill control plan is likely to minimize the amount released to flowing water. A small amount of fuel likely would be released from the isolation area, where it would be noticeable as much as 100 feet downstream before being diluted to immeasurable concentrations, prior to reaching the lower limits of the action area on Bear, Lone Pine, Upton, North Swanson, south Swanson, and Whetstone Creeks. In the immediate area

it could have short-term effects on water quality. If this were to occur, a small number of SONCC coho salmon would likely be killed by exposure to the leaked contaminants.

Riparian Disturbance. The estimated riparian impact will be limited to approximately 3.4 acres of riparian forest displacement. Riparian vegetation losses will be mitigated within the project area through on-site restoration, to the extent practicable. Acreage in excess of what can be off-set through on-site restoration will be compensated through off-site, advanced mitigation that ODOT has negotiated with the Little Butte Creek Watershed Council (LBCWC) and the Oregon Watershed Enhancement Board (OWEB). The total acreage of riparian habitat creation along Little Butte Creek will be approximately 6 acres and 3,360 linear feet.

Appendix A in the BA details the agreement between ODOT and the LBCWC to provide funds for use at the Gadberry Riparian Improvement Project to specifically off-set anticipated mitigation associated with the Highway 62 Corridor Solutions Project. This project will improve and restore 3,300 feet of streambank and riparian habitat in Little Butte Creek. Little Butte Creek watershed is a high priority watershed for restoration. This mitigation will benefit this population of SONCC coho salmon by providing more stable streambanks, reducing sediment input, and restoring riparian areas in a section that is lacking riparian.

2.4.2 Effects to Species within the Action Area

The proposed action is reasonably certain to have the following direct and indirect effects on ESA-listed SONCC coho salmon. Our assessment is a worse-case scenario look at potential effects on the species and critical habitat. The duration of the effects will vary from ephemeral (instantaneous to hours) or short-term (days to months), and indirect effects are long-term (years to decades, or the life of the project). The enlarged bridge and culvert openings will allow for natural stream flows and large wood transport. This opening and spanning of the functional floodplains at the crossings will maintain the available habitat for ESA-listed SONCC coho salmon. Stormwater treatment will provide better water quality with a reduction of pollutants and metals in the Bear Creek and tributaries in the long term.

Sedimentation and Turbidity. SONCC coho salmon will likely have exposure to very low levels (if any at all) of turbid water associated with the construction, since the work areas will be contained within cofferdams. Some slight sedimentation of substrates in stream reaches used by SONCC coho salmon for spawning, rearing and migration will occur. However, this will primarily occur downstream of the isolation sites where substrates already consist of pockets of gravel and fines. Fine, redeposited sediments have the potential to reduce cover (Bjornn and Reiser 1991) for juvenile coho salmon. Sedimentation is not likely to reduce food resources of juvenile SONCC coho salmon, due to the small amount of sediment disturbed, any sediment remaining within 100 feet of the isolation area, and sediment likely being flushed and dispersed with the fall rains prior to SONCC coho salmon upstream migration. The 100 feet is an estimate of how far the sediment in low flow conditions is likely to travel downstream of the culvert removal, culvert replacement, pile installation, pile removal, drilled shaft construction and cofferdam removal activities. The visible turbidity will likely end a short distance downstream of removed cofferdams. The NMFS is reasonably certain sedimentation and turbidity levels generated from this action will have small short term effects on SONCC coho salmon.

Chemical Contamination. As stated earlier, an accidental release of fuel, oil, and other contaminants that can injure or kill aquatic organisms may occur. Petroleum based contaminants, such as fuel, oil, and some hydraulic fluids, contain polycyclic aromatic hydrocarbons, which can kill coho salmon at high levels of exposure and can also cause sublethal adverse effects at lower concentrations (Neff 1985).

Any spills outside of the contained work bridges may affect any SONCC coho salmon that are immediately downstream of the isolated work areas. However, few individuals should be in the action area, and there is a very low risk of a spill occurring outside of the contained work bridge. Therefore, a spill would likely injure or kill only a few SONCC coho salmon. Any spills within the contained work bridge should be cleaned up prior to dismantling the work bridge.

Fish Capture, Removal, and Relocation. Immediate or delayed death or injury of juvenile SONCC coho salmon can result from capture and relocation stress. This may occur during fish capture by electrofishing, or during relocation. Additionally, it may not be possible to capture, remove and relocate all of the individual fish within the isolated in-water work area, depending on conditions during isolation. The substrate is comprised of pockets of gravel and cobble with some fines, which sometimes makes it difficult to effectively get all of the fish in the isolated area. Any individual juvenile SONCC coho salmon remaining within the isolated work area after fish capture, removal, and relocation has been attempted will die. The area where some fish may be killed includes approximately 1,140 linear feet in Bear Creek, 630 linear feet in Lone Pine Creek, 400 linear feet Upton Creek, 275 linear feet in South Swanson Creek, 280 linear feet in North Swanson Creek, and 450 linear feet in Whetstone Creek, extending from the upper end of the isolation area to the lower end of the isolation area on both ends of each culvert. The total potential area of isolation for the project will be 41,510 square feet (ft^2) (Bear Creek 28,500 ft^2 , Lone Pine Creek 2,400 ft^2 , Lone Pine Creek 1,610 ft^2, Upton Creek 3,200 ft^2 , South Swanson Creek 1,100 ft^2 , North Swanson Creek 1,100 ft^2 , and Whetstone Creek 3,600 ft^2). Juvenile SONCC coho salmon will be released in an area that has adequate flow, depth, and cover.

A total of approximately 685 juvenile SONCC coho salmon are estimated to reside in the isolated work areas, the size of which was estimated above. During the in-water work period juvenile SONCC coho salmon are not expected to be present in significant numbers due to high summer water temperatures. No known cool water seeps are present in the areas planned for isolation. Seven independent work area isolation events will be required for the proposed action, one at each of the six culvert sites, and one at the Bear Creek site. Each of the 6 culverts will have an estimated 25 juvenile SONCC coho salmon residing in the area. For the larger Bear Creek isolation, 535 is the estimated number of juvenile SONCC coho salmon residing in this section of Bear Creek. These numbers are based on a combination of average coho salmon per isolation on past ODOT fish salvages and coho density data found in glide habitat using ODFW research data. The process of work area isolation for this portion of the proposed action is reasonably certain to capture or wound of up to 685 juvenile SONCC coho salmon. These numbers are based on the data showing less than 100 individuals are salvaged during any isolation activity. From 2007-2009, ODOT completed 99 work area isolation operations involving capture and release using nets and electrofishing; 31 of those operations resulted in capture of 1 Chinook salmon, 760 coho salmon (25 juvenile coho average), and 62 steelhead (Ken Cannon, pers. Comm., 2010). The proposed action will isolate approximately 41,510 ft^2 of glide-riffle-pool habitat in Bear Creek, Lone Pine Creek, Upton Creek, North Swanson Creek, South Swanson Creek, and Whetstone Creek.

Riparian Disturbance. The estimated riparian impact is 3.96 acres of riparian forest displacement for the tributaries impacted by this project. No riparian tree removal is anticipated for staging and mobilization activities. On Bear Creek, construction would require clearing and grubbing of riparian vegetation of approximately 100 linear feet downstream (northeast) and approximately 70 linear feet upstream (southwest) from the existing I-5 structures.

Riparian vegetation losses will be mitigated within the project area through on-site restoration, to the extent practicable. A project-specific on-site restoration planting plan will be developed consistent with ODOT site restoration guidance during the FEIS, following selection of a Preferred Alternative. Acreage in excess of what can be off-set through on-site restoration will be compensated through off-site, advanced mitigation that ODOT has negotiated with the Little Butte Creek Watershed Council (LBCWC) and the Oregon Watershed Enhancement Board (OWEB).

Appendix A of the BA details the agreement between ODOT and the LBCWC to provide funds for use at the Gadberry Riparian Improvement Project to specifically off-set anticipated mitigation associated with the Highway 62 Corridor Solutions Project. Under this agreement, ODOT funds were pooled with other restoration funds by OWEB to restore a reach along Little Butte Creek. Little Butte Creek has historically provided highly successful spawning and rearing habitat for anadromous fish returning to the Rogue River, including threatened SONCC coho. Restoration activities include the following activities: removal of invasive species, primarily Himalayan blackberry (*Rubus armeniacus*); exclusionary fencing to prevent cattle from entering the riparian corridor; and replanting the restoration reach with native tree and shrub species to increase shade and stabilize streambank soils. Total area restored is approximately six acres, comprising 3,300 lineal feet of streambank and extending 40 feet upslope from the creek on both banks. During pre-consultation both ODOT and NMFS agreed that the mitigation opportunity was appropriate to anticipated project impacts.

Fluvial Alteration. With the installation of the culverts and bridges, the water velocities that adult and juvenile SONCC coho salmon have to endure, should increase only slightly at very high flows. This will still allow for adequate fish passage at a full range of flows for both adult and juvenile SONCC coho salmon. Even though this action includes new bridges and culverts, habitat function should be maintained after the project is complete due to the new bridges and culverts spanning the functional floodplain.

Stormwater Management. Stormwater runoff from the project, including roads, culverts, and bridges, delivers a wide variety of pollutants to aquatic ecosystems, such as nutrients, metals, petroleum-related compounds, sediment washed off the road surface, and agricultural chemicals used in highway maintenance (Buckler and Granato 1999; Colman *et al.* 2001; Driscoll *et al.* 1990; Kayhanian *et al.* 2003). These ubiquitous pollutants are a source of potent adverse effects to SONCC coho salmon, even at ambient levels (Hecht *et al.* 2007; Johnson *et al.* 2007; Loge *et al.* 2006; Sandahl *et al.* 2007; Spromberg and Meador 2006). Aquatic contaminants often travel long distances in solution or attached to suspended sediments, or gather in sediments until they are mobilized and transported by next high flow (Alpers *et al.* 2000b; Alpers *et al.* 2000a; Anderson *et al.* 1996). These contaminants also accumulate in the prey and tissues of juvenile salmon where, depending on the level of exposure, they cause a variety of lethal and sublethal effects on salmon and steelhead, including disrupted behavior, reduced olfactory function, immune suppression, reduced growth, disrupted smoltification,

hormone disruption, disrupted reproduction, cellular damage, and physical and developmental abnormalities (Fresh *et al.* 2005; Hecht *et al.* 2007; Lower Columbia River Estuary Partnership 2007). Elements included in the proposed action will likely add impervious surface to the existing infrastructure, thereby increasing the potential for stormwater runoff.

Pollutants included in stormwater travel long distances in rivers either in solution, adsorbed to suspended particles, or retained in sediments until mobilized and transported by future sediment moving flows (Alpers *et al.* 2000b; Alpers *et al.* 2000a; Anderson *et al.* 1996). The toxicity of these pollutants varies in other water quality speciation and concentration. Regarding dissolved heavy metals, Santore *et al.* (2001) indicates that the presence of natural organic matter and changes in pH and hardness affect the potential for toxicity (increase and decrease). Additionally, organics (living and dead) can adsorb and absorb other pollutants such as PAHs. The variables of organic decay further complicate the path and cycle of pollutants. The persistence and speciation of these pollutants also cause effects and, consequently, the action area, to extend from the point where highway runoff discharges into eventually discharged into a river mouth, bay, or estuaries, and then into coastal waters where they impact aquatic habitat, fish populations, and other coastal resources. Once in coastal waters, these pollutants have been linked to a wide variety of ecological stressors affecting the water column, sediments, and the diversity and abundance of aquatic life (EPA 2008; Hayslip *et al.* 2006; U.S. Commission on Ocean Policy 2004).

Stormwater treatment proposed by FHWA is based on a design storm (50% of the 2-year, 24 hour storm) that will generally result in more than 95% of the runoff from all impervious surfaces within the action area being infiltrated at or near the point at which rainfall occurs (Igloira 2007; Igloira 2008; Igloira 2008). The treatment will consist primarily of infiltration practices such as bioretention, bioslopes, infiltration ponds, and porous pavement, supplemented with appropriate soil amendments as needed. The highway runoff literature identifies these practices as excellent treatments to reduce or eliminate contaminants from highway runoff (Barrett *et al.* 1995; Center for Watershed Protection and Maryland Department of the Environment 2000; GeoSyntec Consultants *et al.* 2006; Herrera Environmental Consultants 2006; Hirschman *et al.* 2008; National Cooperative Highway Research Program 2006; The Low Impact Development Center *et al.* 2006).

Although the FHWA proposes to capture, manage, and treat highway runoff up to the design storm level from most of the contributing impervious area for the proposed action, including some areas that are not treated now or are treated to a lower level, the proposed treatment will not eliminate all pollutants in the highway runoff produced at those sites. Thus, some adverse effects of highway runoff will persist for the design life of the proposed project.

The proposed stormwater facilities include 3 large bioretention ponds. Taken together, these facilities are sized to accommodate the entire volume of runoff from the CIA associated with the JTA portion of the project. Stormwater will infiltrate at or near the point at which rainfall occurs using low impact development, bioretention, filter subsoils, and other practices that have been identified as excellent treatments to reduce or eliminate contaminants for highway runoff (Barrett *et al.* 1995, CWP and MDE 2000, NCHRP 2006, WDOT 2006, Hirschman *et al.* 2008).[7] The

[7] See also Memos from Ronan Igloria, HDR (Henningson, Durham, and Richardson, Inc.), to Jennifer Sellers and William Fletcher, Oregon Department of Transportation, dated December 28, 2007 (Stormwater Treatment Strategy

project will provide bioretention ponds to reduce dissolved metals and other pollutants in highway runoff that previously was previously untreated and thus should lead to a long-term decrease in pollutant loadings in Bear Creek, Little Butte Creek and the Rogue River.

SONCC coho salmon, will experience lethal and sub-lethal effects from the additions of dissolved copper resulting from the stormwater, however these effects will be reduced from pre-project conditions due to 100 % treatment of the CIA.

2.4.3 Effects to Critical Habitat within the Action Area

The action area is in the upper Rogue River 5th field HUC, which is designated as critical habitat for SONCC coho salmon, and provides habitat to support successful freshwater rearing and migration life history requirements. SONCC coho salmon adults and juveniles use the action area for spawning, rearing and migration. Thus, the affected primary constituent elements in the action area are those that are essential for conservation of adult and juvenile SONCC coho salmon for spawning, rearing, and migration. These PCEs include passage free of obstruction with water quality, water quantity, clean substrate, forage, cover, floodplain connectivity, adult and juvenile mobility, and juvenile development growth and survival. The likely effects of the action on these essential features are listed below. The duration of effects will vary from ephemeral (instantaneous to hours) or short-term (days to months), and indirect effects are long-term (years to decades).

<u>SONCC coho salmon freshwater spawning, rearing, and migration</u>

Water quantity – Stormwater quantity should have little effect on SONCC coho salmon critical habitat due to the treatment and detention facilities on the project.

Water quality – Suspended sediment levels will be increased over background due to fine sediment mobilized by construction activities. In the short term, the proposed action is likely to slightly degrade water quality as disturbed soil from upland sources associated with the project becomes suspended in rising flows. However, suspended sediment is expected to decrease over the long term as disturbed areas are revegetated and loose soil in the channel is flushed downstream. The stormwater design will adequately treat pollutant runoff to existing standards and improve water quality, reducing the level of pollutants and dissolved copper entering the system. Accidental release of fuel, oil, or other contaminants is unlikely, but would degrade water quality from the spill location up to 100 feet downstream. Because these impacts are short-term or unlikely, the quality of this PCE will be improved within the Little Butte Creek and Bear Creek 5th field HUCs.

Clean substrate –There will be slight sedimentation of substrate in Bear, Lone Pine, Upton, South Swanson, North Swanson, and Whetstone Creeks, however, the sediment from the pile driving, pile removal, and culvert removal and installation will be minor and short-term. Fall rains will likely flush this small amount of sediment downstream. Because these impacts are

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Development – Water Quality Design Storm Performance Standard) (HDR 2008a), February 28, 2008 (Stormwater Treatment Strategy Development – Water Quantity Design Storm Performance Standard - Final), and April 15, 2008 (Stormwater Treatment Strategy Development – BMP Selection Tool) (HDR 2008b).

short-term or unlikely, the quality of this PCE will be maintained within the Little Butte Creek and Bear Creek 5th field HUCs.

Floodplain Connectivity – The bridges and culverts will be designed to meet NMFS fluvial design criteria, spanning 2.2 times the active channel width on multi-span crossings and 1.5 times the active channel with on fully spanning structures and culverts and spanning the functional floodplain. This project should have no effect on floodplain connectivity.

Natural cover – Previous activities have eliminated the majority of the natural cover in the project area. The total riparian acreage that will be removed as part of this project is 3.96 acres and will be mitigated by planting 6 acres. All disturbed areas will be revegetated with native vegetation, improving habitat over time. In the long term, the proposed action is likely to result in increased native cover as riparian vegetation is established in higher densities than previously existed and also established at the mitigation site. Therefore, the quality of this PCE will be maintained and possibly improved.

Forage – Habitat suitability for macroinvertebrates will be temporarily reduced by 41,510 ft^2, thereby reducing the amount of habitat available to macroinvertebrates in a small portion of the Bear, Lone Pine, Upton, South Swanson, North Swanson, and Whetstone Creeks. While the temporary impact on habitat is great enough to result in some SONCC coho salmon juveniles being affected, this will not significantly disrupt normal behavioral patterns. Long-term, with bridges and culverts spanning the functional floodplain, the amount of habitat available to macroinvertebrates and SONCC coho salmon juveniles should be maintained at each site. As such, the forage PCE will be maintained in the short term and improved over the long term due to the increase in native riparian vegetation and improved water quality.

Free passage – Suspended sediment may slightly delay migration of juveniles during the first few storms in the spring on Bear, Lone Pine, Upton, South Swanson, North Swanson, and Whetstone Creeks, but will not prevent it from occurring. During work area isolation, the project will allow downstream passage for migration. Construction of bridges and culverts that span the functional floodplain will maintain good fish passage and only slightly increase the water velocities at higher flows that SONCC coho salmon experience.

Summary of Effects to Critical Habitat. Information presented in the status and baseline sections of this Opinion demonstrate that the upper Rogue River and middle Rogue River 5th field watersheds have been altered, but conditions still support successful spawning, rearing and migration. Two PCEs will be adversely affected in the short term, but will not be functionally changed because effects will be small-scale, short duration, or unlikely. The adverse effects to water quality from sediment will be temporary and localized. This adverse effect is at the site and reach scale, and short-term. The natural cover will be adversely affected at the site but will be restored with native vegetation in a greater density. Fish passage conditions will be maintained at the site. Stormwater will be treated to a level higher than pre-project conditions due to treatment of the CIA.

2.5 Cumulative Effects

"Cumulative effects" are those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject

to consultation (50 CFR 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The percentage increase in population growth may provide the best estimate of general resource demands because as local human populations grow, so does the overall consumption of local and regional natural resources. In 2000, the population of Jackson County was 181,269 and between 2000 and 2010, the population increased by 12.1%. The NMFS assumes that future private and state actions will continue within the action area, increasing as population density rises.

The economic and environmental significance of natural resource-based economy is currently declining in absolute terms and relative to a newer economy based on mixed manufacturing and marketing with an emphasis on high technology (Brown 2011). Nonetheless, resource-based industries are likely to continue to have an influence on environmental conditions within the Rogue valley for the indefinite future. However, over time those industries have adopted management practices that avoid or reduce many of their most harmful impacts, as is evidenced by the extensive conservation measures included with the proposed action, but which were unknown or in uncommon use until even a few years ago.

Given the location of the proposed action future transportation infrastructure, residential development, and commercial development will occur in the project area. The non-federal projects in conjunction with anticipated growth in the region will likely result in an increase in real population numbers and increased urban and residential development in project watersheds. This growth will likely result in the conversion of pervious surface area to impervious surfaces, increasing stormwater runoff, and its associated impacts to receiving waters. Such development may result in further impairment to the water quality and discharge patterns of project area streams. However, it is assumed that all identified projects will comply with ODOT and/or state and local ordinances for stormwater detention and treatment. As a result, increases in population growth in the region and the actions would include sufficient BMPs to reduce dissolved copper and pollutants from increased stormwater.

In summary, resource-based activities such as timber harvest, agriculture, mining, shipping, and energy development are likely to continue to exert an influence on the quality of freshwater habitat in the action area. The intensity of this influence is difficult to predict and is dependent on many social and economic factors. However, the adoption of industry-wide standards to reduce environmental impacts and the shift away from resource extraction to a mixed manufacturing and technology based economy should result in a gradual decrease in influence over time. In contrast, the population of the Rogue valley is expected to increase in the next several decades with a corresponding increase in natural resource consumption. Additional residential and commercial development and a general increase in human activities are expected to cause localized degradation of freshwater and estuarine habitat. Interest in restoration activities is also increasing as is environmental awareness among the public. This will lead to localized improvements to freshwater habitat. When these influences are considered collectively, we expect trends in habitat quality to remain flat or improve gradually over time. This will, at best, have positive influence on population abundance and productivity for the species affected by this consultation. In a worst cases scenario, we expect cumulative effects would have a relatively neutral effect on population abundance trends. Similarly, we expect the quality and function of

critical habitat PCEs or physical and biological features to express a slightly positive to neutral trend over time as a result of the cumulative effects.

2.6 Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we will add the effects of the action (Section 2.4) to the environmental baseline (Section 2.3) and the cumulative effects (Section 2.5) to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) reduce the value of designated or proposed critical habitat for the conservation of the species. These assessments are made in full consideration of the status of the species and critical habitat (Section 2.2).

NMFS found the proposed action is not likely adversely affect any populations except the URR population. As a core population, the URR population's role in recovery of the ESU is to meet spawner abundance targets and be a source population for adjacent populations. The status of the ESU is poor with many populations at a high risk of extinction. The URR population has declined in response to habitat degradation from many causes including dams, water diversions, floodplain development, stream channelization, and riparian forest removal. Despite these effects, the URR population is one of the five independent populations of SONCC coho salmon at only moderately at risk of extinction. Effects from climate change will increase over the next 50 years. Effects from human population will also continue to increase into the future as growth expands the need for new development. All non-Federal water diversions unassociated with this proposed action are also likely to continue.

Compared to the pre-project, the water quality effects of the proposed action in the Rogue Basin combined will have a small adverse effect on the URR population of SONCC coho salmon. Implementing the bridge and culvert replacement of the proposed action has some adverse effects on all individuals of the Little Butte Creek and Bear Creek sub-populations of the URR population of SONCC coho salmon by continuing stormwater run-off (albeit at a much reduced level).

However, the proposed action will improve SONCC coho salmon habitat quantity and quality from those currently present in the environmental baseline. These improvements are the result of better stormwater treatment, fish passage improvements, improved fluvial conditions, and riparian habitat improvement. The proposed action's riparian habitat improvement actions combined with fish passage improvements, improved stormwater conditions, and improved fluvial conditions will likely result in synergistic improvements in the environmental conditions of the Bear Creek and Little Butte Creek watersheds and consequently to those sub-populations of SONCC coho salmon. Benefits to habitat conditions, most importantly winter and summer rearing habitat, will begin to accrue in the short-term and persist in the long-term. The proposed action is likely to allow an increasing spawner density and abundance by improving water quality through stormwater treatment and riparian planting, and fish passage by applying the fluvial standard to all stream crossings in the Bear Creek and Little Butte Creek watersheds. As their viability improves, these sub-populations will contribute to the population recovery goals for the URR population.

Riparian vegetation restoration, like that occurring at the mitigation site, increases shade, improves conditions in the watersheds for the long term, and will increase coho salmon juvenile summer rearing habitat by extending the stream reaches with suitable rearing temperatures. Despite climate change, the current degraded condition of the riparian plant community (lack of shade) will be improved with this proposed action to benefit water temperature and likely aid in reducing the predicted adverse effect of climate change on stream temperature by providing more shade than exists under baseline conditions.

When considering future activities described in the cumulative effects section, combined with the predicted environmental changes due to climate change (altered hydrologic patterns and warmer stream temperatures), and the beneficial impacts to coho salmon habitat conditions afforded by the proposed action, NMFS concludes the URR population will increase in abundance and productivity. Because, the URR population is a core independent population in the Interior Rogue River strata, as it grows it will provide strays to other populations. Thus, over time, the proposed action will allow the URR population to fulfill its role in the recovery of the SONCC coho salmon ESU. All other populations affected by the proposed action will not likely be adversely affected. Therefore, NMFS finds that the proposed action, directly and indirectly, is not likely to reduce appreciably the likelihood of both the survival and recovery of the SONCC coho salmon ESU. This finding is insured by the opportunity this proposed action affords for improved salmon habitat conditions into the future.

2.7 Conclusion

After reviewing the current status of SONCC coho salmon, the environmental baseline within the action area, the effects of the proposed action, any effects of interrelated and interdependent actions, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of SONCC coho salmon or to destroy or adversely modify its designated critical habitat.

2.8 Incidental Take Statement

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by regulation to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. For this consultation, we interpret "harass" to mean an intentional or negligent action that has the potential to injure an animal or disrupt its normal behaviors to a point where such behaviors are abandoned or significantly altered.[8] Section 7(b)(4) and section 7(o)(2)

[8] NMFS has not adopted a regulatory definition of harassment under the ESA. The World English Dictionary defines harass as "to trouble, torment, or confuse by continual persistent attacks, questions, *etc*." The U.S. Fish and Wildlife Service defines "harass" in its regulations as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3). The interpretation we adopt in this consultation is consistent with our understanding of the dictionary definition of harass and is consistent with the Service's interpretation of the term.

provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this incidental take statement.

2.8.1 Amount or Extent of Take

Actions necessary to complete the proposed project will take place in locations where, at times, juvenile and adult SONCC coho salmon are reasonably certain to occur.

Incidental take caused by the adverse effects of the proposed action will include the following:

1. Capture and isolation of juvenile fish, some of which will be injured or killed, during work area isolation.
2. Injury or death of individual fish caused due to unavoidable turbidity, sediment inputs or chemical contamination.
3. Injury or death of individual fish due to metals and chemical contamination associated with stormwater runoff.

This incidental take will result from work area isolation, sediment inputs due to construction, and stormwater pollutants. Incidental take within that area, that meets the terms and conditions of this incidental take statement will be exempt from the taking prohibition.

In-water work area isolation will be used in Bear, Lone Pine, Upton, South Swanson, North Swanson, and Whetstone Creeks. Juvenile SONCC coho salmon within this area will be exposed to activities that will harass them to the extent that most will flee the area. The process of work area isolation is reasonably certain to capture, injure, or kill of up to 685 (535 in Bear Creek and 25 in each of the other isolations) SONCC coho salmon juveniles inside the isolation areas from the exposure to high levels of turbidity and the physical handling from the salvage operations. These numbers are based on data showing less than 100 individuals are salvaged during any isolation activity. From 2007-2009, ODOT completed 99 work area isolation operations involving capture and release using nets and electrofishing; 31 of those operations resulted in capture of one Chinook salmon, 760 coho salmon (average 25 juvenile coho), and 62 steelhead (Ken Cannon, pers. comm., 2010). There will be seven work area isolations on this project. The estimated number of juvenile SONCC coho salmon to be captured or killed during the 41,510-square foot isolation areas associated with the culvert removals are up to 685 SONCC coho salmon individuals captured.

The distribution and abundance of fish that occur within an action area are affected by habitat quality, competition, predation, and the interaction of processes that influence genetic, population, and environmental characteristics. These biotic and environmental processes interact in ways that may be random or directional, and may operate across far broader temporal and spatial scales than are affected by the proposed action. Thus, the distribution and abundance of fish within the action area cannot be attributed entirely to habitat conditions, nor can NMFS precisely predict the number of fish that are reasonably certain to be injured or killed if their habitat is modified or degraded by the proposed action. Here, the best available indicators for the extent of incidental take are the acreage of the riparian vegetation removal associated with the stream crossings on this project and the linear feet of streambank disturbance. The estimated

extent of take due to riparian removal is 4.0 acres. The estimated extent of take due to streambank disturbance is 2,430 feet.

Incidental take is also reasonably certain to occur from post-development discharge of stormwater resulting in concentrations of pollutants that harm SONCC coho salmon in Bear Creek, Little Butte Creek, and the Rogue River each year. Adverse effects of the proposed action will include reduced water quality due to increased impervious surfaces and stormwater inputs of PAHs, metals, and sediment. Incidental take associated with the proposed action will harm juvenile and adult SONCC coho salmon in Bear Creek that are present when the habitat will be modified by the input of stormwater runoff. This habitat modification will significantly impair essential rearing and feeding behavioral patterns such that fish will be injured or killed from the increases in pollution and will experience a reduction in growth and survival. Take caused by these habitat-related effects cannot be accurately quantified as a number of fish because the relationship between habitat conditions and the distribution and abundance of those individuals in the action area is imprecise.

The NMFS anticipates that incidental take is reasonably certain to occur from post-development discharge of stormwater that will result in concentrations of copper and zinc that will harm juvenile SONCC coho salmon in Bear Creek on an annual basis. Stormwater discharge to Bear Creek will reduce growth and survival of OC coho salmon. Observing or counting the number of individuals harmed without adding significant additional stress or risk of injury to these fish cannot occur. Therefore, NMFS will not identify the amount of take, but will identify a habitat indicator that will serve as an extent of take. Here the best available indicator for the extent of take is an indicator that demonstrates that the stormwater treatment facilities are properly maintained and monitored. This extent of take surrogate is appropriate for this project because it has a rational connection between it and the stormwater pollutants causing take of the species. For this action, the stormwater treatment system is an integral means of minimizing potential take, so the system must function properly.

The extent of take indicator for stormwater is the number and type of stormwater BMPs installed, inspected and maintained (Claytor and Brown 1996; Santa Clara Valley Urban Runoff Pollution Prevention Program 1999; Santa Clara Valley Urban Runoff Pollution Prevention Program 2001), to ensure that facilities proposed to treat highway runoff meet approved design specifications are installed and maintained in a fully operational condition, including a process to identify which facilities and areas require additional management attention to maintain service level over time. This indicator will be evaluated using the maintenance tables in Appendix A outline the frequency of monitoring and maintenance for the different types of BMP that may be used for stormwater treatment.

In summary, the extent of take due to riparian removal is 4.0 acres. The extent of take due to streambank disturbance is 2,430 feet. The estimated extent of take due to stormwater is the proper monitoring and maintenance of all stormwater facilities as described in Appendix A. Each (number of individuals), riparian acres removed (4.0 acres on streams inhabited by ESA-listed species), linear feet of streambank disturbance (2,430 feet on streams inhabited by ESA-listed species) and proper monitoring and maintenance of stormwater facilities, is a threshold for reinitiating consultation. Exceeding either of these limits will trigger the reinitiation provisions of this Opinion.

2.8.2 Effect of the Take

In Section 2.7, NMFS determined that the level of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

2.8.3 Reasonable and Prudent Measures

"Reasonable and prudent measures" are nondiscretionary measures to minimize the amount or extent of incidental take (50 CFR 402.02).

The following measures are necessary and appropriate to minimize the impact of incidental take of listed species due to the proposed action.

The FHWA shall:

1. Minimize incidental take resulting from construction by applying measures to avoid or minimize adverse effects to aquatic and riparian systems.
2. Avoid or minimize the amount and extent of take resulting from fish salvage.
3. Minimize incidental take from the proposed action by ensuring that highway runoff produced by roads, highways and bridges that are constructed, reconstructed, or improved by this project will be managed using stormwater facilities that are designed, operated and maintained using the best available information on LID for highways and BMPs for highway runoff.
4. Ensure completion of a monitoring and reporting program to confirm that the take exemption for the proposed action is not exceeded, and that the terms and conditions in this incidental take statement are effective in minimizing the impact of incidental take.

2.8.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the FHWA or any applicant must comply with them in order to implement the reasonable and prudent measures (50 CFR 402.14). The FHWA or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this incidental take statement (50 CFR 402.14). If the following terms and conditions are not complied with, the protective coverage of section 7(o)(2) will likely lapse.

1. To implement reasonable and prudent measure #1 (general construction, riparian disturbance, and in-water work), the FHWA shall ensure that:

    a. <u>Timing of In-water Work</u>. Work within the active channel of the Bear, Lone Pine, Upton, South Swanson, North Swanson, and Whetstone Creeks will be completed during the period of June 15 to September 15. All in-water work must be completed within these dates unless otherwise approved in writing by NMFS. Work done outside of this period must be fully isolated and contained.
    b. <u>Minimize Impact Area</u>. Confine construction impacts to the minimum area necessary to achieve project goals.

c. Cessation of Work. Operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

d. Pollution and Erosion Control Plan. A pollution and erosion control plan will be prepared and carried out to prevent pollution related to construction operations. The plan must be available for inspection on request by FHWA or NMFS, contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations:

   i. Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.

   ii. A description of any hazardous products or materials that will be used, including procedures for inventory, storage, handling and monitoring.

   iii. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

   iv. Practices to prevent construction debris from dropping into any stream or waterbody and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

e. Inspection of Erosion Controls. During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately.[9]

   i. If inspection shows that the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements or install additional controls as necessary.

   ii. Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.

f. Construction Discharge Water. All discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows:

   i. Water quality treatment. Design, build and maintain facilities to collect and treat all construction discharge water, using the best available technology applicable to site conditions, to remove debris, nutrients, sediment, petroleum products, metals and other pollutants likely to be present.

   ii. Return flow. If construction discharge water is released using an outfall or diffuser port, velocities may not exceed four feet per second, and the maximum size of any aperture may not exceed one inch.

   iii. Pollutants. Do not allow pollutants such as green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any waterbody, wetland or stream channel below OHWL.

g. Pre-construction Activity. Before significant[10] alteration of the project area, the following actions are completed:

[9] 'Working adequately' means no turbidity plumes are evident during any part of the year.

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.

(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[11]).

(2) An oil-absorbing floating boom whenever surface water is present.

iii. Erosion controls. Erosion controls must be in place and appropriately installed downslope of riparian areas to be disturbed until site restoration is complete.

h. Select Heavy Equipment with Care. Use of heavy equipment will be restricted as follows:

i. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse effects on the environment (*e.g.*, minimally-sized, rubber-tired).

ii. Vehicle staging. Vehicles must be fueled, operated, maintained, and stored as follows:

(1) Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area 150 feet or more away from any stream, waterbody or wetland. All vehicles operated within 150 feet of any stream, waterbody or wetland must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected must be repaired in the vehicle staging area before the vehicle resumes operation. Inspections must be documented in a record that is available for review on request by FHWA or NMFS.

(2) All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease, dirt and mud.

iii. Stationary power equipment. Stationary power equipment (*e.g.*, generators, cranes) operated within 150 feet of any stream, waterbody or wetland must be diapered to prevent leaks, unless otherwise approved in writing by NMFS.

i. Site Preparation. Native materials will be conserved for site restoration.

i. If possible, native material must be left where they are found.\

ii. Materials that are removed, damaged, or destroyed must be replaced with a functional equivalent during site restoration.

iii. Any large wood,[12] native vegetation, weed-free topsoil and native channel material displaced by construction must be stockpiled for use during site restoration.

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[10] 'Significant' means an effect can be meaningfully measured, detected or evaluated.

[11] When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

[12] For purposes of this Opinion only, 'large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and other support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs.

2. To implement reasonable and prudent measure #2 (work area isolation and fish salvage), the FHWA shall ensure that:

   a. Isolation of In-water Work Area. The work area will be well isolated from the active flowing stream using inflatable bags, sandbags, sheet pilings or similar materials.
      i. After completion of the project, the existing isolation area should be re-watered in a way that will not degrade water quality or cause fish stranding.
      ii. An ODOT or ODFW biologist shall be on site to monitor for fish stranding during this process.
      iii. The existing flow downstream from the action area will be maintained throughout the construction.
   b. Capture and Release. Fish will be captured and released from the isolated area using trapping, seining, electrofishing or other methods as are prudent to minimize risk of injury.
      i. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.
      ii. If electrofishing equipment is used to capture fish, the capture team must comply with NMFS' electrofishing guidelines.[13]
      iii. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.
      iv. Captured fish must be released as near as possible to capture sites.
      v. ESA-listed fish may not be transferred to anyone except NMFS personnel, unless otherwise approved in writing by NMFS.
      vi. Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.
      vii. The NMFS or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.

3. To implement reasonable and prudent measure #4 (monitoring and reporting), the FHWA shall ensure that FHWA and ODOT shall provide a report to NMFS with the results.
   a. Prepare a Project Completion Report. Prepare and submit a project completion report to NMFS describing the FHWA's success in meeting the terms and conditions contained in this Opinion. The content of the project completion report will include:
      i. Project identification.
         (1) Project name.
         (2) Type of activity.

See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

[13] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (NMFS 2000) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

(3) Project location by 6th field United States Geological Survey (USGS) HUC and by latitude and longitude as determined from the appropriate 7-minute USGS quadrangle map.
(4) FHWA contact person(s).
(5) Starting and ending dates for work completed.

ii. Photo documentation. Photos of habitat conditions at the project site before, during and after project completion.[14]
(1) Include general views and close-ups showing details of the project and project area, including pre- and post-construction.
(2) Label each photo with date, time, project name, photographer's name and the subject.
(3) A photograph of the stormwater outfall and a map showing the exact location of the project, stormwater outfall, and receiving water.

iii. Other data. Include the following specific project data in the project completion report:
(1) A summary of pollution and erosion control inspection results, including a description of any erosion control failure, contaminant release, and efforts to correct such incidences.
(2) Dates work ceased due to high flows.
(3) Total cleared area (riparian and upland).
(4) Isolation of in-water work area and fish capture and release.
(5) Supervisory fish biologist – name and contact information.
(6) Methods of work area isolation and take minimization.
(7) Stream conditions before, during, and within one week after completion of work area isolation.
(8) Means of fish capture.
(9) Number of SONCC coho salmon captured.
(10) Location and condition of SONCC coho salmon released.
(11) Any incidence of observed injury or mortality.

iv. For complex projects that are otherwise required to complete this step, "Preliminary Stormwater Recommendations" as developed by ODOT and sealed by a registered professional engineer (draft ODOT Hydraulics Manual, 4.6.2, 2011), including specifically all LID practices and BMP mitigation alternatives considered and the proposed mitigation alternatives.

v. "Stormwater Design Report" as developed by ODOT and sealed by a registered professional engineer (ODOT Hydraulics Manual, 4.6.4, 2005), including specifically:
(1) Any references to published design material.
(2) Analysis methods used.
(3) Narrative and calculations used in the design.
(4) The number and type of stormwater LID practices that are applied and BMPs that are installed.

[14] Relevant habitat conditions may include characteristics of stream channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually-discernable environmental conditions at the project area, and upstream and downstream from the project.

(5) Inspection and maintenance requirements.

vi. "Stormwater Operation and Maintenance Manual" as developed by ODOT (ODOT Hydraulics Manual, 4.6.6, 2005) with site-specific information on facility operation and maintenance, including specifically:

(1) Required and recommended maintenance actions.

(2) Inspection and maintenance schedule.

vii. For any project that will discharge highway runoff into a CSO or municipal or other non-highway wastewater facility, include:

(1) A written statement from the facility administrator saying that the facility can effectively manage the volume of highway runoff the project will deliver, and agreeing to accept that volume.

(2) A description of how the facility, or pre-treatment before highway runoff is discharged into the facility, will remove metals, PAHs, and other transportation-related pollutants from the highway runoff as efficiently as the six water quality BMPs listed above.

b. Site Restoration.

i. Finished grade slopes and elevations.

ii. Planting composition and density.

c. Monitoring for Extent of Take. Complete riparian removal monitoring as follows: The extent of take is covered for up to 4.0 riparian acres removed on the projects streams with ESA-listed species. Linear feet of streambank disturbance is 2,430 feet on streams with ESA-listed species. Proper monitoring and maintenance of stormwater facilities Appendix A.

d. Reporting.

i. Prepare and submit a summary of the turbidity monitoring, including a photograph of the baseline and compliance sites; a copy of turbidity measurements or observations with the date and time that each was taken; other relevant sampling conditions; and description of any sediment control failure, sediment release, and correction efforts.

e. Submit Reports. To submit the project completion monitoring report, or to reinitiate consultation, contact:

Oregon State Habitat Office
National Marine Fisheries Service
Attn: NWR-2010-6163
1201 NE Lloyd Blvd., Ste. 1100
Portland, Oregon 97232-1274

2.9 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. The following recommendations are discretionary measures that are consistent with this obligation and therefore should be carried out by the FHWA:

1. FHWA should look for opportunities to treat stormwater from existing impervious surfaces that are currently untreated.
2. FHWA should look for opportunities to enhance riparian zones to allow for more shade, lower stream temperatures, and more potential for large wood to be added to the system.

2.10 Reinitiation of Consultation

Reinitiation of formal consultation is required and shall be requested by the Federal agency or by NMFS where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently modified in a manner that has an effect to the listed species or designated critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat is designated that may be affected by the identified action (50 CFR 402.16).

To reinitiate consultation, contact the Oregon State Habitat Office of NMFS, and refer to the NMFS Number assigned to this consultation (NWR-2010-6163).

Please notify NMFS if the FHWA carries out any of these recommendations so that we will be kept informed of actions that are intended to improve the conservation of listed species or their designated critical habitats.

3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

The consultation requirement of section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions, or proposed actions, which may adversely affect EFH. Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitats, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that may be taken by the action agency to conserve EFH.

The Pacific Fishery Management Council (PFMC) described and identified EFH for Chinook salmon, coho salmon, and Puget Sound pink salmon (PFMC 1999). The proposed action and action area for this consultation are described in the Introduction to this document. The action area includes areas designated as EFH for various life-history stages of Chinook salmon and coho salmon.

Based on information provided by the action agency and the analysis of effects presented in the ESA portion of this document, NMFS concludes that proposed action will have the following adverse effects on EFH designated for Chinook and coho salmon:

1. Short-term elevation of turbidity and sedimentation within and immediately downstream from the construction area.
2. Disturbance of the bed and banks of the wetted stream channels due to culvert replacement and installation.
3. Riparian and vegetation loss from accessing and performing construction activities near or on the bank.
4. Potential chemical contamination from fuel and lubricant spills and stormwater pollutants and metals within the wetted channel.

3.1 EFH Conservation Recommendations

The following conservation measures are necessary to avoid, mitigate, or offset the impact of the proposed action on EFH. These conservation recommendations are a subset of the ESA terms and conditions.

1. Construction Activities. Follow term and condition #1 (general construction, and in-water work) as presented in the incidental take statement of this Opinion.
2. Stormwater Treatment. Minimize adverse effects due to the proposed action by ensuring that highway runoff produced by roads, highways and bridges that are constructed, reconstructed, or improved by this project will be managed using stormwater facilities that are designed, operated and maintained using the best available information on LID for highways and BMPs for highway runoff as described in Term and Condition 3.
3. Monitoring and Reporting. Follow term and condition #4 (monitoring) Ensure completion of a monitoring and reporting program opinion to confirm the action is meeting its objective of minimizing harm from permitted activities as described in Term and Condition 4; not including extent of take; and notice requiring reporting to law enforcement of sick, injured, or dead specimens of Pacific salmon found.

3.2 Statutory Response Requirement

Federal agencies are required to provide a detailed written response to NMFS' EFH conservation recommendations within 30 days of receipt of these recommendations [16 U.S.C. 1855 (b)(4)(B)]. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse effects of the activity on EFH. If the response is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations. The reasons must include the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

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 ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

3.3. Supplemental Consultation

The FHWA must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations [50 CFR 600.920(k)].

4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The DQA specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

4.1 Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion are FHWA. Other interested users could include ODOT, ODOT's contractor, or ODOT's consultants. Individual copies of this opinion were provided to the FHWA. This opinion will be posted on the NMFS Northwest Region web site (http://www.nwr.noaa.gov). The format and naming adheres to conventional standards for style.

4.2 Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

4.3 Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01, et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion/EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and MSA implementation, and reviewed in accordance with Northwest Region ESA quality control and assurance processes.

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APPENDIX A. ODOT'S STORMWATER BMP MAINTENANCE TABLES

Table 1: General Maintenance			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
Annual Visual Inspection and Maintenance	Routine inspection	**Facilities should be inspected annually prior to fall rains**. If appropriate, also inspect the facility after the first significant rain event following dry spell (e.g. the first 24-hour rainfall greater than 0.5 inches after summer)	Identify existing and potential operational problems. Repair damaged components that are critical to the operation of the feature (e.g. flow control valves, liners, underdrains, and pipes) as soon as practical. Schedule routine maintenance such as mowing, sump cleanout, lube moving parts, repairs, etc. If the facility is problematic, schedule additional inspections or maintenance. Repair or replace facility field markers according to Technical Bulletin GE10-01(B). A marked facility has an O&M Plan.
	Maintenance of ancillary structures, if present Examples include • Flow splitter manhole • Diversion manhole • Catch basin • Shut-off valve assembly • Pretreatment or primary treatment manhole • Large detention pipe • Vault • Outfall	Damage or problems are observed or anticipated during the annual inspection.	Grease moving parts to ensure proper operation. Remove sediment from sumps, vaults, catch basins, and structures to prevent the release of oil or sediment. Annual cleaning is recommended. The use of a Vactor® truck is allowed unless prohibited in the facility's O&M manual Repair or replace damaged orifice assembly/riser pipe. Restore to design standards. Be aware of possible confined space requirements. Repair or replace damaged gates, locks, chains, etc that are used to secure valves and access points to prevent vandalism
General	Temporary erosion control hampers maintenance	Erosion control remains from project construction (contractor did not remove)	Contact contractor to complete work OR remove temporary erosion control that is not specified in the O&M Plan.

Table 1: General Maintenance			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
General	Spilled material has entered the pond or structures	Oil, fuel, or other pollutants are evident following a spill event or accident.	Utilize valves or other features, if present, to contain the spilled material. Remove and properly manage spilled material and contaminated soil. Contact Region HazMat or spill response company for spill cleanup assistance where appropriate. Contact a Region Hydraulic Engineer for technical assistance with pond restoration, if necessary.
	Litter (trash and debris)	Trash poses a hazard, inhibits function, or is aesthetically unacceptable (e.g. evidence of dumping).	Remove problematic trash and debris as soon as practical. There should be no evidence of dumping. Remove non-problematic trash in accordance with District litter practices.
	Insects	Insects interfere with maintenance activities.	Implement vector control in accordance with County Health and District practices.
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity.	Mow access, berms, bottom, and side-slopes of the facility as noted in the District Integrated Vegetation Management (IVM) Plan. Remove vegetation in or around grates that obstruct (or could obstruct) flow. Avoid mowing or removing vegetation that does not need to be controlled. Avoid removing vegetation too low to the ground. NOTE: Removing vegetation too near to the ground may result in scalping of the soil, unwanted damaged to vegetation, or growth of unwanted plant species. Heavy equipment is allowed within aboveground water quality and detention facilities unless access restrictions are listed in the O&M Manual.
	Noxious weed growth	Control of noxious weeds is required by law or prescribed in the District IVM Plan	Remove noxious weeds in accordance with the District IVM Plan. Follow Environmental Protection Agency (EPA) label and ODOT policies on herbicide usage.

Table 1: General Maintenance			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
General	Hazard trees	Trees are found to be weakened, unsound, undermined, leaning, or exposed and may fall across the highway	Remove hazard trees as soon as practical. Where appropriate, consult an ODOT Forester for help identifying or removing hazard trees.
	Tree growth	Tree growth restricts access, obstructs function, jeopardizes infrastructure, or interferes with maintenance actions.	Prune or remove as needed to maintain access, function, and tree health. Manage potentially problematic woody material before the trees reach 6 inches diameter at breast height (DBH). Consult an ODOT Forester for the removal or management of trees greater than 6 inches DBH. Obtain permits where appropriate. Refer to the District IVM Plan for the management of smaller trees. Avoid removing trees that will not interfere with the operation or maintenance of the facility.

Table 2: Maintenance of Stormwater Ponds Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth in **dry ponds** (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. Collected water should drain.	Dry ponds need vegetation on the bottom and sides. Vegetation management typically occurs around and within the facility. Mow access, berms, bottom, and side-slopes as noted in the District Integrated Vegetation Management (IVM) Plan. (typically annually) Heavy equipment is allowed on dry pond bottoms unless access restrictions are listed in the O&M Manual.
	Vegetation growth in **wet ponds** (mowing and brushing) NOTE: Wet ponds are not typical.	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. Water may be stored year-round without draining.	Wet ponds need vegetation on the bottom and sides. Vegetation management typically occurs around the facility. Mow access and berms as noted in the District Integrated Vegetation Management (IVM) Plan. Ponds bottoms are intended to capture and store water. Vegetation removal from pond bottoms is infrequent.
	Sediment accumulation in pre-treatment features (e.g. forebays, basins, or fully exposed impermeable liners) NOTE: Exposed liners are not typical.	Sediment affects flow. Sediment jeopardizes infrastructure.	Remove sediment from ponds and pipe ends as needed to ensure adequate drainage into treatment pond (grassy or wet pond). Use methods that minimize disturbance to surrounding vegetation. Heavy equipment is allowed on dry pond bottoms unless access restrictions are listed in the O&M Manual. Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment. Note: Pollutant concentrations may increase if sediment is not routinely removed.

Table 2: Maintenance of Stormwater Ponds

Stormwater ponds should retain water and slowly release by either infiltration or outflow.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
Storage areas	Sediment accumulation along bottom of grassy ponds	Sediment inhibits the flow of water through the grass (>12 inches deep). Sediment inhibits grass growth.	Where practical use a Vactor® truck to remove sediment from grassy areas. When Vactoring® is not practical, follow ditch cleaning practices. Restore slope and geometry to design standards, if necessary. Reseed grass cover where needed. Stormwater should infiltrate or flow toward outlet once inflow has ceased. Refer to the general section of this table for side-slope mowing and other routine maintenance actions.
	Sediment accumulation in wet ponds or channels. NOTE: Currently there is limited use of wet ponds to treat stormwater.	Capacity has noticeably decreased (examples below) • low and medium flows go through the bypass, • the ordinary high water level has increased, • flooding occurs when the outflows are not blocked, • pond bottom is level with outlets.	Remove sediment build-up from pipe ends as needed to ensure flow. Use methods that minimize disturbance to surrounding vegetation. Remove sediment to restore designed shape and depth. In high ADT areas, pond dredging may be required every 5 to 10 years to restore the capacity. Cease sediment removal when riprap or liner is encountered. Reseed if necessary to control erosion.
	Erosion	Side slopes show evidence of erosion greater than 4 inches deep and the potential for continued erosion is evident.	Promptly address erosion that causes immediate problems (e.g. damage to highway or highway structure) Schedule non-urgent repairs with routine work. Stabilize slope using appropriate erosion control and repair methods. Repair the cause of the erosion where possible. If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.

Table 2: Maintenance of Stormwater Ponds Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
Storage areas	Beaver dams	Dam inhibits function or jeopardizes the infrastructure.	Dispose of dam debris offsite or outside of the riparian area. Coordinate the removal or relocation of beaver with Oregon Department of Fish and Wildlife (ODFW). Consider installing deterrents where appropriate.
	Flooding	Water is flowing over or is approaching the top of the pond	Check storm drain pipes and structures for blockage. Ensure valves are open. Remove obstructions to restore flow. Evaluate and remove excessive sediment from pond storage areas. Contact the Region Hydraulic Engineer to evaluate the source of flooding or provide design modifications.
Treatment Components	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of pond bottom.	Repair and reseed as appropriate to restore coverage. Install erosion control measures as needed. Trim overhanging limbs and remove brushy vegetation that limit grass growth (provide too much shade).
	Missing or eroded amended soil mix	Bare soil is observed over 10 percent of the amended area.	Identify and resolve erosion problem Add amended soil. Contact a Region Hydraulics Engineer for required material specifications.
	Amended soil mix along pond bottom is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace amended soil mix. Contact a Region Hydraulics Engineer for required material specifications. Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Granular drain backfill material for underdrain pipe plugged	Amended soil mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications. Install new drainage geotextile over new granular drain backfill material. Replace amended soil mix.

Table 2: Maintenance of Stormwater Ponds Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
Treatment Components	Impermeable liner damage NOTE: Liners (if installed) are typically below the grass surface and may not be visible.	Liner is damaged (e.g. during sediment removal or by motoring public). Liner is damaged when condition allows potential contamination to be released to the subsurface.	Repair or replace the liner with similar material. In many cases, rigid plastic liners may be repaired by welding a similar material over the damaged portion or using a non-toxic, waterproof epoxy. If necessary, contact a Region Hydraulics Engineer for technical assistance regarding permanent repair.
Berms and Dikes	Settlement	Any part of the berm has settled 4 inches or lower. Note: Settlement may indicate potential problems with the facility.	Repair berm to design height with similar materials. Contact a Region Hydraulics and Geotechnical Engineer as needed to evaluate the source of the settlement and determine repair options.
	Flow-through	Water is flowing through the pond berm.	Correct cause of flow through (e.g. eliminate burrowing rodents) Install erosion control measures where appropriate. Repair berm with similar materials. If necessary, contact a Region Geotechnical Engineer to evaluate the condition.
	Sloughing	Ongoing erosion is observed with potential for erosion to continue.	Where possible correct the cause of the erosion. Install or replace energy dissipaters where appropriate. Install erosion control measures where appropriate Repair berm with similar materials. If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.
Structures and piping Includes • flow splitters • vaults	Damaged or missing components	Flow control assembly is not working properly (e.g. loose, bent, unattached, etc.).	Repair or replace valves, gates, orifices and pipes as necessary with similar components. Divert flows when needed.

Table 2: Maintenance of Stormwater Ponds Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
• inlets • bypasses • valves • catch basins • gates	Obstruction or blockage	Water does not flow in, through, or out of the structure or piping.	If valves are part of the flow control assembly, verify the valves are open. Refer to the O&M for the location of control valves. Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary). Jet rodders may be used to clean piping unless specifically prohibited in the O&M plan.
Outfalls	Insufficient rock armoring at outlets • along channel side slopes and bottom • pipe outlet • along the length of spillway	Minimal layer of rock exists Rock missing along armored area Flow channelization or high flows exposed native soil around the rock armored area	Install erosion control measures Repair or replace rock armoring to original design standard Repair, re-grade, and reseed eroded areas adjacent to rock armoring. Contact a Region Hydraulics Engineer for technical assistance if rock armoring problems continue or a highway structure is at risk

Table 3: Maintenance of Water Quality or Biofiltration Swales Swales should provide even sheet flow that moves water from the inlet to the outlet.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. **Swales should be mowed annually.**	Mow access, berms, swale, and side-slopes as noted in the District Integrated Vegetation Management (IVM) Plan. The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.
Swale Components	Sediment accumulation in pre-treatment areas or ancillary structures (e.g. manholes)	Sediment affects flow. Sediment jeopardizes infrastructure.	Remove sediment that prevents adequate drainage into swale. Use methods that minimize disturbance to surrounding vegetation. The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual. Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment. Note: Pollutant concentrations may increase if sediment is not routinely removed.
	Sediment accumulation along swale bottom	Sediment inhibits the flow of water through the grass (e.g. water is ponding or cutting a channel).	Remove sediment from grassy areas. The use of a Vactor® truck is allowed unless access restrictions are listed in the O&M Manual. Restore slope and geometry to design standards, if necessary. Reseed grass cover where needed. Stormwater should infiltrate or flow toward outlet once inflow has ceased.

Table 3: Maintenance of Water Quality or Biofiltration Swales Swales should provide even sheet flow that moves water from the inlet to the outlet.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
Swale Components	Erosion	Side slopes show evidence of erosion greater than 2 inches deep and the potential for continued erosion is evident.	Promptly address erosion that causes immediate problems (e.g. damage to highway or highway structure) Schedule non-urgent repairs with routine work. Stabilize slope using appropriate erosion control and repair methods. Repair the cause of the erosion where possible. If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.
	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of swale. NOTE: A single incident (e.g. vehicle accident) typically effects less than 10 percent of the area and is unlikely to trigger a repair.	Repair and reseed as appropriate to restore coverage. Install erosion control measures as needed. Trim overhanging limbs and remove brushy vegetation that limit grass growth (provide too much shade).
	Missing or eroded amended soil mix	Bare soil is observed over 10 percent of the amended area.	Identify and resolve erosion problem Add amended soil. Contact a Region Hydraulics Engineer for required material specifications.
	Amended soil mix along swale bottom is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace amended soil mix. Contact a Region Hydraulics Engineer for required material specifications. Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Granular drain backfill material for underdrain pipe plugged	Amended soil mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications. Install new drainage geotextile over new granular drain backfill material. Replace amended soil mix.

Table 3: Maintenance of Water Quality or Biofiltration Swales Swales should provide even sheet flow that moves water from the inlet to the outlet.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
Swale Components	Impermeable liner damage NOTE: Liners may not be visible. If present, liners are typically below the grass surface along the bottom of the swale Fabric wrapped around underdrains is not a liner.	Liner is damaged (e.g. during sediment removal or by motoring public). Liner is damaged when condition allows potential contamination to be released to the subsurface.	Repair or replace the liner with similar material. Replace top soil and grass as appropriate. Features with liners, typically have maintenance option limitations; check the O&M Manual. If necessary, contact a Region Hydraulics Engineer for technical assistance.
	Obstruction or blockage of pipes	Water does not flow in, through, or out of the swale.	Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary). Jet rodders may be used to clean piping unless specifically prohibited in the O&M plan.
	Flow spreader is uneven or clogged	Water does not flow evenly across the structure	Clean sump or forebay as needed to maintain capacity. Clean or repair spreader as needed to provide a uniform flow and prevent erosion. Level portions of the flow spreader that have settled.

Table 4: Filter Strips

Filter strips should provide even sheet flow that moves water from edge of pavement toward a downslope conveyance.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. **Filter strips should be mowed annually.**	Mow as noted in the District Integrated Vegetation Management (IVM) Plan. The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.
Filter Strip Components	Sediment accumulation	Sediment inhibits the flow of water through the grass (e.g. water is ponding or cutting a channel).	Remove sediment from grassy areas. The use of a Vactor® truck is allowed unless access restrictions are listed in the O&M Manual. Restore slope and geometry to design standards, if necessary. Reseed grass cover where needed.
	Missing or eroded amended soil mix	Bare soil is observed over 10 percent of the amended area.	Identify and resolve erosion problem Add amended soil. Contact a Region Hydraulics Engineer for required material specifications.
	Amended soil mix is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace amended soil mix. Contact a Region Hydraulics Engineer for required material specifications. Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Flow spreader is uneven or clogged	Water does not flow evenly across the structure	Clean or repair spreader as needed to provide a uniform flow and prevent erosion. Level portions of the flow spreader that have settled.
	Erosion or rutting	Areas have eroded or channelized due to high flows or vehicular damage	Repair, regrade, and reseed (as needed) to restore uniform flow across grass.
	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10% of the strip. NOTE: A single incident is unlikely to trigger a repair.	Repair and reseed as appropriate to restore coverage. Install erosion control measures as needed.

Table 5: Bioslopes

Bioslopes should provide even sheet flow that moves water from edge of pavement.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. **Slopes should be mowed annually.**	Mow as noted in the District Integrated Vegetation Management (IVM) Plan. The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.
Bioslope Components	Sediment accumulation	Sediment inhibits the flow of water to the bioslope (e.g. water is ponding or cutting a channel).	Remove sediment from grassy areas. The use of a Vactor® truck is allowed unless access restrictions are listed in the O&M Manual. Restore slope and geometry to design standards, if necessary. Reseed grass cover where needed.
	Ecology mix is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace ecology mix. Contact a Region Hydraulics Engineer for required material specifications. Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Granular drain backfill material for underdrain pipe plugged	Ecology mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications. Install new drainage geotextile over new granular drain backfill material. Replace amended soil mix.
	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of the strip	Repair and reseed as appropriate to restore coverage. Install erosion control measures as needed.

Table 6: Detention Vaults

Detention vaults should temporarily hold water and slowly release through the outlet.

Tanks and pipes may be classified as confined space. Refer to the ODOT Confined Space program (PRO96003) before entering.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
Components	Sediment accumulation	Sediment exceeds (or could exceed) the capacity of the sump. Sediment is observed at the outlet.	Remove sediment from sump and bottom of tank floor. **Annual cleaning is recommended.** The use of a Vactor® truck is allowed unless prohibited in the facility's O&M manual. Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment. Note: Pollutant concentrations may increase if sediment is not routinely removed.
	Damaged or missing components	Flow control assembly is not working properly (e.g. loose, bent, unattached, etc.).	Repair or replace valves, gates, orifices and pipes as necessary with similar components. Divert flows when needed.
	Obstruction or blockage	Water does not flow in, through, or out of the structure or piping.	If valves are part of the flow control assembly, verify the valves are open. Refer to the O&M for the location of control valves. Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary). Jet rodders may be used to clean piping unless specifically prohibited in the O&M plan.
	Structure or access is hidden	Site condition conceal the location of the facility	Mark facilities that may become hidden
	Clogged air vent	Pressure or a vacuum is created within the tank.	Clean air vents as needed to ensure air flows into and out of the tank.

Table 7: Detention Tank (or Large Diameter Pipe)

Detention tanks should temporarily hold water and slowly release through the outlet.

Detention tanks and pipes may be classified as confined space. Refer to the ODOT Confined Space program (PRO96003) before entering.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
Components	Sediment accumulation	Sediment exceeds (or could exceed) the capacity of the sump. Sediment is observed at the outlet.	Remove sediment from sump and bottom of tank floor. **Annual cleaning is recommended.** The use of a Vactor® truck is allowed unless prohibited in the facility's O&M manual. Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment. Note: Pollutant concentrations may increase if sediment is not routinely removed.
	Damaged or missing components	Flow control assembly is not working properly (e.g. loose, bent, unattached, etc.).	Repair or replace valves, gates, orifices and pipes as necessary with similar components. Divert flows when needed.
	Obstruction or blockage	Water does not flow in, through, or out of the structure or piping.	If valves are part of the flow control assembly, verify the valves are open. Refer to the O&M for the location of control valves. Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary). Jet rodders may be used to clean piping unless specifically prohibited in the O&M plan.
	Structure or access is hidden	Site condition conceal the location of the facility	Mark facilities that may become hidden
	Clogged air vent	Pressure or a vacuum is created within the tank.	Clean air vents as needed to ensure air flows into and out of the tank.

U.S. Department of Transportation
Federal Highway Administration

Oregon Division

530 Center Street NE, Suite 420
Salem, Oregon 97301
503-399-5749
503-399-5838 (fax)
www.fhwa.dot.gov/ordiv

12/22/2011

In Reply Refer To:
HEO.3-OR

Mr. Paul Henson
State Supervisor
US Fish and Wildlife Service
2600 SE 98th Avenue
Portland, Oregon 97266

Dear Mr. Henson:

Enclosed is the Biological Assessment (BA) to address the potential terrestrial effects of the Oregon Highway 62 Corridor project for compliance with Section 7 of the Endangered Species Act (ESA). This project is being funded by the Federal Highway Administration (FHWA), thus constituting the Federal nexus for this project. The Oregon Department of Transportation (ODOT), on behalf of FHWA, is responsible for project management and the administration of funds for the project. FHWA requests formal consultation for the project.

This BA presents a **may affect, likely to adversely affect** determination for Vernal Pool Fairy Shrimp (*Branchinecta lynchi*), Cook's Lomatium (*Lomatium cookii*), and Large-Flowered Wooly Meadowfawn (Limnanthes flocossa grandiflora), and their associated critical habitat. We kindly request that you reference ODOT Project Key #13226; Federal-aid #X-NH S022(022) on correspondence related to this project. We greatly appreciate you processing the biological opinion at your earliest convenience. If you have any questions, please contact ODOT Region 3 Environmental Project Coordinator Anna Henson at 541-774-6376 or anna.henson@odot.state.or.us.

Sincerely,

For Chris Bucher
Operations Engineer, ODOT Region 3

Enclosure - Biological Assessment

cc, w/o encl.:
USF&WS (David Leal, ODOT Liaison)
ODOT (Anna Henson, Region 3 Environmental Project Coordinator)
(John Raash, Geo-Environmental Services)

KR/rm

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United States Department of the Interior
FISH AND WILDLIFE SERVICE
Oregon Fish and Wildlife Office
2600 SE 98th Avenue, Suite 100
Portland, Oregon 97266
Phone: (503)231-6179 FAX: (503)231-6195

Reply to: 8330.F0043(12)
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TS Number: 12-278
Doc Type: Final

MAR 26 2013

Phillip Ditzler; Oregon Division Administrator
Federal Highway Administration
530 Center Street NE, Suite 100
Salem, OR 97301

Subject: Endangered Species Act Formal Consultation on the Oregon Highway 62 Corridor Solutions Project, Jackson County.
(FWS Consultation number: 01EOFW00-2012-F-0043) (KN 13226)
(Fed Aid Number X-NH S022(022))
(Attn: Ms. Cindy Callahan)

Dear Mr. Ditzler:

This document transmits the Fish and Wildlife Service's (Service) biological opinion based on review of the Federal Highway Administration's (FHWA) biological assessment (BA) for the Oregon Department of Transportation's (ODOT) Oregon Highway 62 Corridor Solutions Project (highway 62 Project), dated December 22, 2011. For the purposes of this consultation, FHWA is the lead action agency because of its funding of the project. ODOT, as the non-Federal representative, led the effort to complete the BA on behalf of the FHWA and is the State agency conducting, monitoring and reporting on the progress and compliance of the activities included in the Highway 62 Project.

Species for which the Service has jurisdiction addressed in this formal consultation include the vernal pool fairy shrimp (*Brachinecta lynchii*), Cook's lomatium (*Lomatium cookii*), and large-flowered woolly meadowfoam (*Limnanthes flocossa* ssp. *grandiflora*).

Please direct any questions regarding this letter to David Leal or Joe Zisa of the Service's Oregon Fish and Wildlife Office at 503-231-6178.

Sincerely,

for

Paul Henson, Ph.D.
State Supervisor
Oregon Fish and Wildlife Office

Endangered Species Act – Section 7 Consultation

for

Oregon Highway 62 Corridor Solutions Project, Jackson County

Action Agency: Federal Highway Administration

Consultation Conducted By: U.S. Department of the Interior, Fish and Wildlife Service

Date Issued: March 14, 2013

Issued by:

For State Supervisor
Oregon Fish and Wildlife Office

Refer to: **USFWS Cons #01EOFW00-2012-F-0043**

1.0 Consultation History and Background

This consultation and biological opinion (BO) are in response to the December 22, 2011 FHWA request for consultation and the Oregon Department of Transportation's (ODOT) 2011 Biological Assessment (BA) for the Oregon Highway 62 Corridor Solutions Project (Project), Jackson County. The Federal Highway Administration (FHWA) Oregon Division Office is the lead Federal action agency because of its partial funding of the Project, while ODOT, as the non-Federal representative, led the effort to complete the BA on behalf of the FHWA and is the State agency conducting, monitoring and reporting on the progress and compliance of the activities included in the Project. For the purposes of this consultation the action agency is referred to as FHWA/ODOT. This BO is based on information provided in the FHWA/ODOT's BA for the Project (ODOT 2011); restoration and mitigation standards put forth in the Service's *Programmatic Formal Consultation on the U.S. Fish and Wildlife Service's Vernal Pool Conservation Strategy for Jackson County, Oregon* (FWS 2011); regular meetings and discussions between the Federal regulatory agencies and ODOT personnel and file information and reference material located at the Service's Oregon Fish and Wildlife Office. A complete administrative record of this consultation is on file at the Oregon Fish and Wildlife Office.

Informal agency briefings and initial site visits for the Project began as early as June 1999 and June 2000 with meetings between ODOT, NOAA Fisheries; the Army Corps of Engineers, the Oregon Department of State Lands, FHWA and Service personnel. This document only addresses species covered under the Service's Endangered Species Act jurisdiction.

The FHWA/ODOT requested initiation of formal consultation with its determinations that the proposed Project "may affect, is likely to adversely affect" the vernal pool fairy shrimp, Cook's lomatium and large-flowered woolly meadowfoam.

The FHWA/ODOT is also requesting initiation of formal consultation with its determinations that the proposed Project may adversely affect designated critical habitat for the vernal pool fairy shrimp, Cook's lomatium and large-flowered woolly meadowfoam. The FHWA made these requests in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.) and as outlined in Table 1-1.

Table 1-1. Species addressed in this BO, listing status, and FHWA/ODOT's affects determinations (ODOT 2009).

Species	Scientific name	Federal Status	Determination
Invertebrates			
Vernal pool fairy shrimp	*Branchinecta lynchii*	T/CH	LAA LAA for CH
Plants			
Cook's lomatium	*Lomatium cookii*	E/CH	LAA LAA for CH
Large-flowered woolly meadowfoam	*Limnanthes floccose* ssp. *grandiflora*	E/CH	LAA LAA for CH

(E) – Endangered (T) –Threatened (CH) - designated Critical Habitat (LAA) – likely to adversely affect

BIOLOGICAL OPINION

2.0 Proposed Action

The proposed Project occurs entirely within Jackson County, Oregon. The proposed project is from the intersection of I-5 and OR 62 in Medford, to the intersection of OR 62 and West Dutton Road in White City. Figures 1-1 and 1-2 of the BA show the project location and the extent of proposed project activities. The BA (ODOT 2011) summarizes the proposed action with an emphasis on project components having a bearing on habitats and resources of the listed species discussed in this BO. A complete description of the proposed action is included in the Terrestrial Resources Biological Assessment: Oregon Highway 62 Corridor Solutions Project (ODOT 2011).

2.1 Description of Project Activities

In late 2006, a limited access bypass was selected as the preferred approach to address the stated purpose and needs as a solution for traffic and safety issues along the OR 62 Medford to White City corridor.

2.1.1 Build Alternatives

In general terms, the two Build Alternatives vary in how they convey traffic from I-5 onto OR 62 and the proposed Bypass. This proposed action section will focus on the common design features to both Build Alternatives and the proposed construction phasing. Figure 1-2 of the BA (ODOT 2011) depicts the two Build Alternatives.

2.1.2 Common Design Features of the two Build Alternatives *(Commerce Drive to West Dutton Road)*

2.1.2.1 Limited-Access Bypass

North of Poplar Drive, the two Build Alternatives are identical. They consist of a limited-access Bypass and include some modifications to local streets. The bypass is comprised of four, 12-foot travel lanes (two in each direction), a 10-foot center median, and 8-foot shoulders.

The bypass will be located on the site of the Medco Haul Road, approximately 2,400 feet west of and parallel to the existing OR 62. It would remain at-grade until just south of Vilas Road, where it would be elevated on fill and cross over the top of Vilas Road. A new, elevated Single Point Urban Interchange and crossing structure at Vilas Road will be built to provide connections between the Project and Vilas Road. North of Vilas Road, the bypass will return to grade level.

Between Justice and Gregory Roads there are three Design Options (A, B, and C) under consideration. Each Design Option is common to both Build Alternatives. The Design Options describe possible locations for a portion of the bypass just north of Justice Road until it rejoins OR 62 near Corey Road. Figure 2-1 (Figure 2-3 in the BA, ODOT 2011) depicts the location of the three Design Options.

All three Design Options would include a directional interchange in the vicinity of the existing OR 62/Agate Road intersection. This interchange would allow traffic to reconnect with OR 62 or continue on the prposed Project alignment. An existing dip in Agate Road near the Denman Wildlife Management Area (WMA) will be filled to eliminate existing flooding conditions during high precipitation events and improve safety.

The Design Options under consideration produce trade-offs between environmental impacts, particularly to vernal pool habitats, and financial and land use impacts to developed areas. The DEIS will forward a Preferred Alternative, based on these (and other) trade-offs. North of the Agate Road/OR 62 interchange, the Project would use the Agate Road right of way (ROW) to avoid encroaching on the WMA. The Project would be elevated on fill and would cross over Antelope Road and Avenue G on bridge structures. North of Avenue G, the Project would be located on a structure; after crossing over Avenue H, the Project would curve east, return to grade, and use the West Dutton Road ROW.

The Project would terminate at a new interchange with the existing OR 62, located at the existing intersection of OR 62 and West Dutton Road. The interchange would allow northbound Project traffic to continue north on OR 62 but not south on OR 62 (Figure 2-2; 2-4 in the BA, ODOT 2011). Southbound OR 62 traffic could either curve west onto the Project (southbound) or take a ramp over the Project and continue south on the existing OR 62 through White City. Northbound traffic on the existing OR 62 could only continue north on OR 62, as no access to the Bypass (Project) southbound is provided.

2.1.3 Local Street Modifications

The two Build Alternatives would include modifications to the local street network. In addition to those modifications described above, there would be modifications common to both Build Alternatives.

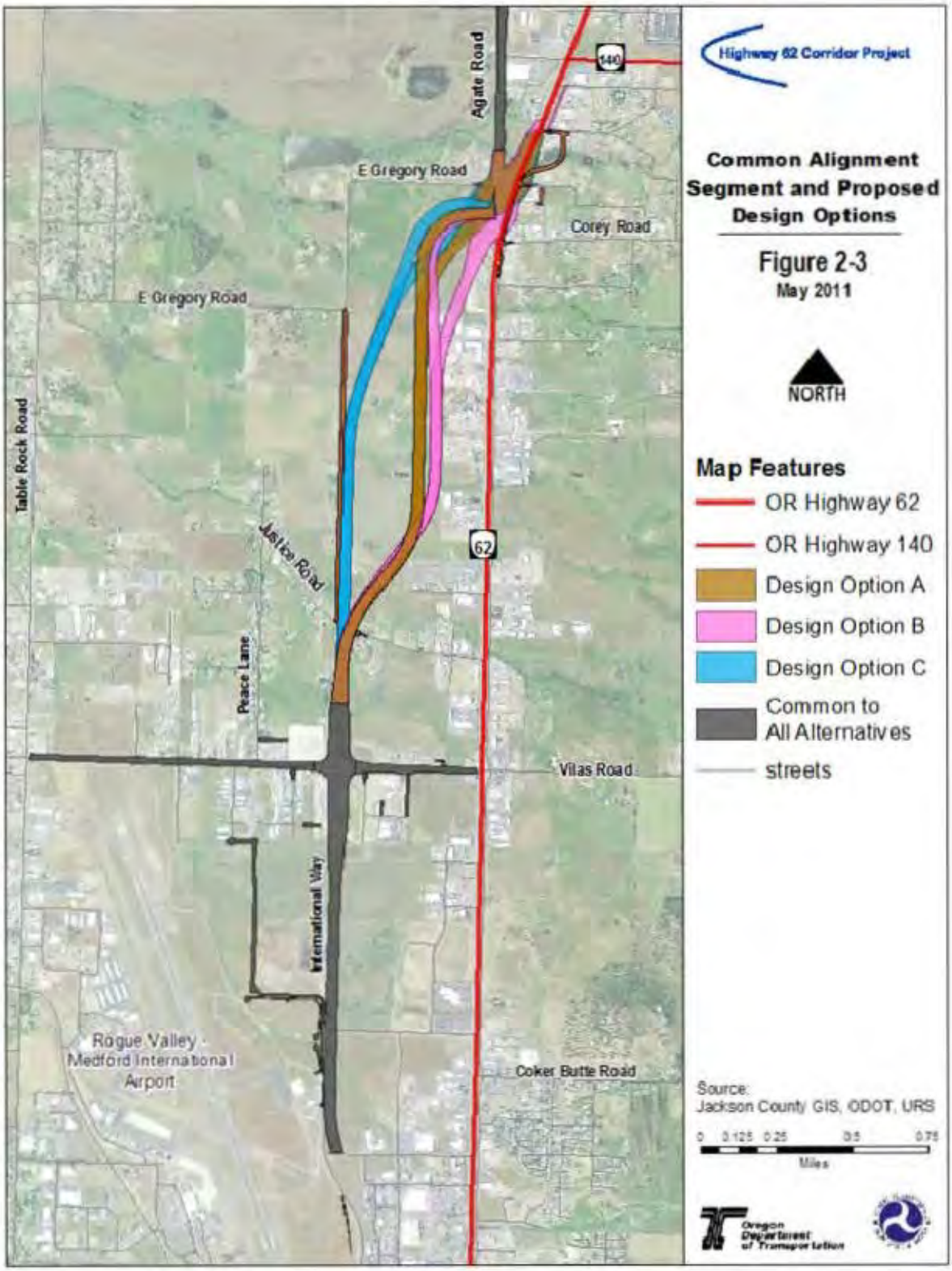


FIGURE 2-1: COMMON ALIGNMENT SEGMENT AND PROPOSED DESIGN OPTION

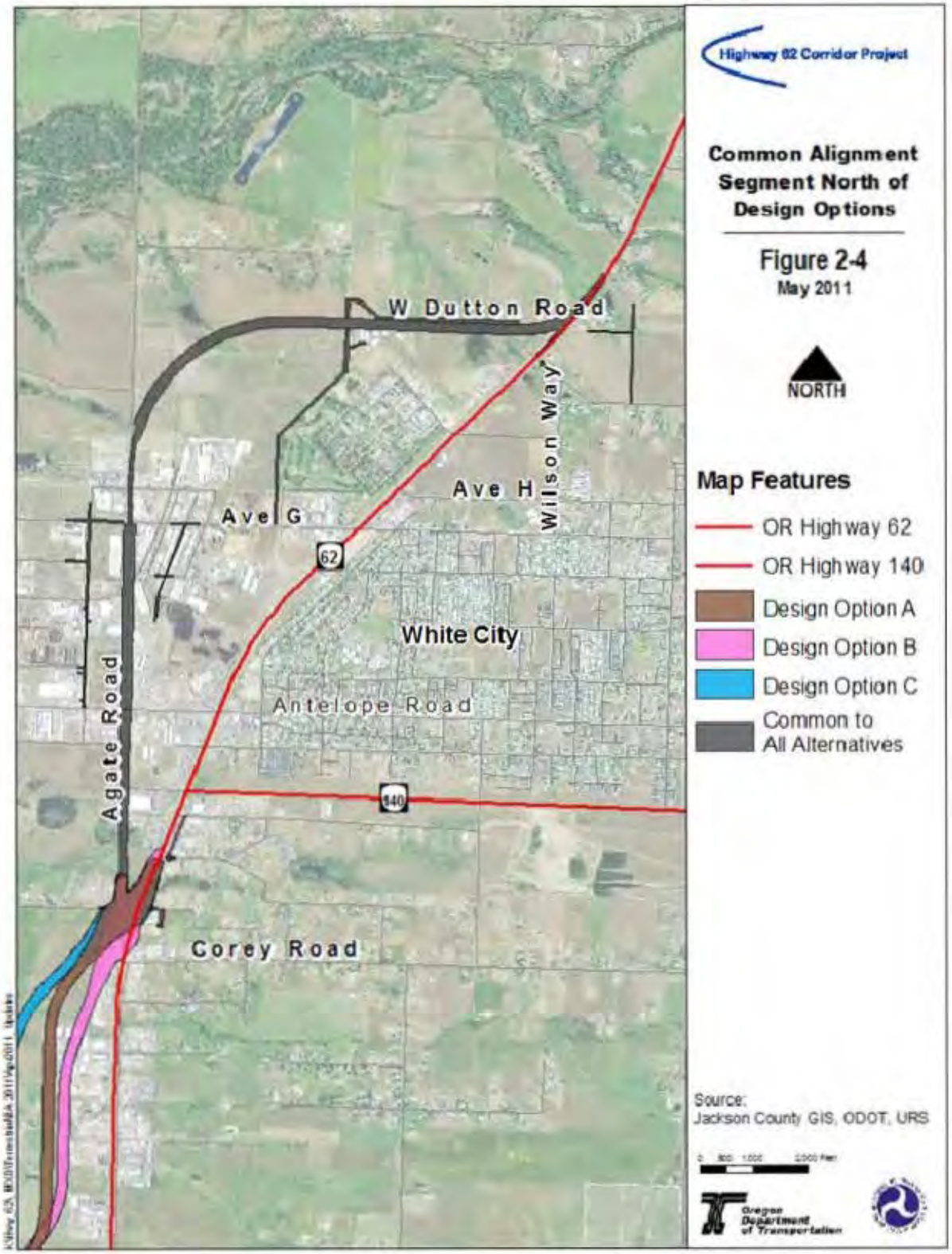


FIGURE 2-2: COMMON ALIGNMENT SEGMENT NORTH OF DESIGN OPTIONS

2.1.3.1 Rogue Valley International - Medford Airport Vicinity

The Rogue Valley International-Medford Airport (Airport) currently has an internal circulation road around its perimeter. In places where the Project would use some of the ROW to the west, this road would be realigned, with the new alignment located as close to the original alignment as possible. The Project would necessitate the construction of surface street access to the cluster of buildings on the east side of the Airport, including the Immigration and Naturalization Service (INS) facility. At the southern terminus of Airway Drive, a new two-lane, east-west street, approximately 4,400 feet long, would be built, extending southeast from Airway Drive to connect to the INS facility and other buildings. The new road would follow existing property boundaries. Commerce Drive and Coker Butte Road would be converted to cul-de-sacs at the Project.

2.1.3.2 Vilas Road Vicinity

Vilas Road would be widened from its current three-lane cross section (one lane in each direction, plus a center turn lane) to five lanes between the existing OR 62 and Table Rock Road. A number of local road improvements would be necessary to accommodate these changes, including the addition of bike lanes and sidewalks. Enterprise Drive would be extended to the east. A new street connecting Justice Road with Gregory Road would be built, and a cul-de-sac added at the Project. A new roadway connecting the east end of Helicopter Way to Vilas Road would be constructed. All local roadway improvements (new or rebuilt) would conform to local planning standards with the addition of bike lanes and sidewalks.

2.1.3.3 White City Industrial Area

From the Agate Road interchange to a point just south of Avenue G, the Project would replace Agate Road. From Avenue G north, the bypass would be located on a structure above Agate Road and Agate Road would continue to function as a local street. Leigh Way and Avenue A currently intersect with Agate Road; under the Project, they would both terminate at the bypass. Antelope Road currently intersects with Agate Road; under the Project, there would be a grade-separated crossing with the bypass crossing over the top of Antelope Road. Between Antelope Road and Avenue G, 11th Street would be improved to Jackson County standards (it is currently unpaved). 14th Street from Avenue G south would also be improved to Jackson County standards, and would be extended south of Avenue F. Portions of Avenues F and G adjacent to the intersections with 11th and 14th Streets would also be improved.

2.1.3.4 Dutton Road Area

West Dutton Road would be displaced by the proposed Project. A new frontage road that intersects with Avenue G would be built as a replacement. The new road would be located along the west and northwest edge of the Veterans Administration Southern Oregon Rehabilitation Center and Clinics (VA SORCC) property lines. Fill would be required for the New Dutton Road grade separation over the Project. Existing driveways would be moved and connected from the new local roadway to the existing East Dutton Road.

2.2 Construction Phasing

The Oregon Jobs and Transportation Act (JTA) did not provide sufficient funding to construct the entire project currently under consideration. As a result, ODOT is proposing an initial construction phase of the project (JTA Phase). If either of the Build Alternatives (Split Diamond or Directional Interchange) is forwarded as the Preferred Alternative, a detailed phasing plan will be developed and included in the Project's Final Environmental Impact Statement (FEIS). The following sections provide more detail relative to potential construction phases.

2.2.1 JTA Phase Design

The JTA Phase design is being advanced under conceptual design and is still under development. The goal of the JTA Phase is to build a Bypass as far north as funding will allow. Design refinements are ongoing; as more detailed design information is available, more accurate cost estimates will be developed and engineers will be better able to assess the extent of the JTA Phase design. The current cost estimates suggest that the JTA Phase could extend from OR 62 near Delta Waters Road, in Medford, as far north as Corey Road, near White City. However, as more detailed cost estimates become available and as ongoing agency and jurisdictional coordination proceeds, the design and extent of the JTA Phase may change. In order to ensure that all potential impacts are evaluated and disclosed, this assessment assumes that the JTA Phase would extend to Corey Road as its maximum possible extent. Figure 2-3 (Figure 2-5 in the BA, ODOT 2011) depicts the complete JTA Phase with all attendant surface street improvements.

The Project would use the former Medco Haul Road, passing Commerce Drive and Coker Butte Road at grade. The proposed new roads that would provide a new approach to the INS facility as described for both Build Alternatives would be built. The JTA Phase would cross over Vilas Road on an elevated structure, but would not include an interchange at Vilas Road. There would be no connection between the JTA Phase and Vilas Road. The JTA Phase would not include any of the changes to local roads in the vicinity of Vilas Road that are associated with the two Build Alternatives, nor would it include widening Vilas Road. There would be no changes to existing driveways in the vicinity of Vilas Road.

North of Justice Road there are three possible alignments: Design Options A, B, and C, each would include an intersection with the existing OR 62 where Agate Road and OR 62 now intersect. The intersection design is still being developed, but it is likely to be a signalized intersection that provides for some free-flowing movements, as opposed to an interchange, which would allow complete free flowing transitions between the Project and OR 62.

2.2.2 Build Alternative Phasing

These alternatives entail development of new interchanges or modifications of existing interchanges compared to the JTA Phase (No Build Alternative), as well as the changes to local roads, existing driveways, and Vilas Road described in 2.1. Many of these elements unique to the Build Alternatives might be constructed concurrent with the JTA Phase. However, another element unique to the Build Alternatives is the northern extension from near the junction of Agate Road and OR 62 north to West Dutton Road then east to its

junction with OR 62 – will be built after the JTA Phase. Due to lack of funding, it is not certain when this section will be constructed.

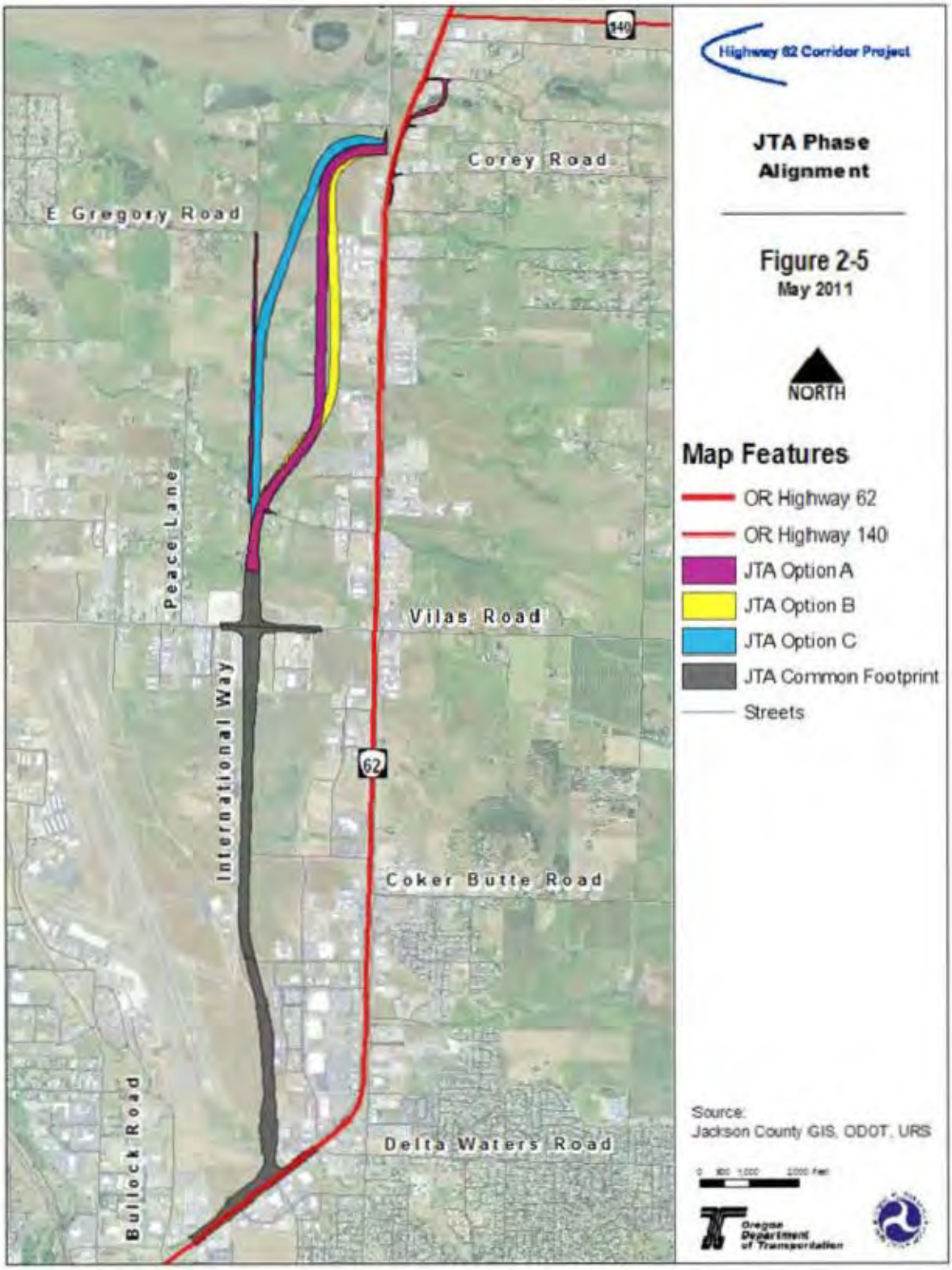


FIGURE 2-3: JTA PHASE ALIGNMENT

2.2.3 Staging Areas and Access

Construction staging areas and construction access have yet to be identified for proposed activities. It is assumed that much of the staging for construction will be sited on existing roadway sections or adjacent areas within the currently defined project footprint. It is also assumed that any staging areas will comply with the project's Erosion and Sediment Control Plan (ESCP) and weed/invasive species control BMPs. For the purposes of this assessment, all habitats, populations, and specimens within the project footprint will be considered impacted by project activities, whether they are temporary (construction related) or permanent (project element) impacts.

2.3 Interdependent and Interrelated Actions

Interdependent actions are defined as having no independent utility apart from the proposed action (50 C.F.R. §402.02). Interrelated actions are part of a larger action and depend on the larger action for their justification (50 C.F.R. §402.02). The proposed action is not part of a larger action, so has no identified interrelated effects.

2.4 Mitigation and Monitoring

Project activities will require mitigation and monitoring regardless of the Alternative selected. Mitigation will be required for direct and indirect impacts to VPCs, consistent with the *Programmatic Formal Consultation on the U.S. Fish and Wildlife Service's Vernal Pool Conservation Strategy for Jackson County, Oregon*, (2011) (VPCS Programmatic). ODOT will incorporate those applicable BMPs prescribed in the VPCS Programmatic (USFWS 2011) into a VPC Mitigation Plan, following acquisition of an individual permittee responsible mitigation site. Mitigation will occur off-site. Several specific mitigation sites were evaluated by ODOT and representatives of the Service, Corps, Oregon Department of Fish and Wildlife (ODFW), Oregon Division of State Lands (DSL), the Nature Conservancy (TNC), and Rogue Valley Council of Governments (RVCOG). Section 5.7 of the BA presents information on the proposed mitigation site and has been incorporated into the BO as section 2.7.

Construction monitoring will be required to minimize impacts to listed species and their habitat within the regulated work area. Monitoring will comply with ODOT policies and specification, using standard templates and submitted to regulatory agencies following established procedures. Monitoring of site restoration and mitigation activities will comply with ODOT policies and established regulatory agency requirements.

Following selection of a Preferred Alternative, a project-specific, on-site restoration plan will be developed to address temporarily-impacted VPC habitat within construction areas. The restoration plan will be consistent with ODOT site restoration guidance. Monitoring of site restoration areas will be detailed in the plan, including annual reporting requirements, native species mix compliance, and noxious weed control requirements. Monitoring of off-site mitigation will be documented in a mitigation

monitoring and maintenance plan, to be developed following acquisition of a mitigation site and following selection of the Preferred Alternative.

2.5 Project Area and Action Area

The project area includes all areas where construction may occur, and includes: new construction and improvements to existing infrastructure; staging areas or other material storage areas; and stormwater facilities and infrastructure, including new treatment facilities and updates to existing infrastructure. The project area is approximately 471 acres. The project area, for purposes of this BA, includes all alternatives and options under consideration. Impacts reported and mitigation proposed in the BA and this BO are based on the alternative and option with the greatest extent of impacts (both quantitatively and qualitatively), thereby ensuring that the impacts associated with whichever Alternative and Design Option are selected as the Preferred Alternative will be adequately addressed. Activities for the individual permittee responsible mitigation site (ODOT is currently completing purchase of the property) will follow the resoration activities described in the VPCS Programmatic (USFWS 2011) and therefore will be covered and tracked through that consultation, therefore the specific resortation actions will not be specifically described in this BO.

The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action, and not merely the immediate area involved in the action" (50 C.F.R. 402.02). The action area established in the BA (Figure 2-6 of the BA) totals approximately 1,623 acres and was developed with guidance from the VPCS Programmatic (USFWS 2011). The following factors were used to establish the action area:

- VPC is defined by the shape of the delineated VPB, plus a 100-foot upland buffer;
- VPBs with overlapping upland buffers are assumed to be hydrologically connected and constitute a VPC;
- All VPCs either wholly or partially within 250-feet of the project area are assumed to be indirectly affected. If an existing intervening feature (e.g. irrigation canal, topography, roadbed, creek, etc.) isolates the VPC from project area construction and operational impacts, such that the VPC will not likely suffer indirect effects, it may be excluded.
- Potential direct effects from habitat conversion (e.g. fill of VPC);
- Potential temporary effects from construction (e.g. introduction of noxious weeds, sedimentation, etc.);
- Potential indirect effects from water quality impairment (e.g. sedimentation and erosion, spills of hazardous materials, stormwater pollutants, etc.);
- Potential indirect effects from water quantity modification (e.g. disruption of hydrologic connectivity between pools, modification in water quantity from stormwater collection, etc.);
- Potential effects (direct and indirect) to designated critical habitat; and
- Potential (beneficial) effects resulting from off-site mitigation.

2.6 Conservation Measures

Section 6.0 of the BA provides standard provisions and special provisions for avoidance and minimization for natural resources at the proposed Highway 62 bipass corridor. What is included here in this proposed action section of the BO is section 6.4 of the BA which specifically addresses the avoidance, minimization and general mitigation conservation measures for vernal pool fairy shrimp, Cook's lomatium and large-flowered woolly meadowfoam.

Avoidance and minimization measures have been discussed based upon the affected resource. They have been subdivided into three sections as listed below:

2.6.1 Vernal Pool Fairy Shrimp

The optimal mitigation measure for direct impacts to vernal pool fairy shrimp (VPFS) is avoidance of vernal pools and critical habitat wherever possible. During the project design phase, project engineers and planners have made every attempt to minimize and avoid impacts to vernal pools to the maximum extent practicable. In areas where impacts are unavoidable, mitigation measures would have to be implemented. Several mitigation measures are outlined below:

- Mitigate impacts to VPC habitat according to the VPCS Programmatic (USFWS 2011); this will occur permanently through the establishment at a mitigation site/bank (see section 2.7).
- Secure the necessary Corps and DSL permits to allow the necessary permanent filling and temporary disturbance of vernal pools. Work with the agencies to develop adequate Vernal Pool Basin (VPB)/VPC protection and mitigation measures.
- Establish new habitat and restore existing habitat in areas that would not be developed or disturbed (off-site mitigation site/bank). Prohibit off-road driving and implement an aggressive integrated pest management program for noxious weeds control.
- Relative to impacts to vernal pools, design and implement compensatory mitigation plan for vernal pools within ODOT's newly acquired individual permittee responsible mitigation site and existing mitigation bank. Obtain approval from USFWS, Corps, and DSL regarding the conditions of approval for using the mitigation bank.
- Clearly identify all VPCs in the field prior to construction. Establish fenced exclusion zones around VPCs to be preserved to prevent equipment encroachment during construction.
- Prohibit the discharge of pollutants of any kind (petroleum products, fresh concrete, silt, sandblasting material, welding slag, construction water, stormwater, etc.) into wetlands and VPCs. Prohibit the disposal of construction debris or rubble from the demolition of existing structures within any vernal pools.
- Time construction within and adjacent to VPBs during the dry season of the year from July to November (dormant period for VPFS).

Implementation of the above mitigation measures could lessen the Project's overall impacts on assumed VPFS populations within the action area.

2.6.2 Threatened and Endangered Plants

The optimal mitigation measure for direct impacts to endangered plants through habitat disturbance is avoidance of rare plant populations and suitable habitat wherever possible. During the project design phase, project engineers and planners have made every attempt to minimize and avoid impacts to lomatium and meadowfoam habitat to the maximum extent practicable. In areas where impacts are unavoidable, mitigation measures would be implemented. While many of the mitigation measure outlined above for VPFS are the same here, some additional measures specific to plants are added:

- Mitigate impacts to VPC habitat according to the VPCS Programmatic (USFWS 2011); this will occur permanently through the establishment at a mitigation site/bank (see section 2.7).
- Secure the necessary Corps and DSL permits to allow the necessary permanent filling and temporary disturbance of vernal pools. Work with the agencies to develop adequate Vernal Pool Basin (VPB)/VPC protection and mitigation measures.
- Establish new habitat and restore existing habitat in areas that would not be developed or disturbed (off-site mitigation site/bank). Prohibit off-road driving and implement an aggressive integrated pest management program for noxious weeds control.
- Relative to impacts to vernal pools, design and implement compensatory mitigation plan for vernal pools within ODOT's newly acquired individual permittee responsible mitigation site (also known as the Kincaid Property Mound Site) and existing mitigation bank. Obtain approval from USFWS, Corps, and DSL regarding the conditions of approval for using the mitigation bank.
- Establish a population of 3,400 Cook's lomatium and 200 Large-flowered woolly meadowfoam at the proposed individual permittee mitigation site by propagating seeds or cuttings for planting in areas of temporary impacts to establish or supplement the exisiting population.
- Clearly identify all VPCs in the field prior to construction. Establish fenced exclusion zones around VPCs to be preserved to prevent equipment encroachment during construction.
- Transplant (or harvest seeds from) any plants that could be directly or indirectly impacted
- Move or establish mitigation areas for lomatium and maedowfoam in areas of Agate-Winlo Complex soil complex.

In addition to the mitigation measures outlined above for listed plants, some additional conservation measures will be applied on the construction site, as practicable, to minimize impacts to remaining plant populations.

- Nominate remaining plant population for Special Management Area (SMA) status within the new right-of-way to manage suitable listed plant populations following construction.
- To the extent practicable, retain the undisturbed portion of the lomatium population to preserve the genetic variability of this southern-most population.
- Establish fenced exclusion zones around rare plant populations and suitable habitat to be preserved to prevent equipment encroachment during construction.

Implementation of the above mitigation and conservation measures will offset and minimize the Project's overall impacts on rare plant populations within the action area and proposed footprint.

<u>Cook's lomatium</u>
FHWA/ODOT proposes to establish a population of at least 3,400 lomatium at the Kincaid Property Mound Site. Cook's lomatium seeds will be collected along the Project corridor in early June of 2012 and 2013 at locations that have been proposed for impact. ODOT proposes to collect up to 100 percent of the seeds within the Project ROW each year. Seed will be collected in early June and will be collected by hand and supervised by a qualified biologist/botanist with experience restoring vernal pool habitat. ODOT anticipates an establishment rate of approximately 7% based on experience at the existing mitigation/conservation bank. ODOT anticipates collecting over 48,000 seeds and a portion of the seeds may be grown out in a nursery to generate more seed for restoration.

<u>Large-flowered woolly meadowfoam</u>
FHWA/ODOT proposes to establish a population of at least 200 meadowfoam at the Kincaid Property Mound Site. Meadowfoam seeds will be collected along the Project corridor in locations that have been proposed for impact; and, if necessary, seeds will be collected at the Nature Conservancy's Agate Dessert Preserve. Seed will be collected in mid June and will be collected by hand and supervised by a qualified biologist/botanist with experience restoring vernal pool habitat. FHWA/ODOT anticipates an establishment rate of approximately 10 % based on current efforts at the adjacent bank site. The total number of seeds needed will be approximately 2,000.

2.6.3 Mound-Vernal Pool Habitat Complexes

Mitigation measures designed to minimize impacts to vegetation communities are generally associated with BMPs for construction, landscaping, and restoration. These BMPs would generally follow the practices and contract specifications outlined in Sections 00280 (Erosion and Sediment Control), 00290 (Environmental Protection), 00320 (Clearing and Grubbing), and 01040 (Planting) of ODOT's *Standard Specifications for Highway Construction* (ODOT 2006). These sections address regulatory compliance; erosion and sediment control; vegetation protection; as well as site restoration and planting materials.

Implementation of the above mitigation measures could minimize the Project's overall impacts on vegetation communities within the project area. To mitigate for unavoidable impacts to VPC, ODOT will adhere to Oregon Department of State Lands (DSL) and the Army Corps of Engineer's (Corp's) requirements for vernal pool habitats, which are identical to those contained in the Service's VPCS Programmatic (USFWS 2011).

2.7 Proposed Individual Permitee Responsible Mitigation Site

ODOT is in the process of acquiring property to serve as off-site mitigation for the proposed action (ODOT 2011). The property currently being acquired has the following characteristics:

- Approximately 120 acres in size, including about 105 acres of VPC, all of which designated CH for vernal pool fairy shrimp, Cook's lomatium and large-flowered meadowfoam.
- Greater credit potential more likely to satisfy projected credit needs.
- Enhancement and preservation potential for multiple wetland types (vernal pools and wetland swale) better match for replacement of functions lost at impact site.
- Within 10 miles of the project; possible to transfer lomatium seeds and vernal pool inoculum from the impact site to the preferred site.
- Adjacent to a 224-acre Nature Conservancy preserve and existing 80-acre ODOT vernal pool mitigation and conservation bank; the acquisition would therefore result in approximately 400 acres of contiguous protected land in an identified conservation priority area.
- The VPCs on-site drain to a 15 acres swale/creek that is a direct tributary to the Rogue River.
- LiDAR data available to inform site restoration.

ODOT is currently completing negotiations with the landowner and anticipates owning the property by fall 2013. Site enhancement and management and resulting mitigation credits would occur in accordance to the PBO. A specific credit accounting cannot be completed at this time, until acquisition of the property has advanced. However, preliminary assessments indicate sufficient mitigation credits will exisit to offset impacts from the Project.

3.0 ENDANGERED SPECIES ACT FORMAL CONSULTATION

3.1 Biological Information and Critical Habitat (Status of the Species)

3.1.1 Vernal pool fairy shrimp

Descriptions of the vernal pool fairy shrimp are found in 59 FR 48136, the publication of the final rule to list the species under the Act. Fairy shrimp are restricted to vernal pools, swales, and other seasonal pools in California and Jackson County, Oregon. Eng et a*l*. (1990) and Simovich *et al*. (1992) provide further details on the life history and ecology of the vernal pool fairy shrimp.

Fairy shrimp have delicate elongate bodies, large stalked compound eyes, no carapace, and 11 pairs of swimming legs. They swim or glide gracefully upside down by means of complex beating movements of the legs that pass in a wavelike, anterior-to-posterior direction. Nearly all fairy shrimp feed on algae, bacteria, protozoa, rotifers, and bits of detritus. The females carry the eggs in an oval or elongate ventral brood sac. The eggs are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks. The "resting" or "summer" eggs are known as "cysts." They are capable of withstanding heat, cold, and prolonged desiccation.

When the pools refill in the same or subsequent seasons, some, but not all, of the cysts may hatch. The cyst bank in the soil may comprise the cysts from several years of breeding. The cysts hatch when the vernal pools fill with rainwater. The early stages of the fairy shrimp develop rapidly into adults. These non-dormant populations often disappear early in the season long before the vernal pools dry up.

The vernal pool fairy shrimp inhabits vernal pools with clear to tea-colored water, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. The vernal pool fairy shrimp has been collected from early December to early May.

After winter rainwater fills the pools, the populations are reestablished from diapaused cysts which lie dormant in the dry pool sediments. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Some of the cysts hatch immediately and the rest enter diapause and remain in the soil to hatch during later rainy seasons.

The fairy shrimp are imperiled by habitat loss caused by a variety of human-caused activities, primarily urban development, water supply/flood control projects, and conversion of land to agricultural use. Only a small proportion of the habitat of these species is protected from these threats. State and local laws and regulations have not been passed to protect these species, and other regulatory mechanisms necessary for the conservation of the habitat of these species have proven ineffective.

Agate Desert of Oregon

The VPCS Programmatic (USFWS 2011) describes in detail the status of the three listed species in the Agate Desert of Oregon. Much of this baseline information is from that conservation strategy for the region. Information for the proposed Project will be viewed in the context of the Agate Desert status.

Vernal pools are a prominent feature of the Agate Desert landform. The Oregon Natural Heritage Information Center (ONHIC, formerly the Oregon Natural Heritage Program (ONHP)) conducted a study, funded by the Oregon Division of State Lands, completed in 1997 that provided a preliminary mapping and assessment of the integrity of the topography and vegetation of the vernal pools. ONHIC concluded that only 23 percent of the original vernal pool topography and hydrology in the Agate Desert remains intact where the vegetation is not severely altered. Residential, commercial, and industrial development, along with land leveling (primarily for agriculture), has altered nearly 60 percent of the historic range of the Agate Desert landform. The remainder of the habitat is either severely altered by historic and continuing land uses, or occurs along the fringes of the landform where vernal pools are weakly expressed.

Originally, vernal pool habitat covered approximately 21,000 acres in the Agate Desert-Rogue River Plains region. Of the remaining 8,032.4 acres of vernal pool topography (intact, weakly expressed, or altered or weak), 59.2 percent is in the "*intact topography/hydrology and altered vegetation*" class and another 15.7 percent is in the "*intact topography/hydrology and severely altered vegetation*" class. This means that a total of 6,019.8 acres (74.9 %) has intact topography and hydrology. Only 2,012.6 acres (25.6 %) of the remaining habitat has altered or weakly expressed topography and hydrology (Table 3-1).

Table 3-1. Summary of Vernal Pool Habitat Integrity Classes in the Agate Desert.

Topography/Hydrology	Vegetation	Acres	% of Total Acres
Intact	Intact	0.0	0.0
Intact	Altered	4,755	23.1
Intact	Severely altered	1,263	6.1
Weakly expressed	Altered	1,507	7.3
Altered or weak	Severely altered	505	2.4
Undetermined		604	2.9
Leveled		3,516	17.0
Developed		8,474	41.1
Total		**20,628**	**100.0**

Vernal Pool Species Critical Habitat

On August 8, 2003, the Service issued a final rule designating critical habitat (CH) for 15 vernal pool species, including fairy shrimp. A total of approximately 1,184,513 acres of land falls within the boundaries of designated CH. Approximately 7,574 acres occur in Oregon and 1,186,969 acres occur in California (USFWS 2003b). Due to legal challenges filed in 2004 the Service was court ordered to reconsider the final designation. On September 12, 2005, the Service issued a final rule addressing the issues raised by the court and finalized the designation of CH for the 15 vernal pool species. Approximately 858,846 acres of land are now designated as critical habitat. The CH designated in Oregon (7,574 acres) did not change (USFWS 2005)

Critical habitat is defined in Section 3 of the Act as:

> (i) The specific areas within the geographic area occupied by a species at the time it is listed in accordance with the Act, on which are found those physical or biological features
>
> (I) essential to the conservation of the species; and,
>
> (II) may require special management considerations or protection; and
>
> (ii) Specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.[1]

The physical or biological features include, but are not limited to, the following: (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. Our regulations at 50 CFR 424.12(b) further direct that when considering the designation of critical habitat, we are to focus on the principal biological or physical constituent elements (PCE) within the defined area that are essential to the conservation of the species, and we are to list known PCEs with the critical habitat description. Our regulations describe known PCEs in terms that are more specific than the description of physical and biological features. Specifically, PCEs may include, but are not limited to, the following: roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species of plant pollinator, geological formation, vegetation type, tide, and specific soil types.

Because it is logistically difficult to determine how extensive the cyst or seed bank is at any particular site, and because hatched vernal pool crustaceans or above-ground vernal pool plants may or may not be present in all vernal pools within a site every year, we

[1] ''Conservation,'' as defined by the Act, means the use of all methods and procedures that are necessary to bring an endangered or a threatened species to the point at which listing under the Act is no longer necessary.

cannot quantify in any meaningful way what proportion of each critical habitat unit may actually be occupied by the vernal pool crustaceans or vernal pool plants. Therefore, areas of unoccupied habitat are probably interspersed with areas of occupied habitat in each unit. The inclusion of unoccupied habitat in our critical habitat units reflects the dynamic nature of the habitat and the life history characteristics of the vernal pool crustaceans and vernal pool plants. Unoccupied areas provide areas into which populations might expand, provide connectivity or linkage between groups of organisms within a unit, and support populations of pollinators and seed dispersal organisms. Both occupied and unoccupied areas that are designated as critical habitat are essential to the conservation of the species.

Based on our current knowledge of the life history and ecology of the 15 listed vernal pool species, the relationship of their essential life history functions to their habitat, and the ecological and hydrologic functions of vernal pool complexes, we determined that all of the 15 vernal pool species share the following two PCEs. These are:

> (1) Vernal pools, swales, and other ephemeral wetland features of appropriate sizes and depths that typically become inundated during winter rains and hold water for sufficient lengths of time necessary for the 15 species to complete their life cycle.
>
> (2) The geographic, topographic, and edaphic features that support aggregations or systems of hydrologically interconnected pools, swales, and other ephemeral wetlands and depressions within a matrix of surrounding uplands when taken together form hydrologically and ecologically functional units called vernal pool complexes. These features contribute to the filling and drying of the vernal pool, maintain suitable periods of pool inundation, and maintain water quality and soil moisture to enable the 15 vernal pool species to carry out their lifecycles.

Vernal Pool Fairy Shrimp Critical Habitat

Fairy shrimp is the only species addressed in the Service's 2003 critical habitat designation regarding vernal pool species occurring in Oregon. Four critical habitat units in Oregon are designated as essential to the conservation of fairy shrimp, and there are 29 units in California. The Oregon units are comprised of 7,574 acres in Jackson County (Figure 3-1). These units occur approximately 125 miles north of the nearest unit designated for this species in California. The Service identified critical habitat areas essential to the conservation of fairy shrimp to reflect the species geographic distribution and varying habitat types and species associations across its range. Maintaining fairy shrimp across their full geographic distribution would make the species less susceptible to environmental variation or negative impacts associated with human disturbances or natural catastrophic events across the species entire range at any one time.

The following critical habitat unit descriptions are taken from the Service's final rule designating critical habitat for vernal pool species in California and southern Oregon (USFWS 2003b):

Unit 1A, B, C, D, E, F, and G, North Agate Desert Unit, Jackson County (2,130 ac)
This unit consists of seven subunits, all located to the north of Little Butte Creek. This unit represents the northern limit of the species' distribution. It is of sufficient size to sustain the natural ecosystem processes (*e.g.*, fires) that have historically influenced vernal pool habitat, and is separated from the nearest other unit designated for Oregon, Unit 4, by over 2 miles. Three of the subunits are west of the Rogue River, and the remaining four are to the east. All but one of these subunits is located to the south of U.S. Route 234 (Sam's Valley Highway). The one remaining unit is located to the east of the Rogue River, about 1.5 miles north of the confluence with Reese Creek.

Unit 2A, B, C, D, and E, White City East Unit, Jackson County (2,251 ac)
This unit consists of five subunits, located east of U.S. Route 62 (Crater Lake Highway) and south and southeast of Dutton Road. This unit provides the easternmost extent of the species' range in Oregon. It represents a significant component of the species' original range in the State and is of a sufficient size to sustain the natural ecosystem processes (*e.g.*, fires) that have historically influenced vernal pool habitat. The largest and easternmost of the subunits occurs just to the east and north of Agate Lake. It is separated by more than 1 mile from Unit 3, White City West, and by approximately 3.5 miles from the North Agate Desert Unit.

Unit 3A, B, and C, White City West Unit, Jackson County (2,301 ac)
This unit consists of three subunits, located west of Agate Road, south of the Rogue River, and east of Bear Creek. This unit contains the least fragmented intact examples of the original Agate Desert mounded vernal pool grassland habitat. It is of sufficient size to sustain the natural ecosystem processes (*e.g.*, fires) that have historically influenced vernal pool habitat; it is separated from the White City East Unit by more than 1 mile and from the Table Rocks Unit by over 1.5 miles. Taken together, the designated Agate Desert units (Units 1–3) comprise a functional vernal pool complex consisting of vernal pools, mounded grassland and associated uplands, where natural processes, including connectivity, function within or near the natural range of variability. Each of the three designated Agate Desert units is essential to the conservation of vernal pool fairy shrimp in the Agate Desert area.

Unit 4A and B, Table Rocks Unit, Jackson County (892 ac)
This unit consists of two subunits, located on two flat-topped mesas known as Upper and Lower Table Rocks, situated north and west of the Rogue River. These rimrock features are remnants of ancient lava flows that filled portions of the Rogue River nearly 10 million years ago. Subsequent erosion of softer geologic layers has left these harder andesite (volcanic rock) formations rising some 800 feet above the present Rogue Valley. Vernal pools on the Table Rocks differ from those of the Agate Desert, in that they are formed over an impervious layer of bedrock. This unit represents a unique habitat for vernal pool fairy shrimp in Oregon. The Table Rocks Unit is disjunct from the North Agate Desert Unit by over 2 miles, and from the White City West Unit by approximately 1.5 miles

The vernal pool habitat within these four units was selected based on information provided by a wetland function and values assessment and habitat integrity analysis completed in 1999. Information describing the physical (i.e., parcel size, presence of intact hydrology) and biological (i.e., species diversity, presence and composition of native vegetation) condition of the vernal pool habitat, species inventory information detailing the presence fairy shrimp, cook's lomatium and meadowfoam, and parameters describing the potential long term sustainability of habitat (defensibility of the parcel, ownership, and positioning of the parcel relative to nearby habitat parcels) was used to identify specific parcels for inclusion as critical habitat.

Table 3-2 provides a summary of efforts to protect, conserve or restore fairy shrimp CH by CHU and ownership; and the type of efforts underway. CHU #1, at the present time, contains 100 acres benefiting from a conservation easement between The Nature Conservancy (TNC) and a private landowner. CHU #2, #3 and #4 have varying amounts of habitat protected by current ownership or land use restrictions. Approximately 31 designated critical habitat acres within CHU #2 and 14 acres within CHU #3 are being restored, enhanced, and conserved under the terms and conditions of various wetland fill and removal permits, pursuant to section 404 of the Clean Water Act.

As described in the vernal pool critical habitat description section above, the 7,574 acres of vernal pool habitat designated in Oregon was selected due to the high probability of long term sustainability of the function and habitat value, based on current biological and physical conditions present at the site.

Approximately 2,300 acres of fairy shrimp CH are protected through ownership or conservation easement by Federal, state or municipal agencies or TNC, or as compensatory mitigation for wetland impacts associated with the filling of vernal pool habitat within the Agate Desert area (Table 3-2).

The Service is working with the Bureau of Land Management (BLM), Bureau of Reclamation (USBR), Oregon Department of Fish and Wildlife (ODFW), and Oregon Department of Transportation (ODOT) to finalize management plans for these areas which will provide more protections for listed species and their associated habitats. Species and habitat surveys, wetland function and value assessments and restoration efforts are currently underway on these land parcels as part of efforts to conserve and protect CH and the associated PCEs.

Table 3-2. Amount of Fairy Shrimp Critical Habitat receiving protective measures, by CHU and type of protective measure.

Unit	**Size (acres)**	**Acres Protected**	**Type of Protection**
CHU 1	2,130	200	-100 acre TNC conservation easement -250 acre Wildlands Conservation Bank
CHU 2	2,251	196	-34 acres protected as compensatory mitigation under section 404 of the CWA -154 acres managed by USBR

			-8 acres managed by ODOT
CHU 3	2,301	1,005	-197 acres owned by TNC -720 acres managed by ODFW with final management plan -8 acres protected as compensatory mitigation under section 404 of the CWA -80 acre ODOT bank -(approximately 105 acre ODOT proposed mitigation site for the Hwy 62 Bipass Project, not included in current total.)
CHU 4	892	892	-Managed by BLM and TNC, management plans under consideration
Total	7,574	2,293	

3.1.2 Cook's Lomatium

A perennial forb in the carrot family (Apiaceae), Cook's lomatium grows 15 to 50 centimeters (cm) (6 to 20 in) tall, from a slender, twisted taproot. Leaves are smooth, finely dissected, and strictly basal (growing directly above the taproot on the ground, not along the stems). One to four groups of clustered, pale yellow flowers produce boat-shaped fruits 8 to 13 mm (0.3 to 0.5 in.) long with thickened margins. The taproot can often branch at ground level to produce multiple stems. The branching taproot distinguishes Cook's lomatium from *Lomatium bradshawii* (indigenous to wet prairies from southern Willamette Valley, Oregon to southwest Washington) and *L. caruifolium var. denticulatum* (found in vernal pools in northern California). *L. utriculatum*, found on mounds adjacent to pools in the Agate Desert, is distinguished from Cook's lomatium by its more intense yellow flowers, the different shape of its involucel bracklets (leaf-like structures below the flowers), and thin-winged fruits. *L. tracyi*, occurring in California and the Illinois Valley, has a similar appearance to Cook's lomatium, but *L. tracyi* has slender-margined fruits and can grow on dry sites. Cook's lomatium has boat or pumpkin-shaped fruits and grows on seasonally wet sites (Lincoln Constance, pers. comm. April 17, 1992). Recent genetic research has shown Cook's lomatium to be most closely related to *L. bradshawii*. *L. marginatum* and probably *L. tracyi* are likely the next closely related species (Matthew Gitzendanner, pers. comm. August 1, 2002). In the Agate Desert, Cook's lomatium flowering and fruiting time occurs from approximately the beginning of May to mid-June.

Cook's lomatium was first collected in 1981 from vernal pools in the Agate Desert, Jackson County, Oregon. Additional populations were found at French Flat in the Illinois Valley, Josephine County, Oregon in 1988 (ONHP Database, 1998). Cook's lomatium is believed to occur at 13 locations in Jackson and 33 in Josephine County (ONHP Database, 2008). Of the 13 lomatium occurrences known from the Agate Desert area of Jackson County, three are robust and include over 10,000 plants within at least 7-acre areas of intact habitat. The largest occurrence includes over 500,000 plants and the largest area includes 53 acres of suitable habitat. Five of the 13 lomatium occurrences are

small to moderate size and range from 25 to 300 plants. The last five lomatium occurrences are small (less than 25 plants) or have not been located in recent years and could be extirpated. Plants in the Illinois Valley/French Flat occurrences grow on seasonally wet soils. Slight morphological differences exist between Cook's lomatium occurrences in the Agate Desert and French Flat, but these differences are not considered significant enough to separate the species into subspecies. Recent genetic research found no evidence of significant genetic differences between the Agate Desert and French Flat Cook's lomatium populations, thus not warranting the separation of the species into subspecies (Matthew Gitzendanner, pers. comm. August 1, 2002). Cook's lomatium was listed as endangered on November 7, 2002.

The historical range of lomatium may have encompassed over 50 square miles in the Agate Desert area. The vernal pool habitat upon which this species depends has almost been completely eliminated in Jackson County, Oregon. An estimated 2,300 acres of lomatium habitat is present within the Agate Desert area. However, the 2002 ONHIC database showed that the area of known occupied habitat had decreased to an estimated 69 acres within the Agate Desert area (USFWS 2002).

Cook's Lomatium Critical Habitat

The Service published the final CH rule for Cook's lomatium on July 21, 2010 (USFWS 2010, FR 75: 42490 - 42569). The final rule describes the location of approximately 7,100 acres of lomatium CH units; all located in Jackson and Josephine counties of Oregon. The CH units for lomatium in Jackson County are shown on Figure 3-2.

The rule describes the primary constituent elements of the CH as:

(1) Vernal pools or ephemeral wetlands and the adjacent upland margins of these depressions that hold water for a sufficient length of time to sustain meadowfoam germination, growth, and reproduction, occurring in the Agate Desert vernal pool landscape. These vernal pools or ephemeral wetlands are seasonally inundated during wet years but do not necessarily fill with water every year due to natural variability in rainfall, and support native plant populations. Areas of sufficient size and quality are likely to have the following characteristics: a) elevations from 1,220 to 1,540 feet, b) association with the dominant native plants; and, c) minimum area of 20 acres to provide intact hydrology and protection from development and weed sources.

(2) The hydrologically and ecologically functional system of interconnected pools, ephemeral wetlands, or depressions within a matrix of surrounding uplands that together form vernal pool complexes within the greater watershed. The associated features may include the pool basin or depressions; an intact hardpan subsoil underlying the surface soils up to 0.75 m (2.5 ft) in depth; and surrounding uplands, including mound topography and other geographic and edaphic features, that support these systems of hydrologically interconnected pools and other ephemeral wetlands (which may vary in extent depending on site-specific characteristics of pool size and depth, soil type, and hardpan depth).

(3) Silt, loam, and clay soils that are of alluvial origin, with a 0 to 3 percent slope, primarily classified as Agate–Winlo complex soils, but also including Coker clay, Carney clay, Provig–Agate complex soils, and Winlo very gravelly loam soils.
(4) No or negligible presence of competitive nonnative invasive plant species. Negligible is defined for the purpose of this rulemaking as a minimal level of nonnative plant species that will still allow lomatium and/or meadowfoam to continue to survive and recover.

The need for space for individual and population growth, germination, seed dispersal, and reproduction is provided by PCEs 1 and 4; the need for soil moisture for growth, germination, reproduction, and seed dispersal is provided by PCE 2 (but not necessarily every year); the need for other nutritional or physiological requirements for the species is met by PCE 3; habitat free from disturbance that allows for sufficient reproduction and survival opportunities is provided by PCEs 1 and 4. All of the above described PCEs do not have to occur simultaneously within a unit for the unit to constitute critical habitat for lomatium and/or meadowfoam.

The habitat of the lomatium is highly fragmented throughout its range due to conversion of natural habitat for commercial and agricultural uses. This fragmentation results in small isolated lomatium populations. Ecological theory predicts that such populations will be highly susceptible to extinction due to chance events, inbreeding depression, or additional environmental disturbance (Gilpin and Soule 1986; Goodman 1987*a*, *b*). Should an extinction event occur in a population that has been fragmented, the opportunities for recolonization are thought to be greatly reduced due to physical (geographical) isolation from other (source) populations.

Of the 2,300 acres of designated lomatium critical habitat present in the Agate Desert, approximately 588 acres of habitat are protected.

3.1.3 Large-flowered Woolly Meadowfoam

A delicate annual in the meadowfoam family (Limnanthaceae), large-flowered woolly meadowfoam grows 5 to 15 centimeters (cm) (2 to 6 in.) tall; with 5 cm (2 in.) leaves divided into 5 to 9 segments. The stems and leaves are sparsely covered with short, fuzzy hairs. The flowers, and especially the sepals, are densely covered with woolly hairs. Each of the five yellowish to white petals has two rows of hairs near their base. In the Agate Desert, Large-flowered woolly meadowfoam flowering and fruiting time occurs in early spring, from March to mid-April.

Mason (1952) described three varieties of *Limnanthes floccosa*, but did not recognize *ssp. grandiflora* as distinct. Based on studies of specimens grown under controlled conditions from field-collected seed, these varieties were later elevated to subspecies and described two additional subspecies, *californica* and *grandiflora*. G*randiflora* was further distinguished from the other subspecies of *L. floccosa* by a combination of: petal length 7.5 to 9 mm (0.30 to 0.35 in.); sepal length 8.5 to 9 mm (0.33 to 0.35 in.); sepal

pubescence (dense on inner surface and sparse to absent on outer surface); sparsely hairy stems and leaves; two lines of hairs at the petal base; relative flowering time; and, occurrence relative to soil moisture. Over much of its range, *ssp. grandiflora* is sympatric or closely related with *L. floccosa ssp. floccosa*; however, *ssp. floccosa* grows on the slightly drier, outer fringes of the pools, whereas *ssp. grandiflora* grows on the relatively wetter, inner fringe of the pools.

Researchers knew of only about 15 occurrences of Large-flowered woolly meadowfoam in the Agate Desert at the time the species was listed as endangered (USFWS 2002). Currently there are 23 known meadowfoam occurrences in the Agate Desert area (Friedman, pers. comm. 2009). The continued existence of meadowfoam is endangered primarily by destruction of its habitat by urban development, including road, utility and power line construction and maintenance. Agricultural conversion, certain grazing practices, off-road vehicle use, and competition with nonnative plants also contribute to population declines. Large-flowered woolly meadowfoam was listed as endangered on November 7, 2002.

Mapped habitat for meadowfoam decreased from 198 acres in 1998 to 116 acres as reported in the ONHIC database (USFWS 2002a). Suitable meadowfoam habitat currently protected from development is located on the Denman Wildlife Management Area (the 620-acre Hall Tract and the 1,178-acre Military Slough Tract) and the recently created 80-acre ODOT vernal pool conservation bank area. ODFW conducted inventories of the Denman Wildlife Management Area to gain a better understanding of the quality of vernal pool habitat within the area. These inventories included surveys for native plants, including meadowfoam (Doino pers. comm. 2004). ODFW has also revised the management plan of the area to address conservation needs for the meadowfoam and received funding through section 6 of the Act to develop a restoration plan for vernal pool habitat within the wildlife management (Stauff pers. comm. 2008).

Large-flowered Woolly Meadowfoam Critical Habitat

The Service published the final CH rule for meadowfoam on July 21, 2010 (USFWS 2010, FR 75: 42490 - 42569). The final rule describes the location of approximately 6,300 acres of meadowfoam CH units; all located in Jackson County, Oregon. The CH units for meadowfoam are shown on Figure 3-3.

The rule describes the primary constituent elements of the CH as:

(1) Vernal pools or ephemeral wetlands and the adjacent upland margins of these depressions that hold water for a sufficient length of time to sustain meadowfoam germination, growth, and reproduction, occurring in the Agate Desert vernal pool landscape. These vernal pools or ephemeral wetlands are seasonally inundated during wet years but do not necessarily fill with water every year due to natural variability in rainfall, and support native plant populations. Areas of sufficient size and quality are likely to have the following characteristics: a) elevations from 1,220 to 1,540 feet, b)

association with the dominant native plants; and, c) minimum area of 20 acres to provide intact hydrology and protection from development and weed sources.

(2) The hydrologically and ecologically functional system of interconnected pools, ephemeral wetlands, or depressions within a matrix of surrounding uplands that together form vernal pool complexes within the greater watershed. The associated features may include the pool basin or depressions; an intact hardpan subsoil underlying the surface soils up to 0.75 m (2.5 ft) in depth; and surrounding uplands, including mound topography and other geographic and edaphic features, that support these systems of hydrologically interconnected pools and other ephemeral wetlands (which may vary in extent depending on site-specific characteristics of pool size and depth, soil type, and hardpan depth).

(3) Silt, loam, and clay soils that are of alluvial origin, with a 0 to 3 percent slope, primarily classified as Agate–Winlo complex soils, but also including Coker clay, Carney clay, Provig–Agate complex soils, and Winlo very gravelly loam soils.

(4) No or negligible presence of competitive nonnative invasive plant species. Negligible is defined for the purpose of this rulemaking as a minimal level of nonnative plant species that will still allow lomatium and/or meadowfoam to continue to survive and recover.

The need for space for individual and population growth, germination, seed dispersal, and reproduction is provided by PCEs 1 and 4; the need for soil moisture for growth, germination, reproduction, and seed dispersal is provided by PCE 2 (but not necessarily every year); the need for other nutritional or physiological requirements for the species is met by PCE 3; habitat free from disturbance that allows for sufficient reproduction and survival opportunities is provided by PCEs 1 and 4. All of the above described PCEs do not have to occur simultaneously within a unit for the unit to constitute critical habitat for lomatium and/or meadowfoam.

As with lomatium, the habitat of the meadowfoam is highly fragmented throughout its range due to conversion of natural habitat for commercial and agricultural uses. This fragmentation results in small isolated lomatium populations. Ecological theory predicts that such populations will be highly susceptible to extinction due to chance events, inbreeding depression, or additional environmental disturbance (Gilpin and Soule 1986; Goodman 1987*a*, *b*). Should an extinction event occur in a population that has been fragmented, the opportunities for recolonization are thought to be greatly reduced due to physical (geographical) isolation from other (source) populations.

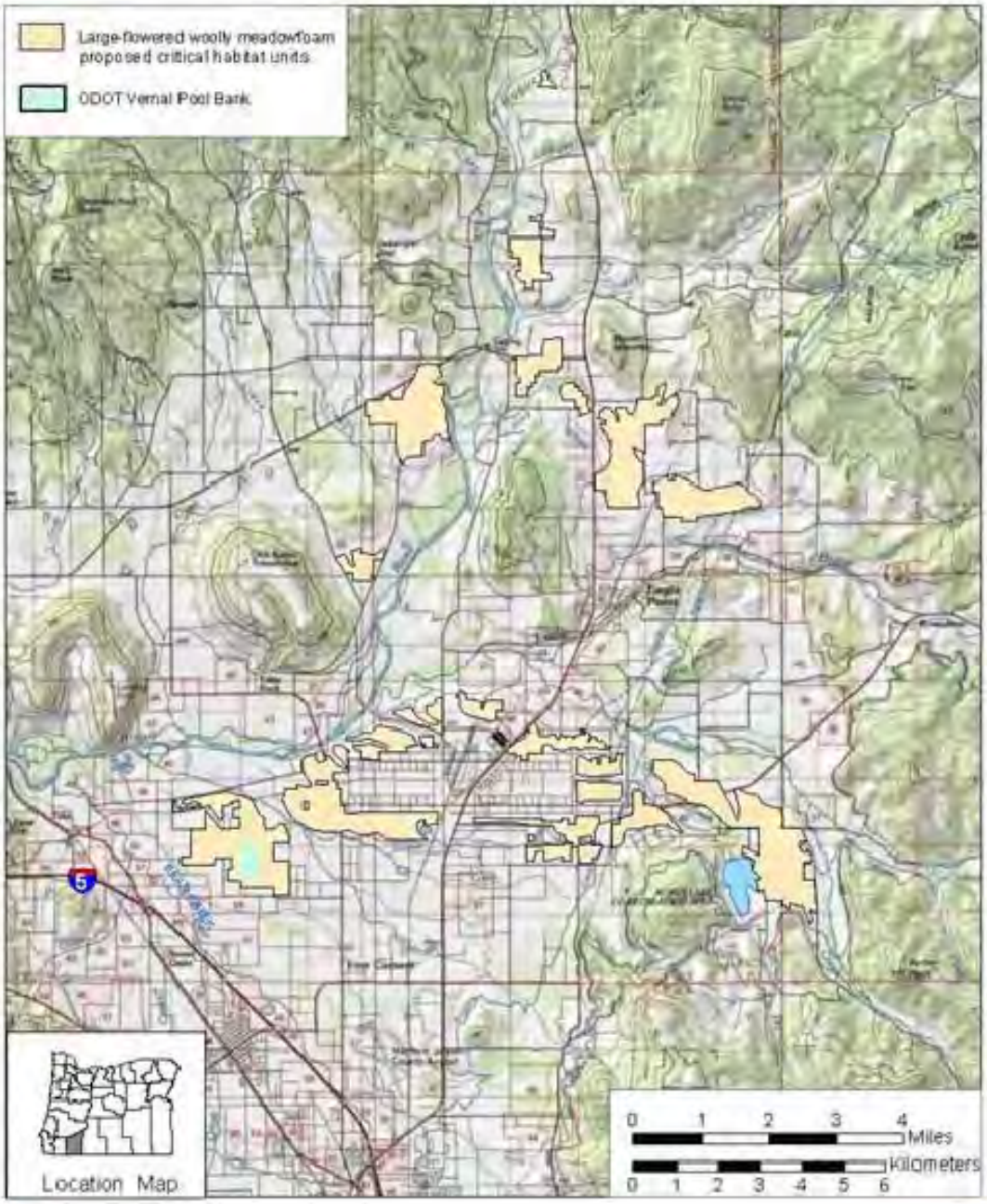
Invasion of nonnative annual plants in Agate Desert has altered native perennial plant communities (USFWS 2000) where meadowfoam grows. Introduced European grasses such as brome grass, medusahead, dogtail, and bluegrass have replaced native bunch grasses on mounds between vernal pools. Medusahead competes with meadowfoam on seasonally wet mounds between the pools. The seeds of meadowfoam are not able to germinate under the dense thatch produced by these introduced annual species.

Of the 6,300 acres of designated meadowfoam critical habitat present on the Agate Desert, approximately 1,373 acres of habitat are protected.

Figure 3-1. Map of Designated Vernal Pool Fairy Shrimp Critical Habitat in the Agate Desert area.

Figure 3-2. Map of Designated Cook's Lomatium Critical Habitat in the Agate Desert area.

Figure 3-3. Map of Designated Large-flowered Woolly Meadowfoam Critical Habitat in the Agate Desert area.



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3.2 Environmental Baseline

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all federal, state, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed federal projects in the action area that have undergone section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress. The following summarizes the environmental baseline for this consultation.

3.2.1 Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp (VPFS) were confirmed to occur in the project area during 1999 surveys (May Consulting 1999). Based on this and the annual and intra-seasonal variability with VPFS presence, the Service and ODOT agreed that vernal pools in the project area would be considered occupied and that additional surveys were not needed.

Vernal Pool Fairy Shrimp Critical Habitat

There are three mapped areas of designated CH for vernal pool fairy shrimp within the action area with the proposed alignment crossing two of them. These two areas are near the southern terminus of Agate Road where it departs Agate Road, curving to the northeast, in the proximity of Denman Wildlife Management Area. Portions of these two areas of CH would be crossed by the northern portion of either Build Alternative with estimated direct effects to 7.0 acres and indirect effects of 19.4 acres. However, mapping of CH often takes in more area than that which actually supports the PCEs of habitat. In ODOT's 2010 assessment of these two areas being transected by the proposed alignment, the mapped CH includes the existing roadbed and developed and vacant upland which do not provide the PCEs of vernal pool fairy shrimp habitat. The third area of CH is where the existing OR 62 alignment approaches the intersection with West Dutton Road. The CH in this are is within the action area but not the Project area. As with the other two areas of CH, according to ODOT's assessment the mapped CH does not support the PCEs of vernal pool fairyshrimp habitat due to previous disturbance and current use. Based on ODOT's surveys of the proposed alignment, while the project would go through designated CH it would not be removing or altering habitat with the specific PCEs of vernal pool fairy shrimp CH.

3.2.2 Cook's Lomatium

Cook's lomatium (lomatium) have been documented to occur within the Project area, in particular near the southern end of the proposed highway near the airport. Recent surveys have unexpectantly shown a significant increase in the population size. The lomatium population #1 is located on private property. In the past, this property has been leveled and mowed, likely in anticipation of development. Remnant, degraded vernal pools remain, however, due to the mowing regime over the past 15 years, the population of lomatium has increased. In 1999, approximately 500 lomatium plants were counted.

During recent surveys (ODOT 2012) over 3000 plants were counted in this location. The landowner mows this property each year when the grasses reach a certain height. This is typically after the lomatium have gone to seed; thus, preventing a thick thatch layer that can prohibit lomatium growth. The lomatium patches on the airport property have not been monitored. No historic data is present to determine the health of these patches.

The plants counted during the 2012 survey (ODOT 2012) were only the ones existing within the rights-of-way (ROW) of the Project. Table 3-3 shows the numbers of Cook's lomatium and large-flowered woolly meadowfoam plants located in the JTA portion of the Project ROW during 2012 surveys. A large number of lomatium were observed just outside the ROW of the Project that were not counted. These plants will not be impacted by this project. They will remain on private property.

Table 3-3. 2012 Cook's lomatium and large-flowered meadow foam survey results within the JTA portion of the proposed Project (ODOT 2012)

Species and patch	**Number of flowering individuals**
Cook's lomatium #1	3004
Cook's lomatium #2	201
Cook's lomatium #3	192
Large-flowered woolly meadowfoam #1	63
Large-flowered woolly meadowfoam #2	62
Total	**3397 lomatium/125 meadowfoam**

Cook's Lomatium Critical Habitat

There are five mapped areas of designated CH for lomatium within the action action area and one site within the Project area. These include RV6A (White City Unit), RV9E, RV9A, RV9Cand RV9A all in the Medford Airport Unit. In the BA, ODOT has estimated direct effects to 5.1 acres and indirect effects to 16.9 acres of designated lomatium CH.

Large-flowered Woolly Meadowfoam

Large-flowered woolly meadowfoam (meadowfoam) have been documented to occur within the Project area, in particular near the southern end of the proposed highway near the airport. There are nine known occurences of maedowfoam within the Project area. Two small patches of meadowfoam are in the same area as the lomatium patches near the southern junction with the Medco Haul Road east of the airport. During recent surveys (ODOT 2012) these two patches (Table 3-3) were surveyed totaling 125 individual plants.

The plants counted during the 2012 survey (ODOT 2012) were only the ones existing within the rights-of-way of the JTA portion of the Project. Table 3-3 shows the numbers of Cook's lomatium and large-flowered woolly meadowfoam plants located in the Project rights-of-way (ROW) during 2012 surveys. As with lomatium sites discussed above, the

"Commerce Avenue" site between the Medco Hual Road and Cardinal Avenue and which had contained a number of individual plants had been leveled for/by commercial development, eliminating all but one shallow VPB. Because meadowfoam likes the wetted margins of vernal pools, pools that have been leveled are less likely to continue to function as suitable habitat.

Large-flowered Woolly Meadowfoam Critical Habitat

There are nine occurrences of meadowfoam within or directly adjacent to the Project area and all are mapped as designated CH. Mapped areas of designated CH for lomatium within the proposed action area include RV6A, RV6B, RV6C, and RV6F all in the White City Unit. In the BA, ODOT has estimated direct effects to 13.7 acres and indirect effects to 28.8 acres of designated lomatium CH.

4.0 ANALYSIS OF EFFECTS

The ESA Section 7 implementing regulations (50 CFR 402.02) define "effects of the action" as:

> The direct and indirect effects of an action on the species or critical habitat together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline. The environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02).

The Service considers the Avoidance, Minimization and Conservation Measures (Section 6.0 of the BA) an integral part of the proposed action. By following the measures, potential long-term adverse effects from Project activities to listed species will be avoided, adequately minimized, and offset. The Service will assume all pertinent conservation measures will be fully implemented throughout project administration, design, construction, monitoring and reporting from project inception to completion of monitoring and reporting.

4.1 Effects of the Proposed Action

Vernal pool fairy shrimp
Direct effects

Individual fairy shrimp and their cysts, may be directly injured or killed by activities leading to the destruction (i.e., the filling of habitat) of the pools in which they exist and

or by activities associated with protection, restoration and management of vernal pool habitat.

Indirect effects

Indirect effects are caused by or result from the proposed construction activities, are later in time, and are reasonably certain to occur. Individuals and their cysts may be injured or killed by several indirect effects:

- Changes in hydrology: In addition to the direct impacts associated with filling existing pools, development can have impacts on the hydrology of pool and swale habitat and surrounding areas.

  Projects involving storm water drains, deep ripping, or the coverage of land surfaces with concrete or asphalt, etc., can affect the amount and quality of water available to the perched water tables characteristic of vernal pool areas.

  Changes to the perched water table can lead to alterations in the rate, extent, and duration of inundation (water regime) of remaining habitat. The biota of vernal pools and swales can change when the hydrologic regime is altered (Bauder 1986, 1987). Survival of aquatic organisms like fairy shrimp is directly linked to the water regime of their habitat (Zedler 1987), therefore, development near vernal pool areas may result in the degradation of local sub-populations of vernal pool organisms, including fairy shrimp.

- Roads: Grading, leveling or raising the surface for roads may affect the water regime of vernal pool habitat, particularly when grading involves cutting into the substrata in or near habitat areas. Exposure of sub-surface layers of soil at road cuts may hasten the loss of water from adjacent habitat by mass flow through networks of cracks, lenses of coarser material, animal burrows, old root channels, or other macroscopic channels. Any decrease in the duration of inundation of habitat can affect the reproductive success of species present, including the listed vernal pool crustacean.

  Erosion associated with road building can contaminate and slowly fill vernal pool basins through the transport and deposition of sediments into these areas. In addition, roads or other changes in drainage patterns could result in an increase or decrease in surface runoff depending on the slope of the landscape and conversion of vernal pool habitat. Roads in or near the watersheds of habitat areas can lead to additional impacts through the introduction of chemically laden runoff (i.e., petroleum products) from the road surfaces.

  Chemical contamination of habitat can kill listed species by poisoning. Roads in close proximity to habitat areas may encourage additional impacts through other human activities.

- Human intrusion: Development frequently results in human intrusion into surrounding areas. Human intrusion is a mechanism by which trash or hazardous waste can be introduced into remaining habitat areas (Bauder 1986, 1987). Disposal of waste materials can eliminate habitat, disrupt pool hydrology, or release substances into pools that are toxic or that adversely affect water chemistry. In addition, off-road vehicle use and other recreational activities associated with humans can lead to wheel ruts, soil compaction, increased siltation, destruction of native vegetation, introduction of undesirable non-native plants, and an alteration of pool hydrology.

- Pesticides/Herbicides: Development often results in the introduction of pesticides or herbicides into the environment. These chemical compounds are thought to have adverse effects on fairy shrimp and/or their cysts. Individuals may be killed directly or suffer reduced fitness through physiological stress or a reduction in their food base due to the presence of these chemicals.

- Introduced predators: Development may produce conditions that are favorable for exotic predators such as bullfrogs, and mosquito fish. The stomachs of bullfrogs captured in vernal pools near Chico, California were found to contain large numbers of vernal pool tadpole shrimp (Hayes, pers. com., 1993 in 59 FR 48136). Mosquito fish can be equally devastating as predators when introduced into vernal pool habitat. Thus, listed species and their cysts may be adversely affected by the introduction of exotic predators.

The proposed Project full build is anticipated to directly and indirectly affect all fairy shrimp associated with up to 7.7 acres of vernal pool wetland (i.e., basin) in Jackson County, Oregon (Table 4-1). The JTA portion of the proposed Project will result in the direct and indirect affect to all fairy shrimp associated with up to 3.94 acres of vernal pool wetalnd habitat (Table 4-2). Using the standards in the VPCS Programmatic (USFWS 2011) 18.4 and 8.6 acres of vernal pool wetland for the full build and JTA portions of the proposed Project, respectively, will be provided by ODOT to offset and minimize the significance of these impacts.

The negative impacts resulting from the Project's highway construction activities are anticipated to be permanent and to preclude the utilization of the affected habitat by vernal pool fairy shrimp. The impacts associated with the required mitigation actions are anticipated to be positive and beneficial for the conservation and recovery of the species. Short-term adverse affects resulting from these otherwise beneficial actions are inherently very near-term and temporary in nature (occurring over less than 5-years), and will be significantly constrained by the standards, practices, and conditions in this BO.

Mitigation actions for the JTA portion of the project will begin when the project commences. Mitigation for the remainder of the full build will occur concurrent with those project activities. Currently, there is no timeline or funding for the full build. It may be many years before the remainder of the full build is funded for completion.

Table 4-1. Direct and indirect effects summary and mitigation obligation for the full build of the proposed highway 62 Project following USFWS 2011.

	Max acres directly affected	Max acres indirectly affected	Sub-total of acres affected	Mitigation ratio applied*	Mitigation acres required
High quality VPB	0.02	0.22	0.24	3:1	0.7
Medium quality VPB	4.17	1.27	5.44	2.5:1	13.6
Low quality VPB	1.36	0.67	2.03	2:1	4.1
Sub total	**5.54**	**2.16**	**7.70**		**18.4**

Table 4-2. Direct and indirect effects summary and mitigation obligation for the JTA portion of the proposed highway 62 Project following USFWS 2011.

	Max acres directly affected	Max acres indirectly affected	Sub-total of acres affected	Mitigation ratio applied*	Mitigation acres required
High quality VPB	0.02	0.0	0.02	3:1	0.1
Medium quality VPB	0.47	0.86	1.33	2.5:1	3.3
Low quality VPB	0.84	1.75	2.59	2:1	5.2
Sub total	**1.33**	**2.61**	**3.94**		**8.6**

Impacts associated with the JTA phase of the project are fully included in the full build totals, however, approximately 0.45 acres that are indirecty affected would be directly affected under the full build.

The VPCS Programmatic describes the amount of impact and associated incidental take that the Service views as consistent with a sound long-term conservation strategy for VP species including the vernal pool fairy shrimp. Those amounts are 20 – 38 acres of wetland negatively impacted by development plus 75 – 90 acres of wetland affected by associated mitigation actions.

While this Project does not receive incidental take coverage from the VPCS Programmatic (due to exceeding the individual project impacts threshold and because it will significantly impact or remove a known lomatium population), it is still expected to conform to the overall amount of impacts and incidental take contained in the VPCS Programmatic. The 3.94 – 7.7 acres of wetland potentially impacted by the Project are within the VPCS Programmatic parameters.

Cook's Lomatium and Large-flowered Woolly Meadowfoam

Direct effects

Individual lomatium and meadowfoam plants may be directly harmed or killed by activities leading to the modification (i.e., the filling of habitat) of the pools in which they exist and or by activities associated with protection, restoration and management of vernal pool habitat.

Indirect effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Individual plants and their seed may be injured or killed by several indirect effects:

- Changes in hydrology: In addition to the direct impacts associated with filling, development can have impacts on the hydrology of remaining habitat (e.g., pools/swales) and surrounding areas.

- Loss of controls of non-native invasive plant species could result in over-shading and exclusion of lomatium and meadowfoam from patches.

- Projects involving storm water drains, deep ripping, or the coverage of land surfaces with concrete, asphalt, or irrigated recreation parks, etc., can affect the amount and quality of water available to the perched water tables characteristic of vernal pool areas.

The proposed action may directly effect up to 5.54 acres of VPB within 58.6 acres of VPC (ODOT 2011; table 5-1) or indirectly affect Cook's lomatium and large-flowered Woolly Meadowfoam associated with up to 2.16 acres (following design option C because it was the highest level of direct effects) VPB within 41.9 acres of VPC (ODOT 2011; table 5-3) in Jackson County, Oregon.

The negative impacts resulting from development actions are anticipated to be permanent and to preclude the utilization of the affected habitat by lomatium. The impacts associated with both the mitigation actions and non-mitigation voluntary actions are anticipated to be positive and beneficial for the conservation and recovery of the species. Short-term adverse affects resulting from these otherwise beneficial actions are near-term and temporary in nature (occurring over less than 5-years), and will be significantly constrained by the standards, practices, and conditions in this BO.

Based on the fact that the vernal pools on the private property have been leveled to a large degree and the sites proximity to relatively recent development in the existing Highway 62 corridor, it is likely that this site will be developed in the foreseeable future and that the population is unlikely to persist with or without the construction of the proposed Project.

4.1.2 Vernal Pool Fairy Shrimp, Cook's lomatium and Large-flowered woolly meadowfoam Critical Habitat

The PCEs of fairy shrimp CH are affected by 1) alterations in local hydrology, and 2) introduction of invasive, non-native vegetation in the area. Hydrology and invasive species are closely associated.

Changes in hydrology (such as filling or draining of pools) will be exhibited by the loss of the typical wet/dry cycle of the pool and surrounding mound habitat area. Loss of this wet/dry cycle will result in the degradation and loss of function of the habitat in terms of providing the fairy shrimp with the necessary life cycle elements to sustain over the long term.

Introduction of invasive, non-native vegetation can alter the soil chemistry, compete for nutrients and crowd out native vernal pool plants. Alteration of hydrology can exacerbate the spread of, and provide a competitive edge to non-native vegetation in vernal pool habitat affected by a small change in hydrology.

The VPCS Programmatic (USFWS 2011) estimated based on the percentage of remaining vernal pool habitat that is designated as CH that this would result in approximately 16-30 acres, 60-72 acres, and 88 acres of vernal pool wetland within CH being affected by development actions, associated mitigation, and voluntary (non-mitigation) actions, respectively. However, the VPCS Programmatic (USFWS 2011) contains standards, criteria, and other factors intended to discourage development action in vernal pools designated as CH and to incentivize mitigation and restoration actions within designated CH.

FHWA/ODOT made a determination that no designated VPFS CH in VPB/wetland habitat would be directly or indirectly impacted. FHWA/ODOT also determined that approximately 2.9 and 5.0 acres of VPB/wetland habitat in designated CH for the two plant species would likely be directly and indirectly affected, respectively (Table 4-3) (Pers. Com. Paul Benton, ODOT Wetland Biologist, Region 3, Medford, OR). These total impacts are well within the projected impacts to designated CH anticipated under the VPCS Programmatic (USFWS 2011) and will be fully mitigated for at the proposed project specific mitigation site. In addition, the proposed mitigation site is designated CH for all three species and is anticipated to increase the amount and quality of available functioning CH.

Vernal pool basin/wetland habitat designated as CH potentially affected by the Project (data Pers. Com. Paul Benton, ODOT Wetland Biologist, Region 3, Medford, OR) (Modified and supplemented information in BA)[2]

Species	**Acres Directly affected**	**Acres Indirectly Affected**
Vernal Pool Fairy Shrimp	0.0	0.0
Cook's lomatium	0.4	4.7
Large Flowered Woolly Meadowfoam	2.5	0.3
Total	2.9	5.0

[2] FHWA/ODOT reviewed the areas mapped by the Service for its CH designation and found that the vast majority of the habitat had been previously disturbed or developed and lacked the PCEs necessacary to function as habitat.

The direct negative impacts resulting from the Project construction actions are anticipated to be permanent and to preclude the utilization of the affected habitat by lomatium and large-flowered woolly meadowfoam. The indirect effects are anticipated to degrade adjacent vernal pool habitat but the species may continue to occur in that habitat at a reduced level depending on continued management of weeds. The impacts associated with the mitigation action are anticipated to be positive and beneficial for the conservation and recovery of the species. The proposed individual mitigation site contains approximately 105 acres of mapped CH for all three species which will be preserved and managed for the species. Restoration of the plant species, management of noxious weeds and vernal pool restoration are anticipated to result in high quality habitat throughout the site over time. Short-term adverse affects resulting from these otherwise beneficial restoration actions are near-term and temporary in nature (occurring over less than 5-years), and will be guided by the standards, practices, and conditions in the VPCS Programmatic (USFWS 2011).

While the the general parameters of the VPCS Programmatic (USFWS 2011) require that none of the above impacts will result in loss of any of the currently known or subsequently discovered lomatium or meadowfoam populations within CH, the proposed Project will have a significant effect on the local populations near the southern end of the alignment. Currently, much of these populations are on private property and the Service anticipates that the area would be developed with or without the proposed Project and that eventually most of the population on private land will be lost. FHWA/ODOT intend to mitigate for the plant loss at the proposed individual permittee mitigation site. FHWA/ODOT intend to begin seed collection and planting in 2012 and 2013 to minimize any temporal loss in plants but this restoration effort will continue until a similar number of lomatiums are established at the mitigation site.

4.2 Cumulative Effects

Cumulative effects are those impacts of future State, local, and private actions affecting endangered and threatened species that are reasonably certain to occur in the action areas. Future Federal actions will be subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project.

Because the vernal pool fairy shrimp are endemic to vernal pools in Jackson County, Oregon, the Service anticipates that a wide range of activities will be determined to affect these species. Such activities include, but are not limited to, urban, water, flood control, highway, and utility projects, chemical contaminants, as well as conversion of vernal pools to agricultural use. Many of these activities will be reviewed under section 7 of the Act as a result of the Federal nexus provided by section 404 of the Federal Water Pollution Control Act, as amended (Clean Water Act). However, much vernal pool habitat destruction has occurred on private land without such permits and enforcement has been spotty. The VPCS Programmatic (USFWS 2011) was developed to streamline permitting these actions while providing for a more comprehensive conservation strategy when dealing with the loss. The Service is currently unaware of any State, local, or

private actions which, when considered in conjunction with the known environmental baseline for these species, would likely peclude the survival and recovery of the fairy shrimp.

4.3 Integration and Synthesis of Effects

Full implementation of avoidance, minimization and conservation measures in section 2.4 and 2.6 (Section 6.0 of the BA, FHWA/ODOT 2011) during all aspects of implementation and permitting of the proposed action is vital to avoidance and minimization of adverse effects to listed species. The Service worked with ODOT in the development of the BA, to ensure that the avoidance, minimization and conservation measures constrain potential adverse affects to meet the vernal pool fairy shrimp, Cook's lomatium and large-flowered woolly meadowfoam biological requirements. However, with a large construction project like this, adverse effects will occur and the Service has determined the best way to minimize these losses to the species is through offsite habitat protection and restoration.

4.4 Conclusion

Vernal Pool Fairy Shrimp and Fairy Shrimp Critical Habitat

After reviewing the current status of the threatened vernal pool fairy shrimp; the environmental baseline for the area within the jurisdiction of the Service; the effects of the proposed action; and the cumulative effects; it is the Service's biological opinion that the proposed action, as described in this document, is not likely to jeopardize the continued existence of the species or to adversely modify fairy shrimp CH.

This conclusion is based on the following:

- Impacts of the Project are consistent with the general parameters, best management practices, standards, measures, other criteria, and the overall conservation strategy contained within the VPCS Programmatic opinion (USFWS 2011) and with the goals and objectives of the Final Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005c) and associated Draft Recovery Plan for Listed Species of the Rogue Valley Vernal Pool and Illinois Valley Wet Meadow Ecosystems (USFWS 2006).

- The individual and combined effects of the activities included in the proposed action will have a net positive impact on the species via— a) protection and maintenance of existing properly functioning habitats; b) restoration and enhancement of currently impaired habitats; and c) increased occurrence of these beneficial activities in habitat areas (including CH) identified as high-value/high-priority for conservation action. These benefits will primarily be met through preservation and restoration of the high quality habitat at the proposed individual project mitigation site.

- After closer review of designated CH within the proposed project it was determined that the CH did not contain the primary constituent elements necessary for CH, therefore no vernal pool fairy shrimp designated CH will be impacted by the proposed project. Short-term adverse impacts at the mitigation site will be constrained and will not reduce the size, productivity or distribution of species.

- The general parameters, best management practices, standards, measures, and other criteria of the proposed Project and its mitigation are expected to constrain the overall amount and extent of short and long-term adverse affects to vernal pool fairy shrimpboth species, and to promote a broader amount and extent of impacts that benefit the conservation and recovery of vernal pool fairy shrimp.

- Collectively, the above factors will result in the proposed action not appreciably reducing the size, distribution, or viability/productivity of vernal pool fairy shrimp at the local, regional, or rangewide scales, or not appreciably reducing the function and value of designated CH or its primary constituent elements.

Cook's Lomatium, Large-Flowered Wooly Meadowfoam, and Designated Critical Habitat

After reviewing the current status of these endangered plant species; the environmental baseline for the area within the jurisdiction of the Service; the effects of the proposed projects; and the cumulative effects; it is the Service's biological opinion that the proposed projects, as described in this consultation document, are not likely to jeopardize the continued existence of these species or to adversely modify designated CH.

This conclusion is based on the following:

- The geographic area covered by the proposed Project covers a small area within the range of Cook's lomatium and large-flowered wooly meadowfoam in Oregon and also a small amount of the extent of designated CH for lomatium (5.1 acres of 2,282 acres designated in Jackson County) and meadowfoam (2.8 acres of 5,840 acres designated in Oregon).

- Impacts of the Project are consistent with the general parameters, best management practices, standards, measures, other criteria, and the overall conservation strategy contained within the VPCS Programmatic opinion (USFWS 2011) and the goals and objectives of the Draft Recovery Plan for Listed Species of the Rogue Valley Vernal Pools and Illinois Valley Wet Meadow Ecosystems (USFWS 2006) and associated strategies developed for Jackson County, Oregon.

- The general parameters, best management practices, standards, measures, other criteria of the proposed Project and its mitigation are expected to constrain the overall amount and extent of adverse affects to lomatium and meadowfoam, and to promote a broader amount and extent of impacts that benefit the conservation and recovery of both species.

- The individual and combined effects of the activities included in the proposed Project including the mitigation will therefore have a net positive impact on these species via— a) protection and maintenance of existing properly functioning habitats; b) restoration and enhancement of currently impaired habitats; and c) increased occurrence of these beneficial activities in habitat areas (including CH) identified as high-value/high-priority for conservation action.

Collectively, the above factors will result in the proposed action not appreciably reducing the size, distribution, or viability/productivity of Cook's lomatium or large-flowered woolly meadowfoam at the regional, or rangewide scales, or not appreciably reducing the function and value of designated CH or its primary constituent elements.

5.0 REINITIATION OF CONSULTATION

To the extent the FHWA/ODOT retain discretionary involvement or control over this action as described in 50 CFR 402.16, FHWA/ODOT must reinitiate consultation if: 1) The action is modified in a way that causes an effect on a listed species that was not previously considered in this BO; 2) new information or project monitoring reveals effects of the action that may affect listed species in a way not previously considered; 3) a new species is listed or CH is designated that may be affected by the action; or 4) if the amount or extent of incidental take is exceeded (50 CFR 402.16).

If FHWA/ODOT's, or any agent's there of, exercise of the Project is likely to result in or has resulted in effects on listed species and CH that are not consistent with those described in this PBO, if FHWA/ODOT does not ensure the proposed action (Section 2) is administered as proposed, or if FHWA/ODOT does not provide the information described in the Incidental Take Statement (Section 7) by the dates specified in the proposed action and terms and conditions of this PBO, or if incidental take is exceeded, the Services may consider any of those circumstances to be a modification of the action that causes an effect on listed species not previously considered, potentially resulting in the need to reinitiate consultation.

6.0 INCIDENTAL TAKE STATEMENT

Section 9 of the Act prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harass is defined as an intentional or negligent act that creates the likelihood of injury to a listed species by annoying it to such an extent as

to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.

Incidental take is any take of listed animal species which result from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered a prohibited taking provided that such taking is in compliance with this incidental take statement.

As discussed above, sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act and the implementing regulations prohibit the removal and reduction to possession of federally listed threatened or endangered plants or the malicious damage of endangered plants on areas under federal jurisdiction, or the destruction of endangered plants on non-federal areas in violation of state law or regulation or in the course of any violation of a state criminal trespass law. Neither incidental take authorization nor recovery permits are needed for implementation of the proposed action.

The measures described below are nondiscretionary, and must be implemented by FHWA/ODOT so that they become binding conditions of any grant or permit issued, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Service has a continuing duty to regulate the activity covered by this incidental take statement.

6.1 Amount or Extent of Take

The Service anticipates take of fairy shrimp in the form of harm, injury, and harassment to individual cysts and adults due to direct and indirect impacts in up to 7.70 acres of vernal pool wetland/basin habitat (table 4-1) (up to 100.5 acres of vernal pool complex habitat) (3.94 acres vernal pool wetland/basin habitat for the JTA portion of the project) in Jackson County, Oregon. The best scientific and commercial data available is not sufficient to enable the Service to estimate a specific amount of fairy shrimp adults or cysts that will be taken associated with this acreage.

However, as previously discussed: a) only the development actions occurring on up to 7.70 acres of vernal pool wetland/basin are anticipated to be permanent and to preclude the utilization of the affected habitat by vernal pool fairy shrimp in the future; b) the impacts associated with the mitigation actions associated with up to 18.4 acres of vernal pool wetland/basin (8.6 acres for the JTA portion of the Project) are anticipated to be positive and beneficial for the conservation and recovery of the species; c) short-term adverse affects resulting from these otherwise beneficial actions are near-term and temporary in nature (occurring over less than 5-years); and d) the individual and combined effects of the activities included in the proposed action will have a net positive impact on the species. Therefore the amount of take that does occur is not anticipated to

appreciably reduce the size, distribution, or productivity of vernal pool fairy shrimp in the short- or long-terms.

Effect of the Take

In the accompanying BO, the Service has determined that this level of anticipated take, up to 7.7 acres of highway construction related impacts and 18.4 acres of associated mitigation (3.94 and 8.6 respectively for the JTA portion of the Project) is not likely to result in extinction or a reduction of opportunity for recovery of fairy shrimp.

7.0 REASONABLE AND PRUDENT MEASURES

The Services believe that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed species resulting from the action covered by this BO. In order to monitor the impacts of incidental take, the Federal agency or any applicant must report the progress of the action and its impact on the species to the Services as specified in the incidental take statement. The reporting requirements are established in accordance with 50 CFR 13.45 and 18.27 for USFWS and 50 CFR 220.45 and 228.5 for NOAA Fisheries.

The FHWA/ODOT shall:

1. Ensure completion of a comprehensive monitoring and reporting program regarding all actions authorized or completed following its mitigation/conservation bank annual reporting obligations for the Corps and USFWS.

2. Mitigation for the currently unfunded northern extension from Agate Road to the West Dutton Rd connection with the existing Highway 62 will be mitigated per the VPCS Programmatic (USFWS 2011) and this BO ***or*** following the latest version of the VPCS Programmatic, which ever is greater.

7.1 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the FHWA/ODOT and/or their contractors must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (ensure completion of a comprehensive monitoring and reporting program), the FHWA/ODOT shall ensure that:

   The FHWA/ODOT will submit all plans and agreements pertaining to the mitigation and long-term management of the project specific mitigation site to the Service in accordance with the VPCS Programmatic (USFWS 2011) and site monitoring reports to the Service annually that describes the FHWA/ODOT's mitigation efforts to carry out this BO. Monitoring reports will be submitted to:

   Oregon Fish and Wildlife Office
   2600 SE 98th Ave, Suite 100
   Portland, OR 97266

2. There are no specific Terms and Conditions to implement (ensure mitigation following the ratios per current VPCS Programmatic) for RPM #2.

8.0 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purpose of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or CH, to help implement recovery plans, or to develop information.

The Service recommends that mitigation for the entire proposed Project should be completed in the near-term and in advance of highway construction if FHWA/ODOT wants more certainty regarding mitigation expectations and ratios for the currently listed species.

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Appendix A. The following list includes minimization measures for reduction of impacts to VPC Habitat:

- Implement project standards that incorporate avoidance and minimization practices to the greatest extent possible. Consider the use of retaining walls to minimize filling disturbances to VPC wetland areas. Locate equipment staging areas and construction material stockpiles in existing developed areas away from vegetation communities. Staging in previously cleared and disturbed areas would minimize additional clearing, grubbing, and related disturbance impacts to vegetation communities. Clearly identify equipment staging areas in the field prior to construction.
- Limit operation of construction equipment to designated ROW. Mark limits of clearing with fencing. Limit equipment operations in VPC and wetland communities. Use BMPs during construction for soil erosion and sediment control. Install sediment fencing and hay bale filters along limits of disturbance. Provide temporary weed-free seed and mulch to all rough graded areas. Limit construction-related sediment to within the proposed areas of impact. Maintain all soil erosion and sediment control measures until construction is complete.
- During initial grading operations, strip and stockpile topsoil for landscaping and other mitigation projects. As appropriate, salvage and replant native tree and shrub plant material along the project alignment. Store all stockpiled material away from VPCs, riparian and aquatic communities.
- Improve degraded vegetation communities along the project alignment by removing noxious weeds and introducing new plantings of native species. Remove trash and debris as needed.
- Upon completion of final grading, landscape project alignment with native species at densities and with species diversity matching existing vegetation communities. Obtain all new plant material from local growers that provide plant material with similar tolerances for cold and heat. Provide permanent vegetative cover to all unpaved areas of the project alignment.
- Monitor all new mitigation and landscaped areas until fully established. Provide irrigation as required to landscaped areas to ensure survival of new plantings. Establish minimum survival rate for all new plant materials.

Appendix H Non-Federal ESA Species

This appendix includes lists for all non-Federal ESA species, including state-listed species, special status species, species of concern, and sensitive species.

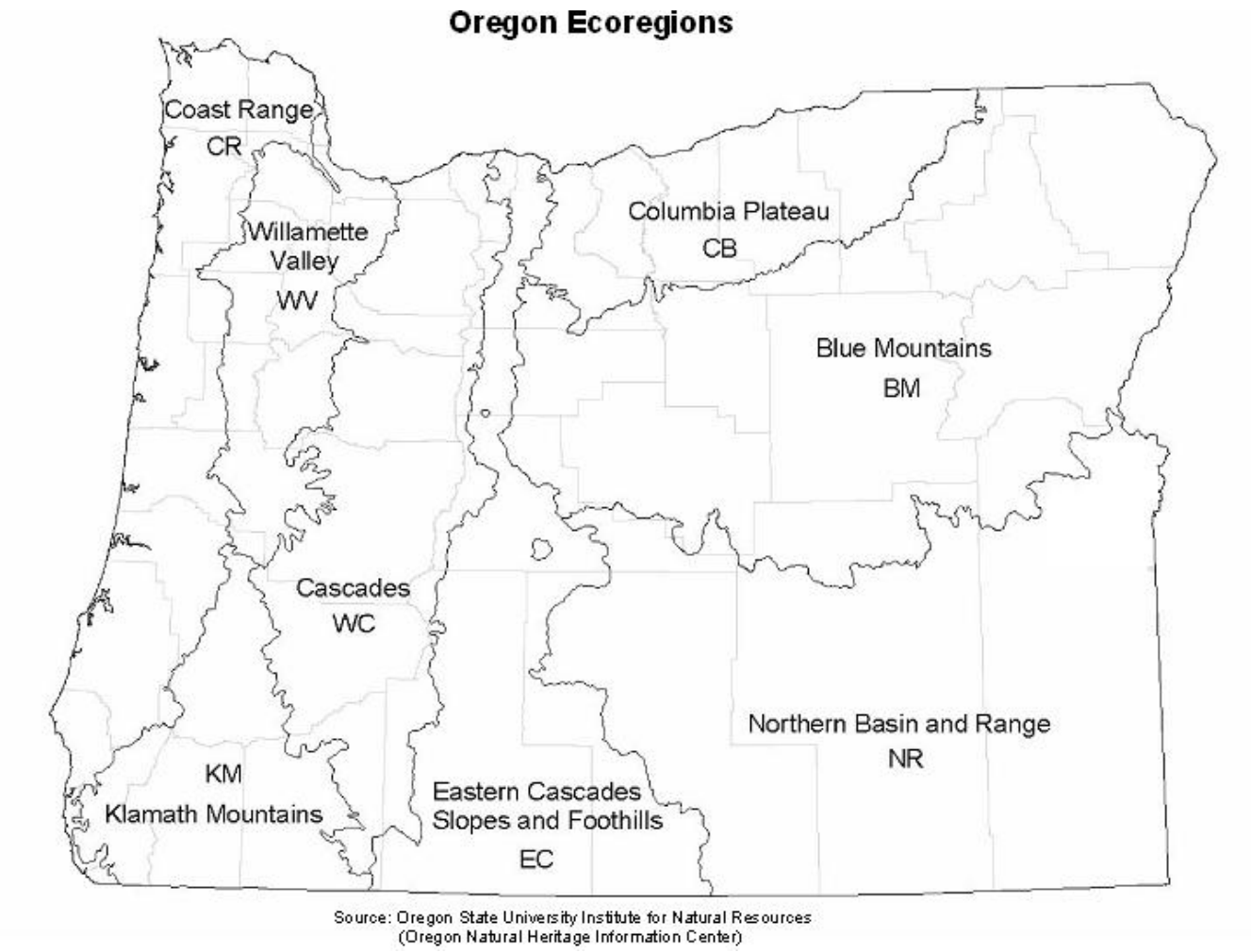


Figure 1. Ecoregions used for determining status of terrestrial wildlife (amphibians, reptiles, birds, and mammals).

Data Source: Oregon BLM and US Forest Service HUC4 boundary Layer (1:24,000).

Subbasin Number, Name

16040201, Upper Quinn
16040205, Thousand-Virgin
17050103, Middle Snake-Succor
17050105, South Fork Owyhee
17050106, East Little Owyhee
17050107, Middle Owyhee
17050108, Jordan
17050109, Crooked-Rattlesnake
17050110, Lower Owyhee
17050115, Middle Snake-Payette
17050116, Upper Malheur
17050117, Lower Malheur
17050118, Bully
17050119, Willow
17050201, Brownlee Reservoir
17050202, Burnt River
17050203, Powder River
17060101, Hells Canyon
17060102, Imnaha River
17060103, Lower Snake-Asotin
17060104, Upper Grande Ronde River
17060105, Wallowa River
17060106, Lower Grande Ronde
17070101, Middle Columbia-Lake Wallula
17070102, Walla Walla
17070103, Umatilla
17070104, Willow
17070105, Middle Columbia-Hood
17070201, Upper John Day
17070202, North Fork John Day
17070203, Middle Fork John Day
17070204, Lower John Day
17070301, Upper Deschutes
17070302, Little Deschutes
17070303, South Fork Crooked
17070304, Upper Crooked
17070305, Lower Crooked
17070306, Lower Deschutes
17070307, Trout
17080001, Lower Columbia-Sandy
17080003, Lower Columbia-Clatskanie
17080006, Lower Columbia
17090001, Middle Fork Willamette
17090002, Coast Fork Willamette
17090003, Upper Willamette
17090004, Mckenzie
17090005, North Santiam
17090006, South Santiam
17090007, Middle Willamette
17090008, Yamhill
17090009, Molalla-Pudding
17090010, Tualatin
17090011, Clackamas
17090012, Lower Willamette
17100201, Necanicum
17100202, Nehalem
17100203, Wilson-Trask-Nestucca
17100204, Siletz-Yaquina
17100205, Alsea
17100206, Siuslaw
17100207, Siltcoos
17100301, North Umpqua
17100302, South Umpqua
17100303, Umpqua
17100304, Coos
17100305, Coquille
17100306, Sixes
17100307, Upper Rogue
17100308, Middle Rogue
17100309, Applegate
17100310, Lower Rogue
17100311, Illinois
17100312, Chetco
17120001, Harney-Malheur Lakes
17120002, Silvies
17120003, Donner Und Blitzen
17120004, Silver
17120005, Summer Lake
17120006, Lake Abert
17120007, Warner Lakes
17120008, Guano
17120009, Alvord Lake
18010101, Smith River
18010201, Williamson
18010202, Sprague
18010203, Upper Klamath Lake
18010204, Lost River
18010205, Butte
18010206, Upper Klamath River
18010209, Lower Klamath River
18020001, Goose Lake

Figure 2: Oregon sub-basins based on 4th field hydrologic unit codes (HUC).

Oregon Department of Fish and Wildlife
SENSITIVE SPECIES LIST
Organized by Category

An asterisk (*) indicates that the species, Distinct Population Segment (DPS) or Evolutionarily Significant Unit (ESU) is federally listed as threatened or endangered by either NOAA's National Marine Fisheries Service or the U.S. Fish and Wildlife Service. Parenthetical scientific names are proposed taxonomic changes not yet adopted by the American Fisheries Society Committee on Names of Fishes.

Sensitive Species: Fish. USGS Hydrologic Unit (HU) distribution is based on current known distribution as described in the ODFW Native Fish Status Report, literature review, or expert information. A species or Species Management Unit (SMU) may be distributed in all or a portion of the HU where appropriate habitat exists. For anadromous species, the distribution does not include migration corridors. Figure 2 displays the location of the hydrologic units in Oregon.

SENSITIVE – CRITICAL

Common Name	Scientific Name	USGS HU distribution (current)
FISH		
Modoc Sucker*	*Catostomus microps*	Goose Lake (18020001)
Westslope Cutthroat Trout	*Oncorhynchus clarki lewisi* (Behnke 2002)	Upper John Day (17070201)
Chum Salmon (Columbia River ESU)*	*Oncorhynchus keta*	Lower Columbia (17080006), Lower Columbia-Clatskanie (17080003), Lower Willamette (17090012), Lower Columbia-Sandy (17080001)
Chum Salmon (Coastal Chum Salmon SMU/Pacific Coast ESU)	*Oncorhynchus keta*	Nehalem (17100202), Necanicum (17100201), Wilson-Trask-Nestucca (17100203), Yamhill (17090008), Siletz-Yaquina (17100204)
Steelhead (Klamath Mountains Province ESU, Klamath Summer Steelhead SMU)	*Oncorhynchus mykiss*	Upper Klamath River (18010206)
Steelhead (Lower Columbia River ESU/SMU, winter run)*	*Oncorhynchus mykiss*	Lower Columbia (17080006), Lower Columbia-Clatskanie (17080003), Lower Willamette (17090012), Lower Columbia-Sandy (17080001), Clackamas (17090011), Middle Columbia-Hood (17070105)
Steelhead (Lower Columbia River ESU/SMU, summer run)*	*Oncorhynchus mykiss*	Middle Columbia-Hood (17070105)
Steelhead (Middle Columbia River ESU, summer run)*	*Oncorhynchus mykiss*	Lower Deschutes (17070306), Trout (17070307), Upper Deschutes (17070301), Lower Crooked (17070305), Upper John Day (17070201), North Fork John Day (17070202), Middle Fork John Day (17070203), Lower John Day (17070204), Umatilla (17070103), Walla Walla (17070102)
Great Basin Redband Trout (Catlow Valley Redband Trout SMU)	*Oncorhynchus mykiss newberrii* (Behnke 2002)	Guano (17120008)
Great Basin Redband Trout (Goose Lake Redband Trout SMU)	*Oncorhynchus mykiss newberrii* (Behnke 2002)	Goose Lake (18020001)

Common Name	Scientific Name	USGS HU distribution (current)
Great Basin Redband Trout (Warner Lakes Redband Trout SMU)	*Oncorhynchus mykiss newberrii* (Behnke 2002)	Warner Lake (17120007)
Great Basin Redband Trout (Fort Rock Redband Trout SMU)	*Oncorhynchus mykiss newberrii* (Behnke 2002)	Summer Lake (17120005)
Chinook Salmon (Upper Willamette River ESU, spring run/Willamette Spring Chinook SMU)*	*Oncorhynchus tshawytscha*	Molalla-Pudding (17090009), North Santiam (17090005), South Santiam (17090006), Mckenzie (17090004), Middle Fork Willamette (17090001), Coast Fork Willamette (17090002), Upper Willamette (17090003)
Chinook Salmon (Coastal Spring Chinook SMU)	*Oncorhynchus tshawytscha*	Wilson-Trask-Nestucca (17100203), Siletz-Yaquina (17100204), Alsea (17100205), Coquille (17100305), North Umpqua (17100301), South Umpqua (17100302)
Chinook Salmon (Lower Columbia River Chinook ESU/SMU, fall run)*	*Oncorhynchus tshawytscha*	Lower Columbia (17080006), Lower Columbia-Clatskanie (17080003), Lower Columbia-Sandy (17080001), Clackamas (17090011), Middle Columbia-Hood (17070105), Lower Willamette (17090012)
Chinook Salmon (Lower Columbia River Chinook ESU/SMU, spring run)*	*Oncorhynchus tshawytscha*	Lower Columbia-Sandy (17080001), Clackamas (17090011)
Oregon Chub*	*Oregonichthys crameri*	North Santiam (17090005), Upper Willamette (17090003), South Santiam (17090006), Mckenzie (17090004), Middle Fork Willamette (17090001), Coast Fork Willamette (17090002)
Umpqua Chub	*Oregonichthys kalawatseti*	Umpqua (17100303), North Umpqua (17100301), South Umpqua (17100302)
Bull Trout (Willamette Bull Trout SMU)*	*Salvelinus confluentus*	Mckenzie (17090004), Middle Fork Willamette (17090001)
Bull Trout (John Day Bull Trout SMU)*	*Salvelinus confluentus*	North Fork John Day (17070202), Middle Fork John Day (17070203), Upper John Day (17070201)
Bull Trout (Umatilla Bull Trout SMU)*	*Salvelinus confluentus*	Umatilla (17070103)
Bull Trout (Grande Ronde Bull Trout SMU)*	*Salvelinus confluentus*	Upper Grande Ronde River (17060104), Wallowa River (17060105), Lower Grande Ronde (17060106)
Bull Trout (Imnaha Bull Trout SMU)*	*Salvelinus confluentus*	Imnaha River (17060102)
Bull Trout (Hells Canyon Bull Trout SMU)*	*Salvelinus confluentus*	Brownlee Reservoir (17050201), Powder River (17050203)
Bull Trout (Hood River Bull Trout SMU)*	*Salvelinus confluentus*	Middle Columbia-Hood (17070105)
Bull Trout (Malheur River Bull Trout SMU)*	*Salvelinus confluentus*	Upper Malheur (17050116)
Bull Trout (Odell Lake Bull Trout SMU)*	*Salvelinus confluentus*	Upper Deschutes (17070301)
Bull Trout (Klamath Lake Bull Trout SMU)*	*Salvelinus confluentus*	Upper Klamath Lake (18010203), Sprague (18010202)

SENSITIVE - CRITICAL

Common Name	Scientific Name	Ecoregion
AMPHIBIANS		
Columbia Spotted Frog	*Rana luteiventris*	Columbia Plateau, Northern Basin and Range
Oregon Spotted Frog	*Rana pretiosa*	
Foothill Yellow-legged Frog	*Rana boylii*	Willamette Valley
Northern Leopard Frog	*Lithobates pipiens*	
REPTILES		
Western Painted Turtle	*Chrysemys picta bellii*	
Western Pond Turtle	*Actinemys marmorata*	
Western Rattlesnake	*Crotalus oreganus*	Willamette Valley
BIRDS		
Columbian Sharp-tailed Grouse	*Tympanuchus phasianellus columbianus*	
Red-necked Grebe	*Podiceps grisegena*	Breeding Population
Ferruginous Hawk	*Buteo regalis*	Columbia Plateau
Yellow Rail	*Coturnicops noveboracensis*	
Upland Sandpiper	*Bartramia longicauda*	
Yellow-billed Cuckoo	*Coccyzus americanus*	
Burrowing Owl	*Athene cunicularia*	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills, Klamath Mountains, Willamette Valley
Common Nighthawk	*Chordeiles minor*	Willamette Valley
Lewis's Woodpecker	*Melanerpes lewis*	
White-headed Woodpecker	*Picoides albolarvatus*	
Streaked Horned Lark	*Eremophila alpestris strigata*	Coast Range, Klamath Mountains, Willamette Valley
Purple Martin	*Progne subis*	
Yellow-breasted Chat	*Icteria virens*	Willamette Valley
Oregon Vesper Sparrow	*Pooecetes gramineus affinis*	Klamath Mountains, Willamette Valley
Sage Sparrow	*Amphispiza belli*	Columbia Plateau
Western Meadowlark	*Sturnella neglecta*	Willamette Valley
MAMMALS		
Townsend's Big-eared Bat	*Corynorhinus townsendii*	
Fisher	*Martes pennanti*	

SENSITIVE – VULNERABLE

Common Name	Scientific Name	USGS HU distribution (current)
FISH		
Goose Lake Sucker	*Catostomus occidentalis lacusanserinus* (Moyle 2002)	Goose Lake (18020001)
Alvord Chub	*Gila alvordensis* (*Siphateles alvordensis*)	Alvord Lake (17120009)
Miller Lake Lamprey	*Lampetra minima* (*Entosphenus minimus*)	Williamson (18010201), Sprague (18010202)
Western Brook Lamprey	*Lampetra richardsoni*	Columbia River system and coastal streams including the Rogue
Pacific Lamprey	*Lampetra tridentate* (*Entosphenus tridentata*)	Columbia River system and coastal streams including the Rogue
Coastal Cutthroat Trout (Lower Columbia Coastal Cutthroat Trout SMU/ Southwestern Washington/Columbia River ESU)	*Oncorhynchus clarkii clarkii*	Lower Columbia-Clatskanie (17080003), Lower Columbia (17080006), Lower Willamette (17090012), Middle Columbia-Hood (17070105), Lower Columbia-Sandy (17080001), Clackamas (17090011)
Coho Salmon (Coastal Coho Salmon SMU/Oregon Coast ESU)*	*Oncorhynchus kisutch*	Nehalem (17100202), Necanicum (17100201), Wilson-Trask-Nestucca (17100203), Siletz-Yaquina (17100204), Alsea (17100205), Siuslaw (17100206), Siltcoos (17100207), Umpqua (17100303), Coos (17100304), South Umpqua (17100302), Coquille (17100305), Sixes (17100306), North Umpqua (17100301)
Coho Salmon (Southern Oregon/Northern California Coasts ESU/Rogue (and Klamath) Coho SMU)*	*Oncorhynchus kisutch*	Middle Rogue (17100308), Lower Rogue (17100310), Illinois (17100311), Upper Rogue (17100307), Applegate (17100309)
Inland Columbia Redband Trout	*Oncorhynchus mykiss gairdneri*	Lower Owyhee (17050110), Jordan (17050108), Middle Owyhee (17050107), South Fork Owyhee (17050105), East Little Owyhee (17050106), Lower Malheur (17050117), Upper Malheur (17050116), Bully (17050118), Willow (17050119), Burnt River (17050202), Lower Snake-Asotin (17060103), Walla Walla (17070102), , Lower Grande Ronde (17060106), Middle Fork John Day (17070203), Lower John Day (17070204), Brownlee Reservoir (17050201), Powder River (17050203), Imnaha River (17060102), North Fork John Day (17070202), Upper Grande Ronde River (17060104), Wallowa River (17060105), Willow (17070104), Umatilla (17070103), South Fork Crooked (17070303), Upper Crooked (17070304), Upper John Day (17070201), Little Deschutes (17070302), , Lower Crooked (17070305), Upper Deschutes (17070301), Trout (17070307), Middle Columbia-Hood (17070105), Lower Deschutes (17070306)
Great Basin Redband Trout (Malheur Lakes Redband SMU)	*Oncorhynchus mykiss newberrii* (Behnke 2002)	Silvies (17120002), Harney-Malheur Lakes (17120001), Silver (17120004), Donner Und Blitzen (17120003),
Great Basin Redband Trout (Chewaucan Redband Trout SMU)	*Oncorhynchus mykiss newberrii* (Behnke 2002)	Lake Abert (17120006)
Great Basin Redband Trout (Upper Klamath Basin Redband Trout SMU)	*Oncorhynchus mykiss newberrii* (Behnke 2002)	Sprague (18010202), Upper Klamath Lake (18010203), Williamson (18010201), Lost River (18010204), Upper Klamath River (18010206)

Common Name	Scientific Name	USGS HU distribution (current)
Steelhead (Upper Willamette River ESU, winter run/Willamette Winter Steelhead SMU)*	*Oncorhynchus mykiss*	Tualatin (17090010), Yamhill (17090008), Molalla-Pudding (17090009), North Santiam (17090005), South Santiam (17090006), Upper Willamette (17090003), Middle Willamette (17090007)
Steelhead (Oregon Coast ESU, summer run/Coastal Summer Steelhead SMU)	*Oncorhynchus mykiss*	Siletz-Yaquina (17100204), North Umpqua (17100301)
Steelhead (Oregon Coast ESU, winter run/Coastal Winter Steelhead SMU)	*Oncorhynchus mykiss*	Nehalem (17100202), Necanicum (17100201), Wilson-Trask-Nestucca (17100203), Siletz-Yaquina (17100204), Alsea (17100205), Siuslaw (17100206), Umpqua (17100303), Coos (17100304), North Umpqua (17100301), South Umpqua (17100302), Coquille (17100305), Sixes (17100306)
Steelhead (Klamath Mountains Province ESU, summer run/Rogue Summer Steelhead SMU)	*Oncorhynchus mykiss*	Upper Rogue (17100307), Middle Rogue (17100308), Applegate (17100309), Lower Rogue (17100310)
Steelhead (Snake River Basin ESU/Snake Summer Steelhead SMU)*	*Oncorhynchus mykiss*	Imnaha River (17060102), Upper Grande Ronde River (17060104), Wallowa River (17060105), Lower Grande Ronde River (17060106)
Chinook Salmon (Mid-Columbia River ESU/SMU, fall run)	*Oncorhynchus tshawytscha*	Lower Deschutes (17070306)
Chinook Salmon (Rogue Spring Chinook SMU)	*Oncorhynchus tshawytscha*	Upper Rogue (17100307), Middle Rogue (17100308)
Chinook Salmon (Middle Columbia Spring Chinook SMU	*Oncorhynchus tshawytscha*	Lower Deschutes (17070306), Upper Deschutes (17070301), Lower Crooked (17070305), Upper John Day (17070201), North Fork John Day (17070202), Middle Fork John Day (17070203)
Chinook Salmon (Southern Oregon/Northern California Coast ESU, fall run/Rogue Fall Chinook SMU)	*Oncorhynchus tshawytscha*	Lower Rogue (17100310), Illinois (17100311), Chetco (17100312), Upper Rogue (17100307), Middle Rogue (17100308), Applegate (17100309), Sixes (17100306)
Millicoma Dace	*Rhinichthys cataractae* ssp.	Coos (17100304)
Bull Trout (Deschutes Bull Trout SMU)*	*Salvelinus confluentus*	Lower Deschutes (17070306), Upper Deschutes (17070301)

SENSITIVE - VULNERABLE

Common Name	Scientific Name	Ecoregion
AMPHIBIANS		
Cope's Giant Salamander	*Dicamptodon copei*	
Columbia Torrent Salamander	*Rhyacotriton kezeri*	
Southern Torrent Salamander	*Rhyacotriton variegatus*	
Cascade Torrent Salamander	*Rhyacotriton cascadae*	
Larch Mountain Salamander	*Plethodon larselli*	
Del Norte Salamander	*Plethodon elongatus*	
Siskiyou Mountains Salamander	*Plethodon stormi*	
Clouded Salamander	*Aneides ferreus*	
Black Salamander	*Aneides flavipunctatus*	
Oregon Slender Salamander	*Batrachoseps wrightorum*	
Rocky Mountain Tailed Frog	*Ascaphus montanus*	
Coastal Tailed Frog	*Ascaphus truei*	
Western Toad	*Anaxyrus boreas*	
Northern Red-legged Frog	*Rana aurora*	Klamath Mountains, Willamette Valley
Cascades Frog	*Rana cascadae*	
Columbia Spotted Frog	*Rana luteiventris*	Blue Mountains, Eastern Cascades Slopes and Foothills
Foothill Yellow-legged Frog	*Rana boylii*	Coast Range, Klamath Mountains, West Cascades
REPTILES		
Northern Sagebrush Lizard	*Sceloporus graciosus graciosus*	Columbia Plateau
Common Kingsnake	*Lampropeltis getula*	
California Mountain Kingsnake	*Lampropeltis zonata*	
BIRDS		
Greater Sage-Grouse	*Centrocercus urophasianus*	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills
Spruce Grouse	*Falcipennis canadensis*	
Mountain Quail	*Oreortyx pictus*	Northern Basin and Range
American White Pelican	*Pelecanus erythrorhynchos*	Breeding Population
Snowy Egret	*Egretta thula*	Breeding Population
Northern Goshawk	*Accipiter gentilis*	
Swainson's Hawk	*Buteo swainsoni*	
Ferruginous Hawk	*Buteo regalis*	Blue Mountains, Eastern Cascades Slopes and Foothills
American Peregrine Falcon	*Falco peregrinus anatum*	
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	
Greater Sandhill Crane	*Grus canadensis tabida*	Central Valley Population (Oregon Breeding Population)
Black Oystercatcher	*Haematopus bachmani*	
Long-billed Curlew	*Numenius americanus*	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills

SENSITIVE - VULNERABLE

Common Name	Scientific Name	Ecoregion
BIRDS continued		
Franklin's Gull	*Larus pipixcan*	
Cassin's Auklet	*Ptychoramphus aleuticus*	
Rhinocerous Auklet	*Cerorhinca monocerata*	
Tufted Puffin	*Fratercula cirrhata*	
Flammulated Owl	*Otus flammeolus*	
Burrowing Owl	*Athene cunicularia*	Northern Basin and Range
Great Gray Owl	*Strix nebulosa*	
Acorn Woodpecker	*Melanerpes formicivorus*	Willamette Valley
American Three-toed Woodpecker	*Picoides dorsalis*	
Black-backed Woodpecker	*Picoides arcticus*	
Pileated Woodpecker	*Dryocopus pileatus*	Blue Mountains, Eastern Cascades Slopes and Foothills, Klamath Mountains
Olive-sided Flycatcher	*Contopus cooperi*	
Willow Flycatcher	*Empidonax traillii adastus*	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills, Northern Basin and Range
Little Willow Flycatcher	*Empidonax traillii brewsteri*	Coast Range, Klamath Mountains, West Cascades, Willamette Valley
Loggerhead Shrike	*Lanius ludovicianus*	Blue Mountains, Columbia Plateau, Eastern Cascades Slopes and Foothills
White-breasted Nuthatch (=Slender-billed Nuthatch)	*Sitta carolinensis aculeata*	Coast Range, Klamath Mountains, West Cascades, Willamette Valley
Western Bluebird	*Sialia mexicana*	Coast Range, Klamath Mountains, West Cascades, Willamette Valley
Grasshopper Sparrow	*Ammodramus savannarum*	
Bobolink	*Dolichonyx oryzivorus*	
MAMMALS		
California Myotis	*Myotis californicus*	
Fringed Myotis	*Myotis thysanodes*	
Long-legged Myotis	*Myotis volans*	
Hoary Bat	*Lasiurus cinereus*	
Silver-haired Bat	*Lasionycteris noctivagans*	
Spotted Bat	*Euderma maculatum*	
Pallid Bat	*Antrozous pallidus*	
Pygmy Rabbit	*Brachylagus idahoensis*	
Black-tailed Jackrabbit	*Lepus californicus*	Willamette Valley
White-tailed Jackrabbit	*Lepus townsendii*	
Western Gray Squirrel	*Sciurus griseus*	Willamette Valley
Red Tree Vole	*Arborimus longicaudus*	Coast Range
Ringtail	*Bassariscus astutus*	
American Marten	*Martes americana*	Blue Mountains, Coast Range
Columbian White-tailed Deer*	*Odocoileus virginianus leucurus*	Coast Range (Columbia River Population)

Threatened, Endangered, and Candidate Fish and Wildlife Species in Oregon

The State of Oregon and the federal government maintain separate lists of threatened and endangered (T&E) species. These are species whose status is such that they are at some degree of risk of becoming extinct.

Under State law (ORS 496.171-496.192) the Fish and Wildlife Commission through ODFW maintains the list of native wildlife species in Oregon that have been determined to be either “threatened” or “endangered” according to criteria set forth by rule (OAR 635-100-0105).

Plant listings are handled through the Oregon Department of Agriculture.

Most invertebrate listings are handled through the Oregon Natural Heritage Program.

Under federal law the U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration share responsibility for implementing the federal Endangered Species Act of 1973 (Public Law 93-205, 16 U.S.C. § 1531), as amended. In general, USFWS has oversight for land and freshwater species and NOAA for marine and anadromous species. In addition to information about species already listed, the USFWS-Oregon Field Office maintains a list of Species of Concern.

Additional information about the federal programs in place in Oregon can be found at the following websites:
• U.S. Fish and Wildlife-Oregon (http://www.fws.gov/oregonfwo)
• Northwest Region of NOAA-Fisheries (http://www.nwr.nmfs.noaa.gov)

Threatened, Endangered, and Candidate Fish and Wildlife Species in Oregon
(T=threatened, E=endangered, C=candidate, DPS=Distinct Population Segment)

Common Name	Scientific Name	State status	Federal status
FISH			
Borax Lake Chub	*Gila boraxobius*	E	E
Bull Trout (Range-wide)	*Salvelinus confluentus*		T
Columbia River Chum Salmon	*Oncorhynchus keta*		T
Foskett Speckled Dace	*Rhinichthys osculus* ssp	T	T
Green sturgeon (Southern DPS)	*Acipenser medirostris*		T
Hutton Spring Tui Chub	*Gila bicolor* ssp.	T	T
Lahontan Cutthroat Trout	*Oncorhynchus clarki henshawi*	T	T
Lost River Sucker	*Deltistes luxatus*	E	E
Lower Columbia River Chinook Salmon	*Oncorhynchus tshawytscha*		T
Lower Columbia River Coho Salmon	*Oncorhynchus kisutch*	E	T
Lower Columbia River Steelhead	*Oncorhynchus mykiss*		T
Middle Columbia River Steelhead	*Oncorhynchus mykiss*		T
Modoc sucker	*Catostomus microps*		E
Oregon Chub	*Oregonichthys crameri*		T
Oregon Coast Coho Salmon	*Oncorhynchus kisutch*		T
Pacific Eulachon/Smelt (Southern DPS)	*Thaleichthys pacificus*		T
Shortnose Sucker	*Chasmistes brevirostris*	E	E
Snake River Chinook Salmon (Fall)	*Oncorhynchus tshawytscha*	T	T
Snake River Chinook Salmon (Spring/Summer)	*Oncorhynchus tshawytscha*	T	T
Snake River Sockeye Salmon	*Oncorhynchus nerka*		E
Snake River Steelhead	*Oncorhynchus mykiss*		T
Southern Oregon Coho Salmon	*Oncorhynchus kisutch*		T
Upper Columbia River Spring Chinook Salmon	*Oncorhynchus tshawytscha*		E
Upper Columbia River Steelhead	*Oncorhynchus mykiss*		T
Upper Willamette River Chinook Salmon	*Oncorhynchus tshawytscha*		T

Common Name	Scientific Name	State status	Federal status
Upper Willamette River Steelhead	*Oncorhynchus mykiss*		T
Warner Sucker	*Catostomus warnerensis*	T	T
AMPHIBIANS AND REPTILES			
Columbia spotted frog	*Rana luteiventris*		C
Green Sea Turtle	*Chelonia mydas*	E	E
Leatherback Sea Turtle	*Dermochelys coriacea*	E	E
Loggerhead Sea Turtle	*Caretta caretta*	T	T
Oregon spotted frog	*Rana pretiosa*		C
Pacific Ridley Sea Turtle	*Lepidochelys olivacea*	T	T
BIRDS			
Bald Eagle	*Haliaeetus leucocephalus*	T	
Brown Pelican	*Pelecanus occidentalis*	E	E
California Least Tern	*Sterna antillarum browni*	E	E
Marbled Murrelet	*Brachyramphus marmoratus*	T	T
Northern Spotted Owl	*Strix occidentalis caurina*	T	T
Short-tailed Albatross	*Diomedea albatrus*	E	E
Streaked horned lark	*Eremophila alpestris strigata*		C
Western Snowy Plover	*Charadrius alexandrinus nivosus*	T	T (Coastal population only)
Yellow-billed cuckoo	*Coccyzus americanus*		C
MAMMALS			
Blue Whale	*Balaenoptera musculus*	E	E
Columbian White-tailed Deer(Lower Columbia River population only)	*Odocolieus virginianus leucurus*		E
Fin Whale	*Balaenoptera physalus*	E	E
Fisher	*Martes pennanti*		C
Gray Whale	*Eschrichtius robustus*	E	
Gray Wolf	*Canis lupus*	E	E
Humpback Whale	*Megaptera novaeangliae*	E	E
Kit Fox	*Vulpes macrotis*	T	
North Pacific Right Whale	*Eubalaena japonica*	E	E
Northern (Steller) Sea Lion	*Eumetopias jubatus*		T
Sea Otter	*Enhydra lutris*	T	T
Sei Whale	*Balaenoptera borealis*	E	E
Sperm Whale	*Physeter macrocephalus*	E	E
Washington Ground Squirrel	*Spermophilus washingtoni*	E	
Wolverine	*Gulo gulo*	T	

Appendix I Transportation Air Quality Conformity and Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA

This appendix contains:

- A description of how the OR 62: I-5 to Dutton Road project is included in the relevant metropolitan transportation improvement program (TIP) and regional transportation plan (RTP)
- The Federal Highway Administration's (FHWA's) December 2012 interim guidance update for Mobile Source Air Toxics in NEPA documents

The JTA Phase of the OR 62: I-5 to Dutton Road project is included in the Rogue Valley Metropolitan Planning Organization (RVMPO) TIP. Pages I-2 and I-3 of this appendix contain copies of the pages from the current version of the TIP that list the JTA Phase. The TIP was amended March 26, 2013, but the amendments did not affect the OR 62: I-5 to Dutton Road project.

The RVMPO adopted a new 2013-2038 RTP on March 26, 2013, and the USDOT conformity determination is expected to follow shortly. This appendix demonstrates how the OR 62: I-5 to Dutton Road projects is included in the financially constrained portion of both the 2009-2034 RTP, which was effective as the FEIS was being written, and the new 2013-2038 RTP.

Page I-4 of this appendix contains a copy of the page from the list of funded projects in the RVMPO 2009-2034 RTP that contains the OR 62: I-5 to Dutton Road project. See projects 903 and 937.

Page I-5 of this appendix is a copy of the page from the 2013-2038 RTP the RVMPO adopted March 26, 2013, that includes the OR 62: I-5 to Dutton Road project. See project 903 in both the list of short-range projects and the list of long-range projects. The RVMPO adopted an associated air quality conformity determination at the same time. The USDOT conformity determination for the 2013-2038 RTP is expected to follow shortly thereafter.

Following page I-5 is the FHWA's December 2012 interim guidance update for Mobile Source Air Toxics in NEPA documents.

Project List
2012-2015 RVMPO Metropolitan Transportation Improvement Program
Adopted: Jan. 24, 2012; Update: Jan. 17, 2013 (through Amend #20)

Project Name	Project Description	RTP Project Number	Air Quality Status	Key #	Federal Fiscal Year	Phase	Federal		Federal Required Match		Total Fed+Req Match	Other		Total All Sources
							$	Source	$	Source		$	Source	
Oregon Department of Transportation (ODOT)														
OR 62: Linn Rd - jCT Hwy 271 (Sams Valley), Rolling Hills Drive at Barton Road	Grind/Inlay and Overlay Pavement Linn Rd to Hwy 234. Build two way center left turn lane between Barton and Rolling Hills	941 & 942	Exempt (Table 2) Safety, pavement resurfacing			Planning					$ -			
				16206	FFY2011	Design	$ 352,253	NHS	$38,142		$ 390,400			
				16206	FFY2011	Design	$ 88,064	HSIP	$9,536		$ 97,600			
				16206	FFY2012	Land Purchase						$ 74,000	S010	
				16206	FFY2012	Utility Relocate						$ 50,000		
				16206	FFY2013	Construction	$ 2,827,837	NHS	$26,563		$ 2,854,400			
				16206	FFY2013	Construction	$ 1,689,221	HSIP	$163,339		$ 1,852,560			
						Other	$ 4,534	NHS	$ 466		$ 5,000			
					Total FFY12-15		$ 4,421,592		$ 190,408		$ 5,100,000	$ 124,000		$ 5,224,000
I-5: Siskiyou Rest Area (Ashland)	Relocate rest area at new location	913	Exempt (Table 3) Safety, roadside rest area		FFY2002	Planning					$ 10,200,000			
				09436	FFY2002	Design	$ 141,325	Q050	$ 16,175		$ 157,500	$ 1,592,500	State	
				09436	FFY2011	Land Purchase					$ -	227,000	State	
				09436	FFY2012	Utility Relocate					$ -	$ 30,000	Other	
				09436	FFY2012	Construction	$ 5,242,707	L110	$442,293		$ 5,685,000			
						Other					$ -			
					Total FFY12-15		$ 5,242,707		$ 442,293		$ 16,042,500	$ 20,000		$ 16,062,500
I-5: Fern Valley Interchange, Unit 2	Reconstruct interchange with new bridge over I-5 realign and widen Fern Valley Road from two to five lanes west to new intersection with extended S. Phoenix Road. Realign N. Phoenix Road. Replace Bear Creek Bridge and build two-lane couplets on east end of Fern Valley Road at Hwy. 99. Widen Hwy. 99 at new Fern Valley Road couplet intersections. Project includes bicycle	902	Non-Exempt			Planning					$ -			
				12723	FFY2005	Design	$ 1,055,135	HY10	$ 120,765	state	$ 1,175,900			
				12723		Design								
				12723	FFY2011	Land Purchase	$ 4,532,980	LY10	$ 518,820		$ 5,051,800			
				12723	FFY2011	Land Purchase	$ 67,556	H120	$ 7,744		$ 75,400			
					FFY2011	Land Purchase	$ 2,195,005	STP	$ 247,795		$ 2,442,800			
						Utility Relocate					$ -			
				12723	FFY2012	Construction	$ 11,911,990	STP	$1,363,380		$ 13,275,370	$ 24,241,980	State	
				12723	FFY2012	Construction	$ 11,911,990	L110	$1,363,380		$ 13,275,370	$ 6,926,280	State	
				12723		Other					$ -			
					Total FFY12-15		$ 23,823,980		$ 2,726,760		$ 26,550,740	$ 31,168,260		$ 57,719,000
Hwy 62: Corridor Solutions Unit 2 (Medford)	Construct segment of new two-lane, limited-access bypass to relieve congestion	903	Non-Exempt			Planning					$ -			
				13994	FFY2006	Design	$ 1,171,750	HY10, H120	$ 519,312		$ 1,691,062	$ 5,322,980	Region/OTHO	$ 7,014,042
				13994	FFY2010	Land Purchase	$ 89,730	H120	$ 10,270		$ 100,000	$ 14,000,000	OTAlli	$ 14,100,000
					FFY2011	Utility Relocate					$ -	$ 1,500,000	JTABond	$ 1,500,000
				13994	FFY2012	Construction	$ 5,157,877	LY10	$ 590,342		$ 5,748,219	$ 35,057,909	JTABond	
				13994	FFY2013	Construction	$ 13,866,199	STP	$ 1,587,049		$ 15,453,248	$ 4,300,000	OTHO	$ 48,559,876
						Other					$ -			
					Total FFY12-15		$ 20,285,556		$ 2,706,973		$ 21,301,467	$ 41,357,009		$ 62,659,479

Project List
2012-2015 RVMPO Metropolitan Transportation Improvement Program
Adopted: Jan. 24, 2012; Update: Jan. 17, 2013 (through Amend #20)

Project Name	Project Description	RTP Project Number	Air Quality Status	Key #	Federal Fiscal Year	Phase	Federal		Federal Required Match		Total Fed+Req Match	Other		Total All Sources
							$	Source	$	Source		$	Source	
Oregon Department of Transportation (ODOT), continued														
OR 62 Corridor Solutions Environmental Impact Statement	Environmental Impact Study to Identify Solutions Associated with Congestion on Hwy 62	903	Non-Exempt (right-of-way constrained in 2038 RVMPO RTP)	13226	FFY2012	Planning	$ 2,232,123	Q050	$ 255,477		$ 2,487,600	$ 62,190	OTAIII	
				13226	FFY2012	Planning					$ -	$3,171,690	OTAIII	
				13226	FFY2012	Planning					$ -	$497,520	JTABond	
						Design								
						Land Purchase								
						Utility Relocate					$ -			
						Construction								
						Other					$ -			
					Total FFY12-15		$ 2,232,123		$ 255,477		$ 2,487,600	$ 3,731,400		$ 6,219,000
OR 62 Corridor Solutions Unit 2, Phase 2	Construct segment of new, two-lane, limited-access bypass to relieve congestion.	903	Non-Exempt			Planning					$ -			
					FFY2011	Design						$ 3,502,000	JTABond	
				17188	FFY2012	Land Purchase					$ -	$ 10,000,000	JTABond	
				17188	FFY2013	Utility Relocate					$ -	$ 500,000	JTABond	
				17188	FFY2013	Construction						$ 36,588,000	JTABond	
				17188	FFY2013	Construction						$ 1,000,000	State (S010)	
						Other					$ -			
					Total FFY12-15		$ -		$ -		$ -	$ 48,088,000		$ 48,088,000
Interstate 5 Bear Creek Bridges	Scour repair on Interstate 5 bridges north- and south-bound		Exempt (Table 2-Bridge Repair)			Planning					$ -			
				17529	FFY2013	Design	$ 201,693	STP	$ 23,107		$ 225,000			
				17529	FFY2014	Land Purchase	$ 2,693	STP	$ 308		$ 3,000			
						Utility Relocate					$ -			
				17529	FFY2015	Construction	$ 1,584,632	STP	$ 181,368		$ 1,766,000			
						Other					$ -			
					Total FFY12-15		$ 1,789,217		$ 204,783		$ 1,994,000	$ -		$ 1,994,000
OR 238 @ N. Ross	Install New Traffic Signal	911	Exempt (Table 2) Safety			Planning					$ -			
					FFY2008	Design	$ 8,973	STP	$ 1,027		$ 10,000			
					FFY2012	Land Purchase					$ -	$ 25,000	OTHER	
						Utility Relocate	$ -							
				14885	FFY2012	Construction						$ 150,000	OTHER	
						Other								
					Total FFY12-15		$ -		$ 1,027		$ -	$ 175,000		$ 175,000
Hwy 99 & Creat Road Improvements	Build left turn lane, sidewalks at intersection		Exempt (Table 2) Safety			Planning					$ -			
				17478	FFY2013	Design	$ 86,687	HSIP	$ 7,313		$ 94,000			
				17478	FFY2013	Land Purchase	$ 6,455	HSIP	$ 545		$ 7,000			
						Utility Relocate					$ -			
				17478	FFY2015	Construction	$ 829,058	HSIP	$ 69,942		$ 899,000			
						Other					$ -			
					Total FFY12-15		$ 922,200		$ 77,800		$ 1,000,000	$ -		$ 1,000,000
Hwy 62 & 140 Intersection Improvements	Relocate signal, modify lane configuration		Exempt (Table 2) Safety			Planning					$ -			
				17471	FFY2012	PrelimEngineer	$ 92,220	HSIP	$7,780		$ 100,000			
				17471	FFY2012	Land Purchase								
						Utility Relocate					$ -			
				17471	FFY2014	Construction	$ 915,745	HSIP	$77,255		$ 993,000			
						Other					$ -			
					Total FFY12-15		$ 1,007,965		$ 85,035		$ 1,093,000	$ -		$ 1,093,000
I-5 Exits 14 & 19 Interchange Improvements	Widen structures to meet current standards. Install signals, lighting	909	Exempt (Table 2) Safety, widening narrow pavements or bridge repair			Planning					$ -			
				15003	FFY2012	Design	$ 269,190	STP	$30,810		$ 300,000			
				15003	FFY2012	Land Purchase						$ 894,000	State	
						Utility Relocate					$ -			
				15003	FFY2012	Construction	$ 1,386,329	STP	$158,671		$ 1,545,000			
						Other					$ -			
					Total FFY12-15		$ 1,655,519		$ 189,481		$ 1,845,000	$ 894,000		$ 2,739,000
Subtotal ODOT Projects							**$ 61,380,659**		**$ 6,880,037**		**$ 77,414,307**	**$ 125,568,569**		**$ 202,982,876**

Project List
2009-2034 RVMPO Regional Transportation Plan
Sept. 7, 2010

PROJECT NUMBER	LOCATION	DESCRIPTION	TIMING	COST	Cost by Phase	Funds Available
ODOT						
534, 558	OR 62: Owens Dr. & Coker Butte	New 5-lane street from OR 62 Springbrook Rd, Realign Crater Lake Ave & Coker Butte, Signalization	short	$11,300,000		
902	I-5: Fern Valley Interchange, Phase 2	Reconstruct interchange; realign, widen connecting roads; replace Bear Creek Bridge	short	$67,760,128		
903	OR 62: Corridor Solutions Phase 2	Construct segment of limited access expressway; purchase right-of-way	short	$116,835,000		
904	OR 140 Freight Extension	Lane and shoulder widening for freight movements	short	$4,933,000		
908	I-5 N. Ashland Interchage Greensprings Bundle 314	Replace Bridge	short	$15,803,000		
909	I-5 Exits 14 & 19 Interchange improvements	Widen structures to meet standards, w/signals, lighting	short	$2,958,000		
911	OR 238 @ N. Ross	Install new traffic signal	short	$250,000		
913	I-5: Siskiyou Rest Area (Ashland)	Relocate rest area at new location	short	$5,705,000		
940	RVTD Purchase services - ODOT Transit	purchase services	short	$343,940		
932	OR 99: Rapp Rd to Valley View Paving	Grind/Inlay and Overlay pavement	short	$1,600,000		
942	OR 62 @ Rolling Hills Dr & at Barton Rd	Install 2-way center turn lane	short	$1,892,000		
941	OR 62: Linn Rd - Jct Hwy 271 (Sams Valley)	Overlay	short	$3,336,000		
			Short Range Total		$232,716,068	$232,716,068
937	OR 62: Corridor Solutions, Phase 3	Right of Way Acquisition	medium	$12,500,000		
938	OR 62: Access Management	Major Approach Relocation west of I-5	medium	$2,000,000		
			Medium Range Total		$14,500,000	$15,000,000
939	OR 62: Corridor Solutions, Phase 4	Right of Way Acquisition	long	$67,500,000		
			Long Range Total		$67,500,000	$67,500,000
PROJECT NUMBER	LOCATION	DESCRIPTION	TIMING	COST	Cost by Phase	Funds Available
RVMPO						
1002	Cascade Sierra Solutions Emissions Reduction Center	Implement Diesel Retrofit Outreach Center	Short	$350,000		
597	TDM Refinement Plan	TDM plan for RTP	Short	$46,610		
1006	RVMPO Clean Air Campaign	Develop clean air campaign and implement	Short	$61,295		
1007	RVMPO Oregon Household Activity Survey	Survey travel behavior by household, RVMPO Region	Short	$144,900		
1003	RVMPO RTP Update	Supplemental funding for long-range plan update	Short	$61,295		
			Short Range Total		$664,100	$664,100
				TOTAL	$401,476,768	$407,263,359

PROJECT NUMBER	LOCATION	DESCRIPTION	TIMING	COST	Cost by Phase	Funds Available
ODOT						
902	I-5: Fern Valley Interchange, Phase 2	Reconstruct interchange; realign, widen connecting roads; replace Bear Creek Bridge	short	$75,000,000		
903	OR 62: I-5 to Dutton Road (Medford), JTA Phase	Right of Way Acquisition and construct JTA Phase	short	$121,595,000		
904	OR 140 Freight Improvements	Upgrade existing roads to create freight corridor linking Hwy 140 at Hwy 62 (existing terminus), White City, to I-5 at Exit 35, Central Point: including sidening shoulders, adding turn lanes, other improvemetns on segments of Blackwell, Kirtland, High Banks, Antelope, Table Roack, Agate roads and Leigh Way.	short	$5,000,000		
913	I-5: Siskiyou Rest Area (Ashland)	Relocate rest area at new location	short	$11,800,000		
946	I-5: Bear Creek Bridges NB & SB, Scour Repair	Scour Repair, Bridges 08771N & 08771S	short	$1,994,000		
942	OR62: Linn Rd to Hwy 234	Install two way center left turn lane between Barton and Rolling Hills	short	$5,224,000		
945	OR99 @ Creel	Left turn refuge and sidewalks	short	$1,000,000		
949	Talent/OR 99 Creel	Widen OR 99 and provide left turn channelization for Creel Rd. Provide sidewalk	short	$3,290,000		
		Short Range Total			**$224,903,000**	**$224,903,000**
951	South Valley View Bridge Replacement	Realign and widen the Bear Creek Bridge over South Valley View Rd, located off Exit 19 near Ashland. It will also widen and add turning lanes to South Valley View Rd from the Interstate to Hwy 99 and connect peds and bikes with the Bear Creek Greenway.	Medium	$15,000,000		
		Medium Range Total			**$15,000,000**	**$15,000,000**
903	OR 62: I-5 to Dutton Road	Right of Way Acquisition(exclusive of JTA Phase)	long	$67,500,000		
		Long Range Total			**$67,500,000**	**$67,500,000**

U.S. Department of Transportation
Federal Highway Administration

Memorandum

SENT VIA ELECTRONIC MAIL

Subject: **INFORMATION:** Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents

Date: December 6, 2012

/S/Original signed by

From: April Marchese
Director, Office of Natural Environment

In Reply Refer To:
HEPN-10

To: Division Administrators
Federal Lands Highway Division Engineers

PURPOSE

The purpose of this memorandum is to update the September 2009 interim guidance that advised Federal Highway (FHWA) Division offices on when and how to analyze Mobile Source Air Toxics (MSAT) under the National Environmental Policy Act (NEPA) review process for highway projects.

This update reflects recent changes in methodology for conducting emissions analysis and updates of research in the MSAT arena. The U.S. Environmental Protection Agency (EPA) released the latest emission model, the Motor Vehicle Emissions Simulator (MOVES) in 2010, and started a 2-year grace period to phase in the requirement of using MOVES for transportation conformity analysis. On February 8, 2011, EPA issued guidance on Using the MOVES and Emission FACtors (EMFAC) Models in NEPA Evaluation that recommended the same grace period be applied to project-level emissions analysis for NEPA purposes. At the end of this grace period, i.e. beginning December 20, 2012, project sponsors should use MOVES to conduct emissions analysis for NEPA purposes. To prepare for this transition, FHWA is updating the September 2009 Interim Guidance to incorporate the analysis conducted using MOVES. Based on FHWA's analysis using MOVES2010b, the latest version of MOVES, diesel particulate matter (diesel PM) has become the dominant MSAT of concern. We have also provided an update on the status of scientific research on air toxics. The update supersedes the September 2009 Interim Guidance and should be referenced as a whole in NEPA documentation.

BACKGROUND

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air

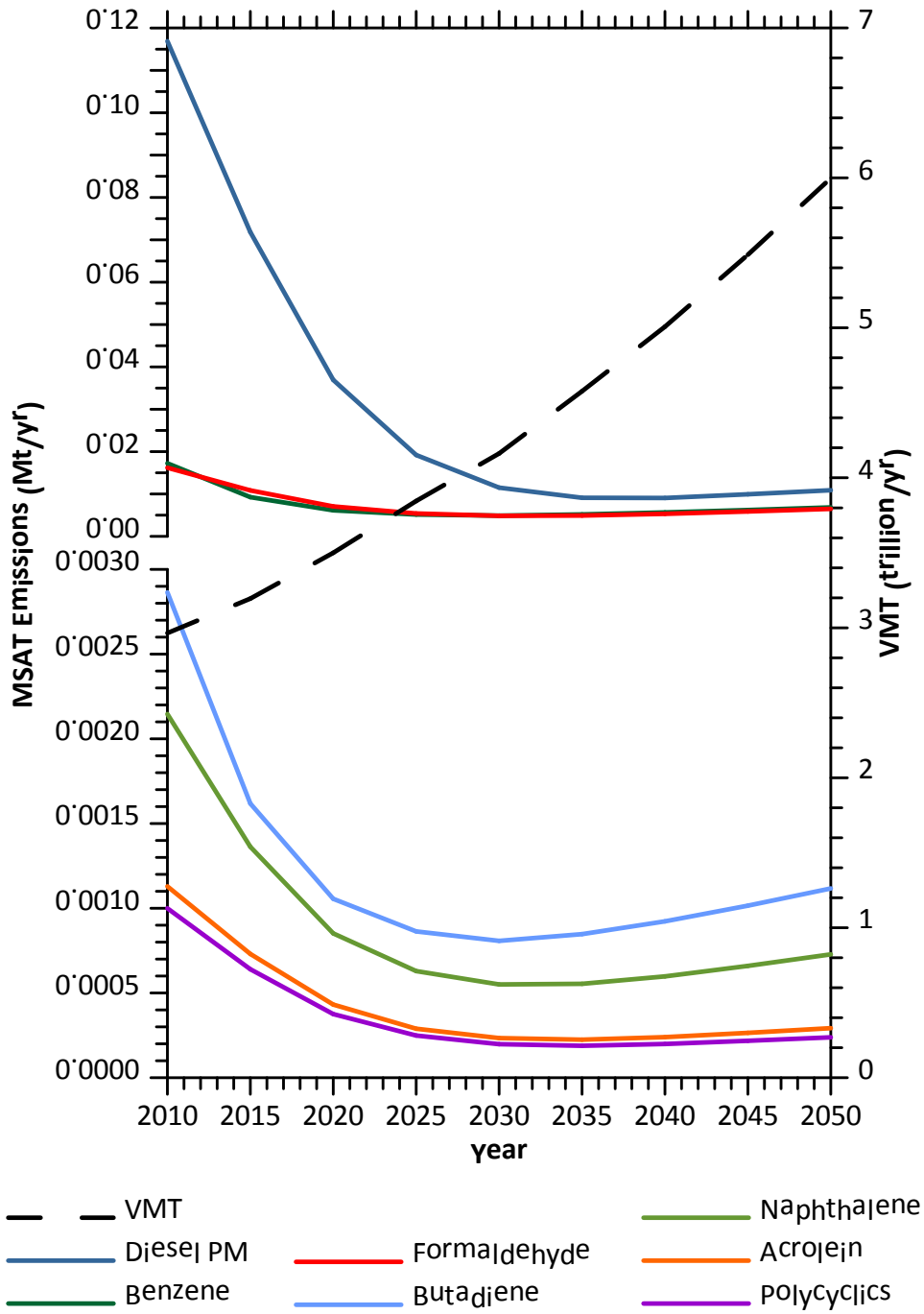
Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://cfcpub.epa.gov/ncea/iris/index.cfm). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are *acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter*. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

Based on an FHWA analysis using EPA's MOVES2010b model, as shown in Figure 1, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Figure 1:
PROJECTED NATIONAL MSAT EMISSION TRENDS 2010 – 2050
FOR VEHICLES OPERATING ON ROADWAYS
USING EPA's MOVES2010b MODEL



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Source: EPA MOVES2010b model runs conducted during May – June 2012 by FHWA.

The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

NEPA CONTEXT

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. The NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. The NEPA requires and FHWA is committed to the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

CONSIDERATION OF MSAT IN NEPA DOCUMENTS

The FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

(1) No analysis for projects with no potential for meaningful MSAT effects;

(2) Qualitative analysis for projects with low potential MSAT effects; or

(3) Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

For projects warranting MSAT analysis, the seven priority MSAT should be analyzed.

(1) Projects with No Meaningful Potential MSAT Effects, or Exempt Projects.

The types of projects included in this category are:

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c) (subject to consideration whether unusual circumstances exist under 23 CFR 771.117(b));
- Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For projects that are categorically excluded under 23 CFR 771.117(c), or are exempt from conformity requirements under the Clean Air Act pursuant to 40 CFR 93.126, no analysis or discussion of MSAT is necessary. Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion and/or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is recommended.[1] However, the project record should document the basis for the determination of "no meaningful potential impacts" with a brief description of the factors considered. Example language, which must be modified to correspond with local and project-specific circumstances, is provided in Appendix A.

(2) Projects with Low Potential MSAT Effects

The types of projects included in this category are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects.

We anticipate that most highway projects that need an MSAT assessment will fall into this category. Any projects not meeting the criteria in category (1) or category (3) below should be included in this category. Examples of these types of projects are minor widening projects; new interchanges, replacing a signalized intersection on a surface street; or projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

For these projects, a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the project alternatives, including no-build, based on VMT, vehicle mix, and speed. It would also

[1] The types of projects categorically excluded under 23 CFR 771.117(d) or exempt from certain conformity requirements under 40 CFR 93.127 does not warrant an automatic exemption from an MSAT analysis, but they usually will have no meaningful impact.

discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects typically are low, we expect there would be no appreciable difference in overall MSAT emissions among the various alternatives.

Appendix B includes example language for a qualitative assessment, with specific examples for four types of projects: (1) a minor widening project; (2) a new interchange connecting an existing roadway with a new roadway; (3) a new interchange connecting new roadways; and (4) minor improvements or expansions to intermodal centers or other projects that affect truck traffic. The information provided in Appendix B must be modified to reflect the local and project-specific situation.

In addition to the qualitative assessment, a NEPA document for this category of projects must include a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts, in compliance with the Council on Environmental Quality (CEQ) regulations (40 CFR 1502.22(b)). This discussion should explain how current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that could result from a transportation project in a way that would be useful to decision-makers. Also in compliance with 40 CFR 150.22(b), it should contain information regarding the health impacts of MSAT. See Appendix C.

(3) Projects with Higher Potential MSAT Effects

This category includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. We expect a limited number of projects to meet this two-pronged test. To fall into this category, a project should:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or

- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000[2] or greater by the design year;

And also

- Proposed to be located in proximity to populated areas.

Projects falling within this category should be more rigorously assessed for impacts. If a project falls within this category, you should contact the Office of Natural Environment (HEPN) and the

[2] Using EPA's MOVES2010b emissions model, FHWA staff determined that this range of AADT would result in emissions significantly lower than the Clean Air Act definition of a major hazardous air pollutant (HAP) source, i.e., 25 tons/yr. for all HAPs or 10 tons/yr. for any single HAP. Variations in conditions such as congestion or vehicle mix could warrant a different range for AADT; if this range does not seem appropriate for your project, please consult with the contacts from HEPN and HEPE identified in this memorandum.

Office of Project Development and Environmental Review (HEPE) in FHWA Headquarters for assistance in developing a specific approach for assessing impacts. This approach would include a quantitative analysis to forecast local-specific emission trends of the priority MSAT for each alternative, to use as a basis of comparison. This analysis also may address the potential for cumulative impacts, where appropriate, based on local conditions. How and when cumulative impacts should be considered would be addressed as part of the assistance outlined above. The NEPA document for this project should also include relevant language on unavailable information described in Appendix C.

If the analysis for a project in this category indicates meaningful differences in levels of MSAT emissions among alternatives, mitigation options should be identified and considered. See Appendix E for information on mitigation strategies.

You should also consult with HEPN and HEPE if you have a project that does not fall within any of the types of projects listed above, but you think has the potential to substantially increase future MSAT emissions.

CONCLUSION

What we know about mobile source air toxics is still evolving. As the science progresses FHWA will continue to revise and update this guidance. FHWA is working with Stakeholders, EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project level decision documentation process. FHWA wanted to make project sponsors aware of the implications of the transition to the MOVES model and that we will be issuing updates to this interim guidance when necessary. Additional background information on MSAT-related research is provided in Appendix D.

The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047, are available to provide information and technical assistance, support any necessary analysis, and limit project delays. All MSAT analysis beginning on or after December 20, 2012, should use the MOVES model. Any MSAT analysis initiated prior to that date may continue to operate under the previous guidance and utilize MOBILE6.2. We are available to answer questions from project sponsors as we transition to MOVES.

APPENDICES

Appendix A – Prototype Language for Exempt Projects
Appendix B – Prototype Language for Qualitative Project Level MSAT Analysis
Appendix C – The Council on Environmental Quality (CEQ) Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22) including a discussion of unavailable information for project-specific MSAT Health Impacts Analysis
Appendix D – FHWA Sponsored Mobile Source Air Toxics Research Efforts
Appendix E – MSAT Mitigation Strategies

APPENDIX A – Prototype Language for Exempt Projects

The purpose of this project is to (*insert major deficiency that the project is meant to address*) by constructing (*insert major elements of the project*). This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

APPENDIX B – Examples of Prototype Language for Qualitative Project-Level MSAT Analysis

The information in this Appendix is for projects with low potential MSAT effects – any non-exempt project that does not meet the threshold criteria for higher potential effects, as described in the interim guidance, should be considered for treatment provided here. The types of projects that fall into this category are those that improve operations of highways, or freight facilities without adding substantial new capacity. Examples include minor widening projects or new interchanges replacing signalized intersection on surface streets.

The following are some examples of qualitative MSAT analyses for different types of projects. Each project is different, and some projects may contain elements covered in more than one of the examples below. Analysts can use the example language as a starting point, but should tailor it to reflect the unique circumstances of the project being considered. The following factors should be considered when crafting a qualitative analysis:

- For projects on an existing alignment, MSAT are expected to decline due to the effect of new EPA engine and fuel standards.

- Projects that result in increased travel speeds will reduce MSAT emissions per VMT basis, although previously, the effect of speed changes on diesel particulate matter was not accounted for in the MOBILE6.2 model, however, MOVES does provide this estimation and should be accounted for accordingly. This speed benefit may be offset somewhat by increased VMT if the more efficient facility attracts additional vehicle trips.

- Projects that facilitate new development may generate additional MSAT emissions from new trips, truck deliveries, and parked vehicles (due to evaporative emissions). However, these may also be activities that are attracted from elsewhere in the metro region; thus, on a regional scale there may be no net change in emissions.

- Projects that create new travel lanes, relocate lanes, or relocate economic activity closer to homes, schools, businesses, and other populated areas may increase concentrations of MSAT at those locations relative to No Action.

Other elements related to a qualitative analysis are a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts and a discussion of any MSAT mitigation measures that may be associated with the project.

INTODUCTORY LANGUAGE FOR QUALITATIVE ANALYSIS FOR ALL PROJECTS

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at: www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

(1) Minor Widening Project

(For purposes of this scenario, minor highway widening projects are those in which the design year traffic is predicted to be less than 125,000 AADT. Widening projects that surpass these criteria are subject to a quantitative analysis.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. Refer to Table ___ (*specify*). This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Because the estimated VMT under each of the Alternatives are nearly the same, varying by less than ___ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. 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.

(The following paragraph may apply if the project includes plans to construct travel lanes closer to populated areas.)

The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under certain Build Alternatives than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along

the expanded roadway sections that would be built at _____ (*specify location*), under Alternatives _____ (*specify*), and along _____ (*specify route*) under Alternatives _____ (*specify*). However, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

(2) New Interchange Connecting an Existing Roadway with a New Roadway

(This scenario is oriented toward projects where a new roadway segment connects to an existing limited access highway. The purpose of the roadway is primarily to meet regional travel needs, e.g., by providing a more direct route between locations.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. Because the VMT estimated for the No Build Alternative is higher than for any of the Build Alternatives, higher levels of MSAT are not expected from any of the Build Alternatives compared to the No Build. Refer to Table ___ (*specify*). In addition, because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than ___ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. 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 virtually all locations.

Under each alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new roadway sections that would be built at _____ (*specify location*), under Alternatives _____ (*specify*), and along _____ (*specify route*) under Alternatives _____ (*specify*). However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No Build

Alternative, due to the reduced VMT associated with more direct routing, and due to EPA's MSAT reduction programs.

(3) New Interchange Connecting New Roadways

(This scenario is oriented toward interchange projects developed in response to or in anticipation of economic development, e.g., a new interchange to serve a new shopping/residential development. Projects from the previous example may also have economic development associated with them, so some of this language may also apply.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the interchange facilitates new development that attracts trips that would not otherwise occur in the area. Refer to Table ___ (*specify*). This increase in VMT means MSAT under the Build Alternatives would probably be higher than the No Build Alternative in the study area. There could also be localized differences in MSAT from indirect effects of the project such as associated access traffic, emissions of evaporative MSAT (e.g., benzene) from parked cars, and emissions of diesel particulate matter from delivery trucks (*modify depending on the type and extent of the associated development*). Travel to other destinations would be reduced with subsequent decreases in emissions at those locations.

Because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than ___ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various Build Alternatives. For all Alternatives, emissions are virtually certain to be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. 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 than they are today.

(The following discussion would apply to new interchanges in areas already developed to some degree. For new construction in anticipation of economic development in rural or largely undeveloped areas, this discussion would be applicable only to populated areas, such as residences, schools, and businesses.)

The travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT would be higher under certain Alternatives than others. The localized differences in MSAT concentrations would likely be most pronounced along the new/expanded roadway sections that would be built at _____ (*specify location*), under Alternatives _____ (*specify*), and along _____ (*specify route*) under Alternatives _____ (*specify*).

However, the magnitude and the duration of these potential increases cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. Further, under all Alternatives, overall future MSAT are expected to be substantially lower than today due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the design year it is expected there would be slightly higher MSAT emissions in the study area relative to the No Build Alternative due to increased VMT. There also could be increases in MSAT levels in a few localized areas where VMT increases. However, EPA's vehicle and fuel regulations will bring about significantly lower MSAT levels for the area in the future than today.

(4) Minor Improvements or Expansions to Intermodal Centers or Other Projects that Affect Truck Traffic

(The description for these types of projects depends on the nature of the project. The key factor from an MSAT standpoint is the change in truck and rail activity and the resulting change in MSAT emissions patterns.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the amount of truck vehicle miles traveled (VMT) and rail activity, assuming that other variables (such as travel not associated with the intermodal center) are the same for each alternative. The truck VMT and rail activity estimated for each of the Build Alternatives are higher than that for the No Build Alternative, because of the additional activity associated with the expanded intermodal center. Refer to Table ___ (*specify*). This increase in truck VMT and rail activity associated with the Build Alternatives would lead to higher MSAT emissions (particularly diesel particulate matter) in the vicinity of the intermodal center. The higher emissions could be offset somewhat by two factors: 1) the decrease in regional truck traffic due to increased use of rail for inbound and outbound freight; and 2) increased speeds on area highways due to the decrease in truck traffic. The extent to which these emissions decreases will offset intermodal center-related emissions increases is not known.

Because the estimated truck VMT and rail activity under each of the Build Alternatives are nearly the same, varying by less than ___ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the EPA-projected reductions are so significant (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future as well.

(The following discussion may apply if the intermodal center is close to other development.)

The additional freight activity contemplated as part of the project alternatives will have the effect of increasing diesel emissions in the vicinity of nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT would be higher than under the No Build alternative. The localized differences in MSAT concentrations would likely be most pronounced under Alternatives _____ (*specify*). However, as discussed above, the magnitude and the duration of these potential differences cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific health impacts. Even though there may be differences among the Alternatives, on a region-wide basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that in almost all cases the MSAT levels in the future will be significantly lower than today.

(Insert a description of any emissions-reduction activities that are associated with the project, such as truck and train idling limitations or technologies, such as auxiliary power units; alternative fuels or engine retrofits for container-handling equipment, etc.)

In sum, all Build Alternatives in the design year are expected to be associated with higher levels of MSAT emissions in the study area, relative to the No Build Alternative, along with some benefit from improvements in speeds and reductions in region-wide truck traffic. There also could be slightly higher differences in MSAT levels among Alternatives in a few localized areas where freight activity occurs closer to homes, schools, and businesses. Under all alternatives, MSAT levels are likely to decrease over time due to nationally mandated cleaner vehicles and fuels.

MSAT MITIGATION STRATEGIES

Although there is no obligation to identify and consider MSAT mitigation strategies as part of a qualitative analysis, such strategies may be part of a project’s design. Refer to the examples provided in (4) Minor Improvements or Expansions to Intermodal Centers or Other Projects that Affect Truck Traffic, or Appendix E. For these and similar circumstances, MSAT mitigation strategies should be discussed as part of a qualitative analysis.

CEQ PROVISIONS COVERING INCOMPLETE OR UNAVAILABLE INFORMATION (40 CFR 1502.22)

The introductory language for qualitative analysis should be followed by a 40 CFR 1502 assessment of incomplete or unavailable information. Refer to Appendix C for details.

APPENDIX C – CEQ Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22)

Sec. 1502.22 INCOMPETE OR UNAVAILABLE INFORMATION

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

(b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

1. a statement that such information is incomplete or unavailable;
2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

(c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

In FHWA’s view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not,

would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national

consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Due to the limitations cited, a discussion such as the example provided in this Appendix (reflecting any local and project-specific circumstances), should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)]. The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047, are available to provide guidance and technical assistance and support.

APPENDIX D – FHWA Sponsored Mobile Source Air Toxics Research Efforts

Human epidemiology and animal toxicology experiments indicate that many chemicals or mixtures termed air toxics have the potential to impact human health. As toxicology, epidemiology and air contaminant measurement techniques have improved over the decades, scientists and regulators have increased their focus on the levels of each chemical or material in the air in an effort to link potential exposures with potential health effects. The EPA's list of 21 mobile source toxics represents their prioritization of these chemicals or materials for further study and evaluation. The EPA's strategy for evaluating air toxic compounds effects is focused on both national trends and local impacts. The FHWA has embarked on an air toxics research program with the intent of understanding the mobile source contribution and its impact on local and national air quality. Several of studies either initiated or supported by FHWA are described below[1].

Air toxics emissions from mobile sources have the potential to impact human health and often represent a regulatory agency concern. The FHWA has responded to this concern by developing an integrated research program to answer the most important transportation community questions related to air toxics, human health, and the NEPA process. To this end, FHWA has performed, funded or is currently managing several research projects. Many of these projects are based on an Air Toxics Research Workplan that provides a roadmap for agency research efforts[2]. These efforts include:

THE NATIONAL NEAR ROADWAY MSAT STUDY

The FHWA, in conjunction with the EPA and a consortium of State departments of transportation, studied the concentration and physical behavior of MSAT and mobile source PM 2.5 in Las Vegas, Nevada and Detroit, Michigan. The study criteria dictated that the study site be open to traffic and have 150,000 Annual Average Daily Traffic or more. These studies were intended to provide knowledge about the dispersion of MSAT emissions with the ultimate goal of enabling more informed transportation and environmental decisions at the project-level. These studies are unique in that the monitored data was collected for the entire year. The Las Vegas, NV report revealed there are a large number of influences in this urban setting and researchers must look beyond the roadway to find all the sources in the near road environment. Additionally, in Las Vegas, meteorology played a large role in the concentrations measured in the near road study area. More information is available at http://www.fhwa.dot.gov/environment/airtoxicmsat/index.htm.

[1] The information provided here is an update to research work discussed in the 2009 release of this interim guidance. The current title of each research activity is followed by the title used to describe the activity previously.
[2] Available at http://www.fhwa.dot.gov/environment/airtoxic/workplan/index.htm

TRAFFIC-RELATED AIR POLLUTION

Going One Step Beyond: A Neighborhood Scale Air Toxics Assessment in North Denver (The Good Neighbor Project)

In 2007, the Denver Department of Environmental Health (DDEH) issued a technical report entitled *Going One Step Beyond: A Neighborhood Scale Air Toxics Assessment in North Denver (The Good Neighbor Project)***.** This research project was funded by FHWA. In this study, DDEH conducted a neighborhood-scale air toxics assessment in North Denver, which includes a portion of the proposed I-70 East project area. Residents in this area have been very concerned about both existing health effects in their neighborhoods (from industrial activities, hazardous waste sites, and traffic) and potential health impacts from changes to I-70.

The study was designed to compare modeled levels of the six priority MSATs identified in FHWA's 2006 guidance with measurements at existing MSAT monitoring sites in the study area. MOBILE6.2 emissions factors and the ISC3ST dispersion model were used (some limited testing of the CALPUFF model was also performed). Key findings include: 1) modeled mean annual concentrations from highways were well below estimated Integrated Risk Information System (IRIS) cancer and non-cancer risk values for all six MSAT; 2) modeled concentrations dropped off sharply within 50 meters of roadways; 3) modeled MSAT concentrations tended to be higher along highways near the Denver Central Business District (CBD) than along the I-70 East corridor (in some cases, they were higher within the CBD itself, as were the monitored values); and 4) dispersion model results were generally lower than monitored concentrations but within a factor of two at all locations.

Mobile Source Air Toxic Hot Spot

Given concerns about the possibility of MSAT exposure in the near road environment, The Health Effects Institute (HEI) dedicated a number of research efforts at trying to find a MSAT "hotspot." In 2011 three studies were published that tested this hypothesis. In general the authors confirm that while highways are a source of air toxics, they were unable to find that highways were the only source of these pollutants and determined that near road exposures were often no different or no higher than background or ambient levels of exposure, and hence no true hot spots were identified. These links provide additional information http://pubs.healtheffects.org/getfile.php?u=659 page 137, http://pubs.healtheffects.org/getfile.php?u=656 page 143, and http://pubs.healtheffects.org/getfile.php?u=617 page 87, where monitored on-road emissions were higher than emission levels monitored near road residences, but the issue of hot spot was not ultimately discussed.

Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects

In January 2010, HEI released Special Report #17, investigating the health effects of traffic related air pollution. The goal of the research was to synthesize available information on the effects of traffic on health. Researchers looked at linkages between: (1) traffic emissions (at the tailpipe) with ambient air pollution in general, (2) concentrations of ambient pollutants with human exposure to pollutants from traffic, (3) exposure to pollutants from traffic with human-health effects and toxicologic data, and (4) toxicologic data with epidemiological associations. Challenges in making exposure assessments, such as quality and quantity of emissions data and models, were investigated, as was the appropriateness of the use of proximity as an exposure-assessment model. Overall, researchers felt that there was "sufficient" evidence for causality for the exacerbation of asthma. Evidence was "suggestive but not sufficient" for other health outcomes such as cardiovascular mortality and others. Study authors also note that past epidemiologic studies may not provide an appropriate assessment of future health associations as vehicle emissions are decreasing overtime. The report is available from HEI's website at http://www.healtheffects.org/. The FHWA provides financial support to HEI's research work.

HEI SPECIAL REPORT #16

In November 2007, the HEI published Special Report #16: Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects. The purpose of this Report was to accomplish the following tasks:

- Use information from the peer-reviewed literature to summarize the health effects of exposure to the 21 MSATs defined by the EPA in 2001;
- Critically analyze the literature for a subset of priority MSAT; and
- Identify and summarize key gaps in existing research and unresolved questions about the priority MSAT.

The HEI chose to review literature for acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, naphthalene, and polycyclic organic matter (POM). Diesel exhaust was included, but not reviewed in this study since it had been reviewed by HEI and EPA recently. In general, the Report concluded that the cancer health effects due to mobile sources are difficult to discern since the majority of quantitative assessments are derived from occupational cohorts with high concentration exposures and some cancer potency estimates are derived from animal models. The Report suggested that substantial improvements in analytical sensitively and specificity of biomarkers would provide better linkages between exposure and health effects. Noncancer endpoints were not a central focus of most research, and therefore require further investigation. Subpopulation susceptibility also requires additional evaluation. The study is available from HEI's website at http://www.healtheffects.org/.

KANSAS CITY PM CHARACTERIZATION STUDY (KANSAS CITY STUDY)

This study was initiated by EPA to conduct exhaust emissions testing on 480 light-duty, gasoline vehicles in the Kansas City Metropolitan Area (KCMA). Major goals of the study included characterizing PM emissions distributions of a sample of gasoline vehicles in Kansas City; characterizing gaseous and PM toxics exhaust emissions; and characterizing the fraction of high emitters in the fleet. In the process, sampling methodologies were evaluated. Overall, results from the study were used to populate databases for the MOVES emissions model. The FHWA was one of the research sponsors. This study is available on EPA's website at: http://www.epa.gov/otaq/emission-factors-research/420r08009.pdf

ESTIMATING THE TRANSPORTATION CONTRIBUTION TO PARTICULATE MATTER POLLUTION (AIR TOXICS SUPERSITE STUDY)

The purpose of this study was to improve understanding of the role of highway transportation sources in particulate matter (PM) pollution. In particular, it was important to examine uncertainties, such as the effects of the spatial and temporal distribution of travel patterns, consequences of vehicle fleet mix and fuel type, the contribution of vehicle speed and operating characteristics, and influences of geography and weather. The fundamental methodology of the study was to combine EPA research-grade air quality monitoring data in a representative sample of metropolitan areas with traffic data collected by State departments of transportation (DOTs) and local governments.

Phase I of the study, the planning and data evaluation stage, assessed the characteristics of EPA's ambient PM monitoring initiatives and recruited State DOTs and local government to participate in the research. After evaluating and selecting potential metropolitan areas based on the quality of PM and traffic monitoring data, nine cities were selected to participate in Phase II. The goal of Phase II was to determine whether correlations could be observed between traffic on highway facilities and ambient PM concentrations. The Phase I report was published in September 2002. Phase II included the collection of traffic and air quality data and data analysis. Ultimately, six cities participated: New York City (Queens), Baltimore, Pittsburgh, Atlanta, Detroit and Los Angeles.

In Phase II, air quality and traffic data were collected. The air quality data was obtained from EPA AIRS AQS system, Supersite personnel, and NARSTO data archive site. Traffic data included ITS (roadway surveillance), Coverage Counts (routine traffic monitoring) and Supplemental Counts (specifically for research project). Analyses resulted in the conclusion that only a weak correlation existed between PM2.5 concentrations and traffic activity for several of the sites. The existence of general trends indicates a relationship, which however is primarily unquantifiable. Limitations of the study include the assumption that traffic sources are close enough to ambient monitors to provide sufficiently strong source strength, that vehicle activity is an appropriate surrogate for mobile emissions, and lack of knowledge of other factors such as non-traffic

sources of PM and its precursors. A paper documenting the work of Phase II was presented at the 2004 Emissions Inventory Conference and is available at http://www.epa.gov/ttn/chief/conference/ei13/mobile/black.pdf.

APPENDIX E – MSAT Mitigation Strategies

Lessening the effects of mobile source air toxics should be considered for projects with substantial construction-related MSAT emissions that are likely to occur over an extended building period, and for post-construction scenarios where the NEPA analysis indicates potentially meaningful MSAT levels. Such mitigation efforts should be evaluated based on the circumstances associated with individual projects, and they may not be appropriate in all cases. However, there are a number of available mitigation strategies and solutions for countering the effects of MSAT emissions.

Mitigating for Construction MSAT Emissions

Construction activity may generate a temporary increase in MSAT emissions. Project-level assessments that render a decision to pursue construction emission mitigation will benefit from a number of technologies and operational practices that should help lower short-term MSAT. In addition, the Federal Highway Administration has supported a host of diesel retrofit technologies in the Congestion Mitigation and Air Quality Improvement (CMAQ) Program provisions – technologies that are designed to lessen a number of MSATs.[1]

Construction mitigation includes strategies that reduce engine activity or reduce emissions per unit of operating time, such as reducing the numbers of trips and extended idling. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits when sites are near populated areas. For example, agreements that stress work activity outside normal hours of an adjacent school campus would be operations-oriented mitigation. Verified emissions control technology retrofits or fleet modernization of engines for construction equipment could be appropriate mitigation strategies. Technology retrofits could include particulate matter traps, oxidation catalysts, and other devices that provide an after-treatment of exhaust emissions. Implementing maintenance programs per manufacturers' specifications to ensure engines perform at EPA certification levels, as applicable, and to ensure retrofit technologies perform at verified standards, as applicable, could also be deemed appropriate. The use of clean fuels, such as ultra-low sulfur diesel, biodiesel, or natural gas also can be a very cost-beneficial strategy.

The EPA has listed a number of approved diesel retrofit technologies; many of these can be deployed as emissions mitigation measures for equipment used in construction. This listing can be found at: www.epa.gov/otaq/retrofit/index.htm.

Post-Construction Mitigation for Projects with Potentially Significant MSAT Levels

Travel demand management strategies and techniques that reduce overall vehicle-mile of travel; reduce a particular type of travel, such as long-haul freight or commuter travel; or improve the transportation system's efficiency will mitigate MSAT emissions. Examples of such strategies include congestion pricing, commuter incentive programs, and increases in truck weight or length limits. Operational strategies that focus on speed limit

enforcement or traffic management policies may help reduce MSAT emissions even beyond the benefits of fleet turnover. Well-traveled highways with high proportions of heavy-duty diesel truck activity may benefit from active Intelligent Transportation System programs, such as traffic management centers or incident management systems. Similarly, anti-idling strategies, such as truck-stop electrification can complement projects that focus on new or increased freight activity.

Planners also may want to consider the benefits of establishing buffer zones between new or expanded highway alignments and populated areas. Modifications of local zoning or the development of guidelines that are more protective also may be useful in separating emissions and receptors.

The initial decision to pursue MSAT emissions mitigation should be the result of interagency consultation at the earliest juncture. Options available to project sponsors should be identified through careful information gathering and the required level of deliberation to assure an effective course of action. Such options may include local programs, whether voluntary or with incentives, to replace or rebuild older diesel engines with updated emissions controls. Information on EPA diesel collaborative around the country can be found at http://www.epa.gov/otaq/diesel/whereyoulive.htm.

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[1] http://www.fhwa.dot.gov/environment/air_quality/cmaq/policy_and_guidance/2008_guidance/index.cfm

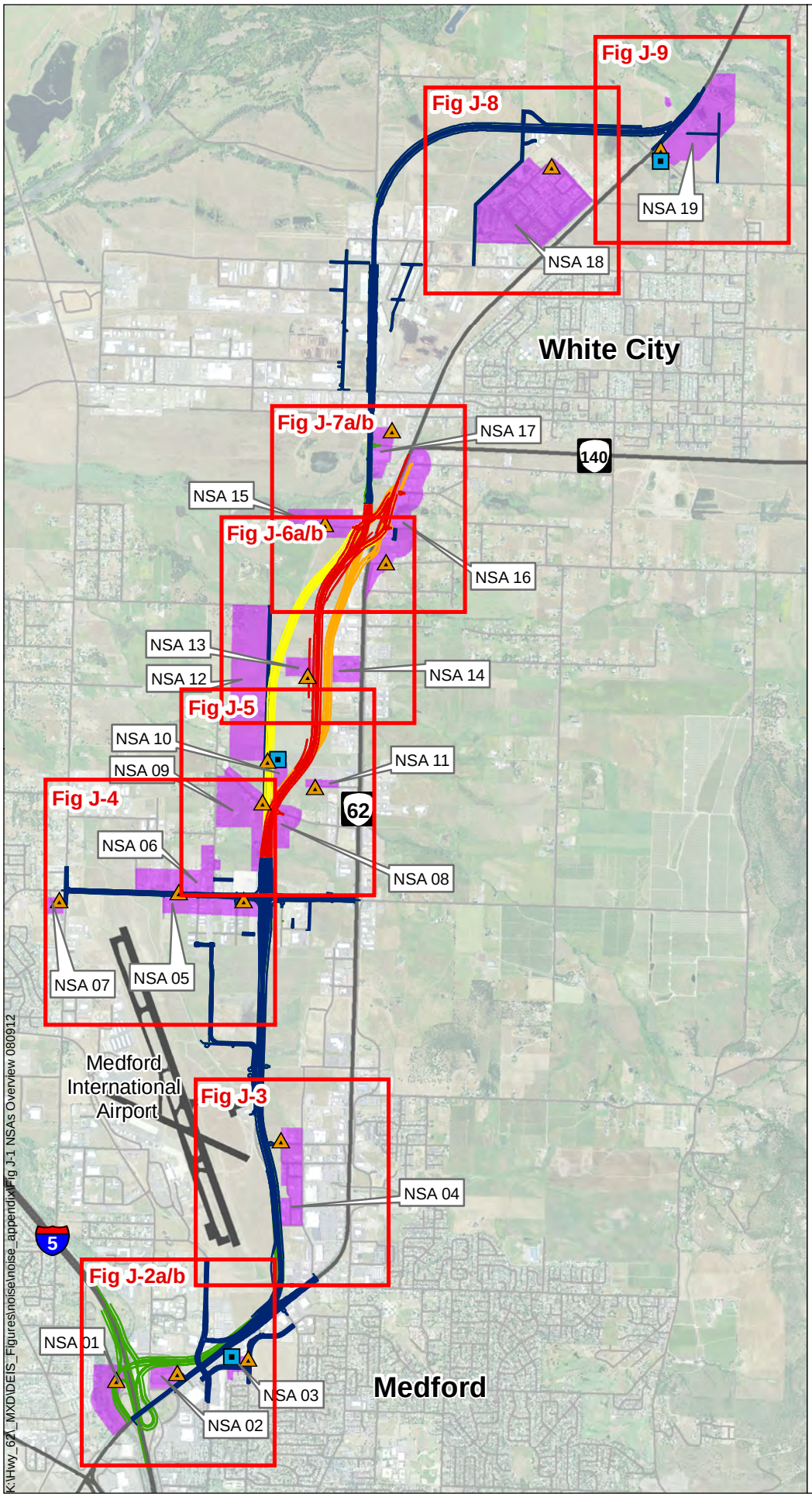
Appendix J ODOT Noise Manual Appendix I Worksheets

Table J-1 NSA Overview

NSA ID	Land Use	Activity Category	NAAC (Leq dBA)	Prediction/ Measure-ment Locations	Represented Equivalent Units	Existing Level Leq (1h), dBA (range)
NSA-1	Park	C	65	2	2	63-68
NSA-2	Hotels	E	70	3	3	49-67
NSA-3	Residential	B	65	5	114	52-55
NSA-4	Offices	C/E	65/70	5	5	51
NSA-5	Mixed	B	65	4	5	64-65
NSA-6	Mixed	B	65	6	9	45-71
NSA-7	Mixed	B	65	1	1	61
NSA-8	Residential	B	65	8	9	53
NSA-9	Residential	B	65	14	21	53
NSA-10	Residential	B	65	3	3	49
NSA-11	Residential	B	65	2	4	49
NSA-12	Residential	B	65	9	11	49
NSA-13	Mixed	B	65	2	2	46
NSA-14	Mixed	B	65	1	1	50
NSA-15	Residential	B	65	3	3	52
NSA-16	Mixed	B	65	9	9	49-71
NSA-17	Mixed	B/E	65/70	2	2	51
NSA-18	VA SORCC	B	65	4	4	47
NSA-19	Residential	B	65	12	12	49-69

Table J-2 Total Number of Noise Impacts

	SD Alternative			DI Alternative			JTA Phase		
	A	B	C	A	B	C	A	B	C
NSA-1	--	--	--	1	1	1	1	1	1
NSA-2	--	--	--	--	--	--	--	--	--
NSA-3	--	--	--	--	--	--	--	--	--
NSA-4	1	1	1	1	1	1	1	1	1
NSA-5	3	3	3	3	3	3	3	3	3
NSA-6	2	2	2	2	2	2	2	2	2
NSA-7	--	--	--	--	--	--	--	--	-
NSA-8	2	2	3	2	2	3	--	--	2
NSA-9	--	--	2	--	--	2	--	--	3
NSA-10	1	1	--	1	1	--	--	--	--
NSA-11	--	--	--	--	--	--	--	--	--
NSA-12	--	--	4	--	--	4	--	--	4
NSA-13	--	--	1	--	--	1	--	--	1
NSA-14	1	1	--	1	1	--	--	1	--
NSA-15	--	1	--	--	1	--	--	--	--
NSA-16	1	--	1	1	--	1	1	1	1
NSA-17	--	--	--	--	--	--	--	--	--
NSA-18	--	--	--	--	--	--	--	--	--
NSA-19	2	2	2	2	2	2	3	3	3
Total	**13**	**13**	**19**	**14**	**14**	**20**	**11**	**12**	**21**



OR 62: I-5 to Dutton Road

Figure J-1
Noise Sensitive Areas and Noise Measurement Locations Overview

September 2012

NORTH

Map Features

Area of Potential Impact

Noise Sensitive Area

Noise Measurement

Long Term Locations

Short Term Locations

Project Footprints

Design Option A

Design Option B

Design Option C

DI Alternative

SD Alternative

Source: Jackson County GIS, ODOT, URS Corp.

Miles
0 0.5 1

Oregon Department of Transportation

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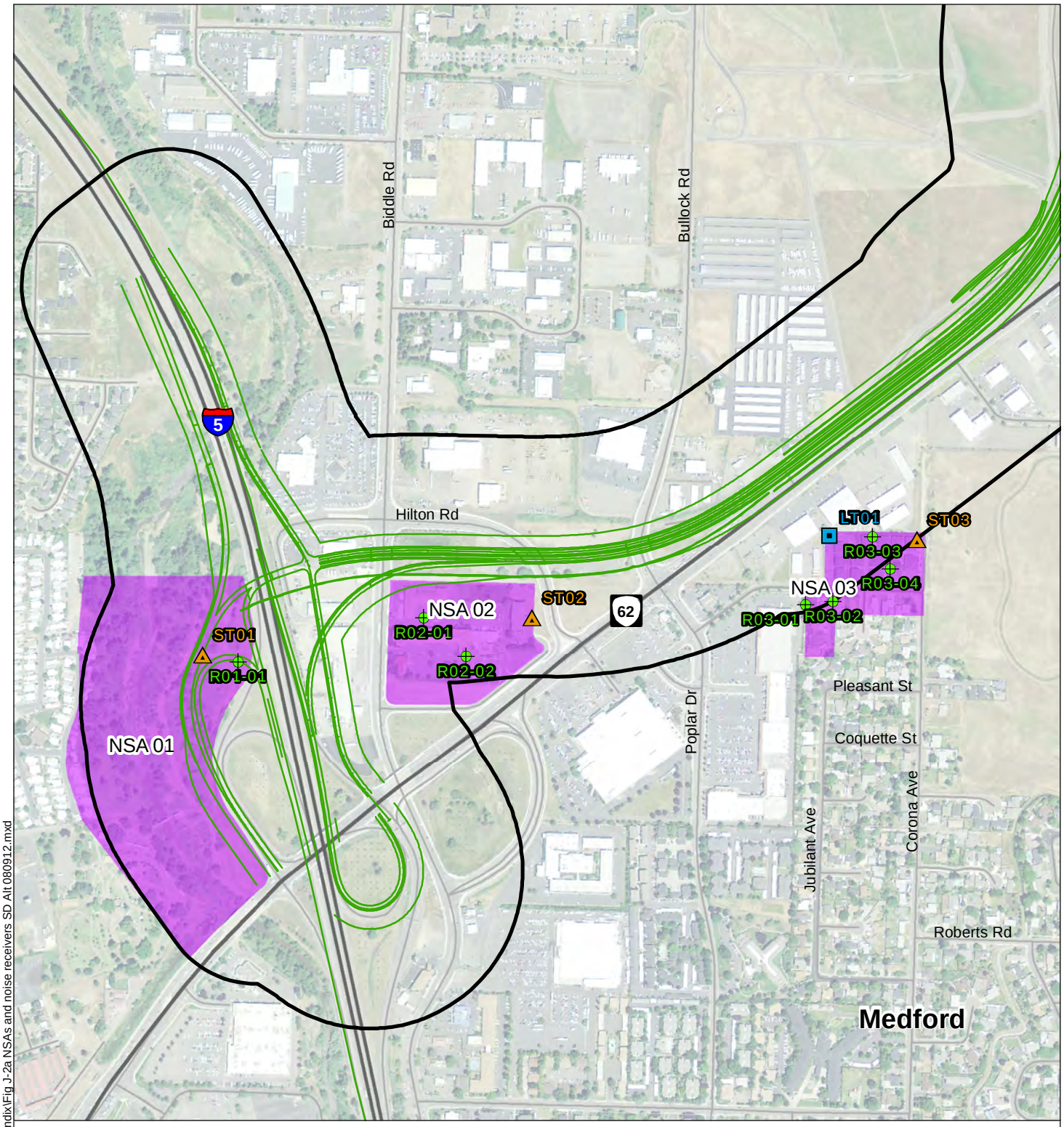

Map Features

- Area of Potential Impact
- SD Alternative
- Noise Sensitive Area (NSA)

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles 0 0.1 0.2

Figure J-2a
NSAs 01, 02, & 03 and Associated Noise Receivers, SD Alternative

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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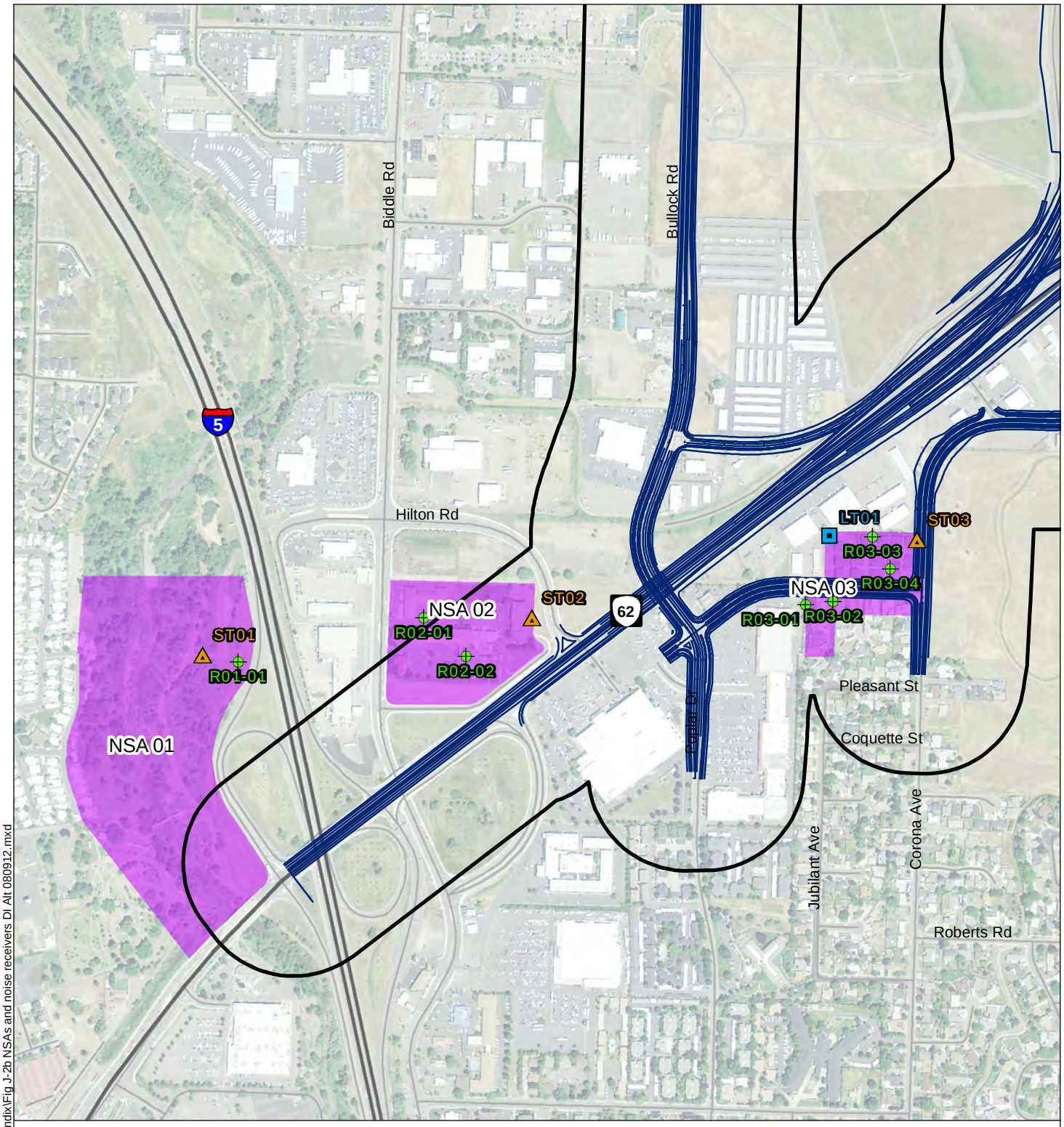

Map Features

- Area of Potential Impact
- SD Alternative
- Noise Sensitive Area (NSA)

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles 0 0.1 0.2

Figure J-2b
NSAs 01, 02, & 03 and Associated Noise Receivers, DI Alternative

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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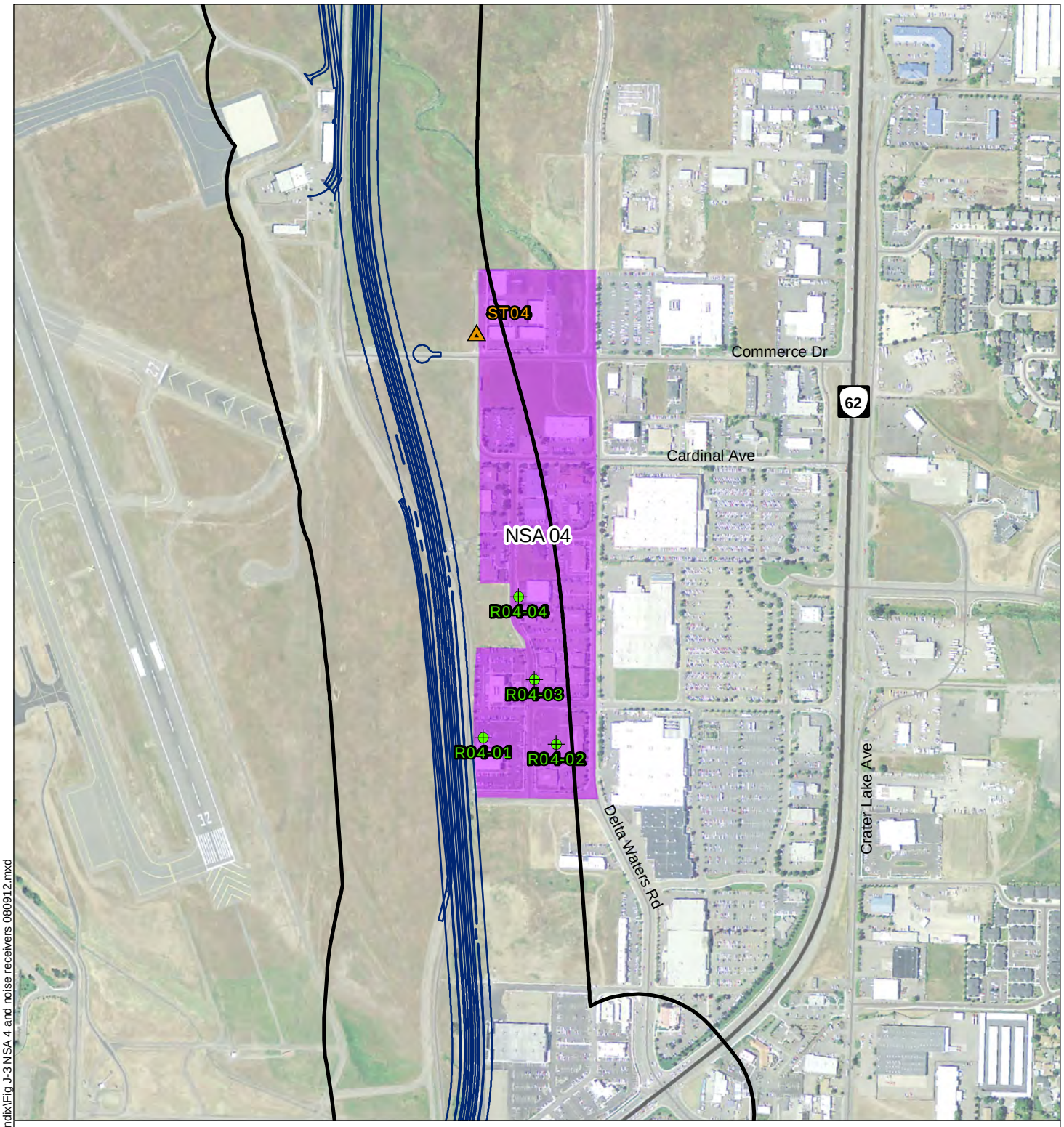

Map Features

- Area of Potential Impact
- Footprint Common to both Build Alternatives
- Noise Sensitive Area (NSA)

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles
0 0.1 0.2

Figure J-3
NSA 04
and Associated
Noise Receivers

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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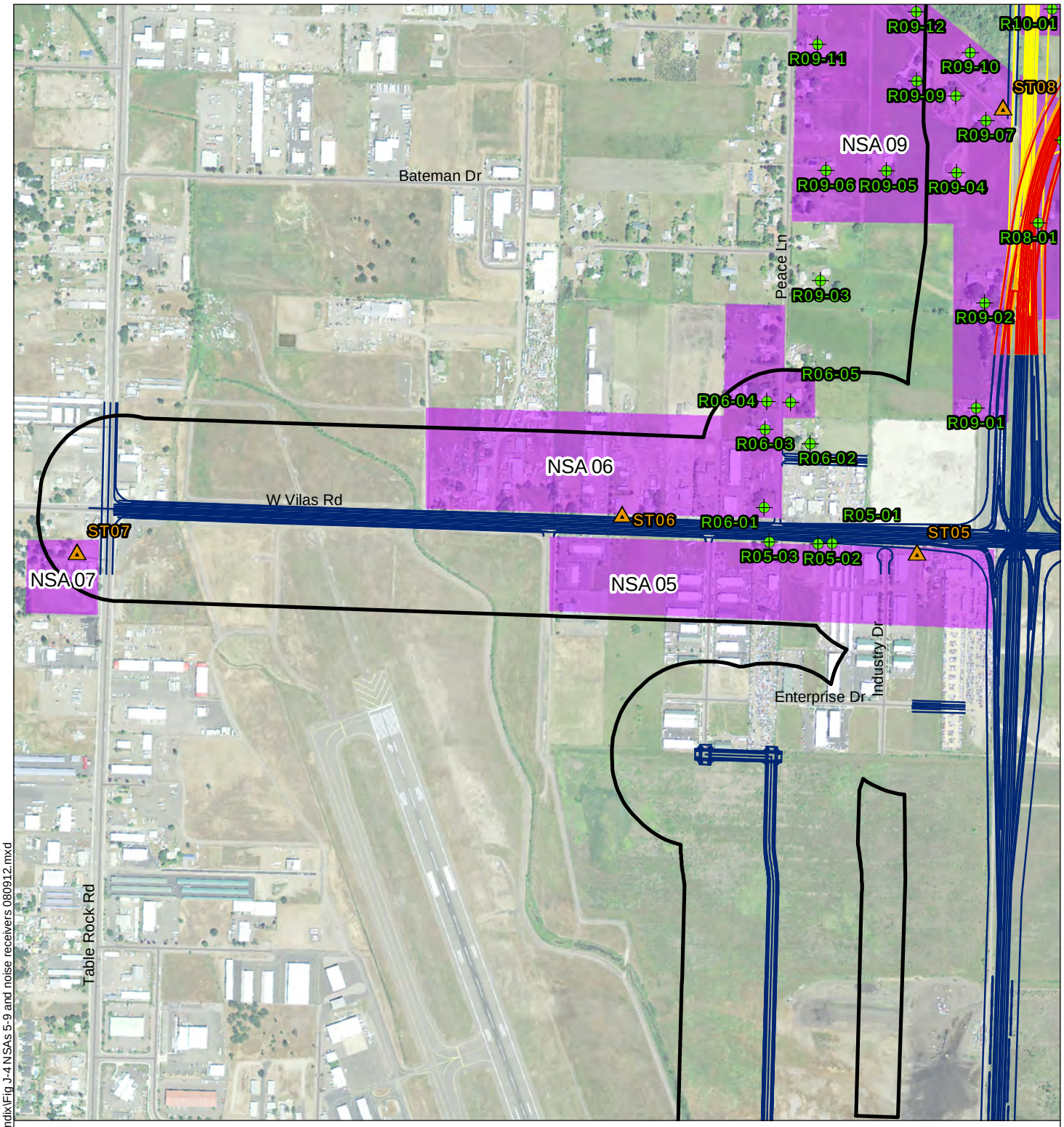

Map Features

- Area of Potential Impact
- Footprint Common to both Build Alternatives
- Noise Sensitive Area (NSA)

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles
0 0.1 0.2

Figure J-4
NSAs 05-09
and Associated
Noise Receivers

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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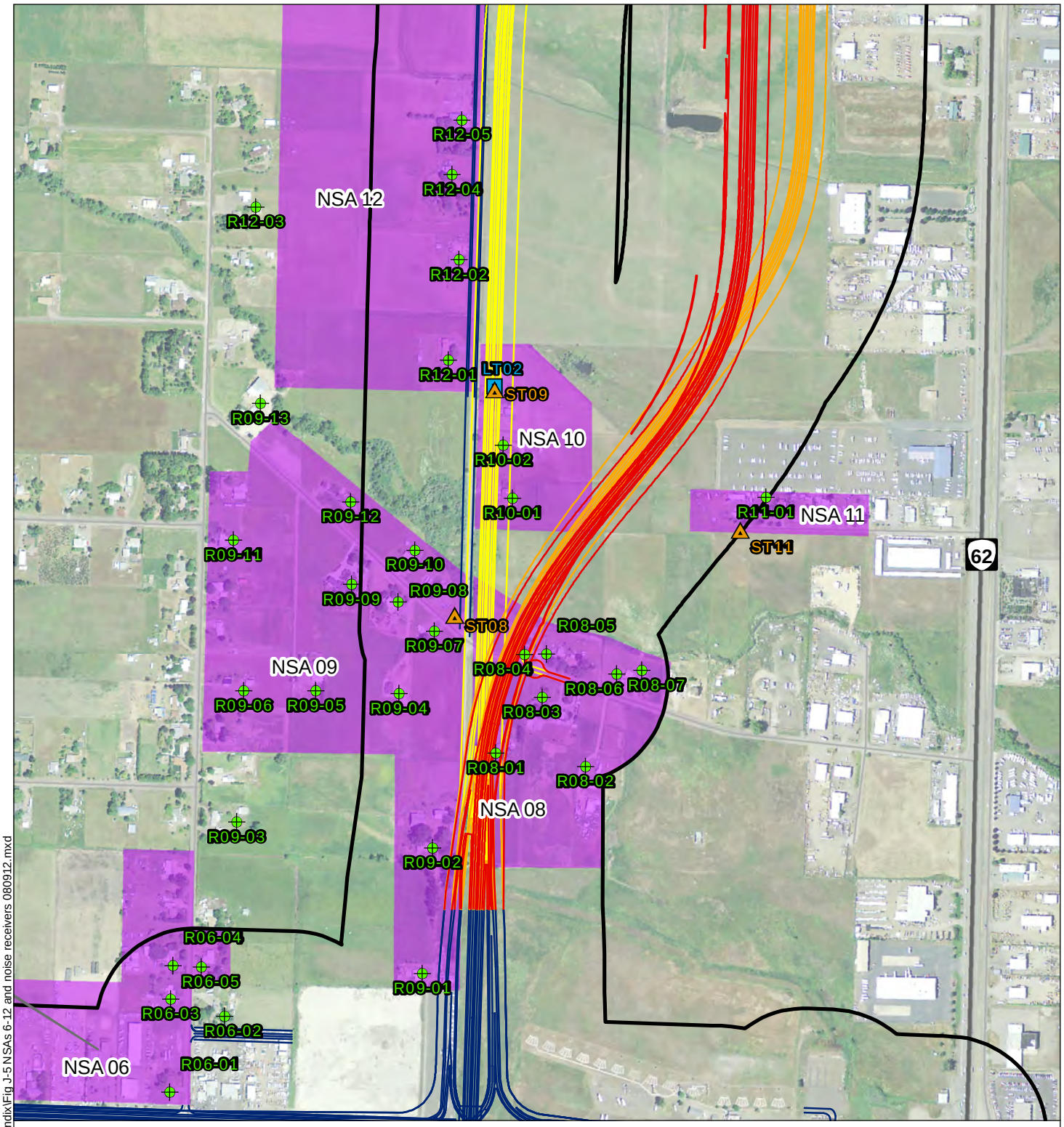

Map Features

- Area of Potential Impact
- Noise Sensitive Area (NSA)

Project Footprints

- Design Option A
- Design Option B
- Design Option C
- Common to both Build Alternatives

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles
0 0.1 0.2

Figure J-5
NSAs 06-12
and Associated
Noise Receivers

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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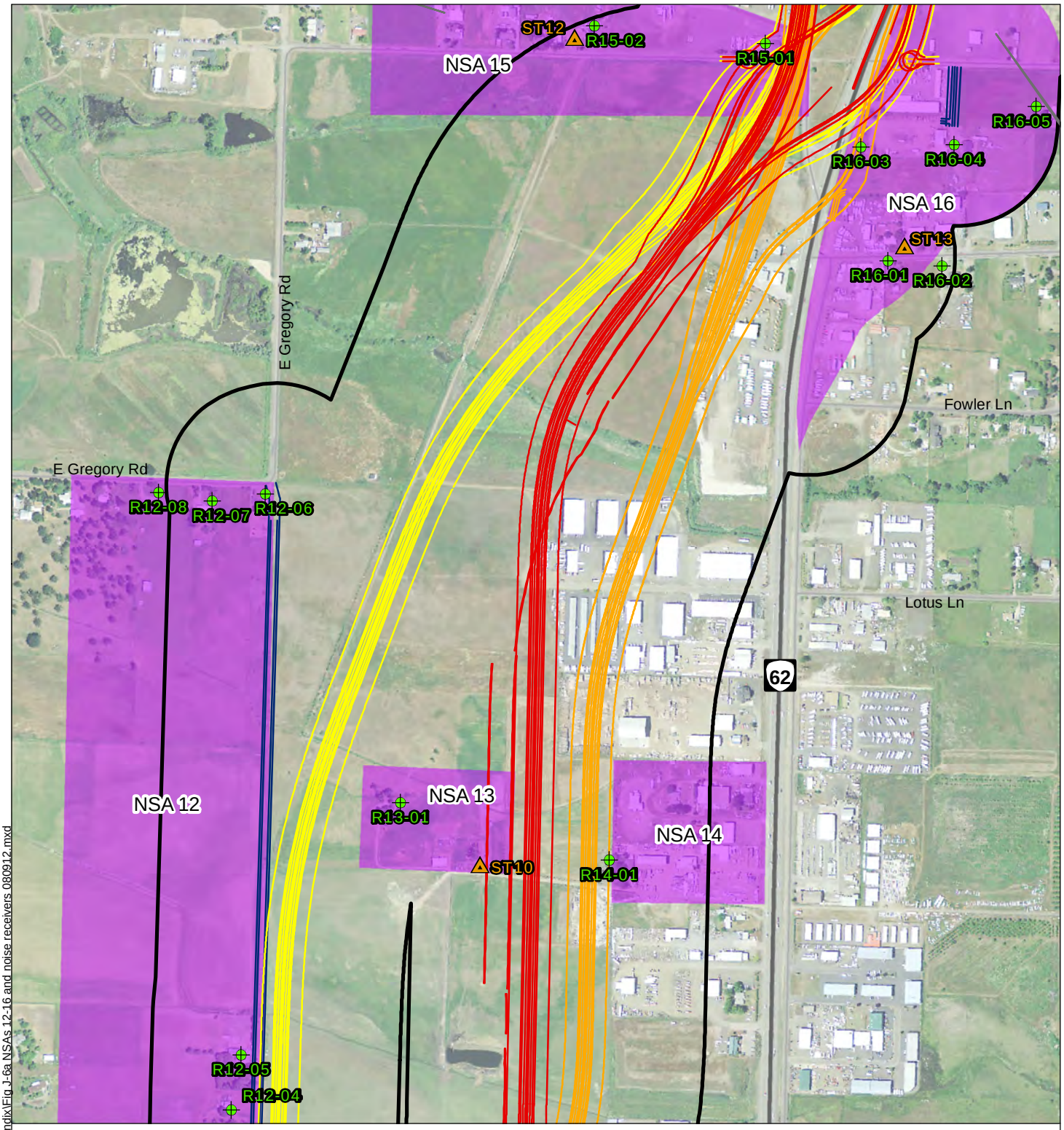

Map Features

- Area of Potential Impact
- Noise Sensitive Area (NSA)

Project Footprints

- Design Option A
- Design Option B
- Design Option C
- Common to both Build Alternatives

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

Figure J-6a
NSAs 12-16
and Associated
Noise Receivers

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

NORTH

Miles
0 0.1 0.2

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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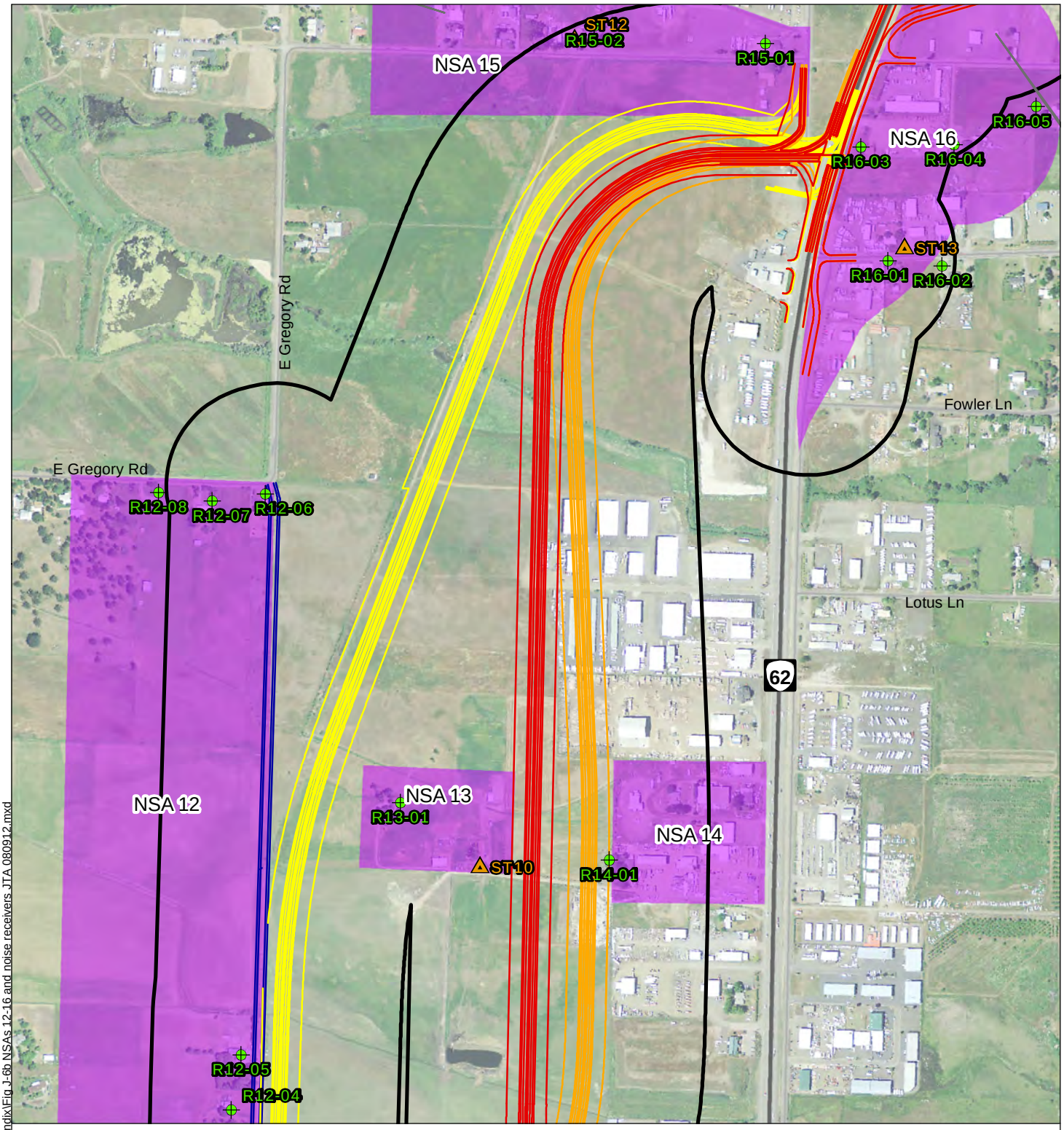

Map Features

- Area of Potential Impact
- Noise Sensitive Area (NSA)

Project Footprints

- Design Option A
- Design Option B
- Design Option C
- Common to both Build Alternatives

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles
0 0.1 0.2

Figure J-6b
NSAs 12-16
and Associated
Noise Receivers,
JTA Phase

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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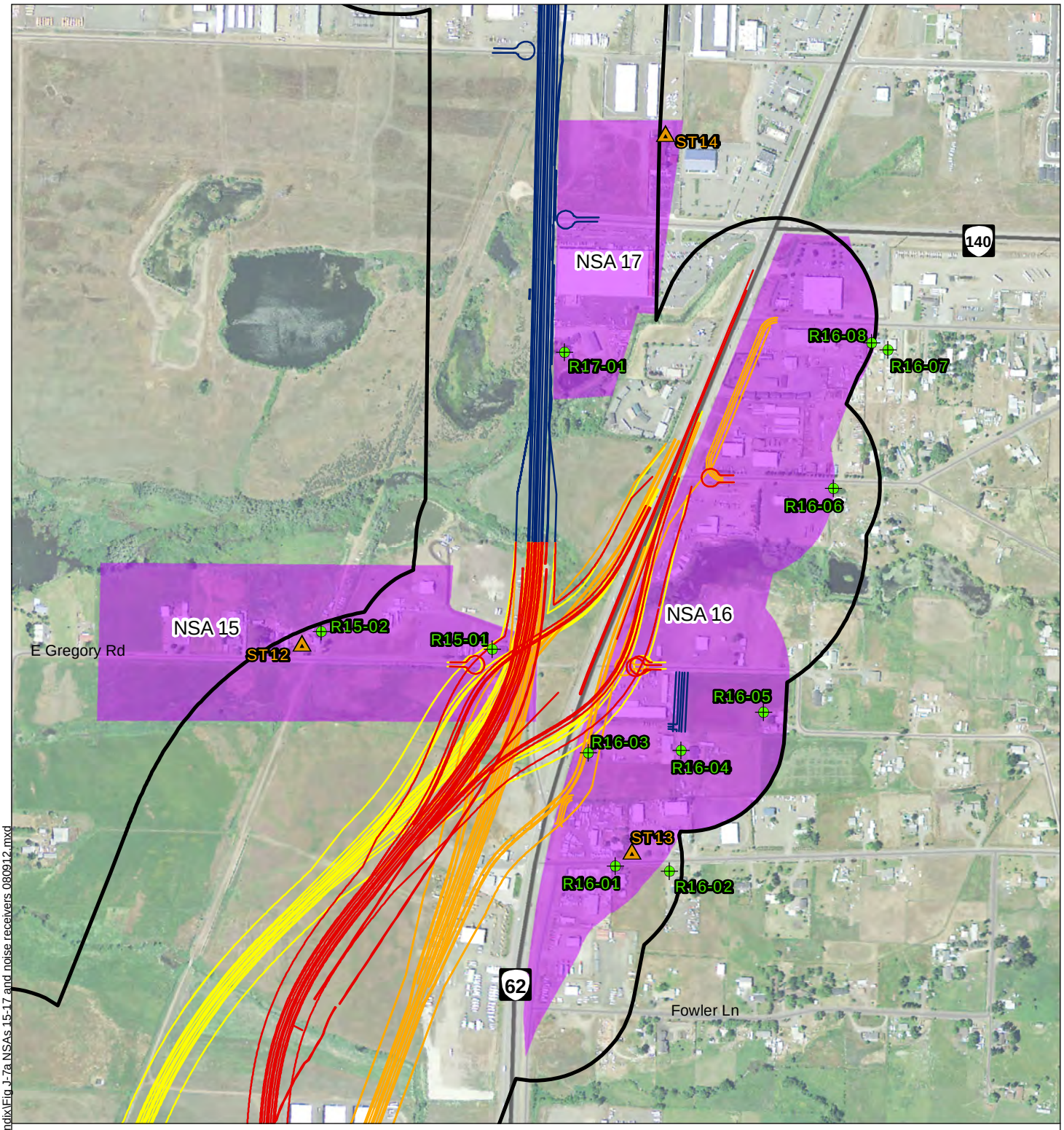

Map Features

- Area of Potential Impact
- Noise Sensitive Area (NSA)

Project Footprints

- Design Option A
- Design Option B
- Design Option C
- Common to both Build Alternatives

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles
0 0.1 0.2

Figure J-7a
NSAs 15-17
and Associated
Noise Receivers

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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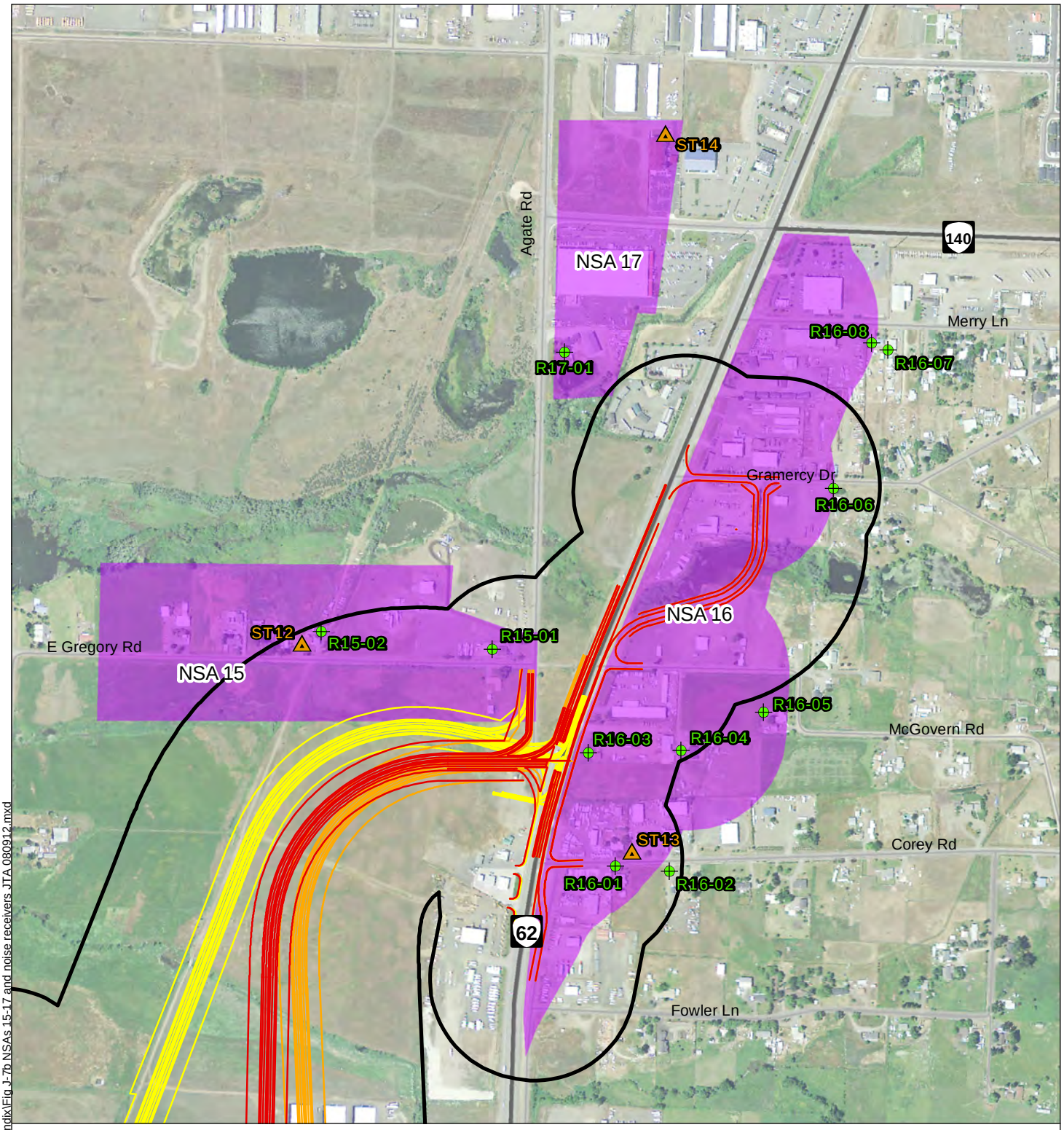

Map Features

- Area of Potential Impact
- Noise Sensitive Area (NSA)

Project Footprints

- Design Option A
- Design Option B
- Design Option C
- Common to both Build Alternatives

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles
0 0.1 0.2

Figure J-7b
NSAs 15-17
and Associated
Noise Receivers,
JTA Phase

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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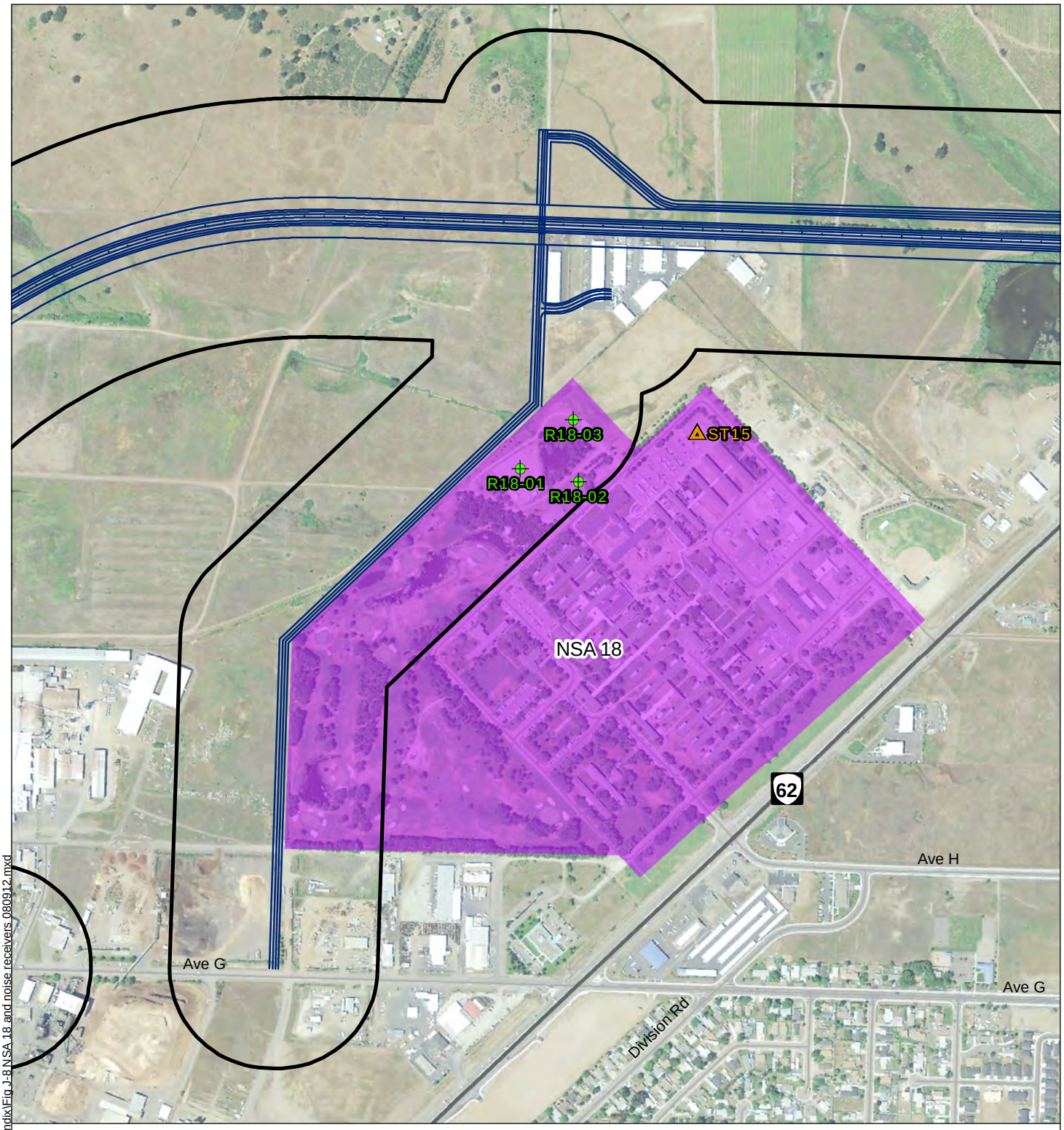

Map Features

- Area of Potential Impact
- Footprint Common to both Build Alternatives
- Noise Sensitive Area (NSA)

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles 0 0.1 0.2

Figure J-8
NSA 18
and Associated
Noise Receivers

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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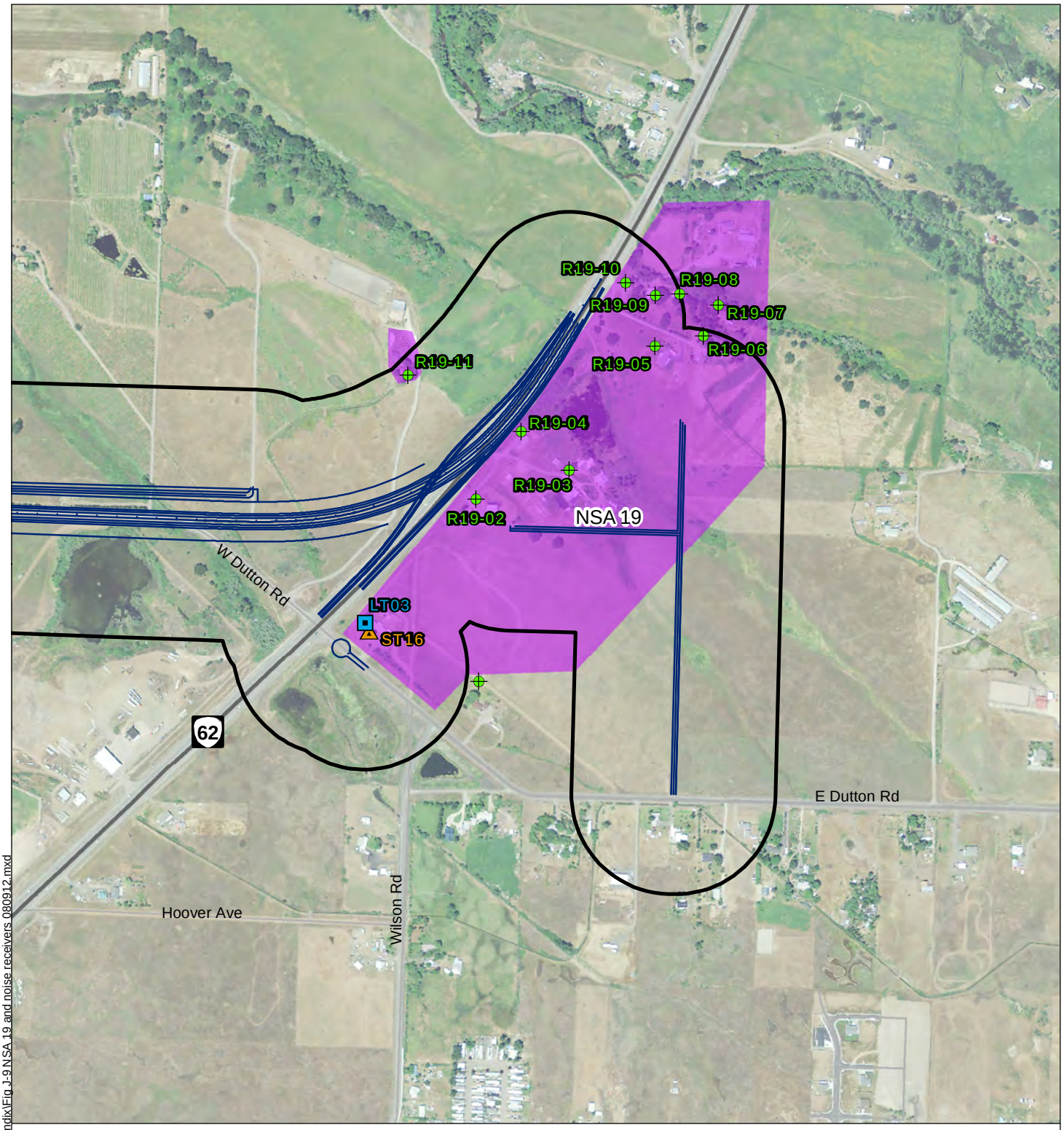

Map Features

- Area of Potential Impact
- Footprint Common to both Build Alternatives
- Noise Sensitive Area (NSA)

Noise Measurement

- Long Term Locations
- Short Term Locations
- Modeled Receiver Locations

NORTH

Miles 0 0.1 0.2

Figure J-9
NSA 19
and Associated
Noise Receivers

September 2012

Sources: Jackson County GIS, ODOT, URS Corp.

OR 62: I-5 to Dutton Road

Oregon Department of Transportation

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Table J-3 Noise Impacts Associated with SD Alternative using Option A

					Exist-ing	No Build Alternative		SD Alternative using Option A				
	Land Use Activity	Equival Units	Roadway Distancea (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	Take	Take	Take	Take	Take
R01-01	C	1	19	65.0	68.2	69.1	0.9	Take	Take	Take	Take	Take
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	63	0	0 - 0	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	67.2	0	0.6	0	-0.5
R02-01	E	1	163	70.0	48.8	49.5	0.7	51.6	0	2.8	0	2.1
R02-02	E	1	372	70.0	65.7	66.7	1.0	65.9	0	0.2	0	-0.8
NSA -02	E	3	163 - 372	70	49 - 67	50 - 68	1	52 - 67	0	0 - 3	0	-1 - 2
ST-03	B	20	587	65.0	53.9	54.8	0.9	57.4	0	3.5	0	2.6
R03-01	B	2	522	65.0	54.8	55.6	0.8	56.8	0	2.0	0	1.2
R03-02	B	2	586	65.0	53.4	54.2	0.8	56.1	0	2.7	0	1.9
R03-03	B	50	441	65.0	51.8	52.7	0.9	57.7	0	5.9	0	5.0
R03-04	B	40	623	65.0	53.2	54.0	0.8	55.7	0	2.5	0	1.7
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 6	0	1 - 5
ST-04	C	1	207	65.0	51.4	52.4	1.0	58.2	0	6.8	0	5.8
R04-01	E	1	59	70.0	51.4	52.4	1.0	68.1	0	16.7	1	15.7
R04-02	E	1	424	70.0	51.4	52.4	1.0	55.3	0	3.9	0	2.9
R04-03	E	1	335	70.0	51.4	52.4	1.0	55.6	0	4.2	0	3.2
R04-04	E	1	290	70.0	51.4	52.4	1.0	58.6	0	7.2	0	6.2
NSA -04	C/E	5	59 - 424	65/70	51	52	1	55 - 68	0	4 - 17	1	3 - 16
ST-05	B	2	18	65.0	64.4	66.9	2.5	69.8	2	5.4	0	2.9
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	69.6	1	4.6	0	2.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.1	1	2.2	0	0.4
R06-01	B	1	91	65.0	63.4	65.4	2.0	67.3	1	3.9	0	1.9
R06-02	B	1	63	65.0	50.1	52.2	2.1	54.8	0	4.7	0	2.6
R06-03	B	1	167	65.0	48.1	50.2	2.1	52.3	0	4.2	0	2.1
R06-04	B	3	313	65.0	45.3	47.2	1.9	50.4	0	5.1	0	3.2
R06-05	B	2	299	65.0	44.9	46.8	1.9	50.4	0	5.5	0	3.6
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	50 - 73	2	2 - 6	0	0 - 4
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.8	0	1.9	0	0.6
NSA-07	**B**	1	142	65	61	62	1	63	0	2	0	1
ST-08	B	1	22	65.0	53.0	54.0	1.0	60.5	0	7.5	0	6.5
R08-01	B	1	14	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	408	65.0	53.0	54.0	1.0	56.3	0	3.3	0	2.3

R08-03	B	1	102	65.0	53.0	54.0	1.0	63.7	0	10.7	1	9.7
R08-04	B	1	12	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-05	B	1	51	65.0	53.0	54.0	1.0	68.8	1	15.8	1	14.8
R08-06	B	1	242	65.0	53.0	54.0	1.0	56.7	0	3.7	0	2.7
R08-07	B	2	370	65.0	53.0	54.0	1.0	54.5	0	1.5	0	0.5
NSA-08	B	9	12 - 408	65	53	54	1	55 - 69	1	2 - 16	2	1 - 15
ST-08	B	1	22	65.0	53.0	54.0	1.0	60.5	0	7.5	0	6.5
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	95	65.0	53.0	54.0	1.0	62.2	0	9.2	0	8.2
R09-03	B	3	1042	65.0	53.0	54.0	1.0	49.3	0	-3.7	0	-4.7
R09-04	B	1	383	65.0	53.0	54.0	1.0	56.9	0	3.9	0	2.9
R09-05	B	1	785	65.0	53.0	54.0	1.0	51.0	0	-2.0	0	-3.0
R09-06	B	3	1125	65.0	53.0	54.0	1.0	48.3	0	-4.7	0	-5.7
R09-07	B	1	122	65.0	53.0	54.0	1.0	59.5	0	6.5	0	5.5
R09-08	B	1	305	65.0	53.0	54.0	1.0	53.0	0	0.0	0	-1.0
R09-09	B	1	542	65.0	53.0	54.0	1.0	50.3	0	-2.7	0	-3.7
R09-10	B	1	227	65.0	53.0	54.0	1.0	53.5	0	0.5	0	-0.5
R09-11	B	2	1141	65.0	53.0	54.0	1.0	46.8	0	-6.2	0	-7.2
R09-12	B	1	556	65.0	53.0	54.0	1.0	48.5	0	-4.5	0	-5.5
R09-13	B	3	1024	65.0	53.0	54.0	1.0	44.2	0	-8.8	0	-9.8
NSA-09	B	21	22 - 1141	65	53	54	1	44 - 62	0	-9 - 9	0	-10 - 8
ST-09	B	1	90	65.0	48.9	49.9	1.0	49.9	0	1.0	0	0.0
R10-01	B	1	198	65.0	48.9	49.9	1.0	61.1	0	12.2	1	11.2
R10-02	B	1	142	65.0	48.9	49.9	1.0	52.6	0	3.7	0	2.7
NSA-10	B	3	90 - 198	65	49	50	1	50 - 61	0	1 - 12	1	0 - 11
ST-11	B	1	493	65.0	49.1	50.1	1.0	57.2	0	8.1	0	7.1
R11-01	B	3	493	65.0	49.1	50.1	1.0	56.3	0	7.2	0	6.2
NSA -11	B	4	493 - 493	65	49	50	1	56 - 57	0	7 - 8	0	6 - 7
ST-09	B	1	90	65.0	48.9	49.9	1.0	49.9	0	1.0	0	0.0
R12-01	B	1	83	65.0	48.9	49.9	1.0	48.7	0	-0.2	0	-1.2
R12-02	B	1	44	65.0	48.9	49.9	1.0	47.7	0	-1.2	0	-2.2
R12-03	B	3	1072	65.0	48.9	49.9	1.0	43.1	0	-5.8	0	-6.8
R12-04	B	1	91	65.0	48.9	49.9	1.0	47.0	0	-1.9	0	-2.9
R12-05	B	1	50	65.0	48.9	49.9	1.0	47.7	0	-1.2	0	-2.2
R12-06	B	1	12	65.0	48.9	49.9	1.0	48.5	0	-0.4	0	-1.4
R12-07	B	1	278	65.0	48.9	49.9	1.0	46.5	0	-2.4	0	-3.4
R12-08	B	1	537	65.0	48.9	49.9	1.0	44.5	0	-4.4	0	-5.4
NSA -12	B	11	12 - 1072	65	49	50	1	43 - 50	0	-6 - 1	0	-7 - 0
ST-10	B	1	31	65.0	45.8	46.8	1.0	Take	Take	Take	Take	Take
R13-01	B	1	435	65.0	45.8	46.8	1.0	55.4	0	9.6	0	8.6
NSA -13	B	2	31 - 435	65	46	47	1	55 - 55	0	10 - 10	0	9 - 9

R14-01	B	1	291	65.0	50.0	51.0	1.0	61.8	0	11.8	1	10.8
NSA -14	B	1	291	65	50	51	1	62	0	12	1	11
ST-12	B	1	750	65.0	51.5	52.5	1.0	50.4	0	-1.1	0	-2.1
R15-01	B	1	15	65.0	51.5	52.5	1.0	Take	Take	Take	Take	Take
R15-02	B	1	663	65.0	51.5	52.5	1.0	52.7	0	1.2	0	0.2
NSA -15	B	3	15 - 750	65	52	53	1	50 - 53	0	-1 - 1	0	-2 - 0
ST-13	B	1	635	65.0	55.2	55.9	0.7	53.7	0	-1.5	0	-2.2
R16-01	B	1	669	65.0	56.7	57.3	0.6	55.0	0	-1.7	0	-2.3
R16-02	B	1	702	65.0	50.2	50.8	0.6	50.0	0	-0.2	0	-0.8
R16-03	B	1	146	65.0	70.7	71.1	0.4	68.0	1	-2.7	0	-3.1
R16-04	B	1	92	65.0	52.1	52.6	0.5	52.8	0	0.7	0	0.2
R16-05	B	1	390	65.0	49.4	50.0	0.6	51.5	0	2.1	0	1.5
R16-06	B	1	573	65.0	50.7	51.2	0.5	52.1	0	1.4	0	0.9
R16-07	B	1	772	65.0	48.7	49.5	0.8	49.7	0	1.0	0	0.2
R16-08	B	1	682	65.0	48.8	49.6	0.8	49.7	0	0.9	0	0.1
NSA -16	B	9	92 - 772	65	49 - 71	50 - 71	0 - 1	50 - 68	1	-3 - 2	0	-3 - 2
ST-14	E	1	547	70.0	50.6	51.7	1.1	54.8	0	4.2	0	3.1
R17-01	B	1	66	65.0	51.1	51.6	0.5	Take	Take	Take	Take	Take
NSA -17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
ST-15	B	1	790	65.0	46.6	47.6	1.0	48.5	0	1.9	0	0.9
R18-01	B	1	170	65.0	46.6	47.6	1.0	45.4	0	-1.2	0	-2.2
R18-02	B	1	419	65.0	46.6	47.6	1.0	45.1	0	-1.5	0	-2.5
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
NSA -18	B	4	170 - 790	65	47	48	1	45 - 49	0	-2 - 2	0	-3 - 1
ST-16	B	1	121	65.0	62.9	64.3	1.4	60.8	0	-2.1	0	-3.5
R19-01	B	1	562	65.0	49.1	50.4	1.3	49.9	0	0.8	0	-0.5
R19-02	B	1	102	65.0	65.8	67.8	2.0	67.2	1	1.4	0	-0.6
R19-03	B	1	289	65.0	54.6	56.5	1.9	58.1	0	3.5	0	1.6
R19-04	B	1	44	65.0	67.6	69.5	1.9	Take	Take	Take	Take	Take
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.6	0	1.9	0	-0.1
R19-06	B	1	439	65.0	55.9	57.9	2.0	57.4	0	1.5	0	-0.5
R19-07	B	1	582	65.0	51.4	53.5	2.1	52.7	0	1.3	0	-0.8
R19-08	B	1	383	65.0	54.3	56.2	1.9	55.6	0	1.3	0	-0.6
R19-09	B	1	263	65.0	61.1	63.1	2.0	62.6	0	1.5	0	-0.5
R19-10	B	1	114	65.0	68.9	70.8	1.9	70.8	1	1.9	0	0.0
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.9	0	1.8	0	0.1
NSA -19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		43		-9		
		Maximum			71	73		73		17		
		ODOT NAAC Impacts							9			
		Substantial Increase Impacts									5	

[a] Distance to the edge of the closest modeled roadway

Table J-4 Noise Impacts (by NSA) Associated with SD Alternative using Option A

					Exist-ing	No Build Alternative		SD Alternative using Option A				
	Land Use Activity	Equival Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	63	0	0 - 0	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	52 - 67	0	0 - 3	0	-1 - 2
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 6	0	1 - 5
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	55 - 68	0	4 - 17	1	3 - 16
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	50 - 73	2	2 - 6	0	0 - 4
NSA-7	B	1	142	65	61	62	1	63	0	2	0	1
NSA-8*	B	9	12 - 408	65	53	54	1	55 - 69	1	2 - 16	2	1 - 15
NSA-9*	B	21	22 - 1141	65	53	54	1	44 - 62	0	-9 - 9	0	-10 - 8
NSA-10*	B	3	90 - 198	65	49	50	1	50 - 61	0	1 - 12	1	0 - 11
NSA-11*	B	4	493 - 493	65	49	50	1	56 - 57	0	7 - 8	0	6 - 7
NSA-12*	B	11	12 - 1072	65	49	50	1	43 - 50	0	-6 - 1	0	-7 - 0
NSA-13*	B	2	31 - 435	65	46	47	1	55 - 55	0	10 - 10	0	9 - 9
NSA-14*	B	1	291	65	50	51	1	62	0	12	1	11
NSA-15*	B	3	15 - 750	65	52	53	1	50 - 53	0	-1 - 1	0	-2 - 0
NSA-16	B	9	92 - 772	65	49 - 71	50 - 71	0 - 1	50 - 68	1	-3 - 2	0	-3 - 2
NSA-17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
NSA-18*	B	4	170 - 790	65	47	48	1	45 - 49	0	-2 - 2	0	-3 - 1
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		43		-9		
		Maximum			71	73		73		17		
		ODOT NAAC Impacts							9			
		Substantial Increase Impacts									5	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Table J-5 Noise Impacts Associated with SD Alternative using Option B

					Exist-ing	No Build Alternative		SD Alternative using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	Take	Take	Take	Take	Take
R01-01	C	1	19	65.0	68.2	69.1	0.9	Take	Take	Take	Take	Take
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	63	0	0 - 0	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	67.2	0	0.6	0	-0.5
R02-01	E	1	163	70.0	48.8	49.5	0.7	51.6	0	2.8	0	2.1
R02-02	E	1	372	70.0	65.7	66.7	1.0	65.9	0	0.2	0	-0.8
NSA-02	E	3	163 - 372	70	49 - 67	50 - 68	1	52 - 67	0	0 - 3	0	-1 - 2
ST-03	B	20	587	65.0	53.9	54.8	0.9	57.4	0	3.5	0	2.6
R03-01	B	2	522	65.0	54.8	55.6	0.8	56.8	0	2.0	0	1.2
R03-02	B	2	586	65.0	53.4	54.2	0.8	56.1	0	2.7	0	1.9
R03-03	B	50	441	65.0	51.8	52.7	0.9	57.7	0	5.9	0	5.0
R03-04	B	40	623	65.0	53.2	54.0	0.8	55.7	0	2.5	0	1.7
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 6	0	1 - 5
ST-04	C	1	207	65.0	51.4	52.4	1.0	58.2	0	6.8	0	5.8
R04-01	E	1	59	70.0	51.4	52.4	1.0	68.1	0	16.7	1	15.7
R04-02	E	1	424	70.0	51.4	52.4	1.0	55.3	0	3.9	0	2.9
R04-03	E	1	335	70.0	51.4	52.4	1.0	55.6	0	4.2	0	3.2
R04-04	E	1	290	70.0	51.4	52.4	1.0	58.6	0	7.2	0	6.2
NSA-04	C/E	5	59 - 424	65/70	51	52	1	55 - 68	0	4 - 17	1	3 - 16
ST-05	B	2	18	65.0	64.4	66.9	2.5	69.8	2	5.4	0	2.9
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	69.6	1	4.6	0	2.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.1	1	2.2	0	0.4
R06-01	B	1	91	65.0	63.4	65.4	2.0	67.3	1	3.9	0	1.9
R06-02	B	1	63	65.0	50.1	52.2	2.1	54.9	0	4.8	0	2.7
R06-03	B	1	167	65.0	48.1	50.2	2.1	52.4	0	4.3	0	2.2
R06-04	B	3	313	65.0	45.3	47.2	1.9	50.9	0	5.6	0	3.7
R06-05	B	2	299	65.0	44.9	46.8	1.9	50.5	0	5.6	0	3.7
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	0 - 4
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.8	0	1.9	0	0.6

Table J-5 Noise Impacts Associated with SD Alternative using Option B

					Exist-ing	No Build Alternative		SD Alternative using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-07	**B**	1	142	65	61	62	1	63	0	2	0	1
ST-08	B	1	22	65.0	53.0	54.0	1.0	62.5	0	9.5	0	8.5
R08-01	B	1	20	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	413	65.0	53.0	54.0	1.0	56.3	0	3.3	0	2.3
R08-03	B	1	102	65.0	53.0	54.0	1.0	64.0	0	11.0	1	10.0
R08-04	B	1	23	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-05	B	1	51	65.0	53.0	54.0	1.0	68.4	1	15.4	1	14.4
R08-06	B	1	242	65.0	53.0	54.0	1.0	57.0	0	4.0	0	3.0
R08-07	B	2	370	65.0	53.0	54.0	1.0	54.5	0	1.5	0	0.5
NSA-08	B	9	20 - 413	65	53	54	1	55 - 68	1	2 - 15	2	1 - 14
ST-08	B	1	22	65.0	53.0	54.0	1.0	62.5	0	9.5	0	8.5
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	93	65.0	53.0	54.0	1.0	61.3	0	8.3	0	7.3
R09-03	B	3	1042	65.0	53.0	54.0	1.0	49.9	0	-3.1	0	-4.1
R09-04	B	1	373	65.0	53.0	54.0	1.0	58.4	0	5.4	0	4.4
R09-05	B	1	785	65.0	53.0	54.0	1.0	51.7	0	-1.3	0	-2.3
R09-06	B	3	1125	65.0	53.0	54.0	1.0	48.5	0	-4.5	0	-5.5
R09-07	B	1	122	65.0	53.0	54.0	1.0	61.3	0	8.3	0	7.3
R09-08	B	1	305	65.0	53.0	54.0	1.0	54.4	0	1.4	0	0.4
R09-09	B	1	542	65.0	53.0	54.0	1.0	50.8	0	-2.2	0	-3.2
R09-10	B	1	227	65.0	53.0	54.0	1.0	54.5	0	1.5	0	0.5
R09-11	B	2	1141	65.0	53.0	54.0	1.0	47.3	0	-5.7	0	-6.7
R09-12	B	1	556	65.0	53.0	54.0	1.0	49.2	0	-3.8	0	-4.8
R09-13	B	3	1024	65.0	53.0	54.0	1.0	44.9	0	-8.1	0	-9.1
NSA-09	B	21	22 - 1141	65	53	54	1	45 - 63	0	-8 - 10	0	-9 - 9
ST-09	B	1	90	65.0	48.9	49.9	1.0	50.9	0	2.0	0	1.0
R10-01	B	1	198	65.0	48.9	49.9	1.0	62.5	0	13.6	1	12.6
R10-02	B	1	142	65.0	48.9	49.9	1.0	53.7	0	4.8	0	3.8
NSA-10	B	3	90 - 198	65	49	50	1	51 - 63	0	2 - 14	1	1 - 13
ST-11	B	1	1346	65.0	49.1	50.1	1.0	56.1	0	7.0	0	6.0
R11-01	B	3	551	65.0	49.1	50.1	1.0	55.7	0	6.6	0	5.6
NSA-11	B	4	551 - 1346	65	49	50	1	56	0	7 - 7	0	6 - 6
ST-09	B	1	90	65.0	48.9	49.9	1.0	50.9	0	2.0	0	1.0
R12-01	B	1	83	65.0	48.9	49.9	1.0	49.6	0	0.7	0	-0.3

Table J-5 Noise Impacts Associated with SD Alternative using Option B

					Exist-ing	No Build Alternative		SD Alternative using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R12-02	B	1	44	65.0	48.9	49.9	1.0	48.2	0	-0.7	0	-1.7
R12-03	B	3	1072	65.0	48.9	49.9	1.0	43.7	0	-5.2	0	-6.2
R12-04	B	1	91	65.0	48.9	49.9	1.0	46.9	0	-2.0	0	-3.0
R12-05	B	1	50	65.0	48.9	49.9	1.0	46.6	0	-2.3	0	-3.3
R12-06	B	1	12	65.0	48.9	49.9	1.0	44.7	0	-4.2	0	-5.2
R12-07	B	1	278	65.0	48.9	49.9	1.0	43.7	0	-5.2	0	-6.2
R12-08	B	1	537	65.0	48.9	49.9	1.0	42.9	0	-6.0	0	-7.0
NSA-12	B	11	12 - 1072	65	49	50	1	43 - 51	0	-6 - 2	0	-7 - 1
ST-10	B	1	1059	65.0	45.8	46.8	1.0	Take	Take	Take	Take	Take
R13-01	B	1	651	65.0	45.8	46.8	1.0	50.7	0	4.9	0	3.9
NSA-13	B	2	651 - 1059	65	46	47	1	51 - 51	0	5 - 5	0	4 - 4
R14-01	B	1	5	65.0	50.0	51.0	1.0	73.0	1	23.0	1	22.0
NSA-14	B	1	5	65	50	51	1	73	1	23	1	22
ST-12	B	1	1240	65.0	51.5	52.5	1.0	48.6	0	-2.9	0	-3.9
R15-01	B	1	73	65.0	51.5	52.5	1.0	63.0	0	11.5	1	10.5
R15-02	B	1	663	65.0	51.5	52.5	1.0	51.2	0	-0.3	0	-1.3
NSA - 15	B	3	73 - 1240	65	52	53	1	49 - 63	0	-3 - 12	1	-4 - 11
ST-13	B	1	635	65.0	55.2	55.9	0.7	55.2	0	0.0	0	-0.7
R16-01	B	1	335	65.0	56.7	57.3	0.6	56.7	0	0.0	0	-0.6
R16-02	B	1	561	65.0	50.2	50.8	0.6	52.4	0	2.2	0	1.6
R16-03	B	1	8	65.0	70.7	71.1	0.4	Take	Take	Take	Take	Take
R16-04	B	1	92	65.0	52.1	52.6	0.5	54.0	0	1.9	0	1.4
R16-05	B	1	390	65.0	49.4	50.0	0.6	51.4	0	2.0	0	1.4
R16-06	B	1	558	65.0	50.7	51.2	0.5	51.6	0	0.9	0	0.4
R16-07	B	1	576	65.0	48.7	49.5	0.8	49.5	0	0.8	0	0.0
R16-08	B	1	487	65.0	48.8	49.6	0.8	49.7	0	0.9	0	0.1
NSA - 16	B	9	8 - 635	65	49 - 71	50 - 71	0 - 1	50 - 57	0	0 - 2	0	-1 - 2
ST-14	E	1	547	70.0	50.6	51.7	1.1	54.8	0	4.2	0	3.1
R17-01	B	1	66	65.0	51.1	51.6	0.5	Take	Take	Take	Take	Take
NSA -17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
ST-15	B	1	790	65.0	46.6	47.6	1.0	48.5	0	1.9	0	0.9
R18-01	B	1	170	65.0	46.6	47.6	1.0	45.4	0	-1.2	0	-2.2
R18-02	B	1	419	65.0	46.6	47.6	1.0	45.1	0	-1.5	0	-2.5

Table J-5 Noise Impacts Associated with SD Alternative using Option B

					Exist-ing	No Build Alternative		SD Alternative using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
NSA -18	B	4	170 - 790	65	47	48	1	45 - 49	0	-2 - 2	0	-3 - 1
ST-16	B	1	121	65.0	62.9	64.3	1.4	60.8	0	-2.1	0	-3.5
R19-01	B	1	562	65.0	49.1	50.4	1.3	49.9	0	0.8	0	-0.5
R19-02	B	1	102	65.0	65.8	67.8	2.0	67.2	1	1.4	0	-0.6
R19-03	B	1	289	65.0	54.6	56.5	1.9	58.1	0	3.5	0	1.6
R19-04	B	1	44	65.0	67.6	69.5	1.9	Take	Take	Take	Take	Take
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.6	0	1.9	0	-0.1
R19-06	B	1	439	65.0	55.9	57.9	2.0	57.4	0	1.5	0	-0.5
R19-07	B	1	582	65.0	51.4	53.5	2.1	52.7	0	1.3	0	-0.8
R19-08	B	1	383	65.0	54.3	56.2	1.9	55.6	0	1.3	0	-0.6
R19-09	B	1	263	65.0	61.1	63.1	2.0	62.6	0	1.5	0	-0.5
R19-10	B	1	114	65.0	68.9	70.8	1.9	70.8	1	1.9	0	0.0
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.9	0	1.8	0	0.1
NSA -19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		43		-8		
		Maximum			71	73		73		23		
		ODOT NAAC Impacts							9			
		Substantial Increase Impacts									6	

[a] Distance to the edge of the closest modeled roadway

Table J-6 Noise Impacts (by NSA) Associated with SD Alternative using Option B

NSA ID	Land Use Activity	Equival. Units	Roadway Distance (feet)	ODOT NAAC	Existing	No Build Alternative		SD Alternative using Option B				
					Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	63	0	0 - 0	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	52 - 67	0	0 - 3	0	-1 - 2
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 6	0	1 - 5
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	55 - 68	0	4 - 17	1	3 - 16
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	0 - 4
NSA-7	B	1	142	65	61	62	1	63	0	2	0	1
NSA-8*	B	9	20 - 413	65	53	54	1	55 - 68	1	2 - 15	2	1 - 14
NSA-9*	B	21	22 - 1141	65	53	54	1	45 - 63	0	-8 - 10	0	-9 - 9
NSA-10*	B	3	90 - 198	65	49	50	1	51 - 63	0	2 - 14	1	1 - 13
NSA-11*	B	4	551 - 1346	65	49	50	1	56	0	7 - 7	0	6 - 6
NSA-12*	B	11	12 - 1072	65	49	50	1	43 - 51	0	-6 - 2	0	-7 - 1
NSA-13*	B	2	651 - 1059	65	46	47	1	51 - 51	0	5 - 5	0	4 - 4
NSA-14*	B	1	5	65	50	51	1	73	1	23	1	22
NSA-15*	B	3	73 - 1240	65	52	53	1	49 - 63	0	-3 - 12	1	-4 - 11
NSA-16	B	9	8 - 635	65	49 - 71	50 - 71	0 - 1	50 - 57	0	0 - 2	0	-1 - 2
NSA-17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
NSA-18*	B	4	170 - 790	65	47	48	1	45 - 49	0	-2 - 2	0	-3 - 1
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		43		-8		
		Maximum			71	73		73		23		
		ODOT NAAC Impacts							9			
		Substantial Increase Impacts									6	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Table J-7 Noise Impacts Associated with SD Alternative Using Option C

					Existing	No Build Alternative		SD Alternative using Option C				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	Take	Take	Take	Take	Take
R01-01	C	1	19	65.0	68.2	69.1	0.9	Take	Take	Take	Take	Take
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	63	0	0 - 0	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	67.2	0	0.6	0	-0.5
R02-01	E	1	163	70.0	48.8	49.5	0.7	51.6	0	2.8	0	2.1
R02-02	E	1	372	70.0	65.7	66.7	1.0	65.9	0	0.2	0	-0.8
NSA - 02	E	3	163 - 372	70	49 - 67	50 - 68	1	52 - 67	0	0 - 3	0	-1 - 2
ST-03	B	20	587	65.0	53.9	54.8	0.9	57.4	0	3.5	0	2.6
R03-01	B	2	522	65.0	54.8	55.6	0.8	56.8	0	2.0	0	1.2
R03-02	B	2	586	65.0	53.4	54.2	0.8	56.1	0	2.7	0	1.9
R03-03	B	50	441	65.0	51.8	52.7	0.9	57.7	0	5.9	0	5.0
R03-04	B	40	623	65.0	53.2	54.0	0.8	55.7	0	2.5	0	1.7
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 6	0	1 - 5
ST-04	C	1	207	65.0	51.4	52.4	1.0	58.2	0	6.8	0	5.8
R04-01	E	1	59	70.0	51.4	52.4	1.0	68.1	0	16.7	1	15.7
R04-02	E	1	424	70.0	51.4	52.4	1.0	55.3	0	3.9	0	2.9
R04-03	E	1	335	70.0	51.4	52.4	1.0	55.6	0	4.2	0	3.2
R04-04	E	1	290	70.0	51.4	52.4	1.0	58.6	0	7.2	0	6.2
NSA - 04	C/E	5	59 - 424	65/70	51	52	1	55 - 68	0	4 - 17	1	3 - 16
ST-05	B	2	18	65.0	64.4	66.9	2.5	69.8	2	5.4	0	2.9
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	69.6	1	4.6	0	2.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.1	1	2.2	0	0.4
R06-01	B	1	91	65.0	63.4	65.4	2.0	67.3	1	3.9	0	1.9
R06-02	B	1	63	65.0	50.1	52.2	2.1	54.8	0	4.7	0	2.6

Table J-7 Noise Impacts Associated with SD Alternative Using Option C

					Existing	No Build Alternative		SD Alternative using Option C				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R06-03	B	1	167	65.0	48.1	50.2	2.1	52.4	0	4.3	0	2.2
R06-04	B	3	313	65.0	45.3	47.2	1.9	50.6	0	5.3	0	3.4
R06-05	B	2	299	65.0	44.9	46.8	1.9	50.5	0	5.6	0	3.7
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	0 - 4
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.8	0	1.9	0	0.6
NSA-07	**B**	1	142	65	61	62	1	63	0	2	0	1
ST-08	B	1	22	65.0	53.0	54.0	1.0	69.1	1	16.1	1	15.1
R08-01	B	1	20	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	429	65.0	53.0	54.0	1.0	56.1	0	3.1	0	2.1
R08-03	B	1	108	65.0	53.0	54.0	1.0	61.8	0	8.8	0	7.8
R08-04	B	1	24	65.0	53.0	54.0	1.0	67.2	1	14.2	1	13.2
R08-05	B	1	83	65.0	53.0	54.0	1.0	63.4	0	10.4	1	9.4
R08-06	B	1	348	65.0	53.0	54.0	1.0	54.8	0	1.8	0	0.8
R08-07	B	2	475	65.0	53.0	54.0	1.0	51.6	0	-1.4	0	-2.4
NSA-08	B	9	20 - 475	65	53	54	1	52 - 69	2	-1 - 16	3	-2 - 15
ST-08	B	1	22	65.0	53.0	54.0	1.0	69.1	1	16.1	1	15.1
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	93	65.0	53.0	54.0	1.0	61.4	0	8.4	0	7.4
R09-03	B	3	1042	65.0	53.0	54.0	1.0	49.9	0	-3.1	0	-4.1
R09-04	B	1	320	65.0	53.0	54.0	1.0	60.0	0	7.0	0	6.0
R09-05	B	1	741	65.0	53.0	54.0	1.0	52.0	0	-1.0	0	-2.0
R09-06	B	3	1103	65.0	53.0	54.0	1.0	48.8	0	-4.2	0	-5.2
R09-07	B	1	122	65.0	53.0	54.0	1.0	65.0	0	12.0	1	11.0
R09-08	B	1	305	65.0	53.0	54.0	1.0	59.0	0	6.0	0	5.0
R09-09	B	1	542	65.0	53.0	54.0	1.0	53.8	0	0.8	0	-0.2
R09-10	B	1	227	65.0	53.0	54.0	1.0	61.9	0	8.9	0	7.9
R09-	B	2	1141	65.0	53.0	54.0	1.0	48.5	0	-4.5	0	-5.5

Table J-7 Noise Impacts Associated with SD Alternative Using Option C

11	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Existing	No Build Alternative		SD Alternative using Option C				
					Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R09-12	B	1	556	65.0	53.0	54.0	1.0	54.5	0	1.5	0	0.5
R09-13	B	3	1024	65.0	53.0	54.0	1.0	48.4	0	-4.6	0	-5.6
NSA-09	B	21	22 - 1141	65	53	54	1	48 - 69	1	-5 - 16	2	-6 - 15
ST-09	B	1	90	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R10-01	B	1	20	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R10-02	B	1	26	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
NSA-10	B	3	20 - 90	65	49	50	1	0 - 0	0	0 - 0	0	0 - 0
ST-11	B	1	1346	65.0	49.1	50.1	1.0	47.1	0	-2.0	0	-3.0
R11-01	B	3	1294	65.0	49.1	50.1	1.0	46.1	0	-3.0	0	-4.0
NSA - 11	B	4	1294 - 1346	65	49	50	1	46 - 47	0	-3 - -2	0	-4 - -3
ST-09	B	1	90	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R12-01	B	1	83	65.0	48.9	49.9	1.0	66.5	1	17.6	1	16.6
R12-02	B	1	44	65.0	48.9	49.9	1.0	68.1	1	19.2	1	18.2
R12-03	B	3	1072	65.0	48.9	49.9	1.0	48.6	0	-0.3	0	-1.3
R12-04	B	1	91	65.0	48.9	49.9	1.0	66.2	1	17.3	1	16.3
R12-05	B	1	50	65.0	48.9	49.9	1.0	67.8	1	18.9	1	17.9
R12-06	B	1	12	65.0	48.9	49.9	1.0	53.3	0	4.4	0	3.4
R12-07	B	1	278	65.0	48.9	49.9	1.0	50.6	0	1.7	0	0.7
R12-08	B	1	537	65.0	48.9	49.9	1.0	47.7	0	-1.2	0	-2.2
NSA - 12	B	11	12 - 1072	65	49	50	1	48 - 68	4	-1 - 19	4	-2 - 18
ST-10	B	1	1059	65.0	45.8	46.8	1.0	50.4	0	4.6	0	3.6
R13-01	B	1	331	65.0	45.8	46.8	1.0	58.4	0	12.6	1	11.6
NSA - 13	B	2	331 - 1059	65	46	47	1	50 - 58	0	5 - 13	1	4 - 12
R14-01	B	1	1417	65.0	50.0	51.0	1.0	46.7	0	-3.3	0	-4.3
NSA - 14	B	1	1417	65	50	51	1	47	0	-3	0	-4
ST-12	B	1	1240	65.0	51.5	52.5	1.0	51.3	0	-0.2	0	-1.2

Table J-7 Noise Impacts Associated with SD Alternative Using Option C

					Existing	No Build Alternative		SD Alternative using Option C				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R15-01	B	1	26	65.0	51.5	52.5	1.0	Take	Take	Take	Take	Take
R15-02	B	1	663	65.0	51.5	52.5	1.0	53.4	0	1.9	0	0.9
NSA - 15	B	3	26 - 1240	65	52	53	1	51 - 53	0	0 - 2	0	-1 - 1
ST-13	B	1	635	65.0	55.2	55.9	0.7	53.6	0	-1.6	0	-2.3
R16-01	B	1	611	65.0	56.7	57.3	0.6	54.9	0	-1.8	0	-2.4
R16-02	B	1	702	65.0	50.2	50.8	0.6	50.0	0	-0.2	0	-0.8
R16-03	B	1	53	65.0	70.7	71.1	0.4	68.0	1	-2.7	0	-3.1
R16-04	B	1	92	65.0	52.1	52.6	0.5	52.9	0	0.8	0	0.3
R16-05	B	1	390	65.0	49.4	50.0	0.6	51.6	0	2.2	0	1.6
R16-06	B	1	502	65.0	50.7	51.2	0.5	52.2	0	1.5	0	1.0
R16-07	B	1	984	65.0	48.7	49.5	0.8	49.7	0	1.0	0	0.2
R16-08	B	1	918	65.0	48.8	49.6	0.8	49.7	0	0.9	0	0.1
NSA - 16	B	9	53 - 984	65	49 - 71	50 - 71	0 - 1	50 - 68	1	-3 - 2	0	-3 - 2
ST-14	E	1	547	70.0	50.6	51.7	1.1	54.9	0	4.3	0	3.2
R17-01	B	1	66	65.0	51.1	51.6	0.5	Take	Take	Take	Take	Take
NSA - 17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
ST-15	B	1	790	65.0	46.6	47.6	1.0	48.5	0	1.9	0	0.9
R18-01	B	1	170	65.0	46.6	47.6	1.0	45.4	0	-1.2	0	-2.2
R18-02	B	1	419	65.0	46.6	47.6	1.0	45.1	0	-1.5	0	-2.5
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
NSA - 18	B	4	170 - 790	65	47	48	1	45 - 49	0	-2 - 2	0	-3 - 1
ST-16	B	1	121	65.0	62.9	64.3	1.4	60.8	0	-2.1	0	-3.5
R19-01	B	1	562	65.0	49.1	50.4	1.3	49.9	0	0.8	0	-0.5
R19-02	B	1	102	65.0	65.8	67.8	2.0	67.2	1	1.4	0	-0.6
R19-03	B	1	289	65.0	54.6	56.5	1.9	58.1	0	3.5	0	1.6
R19-04	B	1	44	65.0	67.6	69.5	1.9	Take	Take	Take	Take	Take
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.6	0	1.9	0	-0.1

Table J-7 Noise Impacts Associated with SD Alternative Using Option C

					Existing	No Build Alternative		SD Alternative using Option C				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R19-06	B	1	439	65.0	55.9	57.9	2.0	57.4	0	1.5	0	-0.5
R19-07	B	1	582	65.0	51.4	53.5	2.1	52.7	0	1.3	0	-0.8
R19-08	B	1	383	65.0	54.3	56.2	1.9	55.6	0	1.3	0	-0.6
R19-09	B	1	263	65.0	61.1	63.1	2.0	62.6	0	1.5	0	-0.5
R19-10	B	1	114	65.0	68.9	70.8	1.9	70.8	1	1.9	0	0.0
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.9	0	1.8	0	0.1
NSA - 19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		45		-5		
		Maximum			71	73		73		19		
		ODOT NAAC Impacts							15			
		Substantcial Increase Impacts									11	

[a] Distance to the edge of the closest modeled roadway

Table J-8 Noise Impacts (by NSA) Associated with SD Alternative using Option C

					Existing	No Build Alternative		SD Alternative using Option C				
	Land Use Activity	Equival. Units	Roadway Distance (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	63	0	0 - 0	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	52 - 67	0	0 - 3	0	-1 - 2
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 6	0	1 - 5
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	55 - 68	0	4 - 17	1	3 - 16
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	0 - 4
NSA-7	B	1	142	65	61	62	1	63	0	2	0	1
NSA-8*	B	9	20 - 475	65	53	54	1	52 - 69	2	-1 - 16	3	-2 - 15
NSA-9*	B	21	22 - 1141	65	53	54	1	48 - 69	1	-5 - 16	2	-6 - 15
NSA-10*	B	3	20 - 90	65	49	50	1	0 - 0	0	0 - 0	0	0 - 0
NSA-11*	B	4	1294 - 1346	65	49	50	1	46 - 47	0	-3 - -2	0	-4 - -3
NSA-12*	B	11	12 - 1072	65	49	50	1	48 - 68	4	-1 - 19	4	-2 - 18
NSA-13*	B	2	331 - 1059	65	46	47	1	50 - 58	0	5 - 13	1	4 - 12
NSA-14*	B	1	1417	65	50	51	1	47	0	-3	0	-4
NSA-15*	B	3	26 - 1240	65	52	53	1	51 - 53	0	0 - 2	0	-1 - 1
NSA-16	B	9	53 - 984	65	49 - 71	50 - 71	0 - 1	50 - 68	1	-3 - 2	0	-3 - 2
NSA-17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
NSA-18*	B	4	170 - 790	65	47	48	1	45 - 49	0	-2 - 2	0	-3 - 1
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		45		-5		
		Maximum			71	73		73		19		
		ODOT NAAC Impacts							15			
		Substantcial Increase Impacts									11	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Table J-9 Noise Impacts Associated with DI Alternative using Option A

					Existing	No Build Alternative		DI Alternative using Option A				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	64.1	0	1.0	0	0.2
R01-01	C	1	19	65.0	68.2	69.1	0.9	69.2	1	1.0	0	0.1
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	66.4	0	-0.2	0	-1.3
R02-01	E	1	163	70.0	48.8	49.5	0.7	50.1	0	1.3	0	0.6
R02-02	E	1	372	70.0	65.7	66.7	1.0	66.4	0	0.7	0	-0.3
NSA -02	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 66	0	0 - 1	0	-1 - 1
ST-03	B	20	587	65.0	53.9	54.8	0.9	Take	Take	Take	Take	Take
R03-01	B	2	522	65.0	54.8	55.6	0.8	57.0	0	2.2	0	1.4
R03-02	B	2	586	65.0	53.4	54.2	0.8	58.1	0	4.7	0	3.9
R03-03	B	50	441	65.0	51.8	52.7	0.9	55.5	0	3.7	0	2.8
R03-04	B	40	623	65.0	53.2	54.0	0.8	Take	Take	Take	Take	Take
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 5	0	1 - 4
ST-04	C	1	207	65.0	51.4	52.4	1.0	58.2	0	6.8	0	5.8
R04-01	E	1	59	70.0	51.4	52.4	1.0	68.9	0	17.5	1	16.5
R04-02	E	1	424	70.0	51.4	52.4	1.0	54.9	0	3.5	0	2.5
R04-03	E	1	335	70.0	51.4	52.4	1.0	55.2	0	3.8	0	2.8
R04-04	E	1	290	70.0	51.4	52.4	1.0	58.3	0	6.9	0	5.9
NSA -04	C/E	5	59 - 424	65/70	51	52	1	55 - 69	0	4 - 18	1	3 - 17
ST-05	B	2	18	65.0	64.4	66.9	2.5	69.8	2	5.4	0	2.9
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	69.6	1	4.6	0	2.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.2	1	2.3	0	0.5
R06-01	B	1	91	65.0	63.4	65.4	2.0	67.3	1	3.9	0	1.9
R06-02	B	1	63	65.0	50.1	52.2	2.1	54.9	0	4.8	0	2.7
R06-03	B	1	167	65.0	48.1	50.2	2.1	52.3	0	4.2	0	2.1
R06-04	B	3	313	65.0	45.3	47.2	1.9	50.6	0	5.3	0	3.4
R06-05	B	2	299	65.0	44.9	46.8	1.9	50.6	0	5.7	0	3.8
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	1 - 4
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.7	0	1.8	0	0.5

Table J-9 Noise Impacts Associated with DI Alternative using Option A

					Existing	No Build Alternative		DI Alternative using Option A				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-07	**B**	1	142	65	61	62	1	63	0	2	0	1
ST-08	B	1	22	65.0	53.0	54.0	1.0	60.7	0	7.7	0	6.7
R08-01	B	1	14	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	408	65.0	53.0	54.0	1.0	56.5	0	3.5	0	2.5
R08-03	B	1	102	65.0	53.0	54.0	1.0	63.8	0	10.8	1	9.8
R08-04	B	1	12	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-05	B	1	51	65.0	53.0	54.0	1.0	69.0	1	16.0	1	15.0
R08-06	B	1	242	65.0	53.0	54.0	1.0	57.0	0	4.0	0	3.0
R08-07	B	2	370	65.0	53.0	54.0	1.0	54.7	0	1.7	0	0.7
NSA-08	B	9	12 - 408	65	53	54	1	55 - 69	1	2 - 16	2	1 - 15
ST-08	B	1	22	65.0	53.0	54.0	1.0	60.7	0	7.7	0	6.7
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	95	65.0	53.0	54.0	1.0	62.5	0	9.5	0	8.5
R09-03	B	3	1042	65.0	53.0	54.0	1.0	49.6	0	-3.4	0	-4.4
R09-04	B	1	383	65.0	53.0	54.0	1.0	57.0	0	4.0	0	3.0
R09-05	B	1	785	65.0	53.0	54.0	1.0	51.2	0	-1.8	0	-2.8
R09-06	B	3	1125	65.0	53.0	54.0	1.0	48.6	0	-4.4	0	-5.4
R09-07	B	1	122	65.0	53.0	54.0	1.0	59.7	0	6.7	0	5.7
R09-08	B	1	305	65.0	53.0	54.0	1.0	53.2	0	0.2	0	-0.8
R09-09	B	1	542	65.0	53.0	54.0	1.0	50.5	0	-2.5	0	-3.5
R09-10	B	1	227	65.0	53.0	54.0	1.0	53.6	0	0.6	0	-0.4
R09-11	B	2	1141	65.0	53.0	54.0	1.0	47.2	0	-5.8	0	-6.8
R09-12	B	1	556	65.0	53.0	54.0	1.0	48.7	0	-4.3	0	-5.3
R09-13	B	3	1024	65.0	53.0	54.0	1.0	44.6	0	-8.4	0	-9.4
NSA-09	B	21	22 - 1141	65	53	54	1	45 - 63	0	-8 - 10	0	-9 - 9
ST-09	B	1	90	65.0	48.9	49.9	1.0	50.2	0	1.3	0	0.3
R10-01	B	1	198	65.0	48.9	49.9	1.0	61.3	0	12.4	1	11.4
R10-02	B	1	142	65.0	48.9	49.9	1.0	52.9	0	4.0	0	3.0
NSA-10	B	3	90 - 198	65	49	50	1	50 - 61	0	1 - 12	1	0 - 11
ST-11	B	1	493	65.0	49.1	50.1	1.0	57.4	0	8.3	0	7.3
R11-01	B	3	493	65.0	49.1	50.1	1.0	56.6	0	7.5	0	6.5
NSA -11	B	4	493 - 493	65	49	50	1	57 - 57	0	8 - 8	0	7 - 7
ST-09	B	1	90	65.0	48.9	49.9	1.0	50.2	0	1.3	0	0.3
R12-01	B	1	83	65.0	48.9	49.9	1.0	49.4	0	0.5	0	-0.5

Table J-9 Noise Impacts Associated with DI Alternative using Option A

					Existing	No Build Alternative		DI Alternative using Option A				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R12-02	B	1	44	65.0	48.9	49.9	1.0	48.4	0	-0.5	0	-1.5
R12-03	B	3	1072	65.0	48.9	49.9	1.0	44.5	0	-4.4	0	-5.4
R12-04	B	1	91	65.0	48.9	49.9	1.0	47.7	0	-1.2	0	-2.2
R12-05	B	1	50	65.0	48.9	49.9	1.0	48.3	0	-0.6	0	-1.6
R12-06	B	1	12	65.0	48.9	49.9	1.0	48.9	0	0.0	0	-1.0
R12-07	B	1	278	65.0	48.9	49.9	1.0	47.0	0	-1.9	0	-2.9
R12-08	B	1	537	65.0	48.9	49.9	1.0	45.2	0	-3.7	0	-4.7
NSA -12	B	11	12 - 1072	65	49	50	1	45 - 50	0	-4 - 1	0	-5 - 0
ST-10	B	1	31	65.0	45.8	46.8	1.0	Take	Take	Take	Take	Take
R13-01	B	1	435	65.0	45.8	46.8	1.0	55.6	0	9.8	0	8.8
NSA -13	B	2	31 - 435	65	46	47	1	56 - 56	0	10 - 10	0	9 - 9
R14-01	B	1	291	65.0	50.0	51.0	1.0	62.0	0	12.0	1	11.0
NSA -14	B	1	291	65	50	51	1	62	0	12	1	11
ST-12	B	1	750	65.0	51.5	52.5	1.0	50.9	0	-0.6	0	-1.6
R15-01	B	1	15	65.0	51.5	52.5	1.0	Take	Take	Take	Take	Take
R15-02	B	1	663	65.0	51.5	52.5	1.0	53.0	0	1.5	0	0.5
NSA -15	B	3	15 - 750	65	52	53	1	51 - 53	0	-1 - 2	0	-2 - 1
ST-13	B	1	635	65.0	55.2	55.9	0.7	53.4	0	-1.8	0	-2.5
R16-01	B	1	669	65.0	56.7	57.3	0.6	54.6	0	-2.1	0	-2.7
R16-02	B	1	702	65.0	50.2	50.8	0.6	50.1	0	-0.1	0	-0.7
R16-03	B	1	146	65.0	70.7	71.1	0.4	67.5	1	-3.2	0	-3.6
R16-04	B	1	92	65.0	52.1	52.6	0.5	52.8	0	0.7	0	0.2
R16-05	B	1	390	65.0	49.4	50.0	0.6	51.6	0	2.2	0	1.6
R16-06	B	1	573	65.0	50.7	51.2	0.5	52.1	0	1.4	0	0.9
R16-07	B	1	772	65.0	48.7	49.5	0.8	49.6	0	0.9	0	0.1
R16-08	B	1	682	65.0	48.8	49.6	0.8	49.6	0	0.8	0	0.0
NSA -16	B	9	92 - 772	65	49 - 71	50 - 71	0 - 1	50 - 68	1	-3 - 2	0	-4 - 2
ST-14	E	1	547	70.0	50.6	51.7	1.1	54.9	0	4.3	0	3.2
R17-01	B	1	66	65.0	51.1	51.6	0.5	Take	Take	Take	Take	Take
NSA -17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
ST-15	B	1	790	65.0	46.6	47.6	1.0	48.6	0	2.0	0	1.0
R18-01	B	1	170	65.0	46.6	47.6	1.0	45.5	0	-1.1	0	-2.1
R18-02	B	1	419	65.0	46.6	47.6	1.0	45.2	0	-1.4	0	-2.4

Table J-9 Noise Impacts Associated with DI Alternative using Option A

					Existing	No Build Alternative		DI Alternative using Option A				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.7	0	1.1	0	0.1
NSA -18	B	4	170 - 790	65	47	48	1	45 - 49	0	-1 - 2	0	-2 - 1
ST-16	B	1	121	65.0	62.9	64.3	1.4	60.5	0	-2.4	0	-3.8
R19-01	B	1	562	65.0	49.1	50.4	1.3	49.8	0	0.7	0	-0.6
R19-02	B	1	102	65.0	65.8	67.8	2.0	67.2	1	1.4	0	-0.6
R19-03	B	1	289	65.0	54.6	56.5	1.9	58.1	0	3.5	0	1.6
R19-04	B	1	44	65.0	67.6	69.5	1.9	Take	Take	Take	Take	Take
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.6	0	1.9	0	-0.1
R19-06	B	1	439	65.0	55.9	57.9	2.0	57.4	0	1.5	0	-0.5
R19-07	B	1	582	65.0	51.4	53.5	2.1	52.7	0	1.3	0	-0.8
R19-08	B	1	383	65.0	54.3	56.2	1.9	55.6	0	1.3	0	-0.6
R19-09	B	1	263	65.0	61.1	63.1	2.0	62.6	0	1.5	0	-0.5
R19-10	B	1	114	65.0	68.9	70.8	1.9	70.8	1	1.9	0	0.0
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.8	0	1.7	0	0.0
NSA -19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		45		-8		
		Maximum			71	73		73		18		
		ODOT NAAC Impacts							10			
		Substantial Increase Impacts									5	

[a] Distance to the edge of the closest modeled roadway

Table J-10 Noise Impacts (by NSA) Associated with DI Alternative using Option A

					Existing	No Build Alternative		DI Alternative using Option A				
	Land Use Activity	Equival. Units	Roadway Distance (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 66	0	0 - 1	0	-1 - 1
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 5	0	1 - 4
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	55 - 69	0	4 - 18	1	3 - 17
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	1 - 4
NSA-7	B	1	142	65	61	62	1	63	0	2	0	1
NSA-8*	B	9	12 - 408	65	53	54	1	55 - 69	1	2 - 16	2	1 - 15
NSA-9*	B	21	22 - 1141	65	53	54	1	45 - 63	0	-8 - 10	0	-9 - 9
NSA-10*	B	3	90 - 198	65	49	50	1	50 - 61	0	1 - 12	1	0 - 11
NSA-11*	B	4	493 - 493	65	49	50	1	57 - 57	0	8 - 8	0	7 - 7
NSA-12*	B	11	12 - 1072	65	49	50	1	45 - 50	0	-4 - 1	0	-5 - 0
NSA-13*	B	2	31 - 435	65	46	47	1	56 - 56	0	10 - 10	0	9 - 9
NSA-14*	B	1	291	65	50	51	1	62	0	12	1	11
NSA-15*	B	3	15 - 750	65	52	53	1	51 - 53	0	-1 - 2	0	-2 - 1
NSA-16	B	9	92 - 772	65	49 - 71	50 - 71	0 - 1	50 - 68	1	-3 - 2	0	-4 - 2
NSA-17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
NSA-18*	B	4	170 - 790	65	47	48	1	45 - 49	0	-1 - 2	0	-2 - 1
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		45		-8		
		Maximum			71	73		73		18		
		ODOT NAAC Impacts							10			
		Substantial Increase Impacts									5	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Table J-11 Noise Impacts Associated with DI Alternative using Option B

					Existing	No Build Alternative		DI Alternative using Option B				
Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	64.1	0	1.0	0	0.2
R01-01	C	1	19	65.0	68.2	69.1	0.9	69.2	1	1.0	0	0.1
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	66.4	0	-0.2	0	-1.3
R02-01	E	1	163	70.0	48.8	49.5	0.7	50.1	0	1.3	0	0.6
R02-02	E	1	372	70.0	65.7	66.7	1.0	66.4	0	0.7	0	-0.3
NSA - 02	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 66	0	0 - 1	0	-1 - 1
ST-03	B	20	587	65.0	53.9	54.8	0.9	Take	Take	Take	Take	Take
R03-01	B	2	522	65.0	54.8	55.6	0.8	57.0	0	2.2	0	1.4
R03-02	B	2	586	65.0	53.4	54.2	0.8	58.1	0	4.7	0	3.9
R03-03	B	50	441	65.0	51.8	52.7	0.9	55.5	0	3.7	0	2.8
R03-04	B	40	623	65.0	53.2	54.0	0.8	Take	Take	Take	Take	Take
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 5	0	1 - 4
ST-04	C	1	207	65.0	51.4	52.4	1.0	58.2	0	6.8	0	5.8
R04-01	E	1	59	70.0	51.4	52.4	1.0	68.9	0	17.5	1	16.5
R04-02	E	1	424	70.0	51.4	52.4	1.0	54.9	0	3.5	0	2.5
R04-03	E	1	335	70.0	51.4	52.4	1.0	55.2	0	3.8	0	2.8
R04-04	E	1	290	70.0	51.4	52.4	1.0	58.3	0	6.9	0	5.9
NSA - 04	C/E	5	59 - 424	65/70	51	52	1	55 - 69	0	4 - 18	1	3 - 17
ST-05	B	2	18	65.0	64.4	66.9	2.5	69.8	2	5.4	0	2.9
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	69.6	1	4.6	0	2.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.2	1	2.3	0	0.5
R06-01	B	1	91	65.0	63.4	65.4	2.0	67.3	1	3.9	0	1.9
R06-02	B	1	63	65.0	50.1	52.2	2.1	55.0	0	4.9	0	2.8
R06-03	B	1	167	65.0	48.1	50.2	2.1	52.5	0	4.4	0	2.3
R06-04	B	3	313	65.0	45.3	47.2	1.9	51.0	0	5.7	0	3.8
R06-05	B	2	299	65.0	44.9	46.8	1.9	50.7	0	5.8	0	3.9
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	1 - 4
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.7	0	1.8	0	0.5
NSA-07	**B**	1	142	65	61	62	1	63	0	2	0	1

Table J-11 Noise Impacts Associated with DI Alternative using Option B

					Existing	No Build Alternative		DI Alternative using Option B				
Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-08	B	1	22	65.0	53.0	54.0	1.0	62.6	0	9.6	0	8.6
R08-01	B	1	20	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	413	65.0	53.0	54.0	1.0	56.4	0	3.4	0	2.4
R08-03	B	1	102	65.0	53.0	54.0	1.0	64.2	0	11.2	1	10.2
R08-04	B	1	23	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-05	B	1	51	65.0	53.0	54.0	1.0	68.6	1	15.6	1	14.6
R08-06	B	1	242	65.0	53.0	54.0	1.0	57.1	0	4.1	0	3.1
R08-07	B	2	370	65.0	53.0	54.0	1.0	54.6	0	1.6	0	0.6
NSA-08	B	9	20 - 413	65	53	54	1	55 - 69	1	2 - 16	2	1 - 15
ST-08	B	1	22	65.0	53.0	54.0	1.0	62.6	0	9.6	0	8.6
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	93	65.0	53.0	54.0	1.0	61.5	0	8.5	0	7.5
R09-03	B	3	1042	65.0	53.0	54.0	1.0	50.1	0	-2.9	0	-3.9
R09-04	B	1	373	65.0	53.0	54.0	1.0	58.5	0	5.5	0	4.5
R09-05	B	1	785	65.0	53.0	54.0	1.0	51.9	0	-1.1	0	-2.1
R09-06	B	3	1125	65.0	53.0	54.0	1.0	48.7	0	-4.3	0	-5.3
R09-07	B	1	122	65.0	53.0	54.0	1.0	61.5	0	8.5	0	7.5
R09-08	B	1	305	65.0	53.0	54.0	1.0	54.5	0	1.5	0	0.5
R09-09	B	1	542	65.0	53.0	54.0	1.0	50.9	0	-2.1	0	-3.1
R09-10	B	1	227	65.0	53.0	54.0	1.0	54.7	0	1.7	0	0.7
R09-11	B	2	1141	65.0	53.0	54.0	1.0	47.4	0	-5.6	0	-6.6
R09-12	B	1	556	65.0	53.0	54.0	1.0	49.3	0	-3.7	0	-4.7
R09-13	B	3	1024	65.0	53.0	54.0	1.0	44.7	0	-8.3	0	-9.3
NSA-09	B	21	22 - 1141	65	53	54	1	45 - 63	0	-8 - 10	0	-9 - 9
ST-09	B	1	90	65.0	48.9	49.9	1.0	51.0	0	2.1	0	1.1
R10-01	B	1	198	65.0	48.9	49.9	1.0	62.6	0	13.7	1	12.7
R10-02	B	1	142	65.0	48.9	49.9	1.0	53.8	0	4.9	0	3.9
NSA-10	B	3	90 - 198	65	49	50	1	51 - 63	0	2 - 14	1	1 - 13
ST-11	B	1	1346	65.0	49.1	50.1	1.0	56.3	0	7.2	0	6.2
R11-01	B	3	551	65.0	49.1	50.1	1.0	55.9	0	6.8	0	5.8
NSA - 11	B	4	551 - 1346	65	49	50	1	56 - 56	0	7 - 7	0	6 - 6
ST-09	B	1	90	65.0	48.9	49.9	1.0	51.0	0	2.1	0	1.1
R12-01	B	1	83	65.0	48.9	49.9	1.0	49.7	0	0.8	0	-0.2
R12-02	B	1	44	65.0	48.9	49.9	1.0	48.4	0	-0.5	0	-1.5

Table J-11 Noise Impacts Associated with DI Alternative using Option B

Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Existing	No Build Alternative		DI Alternative using Option B				
					Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R12-03	B	3	1072	65.0	48.9	49.9	1.0	43.8	0	-5.1	0	-6.1
R12-04	B	1	91	65.0	48.9	49.9	1.0	47.0	0	-1.9	0	-2.9
R12-05	B	1	50	65.0	48.9	49.9	1.0	46.7	0	-2.2	0	-3.2
R12-06	B	1	12	65.0	48.9	49.9	1.0	44.8	0	-4.1	0	-5.1
R12-07	B	1	278	65.0	48.9	49.9	1.0	43.8	0	-5.1	0	-6.1
R12-08	B	1	537	65.0	48.9	49.9	1.0	43.0	0	-5.9	0	-6.9
NSA - 12	B	11	12 - 1072	65	49	50	1	43 - 51	0	-6 - 2	0	-7 - 1
ST-10	B	1	1059	65.0	45.8	46.8	1.0	Take	Take	Take	Take	Take
R13-01	B	1	651	65.0	45.8	46.8	1.0	50.9	0	5.1	0	4.1
NSA - 13	B	2	651 - 1059	65	46	47	1	51 - 51	0	5 - 5	0	4 - 4
R14-01	B	1	5	65.0	50.0	51.0	1.0	73.2	1	23.2	1	22.2
NSA - 14	B	1	5	65	50	51	1	73	1	23	1	22
ST-12	B	1	1240	65.0	51.5	52.5	1.0	48.6	0	-2.9	0	-3.9
R15-01	B	1	73	65.0	51.5	52.5	1.0	63.0	0	11.5	1	10.5
R15-02	B	1	663	65.0	51.5	52.5	1.0	51.2	0	-0.3	0	-1.3
NSA - 15	B	3	73 - 1240	65	52	53	1	49 - 63	0	-3 - 12	1	-4 - 11
ST-13	B	1	635	65.0	55.2	55.9	0.7	54.9	0	-0.3	0	-1.0
R16-01	B	1	335	65.0	56.7	57.3	0.6	56.5	0	-0.2	0	-0.8
R16-02	B	1	561	65.0	50.2	50.8	0.6	52.4	0	2.2	0	1.6
R16-03	B	1	8	65.0	70.7	71.1	0.4	Take	Take	Take	Take	Take
R16-04	B	1	92	65.0	52.1	52.6	0.5	53.9	0	1.8	0	1.3
R16-05	B	1	390	65.0	49.4	50.0	0.6	51.3	0	1.9	0	1.3
R16-06	B	1	558	65.0	50.7	51.2	0.5	51.5	0	0.8	0	0.3
R16-07	B	1	576	65.0	48.7	49.5	0.8	49.3	0	0.6	0	-0.2
R16-08	B	1	487	65.0	48.8	49.6	0.8	49.5	0	0.7	0	-0.1
NSA - 16	B	9	8 - 635	65	49 - 71	50 - 71	0 - 1	49 - 57	0	0 - 2	0	-1 - 2
ST-14	E	1	547	70.0	50.6	51.7	1.1	54.8	0	4.2	0	3.1
R17-01	B	1	66	65.0	51.1	51.6	0.5	Take	Take	Take	Take	Take
NSA - 17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
ST-15	B	1	790	65.0	46.6	47.6	1.0	48.6	0	2.0	0	1.0
R18-01	B	1	170	65.0	46.6	47.6	1.0	45.5	0	-1.1	0	-2.1
R18-02	B	1	419	65.0	46.6	47.6	1.0	45.2	0	-1.4	0	-2.4
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.7	0	1.1	0	0.1

Table J-11 Noise Impacts Associated with DI Alternative using Option B

					Existing	No Build Alternative		DI Alternative using Option B				
Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA - 18	B	4	170 - 790	65	47	48	1	45 - 49	0	-1 - 2	0	-2 - 1
ST-16	B	1	121	65.0	62.9	64.3	1.4	60.5	0	-2.4	0	-3.8
R19-01	B	1	562	65.0	49.1	50.4	1.3	49.8	0	0.7	0	-0.6
R19-02	B	1	102	65.0	65.8	67.8	2.0	67.2	1	1.4	0	-0.6
R19-03	B	1	289	65.0	54.6	56.5	1.9	58.1	0	3.5	0	1.6
R19-04	B	1	44	65.0	67.6	69.5	1.9	Take	Take	Take	Take	Take
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.6	0	1.9	0	-0.1
R19-06	B	1	439	65.0	55.9	57.9	2.0	57.4	0	1.5	0	-0.5
R19-07	B	1	582	65.0	51.4	53.5	2.1	52.7	0	1.3	0	-0.8
R19-08	B	1	383	65.0	54.3	56.2	1.9	55.6	0	1.3	0	-0.6
R19-09	B	1	263	65.0	61.1	63.1	2.0	62.6	0	1.5	0	-0.5
R19-10	B	1	114	65.0	68.9	70.8	1.9	70.8	1	1.9	0	0.0
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.8	0	1.7	0	0.0
NSA - 19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		43		-8		
		Maximum			71	73		73		23		
		ODOT NAAC Impacts							10			
		Substantial Increase Impacts									6	

[a] Distance to the edge of the closest modeled roadway

Table J-12 Noise Impacts (by NSA) Associated with DI Alternative using Option B

					Existing	No Build Alternative		DI Alternative using Option B				
	Land Use Activity	Equival. Units	Roadway Distance (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 66	0	0 - 1	0	-1 - 1
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 5	0	1 - 4
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	55 - 69	0	4 - 18	1	3 - 17
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	1 - 4
NSA-7	B	1	142	65	61	62	1	63	0	2	0	1
NSA-8*	B	9	20 - 413	65	53	54	1	55 - 69	1	2 - 16	2	1 - 15
NSA-9*	B	21	22 - 1141	65	53	54	1	45 - 63	0	-8 - 10	0	-9 - 9
NSA-10*	B	3	90 - 198	65	49	50	1	51 - 63	0	2 - 14	1	1 - 13
NSA-11*	B	4	551 - 1346	65	49	50	1	56 - 56	0	7 - 7	0	6 - 6
NSA-12*	B	11	12 - 1072	65	49	50	1	43 - 51	0	-6 - 2	0	-7 - 1
NSA-13*	B	2	651 - 1059	65	46	47	1	51 - 51	0	5 - 5	0	4 - 4
NSA-14*	B	1	5	65	50	51	1	73	1	23	1	22
NSA-15*	B	3	73 - 1240	65	52	53	1	49 - 63	0	-3 - 12	1	-4 - 11
NSA-16	B	9	8 - 635	65	49 - 71	50 - 71	0 - 1	49 - 57	0	0 - 2	0	-1 - 2
NSA-17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
NSA-18*	B	4	170 - 790	65	47	48	1	45 - 49	0	-1 - 2	0	-2 - 1
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		43		-8		
		Maximum			71	73		73		23		
		ODOT NAAC Impacts							10			
		Substantial Increase Impacts									6	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Table J-13 Noise Impacts Associated with DI Alternative using Option C

					Existing	No Build Alternative		DI Alternative using Option C				
Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	64.1	0	1.0	0	0.2
R01-01	C	1	19	65.0	68.2	69.1	0.9	69.2	1	1.0	0	0.1
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	66.4	0	-0.2	0	-1.3
R02-01	E	1	163	70.0	48.8	49.5	0.7	50.1	0	1.3	0	0.6
R02-02	E	1	372	70.0	65.7	66.7	1.0	66.4	0	0.7	0	-0.3
NSA -02	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 66	0	0 - 1	0	-1 - 1
ST-03	B	20	587	65.0	53.9	54.8	0.9	Take	Take	Take	Take	Take
R03-01	B	2	522	65.0	54.8	55.6	0.8	57.0	0	2.2	0	1.4
R03-02	B	2	586	65.0	53.4	54.2	0.8	58.1	0	4.7	0	3.9
R03-03	B	50	441	65.0	51.8	52.7	0.9	55.5	0	3.7	0	2.8
R03-04	B	40	623	65.0	53.2	54.0	0.8	Take	Take	Take	Take	Take
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 5	0	1 - 4
ST-04	C	1	207	65.0	51.4	52.4	1.0	58.2	0	6.8	0	5.8
R04-01	E	1	59	70.0	51.4	52.4	1.0	68.9	0	17.5	1	16.5
R04-02	E	1	424	70.0	51.4	52.4	1.0	54.9	0	3.5	0	2.5
R04-03	E	1	335	70.0	51.4	52.4	1.0	55.2	0	3.8	0	2.8
R04-04	E	1	290	70.0	51.4	52.4	1.0	58.3	0	6.9	0	5.9
NSA -04	C/E	5	59 - 424	65/70	51	52	1	55 - 69	0	4 - 18	1	3 - 17
ST-05	B	2	18	65.0	64.4	66.9	2.5	69.8	2	5.4	0	2.9
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	69.6	1	4.6	0	2.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.2	1	2.3	0	0.5
R06-01	B	1	91	65.0	63.4	65.4	2.0	67.3	1	3.9	0	1.9
R06-02	B	1	63	65.0	50.1	52.2	2.1	55.0	0	4.9	0	2.8
R06-03	B	1	167	65.0	48.1	50.2	2.1	52.5	0	4.4	0	2.3
R06-04	B	3	313	65.0	45.3	47.2	1.9	50.8	0	5.5	0	3.6
R06-05	B	2	299	65.0	44.9	46.8	1.9	50.7	0	5.8	0	3.9
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	1 - 4
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.7	0	1.8	0	0.5
NSA-07	**B**	1	142	65	61	62	1	63	0	2	0	1

Table J-13 Noise Impacts Associated with DI Alternative using Option C

					Existing	No Build Alternative		DI Alternative using Option C				
Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-08	B	1	22	65.0	53.0	54.0	1.0	69.2	1	16.2	1	15.2
R08-01	B	1	20	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	429	65.0	53.0	54.0	1.0	56.3	0	3.3	0	2.3
R08-03	B	1	108	65.0	53.0	54.0	1.0	61.8	0	8.8	0	7.8
R08-04	B	1	24	65.0	53.0	54.0	1.0	67.3	1	14.3	1	13.3
R08-05	B	1	83	65.0	53.0	54.0	1.0	63.5	0	10.5	1	9.5
R08-06	B	1	348	65.0	53.0	54.0	1.0	54.8	0	1.8	0	0.8
R08-07	B	2	475	65.0	53.0	54.0	1.0	51.5	0	-1.5	0	-2.5
NSA-08	B	9	20 - 475	65	53	54	1	52 - 69	2	-2 - 16	3	-3 - 15
ST-08	B	1	22	65.0	53.0	54.0	1.0	69.2	1	16.2	1	15.2
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	93	65.0	53.0	54.0	1.0	61.6	0	8.6	0	7.6
R09-03	B	3	1042	65.0	53.0	54.0	1.0	50.2	0	-2.8	0	-3.8
R09-04	B	1	320	65.0	53.0	54.0	1.0	60.2	0	7.2	0	6.2
R09-05	B	1	741	65.0	53.0	54.0	1.0	52.2	0	-0.8	0	-1.8
R09-06	B	3	1103	65.0	53.0	54.0	1.0	49.0	0	-4.0	0	-5.0
R09-07	B	1	122	65.0	53.0	54.0	1.0	65.1	1	12.1	1	11.1
R09-08	B	1	305	65.0	53.0	54.0	1.0	59.1	0	6.1	0	5.1
R09-09	B	1	542	65.0	53.0	54.0	1.0	53.9	0	0.9	0	-0.1
R09-10	B	1	227	65.0	53.0	54.0	1.0	62.0	0	9.0	0	8.0
R09-11	B	2	1141	65.0	53.0	54.0	1.0	48.7	0	-4.3	0	-5.3
R09-12	B	1	556	65.0	53.0	54.0	1.0	54.7	0	1.7	0	0.7
R09-13	B	3	1024	65.0	53.0	54.0	1.0	48.6	0	-4.4	0	-5.4
NSA-09	B	21	22 - 1141	65	53	54	1	49 - 69	2	-4 - 16	2	-5 - 15
ST-09	B	1	90	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R10-01	B	1	20	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R10-02	B	1	26	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
NSA-10	B	3	20 - 90	65	49	50	1	0 - 0	0	0 - 0	0	0 - 0
ST-11	B	1	1346	65.0	49.1	50.1	1.0	48.7	0	-0.4	0	-1.4
R11-01	B	3	1294	65.0	49.1	50.1	1.0	47.7	0	-1.4	0	-2.4
NSA -11	B	4	1294 - 1346	65.0	49.0	50.0	1.0	48 - 49	0	-1 - 0	0	-2 - -1
ST-09	B	1	90	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R12-01	B	1	83	65.0	48.9	49.9	1.0	66.7	1	17.8	1	16.8
R12-02	B	1	44	65.0	48.9	49.9	1.0	68.3	1	19.4	1	18.4

Table J-13 Noise Impacts Associated with DI Alternative using Option C

Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Existing	No Build Alternative		DI Alternative using Option C				
					Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R12-03	B	3	1072	65.0	48.9	49.9	1.0	49.1	0	0.2	0	-0.8
R12-04	B	1	91	65.0	48.9	49.9	1.0	66.3	1	17.4	1	16.4
R12-05	B	1	50	65.0	48.9	49.9	1.0	67.9	1	19.0	1	18.0
R12-06	B	1	12	65.0	48.9	49.9	1.0	53.4	0	4.5	0	3.5
R12-07	B	1	278	65.0	48.9	49.9	1.0	50.7	0	1.8	0	0.8
R12-08	B	1	537	65.0	48.9	49.9	1.0	47.9	0	-1.0	0	-2.0
NSA -12	B	11	12 - 1072	65	49	50	1	48 - 68	4	-1 - 19	4	-2 - 18
ST-10	B	1	1059	65.0	45.8	46.8	1.0	50.7	0	4.9	0	3.9
R13-01	B	1	331	65.0	45.8	46.8	1.0	58.5	0	12.7	1	11.7
NSA -13	B	2	331 - 1059	65	46	47	1	51 - 59	0	5 - 13	1	4 - 12
R14-01	B	1	1417	65.0	50.0	51.0	1.0	47.0	0	-3.0	0	-4.0
NSA -14	B	1	1417	65	50	51	1	47	0	-3	0	-4
ST-12	B	1	1240	65.0	51.5	52.5	1.0	51.4	0	-0.1	0	-1.1
R15-01	B	1	26	65.0	51.5	52.5	1.0	Take	Take	Take	Take	Take
R15-02	B	1	663	65.0	51.5	52.5	1.0	53.5	0	2.0	0	1.0
NSA -15	B	3	26 - 1240	65	52	53	1	51 - 54	0	0 - 2	0	-1 - 1
ST-13	B	1	635	65.0	55.2	55.9	0.7	53.2	0	-2.0	0	-2.7
R16-01	B	1	611	65.0	56.7	57.3	0.6	54.5	0	-2.2	0	-2.8
R16-02	B	1	702	65.0	50.2	50.8	0.6	49.8	0	-0.4	0	-1.0
R16-03	B	1	53	65.0	70.7	71.1	0.4	67.5	1	-3.2	0	-3.6
R16-04	B	1	92	65.0	52.1	52.6	0.5	52.8	0	0.7	0	0.2
R16-05	B	1	390	65.0	49.4	50.0	0.6	51.5	0	2.1	0	1.5
R16-06	B	1	502	65.0	50.7	51.2	0.5	52.1	0	1.4	0	0.9
R16-07	B	1	984	65.0	48.7	49.5	0.8	49.5	0	0.8	0	0.0
R16-08	B	1	918	65.0	48.8	49.6	0.8	49.6	0	0.8	0	0.0
NSA -16	B	9	53 - 984	65	49 - 71	50 - 71	0 - 1	50 - 68	1	-3 - 2	0	-4 - 2
ST-14	E	1	547	70.0	50.6	51.7	1.1	54.9	0	4.3	0	3.2
R17-01	B	1	66	65.0	51.1	51.6	0.5	Take	Take	Take	Take	Take
NSA -17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
ST-15	B	1	790	65.0	46.6	47.6	1.0	48.6	0	2.0	0	1.0
R18-01	B	1	170	65.0	46.6	47.6	1.0	45.5	0	-1.1	0	-2.1
R18-02	B	1	419	65.0	46.6	47.6	1.0	45.2	0	-1.4	0	-2.4
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.7	0	1.1	0	0.1

Table J-13 Noise Impacts Associated with DI Alternative using Option C

Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Existing	No Build Alternative		DI Alternative using Option C				
					Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA -18	B	4	170 - 790	65	47	48	1	45 - 49	0	-1 - 2	0	-2 - 1
ST-16	B	1	121	65.0	62.9	64.3	1.4	60.5	0	-2.4	0	-3.8
R19-01	B	1	562	65.0	49.1	50.4	1.3	49.8	0	0.7	0	-0.6
R19-02	B	1	102	65.0	65.8	67.8	2.0	67.2	1	1.4	0	-0.6
R19-03	B	1	289	65.0	54.6	56.5	1.9	58.1	0	3.5	0	1.6
R19-04	B	1	44	65.0	67.6	69.5	1.9	Take	Take	Take	Take	Take
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.6	0	1.9	0	-0.1
R19-06	B	1	439	65.0	55.9	57.9	2.0	57.4	0	1.5	0	-0.5
R19-07	B	1	582	65.0	51.4	53.5	2.1	52.7	0	1.3	0	-0.8
R19-08	B	1	383	65.0	54.3	56.2	1.9	55.6	0	1.3	0	-0.6
R19-09	B	1	263	65.0	61.1	63.1	2.0	62.6	0	1.5	0	-0.5
R19-10	B	1	114	65.0	68.9	70.8	1.9	70.8	1	1.9	0	0.0
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.8	0	1.7	0	0.0
NSA -19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		45		-4		
		Maximum			71	73		73		19		
		ODOT NAAC Impacts							17			
		Substantial Increase Impacts									11	

[a] Distance to the edge of the closest modeled roadway

Table J-14 Noise Impacts (by NSA) Associated with DI Alternative using Option C

					Existing	No Build Alternative		DI Alternative using Option C				
	Land Use Activity	Equival. Units	Roadway Distance (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 66	0	0 - 1	0	-1 - 1
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	56 - 58	0	2 - 5	0	1 - 4
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	55 - 69	0	4 - 18	1	3 - 17
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	70	3	5 - 5	0	2 - 3
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	51 - 73	2	2 - 6	0	1 - 4
NSA-7	B	1	142	65	61	62	1	63	0	2	0	1
NSA-8*	B	9	20 - 475	65	53	54	1	52 - 69	2	-2 - 16	3	-3 - 15
NSA-9*	B	21	22 - 1141	65	53	54	1	49 - 69	2	-4 - 16	2	-5 - 15
NSA-10*	B	3	20 - 90	65	49	50	1	0 - 0	0	0 - 0	0	0 - 0
NSA-11*	B	4	1294 - 1346	65	49	50	1	48 - 49	0	-1 - 0	0	-2 - -1
NSA-12*	B	11	12 - 1072	65	49	50	1	48 - 68	4	-1 - 19	4	-2 - 18
NSA-13*	B	2	331 - 1059	65	46	47	1	51 - 59	0	5 - 13	1	4 - 12
NSA-14*	B	1	1417	65	50	51	1	47	0	-3	0	-4
NSA-15*	B	3	26 - 1240	65	52	53	1	51 - 54	0	0 - 2	0	-1 - 1
NSA-16	B	9	53 - 984	65	49 - 71	50 - 71	0 - 1	50 - 68	1	-3 - 2	0	-4 - 2
NSA-17	B/E	2	66 - 547	65/70	51	52	1	55 - 55	0	4 - 4	0	3 - 3
NSA-18*	B	4	170 - 790	65	47	48	1	45 - 49	0	-1 - 2	0	-2 - 1
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	50 - 71	2	-2 - 4	0	-4 - 2
Summary		Minimum			45	47		45		-4		
		Maximum			71	73		73		19		
		ODOT NAAC Impacts							17			
		Substantial Increase Impacts									11	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Table J-15 Noise Impacts Associated with JTA Phase using Option A

					Existing	No Build Alternative		JTA Phase using Option A				
Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	64.0	0	0.9	0	0.1
R01-01	C	1	19	65.0	68.2	69.1	0.9	69.2	1	1.0	0	0.1
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	67.7	0	1.1	0	0.0
R02-01	E	1	163	70.0	48.8	49.5	0.7	49.6	0	0.8	0	0.1
R02-02	E	1	372	70.0	65.7	66.7	1.0	66.8	0	1.1	0	0.1
NSA - 02	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 68	0	1 - 1	0	0 - 0
ST-03	B	20	587	65.0	53.9	54.8	0.9	54.6	0	0.7	0	-0.2
R03-01	B	2	522	65.0	54.8	55.6	0.8	55.6	0	0.8	0	0.0
R03-02	B	2	586	65.0	53.4	54.2	0.8	54.1	0	0.7	0	-0.1
R03-03	B	50	441	65.0	51.8	52.7	0.9	52.5	0	0.7	0	-0.2
R03-04	B	40	623	65.0	53.2	54.0	0.8	53.9	0	0.7	0	-0.1
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	53 - 56	0	1 - 1	0	0 - 0
ST-04	C	1	207	65.0	51.4	52.4	1.0	57.6	0	6.2	0	5.2
R04-01	E	1	59	70.0	51.4	52.4	1.0	67.6	0	16.2	1	15.2
R04-02	E	1	424	70.0	51.4	52.4	1.0	53.8	0	2.4	0	1.4
R04-03	E	1	335	70.0	51.4	52.4	1.0	54.6	0	3.2	0	2.2
R04-04	E	1	290	70.0	51.4	52.4	1.0	58.1	0	6.7	0	5.7
NSA - 04	C/E	5	59 - 424	65/70	51	52	1	54 - 68	0	2 - 16	1	1 - 15
ST-05	B	2	18	65.0	64.4	66.9	2.5	67.3	2	2.9	0	0.4
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	67.6	1	2.6	0	0.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	67 - 68	3	3 - 3	0	0 - 0
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.2	1	2.3	0	0.5
R06-01	B	1	91	65.0	63.4	65.4	2.0	65.8	1	2.4	0	0.4
R06-02	B	1	63	65.0	50.1	52.2	2.1	53.9	0	3.8	0	1.7
R06-03	B	1	167	65.0	48.1	50.2	2.1	51.7	0	3.6	0	1.5
R06-04	B	3	313	65.0	45.3	47.2	1.9	49.7	0	4.4	0	2.5
R06-05	B	2	299	65.0	44.9	46.8	1.9	49.6	0	4.7	0	2.8
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	50 - 73	2	2 - 5	0	0 - 3
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.2	0	1.3	0	0.0
NSA-07	**B**	1	142	65	61	62	1	62	0	1	0	0

Table J-15 Noise Impacts Associated with JTA Phase using Option A

					Existing	No Build Alternative		JTA Phase using Option A				
Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-08	B	1	22	65.0	53.0	54.0	1.0	55.6	0	2.6	0	1.6
R08-01	B	1	14	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	408	65.0	53.0	54.0	1.0	56.2	0	3.2	0	2.2
R08-03	B	1	102	65.0	53.0	54.0	1.0	59.7	0	6.7	0	5.7
R08-04	B	1	12	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-05	B	1	51	65.0	53.0	54.0	1.0	61.2	0	8.2	0	7.2
R08-06	B	1	242	65.0	53.0	54.0	1.0	55.8	0	2.8	0	1.8
R08-07	B	2	370	65.0	53.0	54.0	1.0	53.9	0	0.9	0	-0.1
NSA-08	B	9	12 - 408	65	53	54	1	54 - 61	0	1 - 8	0	0 - 7
ST-08	B	1	22	65.0	53.0	54.0	1.0	55.6	0	2.6	0	1.6
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	95	65.0	53.0	54.0	1.0	60.5	0	7.5	0	6.5
R09-03	B	3	1042	65.0	53.0	54.0	1.0	48.7	0	-4.3	0	-5.3
R09-04	B	1	383	65.0	53.0	54.0	1.0	55.5	0	2.5	0	1.5
R09-05	B	1	785	65.0	53.0	54.0	1.0	50.2	0	-2.8	0	-3.8
R09-06	B	3	1125	65.0	53.0	54.0	1.0	47.7	0	-5.3	0	-6.3
R09-07	B	1	122	65.0	53.0	54.0	1.0	55.4	0	2.4	0	1.4
R09-08	B	1	305	65.0	53.0	54.0	1.0	51.9	0	-1.1	0	-2.1
R09-09	B	1	542	65.0	53.0	54.0	1.0	49.6	0	-3.4	0	-4.4
R09-10	B	1	227	65.0	53.0	54.0	1.0	51.1	0	-1.9	0	-2.9
R09-11	B	2	1141	65.0	53.0	54.0	1.0	46.5	0	-6.5	0	-7.5
R09-12	B	1	556	65.0	53.0	54.0	1.0	48.6	0	-4.4	0	-5.4
R09-13	B	3	1024	65.0	53.0	54.0	1.0	44.1	0	-8.9	0	-9.9
NSA-09	B	21	22 - 1141	65	53	54	1	44 - 61	0	-9 - 8	0	-10 - 7
ST-09	B	1	90	65.0	48.9	49.9	1.0	48.2	0	-0.7	0	-1.7
R10-01	B	1	198	65.0	48.9	49.9	1.0	55.6	0	6.7	0	5.7
R10-02	B	1	142	65.0	48.9	49.9	1.0	50.0	0	1.1	0	0.1
NSA-10	B	3	90 - 198	65	49	50	1	48 - 56	0	-1 - 7	0	-2 - 6
ST-11	B	1	493	65.0	49.1	50.1	1.0	55.0	0	5.9	0	4.9
R11-01	B	3	493	65.0	49.1	50.1	1.0	54.2	0	5.1	0	4.1
NSA - 11	B	4	493 - 493	65	49	50	1	54 - 55	0	5 - 6	0	4 - 5
ST-09	B	1	90	65.0	48.9	49.9	1.0	48.2	0	-0.7	0	-1.7
R12-01	B	1	83	65.0	48.9	49.9	1.0	48.4	0	-0.5	0	-1.5
R12-02	B	1	44	65.0	48.9	49.9	1.0	47.3	0	-1.6	0	-2.6

Table J-15 Noise Impacts Associated with JTA Phase using Option A

Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Existing	No Build Alternative		JTA Phase using Option A				
					Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R12-03	B	3	1072	65.0	48.9	49.9	1.0	43.1	0	-5.8	0	-6.8
R12-04	B	1	91	65.0	48.9	49.9	1.0	46.4	0	-2.5	0	-3.5
R12-05	B	1	50	65.0	48.9	49.9	1.0	46.2	0	-2.7	0	-3.7
R12-06	B	1	12	65.0	48.9	49.9	1.0	47.9	0	-1.0	0	-2.0
R12-07	B	1	278	65.0	48.9	49.9	1.0	46.4	0	-2.5	0	-3.5
R12-08	B	1	537	65.0	48.9	49.9	1.0	44.9	0	-4.0	0	-5.0
NSA - 12	B	11	12 - 1072	65	49	50	1	43 - 48	0	-6 - -1	0	-7 - -2
ST-10	B	1	31	65.0	45.8	46.8	1.0	Take	Take	Take	Take	Take
R13-01	B	1	435	65.0	45.8	46.8	1.0	53.8	0	8.0	0	7.0
NSA - 13	B	2	31 - 435	65	46	47	1	54 - 54	0	8 - 8	0	7 - 7
R14-01	B	1	291	65.0	50.0	51.0	1.0	59.7	0	9.7	0	8.7
NSA - 14	B	1	291	65	50	51	1	60	0	10	0	9
ST-12	B	1	750	65.0	51.5	52.5	1.0	52.4	0	0.9	0	-0.1
R15-01	B	1	50	65.0	51.5	52.5	1.0	56.5	0	5.0	0	4.0
R15-02	B	1	663	65.0	51.5	52.5	1.0	53.0	0	1.5	0	0.5
NSA - 15	B	3	50 - 750	65	52	53	1	52 - 57	0	1 - 5	0	0 - 4
ST-13	B	1	635	65.0	55.2	55.9	0.7	54.3	0	-0.9	0	-1.6
R16-01	B	1	669	65.0	56.7	57.3	0.6	55.5	0	-1.2	0	-1.8
R16-02	B	1	702	65.0	50.2	50.8	0.6	51.6	0	1.4	0	0.8
R16-03	B	1	146	65.0	70.7	71.1	0.4	71.3	1	0.6	0	0.2
R16-04	B	1	92	65.0	52.1	52.6	0.5	53.4	0	1.3	0	0.8
R16-05	B	1	390	65.0	49.4	50.0	0.6	52.1	0	2.7	0	2.1
R16-06	B	1	573	65.0	50.7	51.2	0.5	52.0	0	1.3	0	0.8
R16-07	B	1	772	65.0	48.7	49.5	0.8	50.2	0	1.5	0	0.7
R16-08	B	1	682	65.0	48.8	49.6	0.8	50.3	0	1.5	0	0.7
NSA - 16	B	9	92 - 772	65	49 - 71	50 - 71	0 - 1	50 - 71	1	-1 - 3	0	-2 - 2
ST-14	E	1	547	70.0	50.6	51.7	1.1	52.2	0	1.6	0	0.5
R17-01	B	1	66	65.0	51.1	51.6	0.5	52.4	0	1.3	0	0.8
NSA - 17	B/E	2	66 - 547	65/70	51	52	1	52 - 52	0	1 - 2	0	1 - 1
ST-15	B	1	790	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-01	B	1	170	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-02	B	1	419	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0

Table J-15 Noise Impacts Associated with JTA Phase using Option A

					Existing	No Build Alternative		JTA Phase using Option A				
Reciever ID	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA - 18	B	4	170 - 790	65	47	48	1	48 - 48	0	1 - 1	0	0 - 0
ST-16	B	1	121	65.0	62.9	64.3	1.4	64.5	0	1.6	0	0.2
R19-01	B	1	562	65.0	49.1	50.4	1.3	50.6	0	1.5	0	0.2
R19-02	B	1	102	65.0	65.8	67.8	2.0	68.0	1	2.2	0	0.2
R19-03	B	1	289	65.0	54.6	56.5	1.9	56.7	0	2.1	0	0.2
R19-04	B	1	44	65.0	67.6	69.5	1.9	69.7	1	2.1	0	0.2
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.9	0	2.2	0	0.2
R19-06	B	1	439	65.0	55.9	57.9	2.0	58.1	0	2.2	0	0.2
R19-07	B	1	582	65.0	51.4	53.5	2.1	53.8	0	2.4	0	0.3
R19-08	B	1	383	65.0	54.3	56.2	1.9	56.4	0	2.1	0	0.2
R19-09	B	1	263	65.0	61.1	63.1	2.0	63.3	0	2.2	0	0.2
R19-10	B	1	114	65.0	68.9	70.8	1.9	71.0	1	2.1	0	0.2
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.9	0	1.8	0	0.1
NSA - 19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	51 - 71	3	2 - 2	0	0 - 0
Summary		Minimum			45	47		43		-9		
		Maximum			71	73		73		16		
		ODOT NAAC Impacts							10			
		Substantial Increase Impacts									1	

[a] Distance to the edge of the closest modeled roadway

Table J-16 Noise Impacts (by NSA) Associated with JTA Phase using Option A

					Existing	No Build Alternative		JTA Phase using Option A				
	Land Use Activity	Equival. Units	Roadway Distance (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 68	0	1 - 1	0	0 - 0
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	53 - 56	0	1 - 1	0	0 - 0
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	54 - 68	0	2 - 16	1	1 - 15
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	67 - 68	3	3 - 3	0	0 - 0
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	50 - 73	2	2 - 5	0	0 - 3
NSA-7	B	1	142	65	61	62	1	62	0	1	0	0
NSA-8*	B	9	12 - 408	65	53	54	1	54 - 61	0	1 - 8	0	0 - 7
NSA-9*	B	21	22 - 1141	65	53	54	1	44 - 61	0	-9 - 8	0	-10 - 7
NSA-10*	B	3	90 - 198	65	49	50	1	48 - 56	0	-1 - 7	0	-2 - 6
NSA-11*	B	4	493 - 493	65	49	50	1	54 - 55	0	5 - 6	0	4 - 5
NSA-12*	B	11	12 - 1072	65	49	50	1	43 - 48	0	-6 - -1	0	-7 - -2
NSA-13*	B	2	31 - 435	65	46	47	1	54 - 54	0	8 - 8	0	7 - 7
NSA-14*	B	1	291	65	50	51	1	60	0	10	0	9
NSA-15*	B	3	50 - 750	65	52	53	1	52 - 57	0	1 - 5	0	0 - 4
NSA-16	B	9	92 - 772	65	49 - 71	50 - 71	0 - 1	50 - 71	1	-1 - 3	0	-2 - 2
NSA-17	B/E	2	66 - 547	65/70	51	52	1	52 - 52	0	1 - 2	0	1 - 1
NSA-18*	B	4	170 - 790	65	47	48	1	48 - 48	0	1 - 1	0	0 - 0
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	51 - 71	3	2 - 2	0	0 - 0
Summary		Minimum			45	47		43		-9		
		Maximum			71	73		73		16		
		ODOT NAAC Impacts							10			
		Substantial Increase Impacts									1	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Table J-17 Noise Impacts Associated with JTA Phase using Option B

					Existing	No Build Alternative		JTA Phase using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	64.0	0	0.9	0	0.1
R01-01	C	1	19	65.0	68.2	69.1	0.9	69.2	1	1.0	0	0.1
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	67.7	0	1.1	0	0.0
R02-01	E	1	163	70.0	48.8	49.5	0.7	49.6	0	0.8	0	0.1
R02-02	E	1	372	70.0	65.7	66.7	1.0	66.8	0	1.1	0	0.1
NSA - 02	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 68	0	1 - 1	0	0 - 0
ST-03	B	20	587	65.0	53.9	54.8	0.9	54.6	0	0.7	0	-0.2
R03-01	B	2	522	65.0	54.8	55.6	0.8	55.6	0	0.8	0	0.0
R03-02	B	2	586	65.0	53.4	54.2	0.8	54.1	0	0.7	0	-0.1
R03-03	B	50	441	65.0	51.8	52.7	0.9	52.5	0	0.7	0	-0.2
R03-04	B	40	623	65.0	53.2	54.0	0.8	53.9	0	0.7	0	-0.1
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	53 - 56	0	1 - 1	0	0 - 0
ST-04	C	1	207	65.0	51.4	52.4	1.0	56.7	0	5.3	0	4.3
R04-01	E	1	59	70.0	51.4	52.4	1.0	68.7	0	17.3	1	16.3
R04-02	E	1	424	70.0	51.4	52.4	1.0	53.8	0	2.4	0	1.4
R04-03	E	1	335	70.0	51.4	52.4	1.0	55.0	0	3.6	0	2.6
R04-04	E	1	290	70.0	51.4	52.4	1.0	59.0	0	7.6	0	6.6
NSA - 04	C/E	5	59 - 424	65/70	51	52	1	54 - 69	0	2 - 17	1	1 - 16
ST-05	B	2	18	65.0	64.4	66.9	2.5	67.3	2	2.9	0	0.4
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	67.6	1	2.6	0	0.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	67 - 68	3	3 - 3	0	0 - 0
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.2	1	2.3	0	0.5
R06-01	B	1	91	65.0	63.4	65.4	2.0	65.8	1	2.4	0	0.4
R06-02	B	1	63	65.0	50.1	52.2	2.1	54.0	0	3.9	0	1.8

Table J-17 Noise Impacts Associated with JTA Phase using Option B

					Existing	No Build Alternative		JTA Phase using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R06-03	B	1	167	65.0	48.1	50.2	2.1	51.9	0	3.8	0	1.7
R06-04	B	3	313	65.0	45.3	47.2	1.9	50.0	0	4.7	0	2.8
R06-05	B	2	299	65.0	44.9	46.8	1.9	50.0	0	5.1	0	3.2
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	50 - 73	2	2 - 5	0	0 - 3
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.2	0	1.3	0	0.0
NSA-07	**B**	1	142	65	61	62	1	62	0	1	0	0
ST-08	B	1	22	65.0	53.0	54.0	1.0	55.6	0	2.6	0	1.6
R08-01	B	1	20	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	413	65.0	53.0	54.0	1.0	55.6	0	2.6	0	1.6
R08-03	B	1	102	65.0	53.0	54.0	1.0	58.8	0	5.8	0	4.8
R08-04	B	1	23	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-05	B	1	51	65.0	53.0	54.0	1.0	60.1	0	7.1	0	6.1
R08-06	B	1	242	65.0	53.0	54.0	1.0	55.2	0	2.2	0	1.2
R08-07	B	2	370	65.0	53.0	54.0	1.0	53.4	0	0.4	0	-0.6
NSA-08	B	9	20 - 413	65	53	54	1	53 - 60	0	0 - 7	0	-1 - 6
ST-08	B	1	22	65.0	53.0	54.0	1.0	55.6	0	2.6	0	1.6
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	93	65.0	53.0	54.0	1.0	60.0	0	7.0	0	6.0
R09-03	B	3	1042	65.0	53.0	54.0	1.0	49.3	0	-3.7	0	-4.7
R09-04	B	1	373	65.0	53.0	54.0	1.0	54.5	0	1.5	0	0.5
R09-05	B	1	785	65.0	53.0	54.0	1.0	50.5	0	-2.5	0	-3.5
R09-06	B	3	1125	65.0	53.0	54.0	1.0	49.0	0	-4.0	0	-5.0
R09-07	B	1	122	65.0	53.0	54.0	1.0	55.1	0	2.1	0	1.1
R09-08	B	1	305	65.0	53.0	54.0	1.0	51.9	0	-1.1	0	-2.1
R09-09	B	1	542	65.0	53.0	54.0	1.0	50.3	0	-2.7	0	-3.7
R09-10	B	1	227	65.0	53.0	54.0	1.0	51.2	0	-1.8	0	-2.8

Table J-17 Noise Impacts Associated with JTA Phase using Option B

					Existing	No Build Alternative		JTA Phase using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R09-11	B	2	1141	65.0	53.0	54.0	1.0	47.1	0	-5.9	0	-6.9
R09-12	B	1	556	65.0	53.0	54.0	1.0	49.2	0	-3.8	0	-4.8
R09-13	B	3	1024	65.0	53.0	54.0	1.0	45.6	0	-7.4	0	-8.4
NSA-09	B	21	22 - 1141	65	53	54	1	46 - 60	0	-7 - 7	0	-8 - 6
ST-09	B	1	90	65.0	48.9	49.9	1.0	49.1	0	0.2	0	-0.8
R10-01	B	1	198	65.0	48.9	49.9	1.0	55.3	0	6.4	0	5.4
R10-02	B	1	142	65.0	48.9	49.9	1.0	50.6	0	1.7	0	0.7
NSA-10	B	3	90 - 198	65	49	50	1	49 - 55	0	0 - 6	0	-1 - 5
ST-11	B	1	1346	65.0	49.1	50.1	1.0	53.2	0	4.1	0	3.1
R11-01	B	3	551	65.0	49.1	50.1	1.0	53.0	0	3.9	0	2.9
NSA - 11	B	4	551 - 1346	65	49	50	1	53 - 53	0	4 - 4	0	3 - 3
ST-09	B	1	90	65.0	48.9	49.9	1.0	49.1	0	0.2	0	-0.8
R12-01	B	1	83	65.0	48.9	49.9	1.0	49.4	0	0.5	0	-0.5
R12-02	B	1	44	65.0	48.9	49.9	1.0	47.9	0	-1.0	0	-2.0
R12-03	B	3	1072	65.0	48.9	49.9	1.0	43.3	0	-5.6	0	-6.6
R12-04	B	1	91	65.0	48.9	49.9	1.0	46.9	0	-2.0	0	-3.0
R12-05	B	1	50	65.0	48.9	49.9	1.0	46.6	0	-2.3	0	-3.3
R12-06	B	1	12	65.0	48.9	49.9	1.0	45.4	0	-3.5	0	-4.5
R12-07	B	1	278	65.0	48.9	49.9	1.0	44.0	0	-4.9	0	-5.9
R12-08	B	1	537	65.0	48.9	49.9	1.0	43.1	0	-5.8	0	-6.8
NSA - 12	B	11	12 - 1072	65	49	50	1	43 - 49	0	-6 - 1	0	-7 - -1
ST-10	B	1	1059	65.0	45.8	46.8	1.0	Take	Take	Take	Take	Take
R13-01	B	1	651	65.0	45.8	46.8	1.0	50.1	0	4.3	0	3.3
NSA - 13	B	2	651 - 1059	65	46	47	1	50 - 50	0	4 - 4	0	3 - 3
R14-01	B	1	5	65.0	50.0	51.0	1.0	70.7	1	20.7	1	19.7
NSA - 14	B	1	5	65	50	51	1	71	1	21	1	20
ST-12	B	1	1240	65.0	51.5	52.5	1.0	51.3	0	-0.2	0	-1.2

Table J-17 Noise Impacts Associated with JTA Phase using Option B

					Existing	No Build Alternative		JTA Phase using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R15-01	B	1	73	65.0	51.5	52.5	1.0	56.1	0	4.6	0	3.6
R15-02	B	1	663	65.0	51.5	52.5	1.0	52.0	0	0.5	0	-0.5
NSA - 15	B	3	73 - 1240	65	52	53	1	51 - 56	0	0 - 5	0	-1 - 4
ST-13	B	1	635	65.0	55.2	55.9	0.7	54.3	0	-0.9	0	-1.6
R16-01	B	1	335	65.0	56.7	57.3	0.6	55.4	0	-1.3	0	-1.9
R16-02	B	1	561	65.0	50.2	50.8	0.6	51.5	0	1.3	0	0.7
R16-03	B	1	8	65.0	70.7	71.1	0.4	71.3	1	0.6	0	0.2
R16-04	B	1	92	65.0	52.1	52.6	0.5	53.8	0	1.7	0	1.2
R16-05	B	1	390	65.0	49.4	50.0	0.6	52.1	0	2.7	0	2.1
R16-06	B	1	558	65.0	50.7	51.2	0.5	52.0	0	1.3	0	0.8
R16-07	B	1	576	65.0	48.7	49.5	0.8	50.3	0	1.6	0	0.8
R16-08	B	1	487	65.0	48.8	49.6	0.8	50.4	0	1.6	0	0.8
NSA - 16	B	9	8 - 635	65	49 - 71	50 - 71	0 - 1	50 - 71	1	-1 - 3	0	-2 - 2
ST-14	E	1	547	70.0	50.6	51.7	1.1	52.2	0	1.6	0	0.5
R17-01	B	1	66	65.0	51.1	51.6	0.5	52.4	0	1.3	0	0.8
NSA - 17	B/E	2	66 - 547	65/70	51	52	1	52 - 52	0	1 - 2	0	1 - 1
ST-15	B	1	790	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-01	B	1	170	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-02	B	1	419	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
NSA - 18	B	4	170 - 790	65	47	48	1	48 - 48	0	1 - 1	0	0 - 0
ST-16	B	1	121	65.0	62.9	64.3	1.4	64.5	0	1.6	0	0.2
R19-01	B	1	562	65.0	49.1	50.4	1.3	50.6	0	1.5	0	0.2
R19-02	B	1	102	65.0	65.8	67.8	2.0	68.0	1	2.2	0	0.2
R19-03	B	1	289	65.0	54.6	56.5	1.9	56.7	0	2.1	0	0.2
R19-04	B	1	44	65.0	67.6	69.5	1.9	69.7	1	2.1	0	0.2
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.9	0	2.2	0	0.2

Table J-17 Noise Impacts Associated with JTA Phase using Option B

					Existing	No Build Alternative		JTA Phase using Option B				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R19-06	B	1	439	65.0	55.9	57.9	2.0	58.1	0	2.2	0	0.2
R19-07	B	1	582	65.0	51.4	53.5	2.1	53.8	0	2.4	0	0.3
R19-08	B	1	383	65.0	54.3	56.2	1.9	56.4	0	2.1	0	0.2
R19-09	B	1	263	65.0	61.1	63.1	2.0	63.3	0	2.2	0	0.2
R19-10	B	1	114	65.0	68.9	70.8	1.9	71.0	1	2.1	0	0.2
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.9	0	1.8	0	0.1
NSA - 19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	51 - 71	3	2 - 2	0	0 - 0
Summary		Minimum			45	47		43		-7		
		Maximum			71	73		73		21		
		ODOT NAAC Impacts							11			
		Substantial Increase Impacts									2	

[a] Distance to the edge of the closest modeled roadway

Table J-18 Noise Impacts (by NSA) Associated with JTA Phase using Option B

					Existing	No Build Alternative		JTA Phase using Option B				
	Land Use Activity	Equival. Units	Roadway Distance (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 68	0	1 - 1	0	0 - 0
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	53 - 56	0	1 - 1	0	0 - 0
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	54 - 69	0	2 - 17	1	1 - 16
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	67 - 68	3	3 - 3	0	0 - 0
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	50 - 73	2	2 - 5	0	0 - 3
NSA-7	B	1	142	65	61	62	1	62	0	1	0	0
NSA-8*	B	9	20 - 413	65	53	54	1	53 - 60	0	0 - 7	0	-1 - 6
NSA-9*	B	21	22 - 1141	65	53	54	1	46 - 60	0	-7 - 7	0	-8 - 6
NSA-10*	B	3	90 - 198	65	49	50	1	49 - 55	0	0 - 6	0	-1 - 5
NSA-11*	B	4	551 - 1346	65	49	50	1	53 - 53	0	4 - 4	0	3 - 3
NSA-12*	B	11	12 - 1072	65	49	50	1	43 - 49	0	-6 - 1	0	-7 - -1
NSA-13*	B	2	651 - 1059	65	46	47	1	50 - 50	0	4 - 4	0	3 - 3
NSA-14*	B	1	5	65	50	51	1	71	1	21	1	20
NSA-15*	B	3	73 - 1240	65	52	53	1	51 - 56	0	0 - 5	0	-1 - 4
NSA-16	B	9	8 - 635	65	49 - 71	50 - 71	0 - 1	50 - 71	1	-1 - 3	0	-2 - 2
NSA-17	B/E	2	66 - 547	65/70	51	52	1	52 - 52	0	1 - 2	0	1 - 1
NSA-18*	B	4	170 - 790	65	47	48	1	48 - 48	0	1 - 1	0	0 - 0
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	51 - 71	3	2 - 2	0	0 - 0
Summary		Minimum			45	47		43		-7		
		Maximum			71	73		73		21		
		ODOT NAAC Impacts							11			
		Substantial Increase Impacts									2	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Table J-19 Noise Impacts Associated with JTA Phase using Option C

					Existing	No Build Alternative		JTA Phase using Option C				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
ST-01	C	1	58	65.0	63.1	63.9	0.8	64.0	0	0.9	0	0.1
R01-01	C	1	19	65.0	68.2	69.1	0.9	69.2	1	1.0	0	0.1
NSA-01	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
ST-02	E	1	203	70.0	66.6	67.7	1.1	67.7	0	1.1	0	0.0
R02-01	E	1	163	70.0	48.8	49.5	0.7	49.6	0	0.8	0	0.1
R02-02	E	1	372	70.0	65.7	66.7	1.0	66.8	0	1.1	0	0.1
NSA - 02	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 68	0	1 - 1	0	0 - 0
ST-03	B	20	587	65.0	53.9	54.8	0.9	54.6	0	0.7	0	-0.2
R03-01	B	2	522	65.0	54.8	55.6	0.8	55.6	0	0.8	0	0.0
R03-02	B	2	586	65.0	53.4	54.2	0.8	54.1	0	0.7	0	-0.1
R03-03	B	50	441	65.0	51.8	52.7	0.9	52.5	0	0.7	0	-0.2
R03-04	B	40	623	65.0	53.2	54.0	0.8	53.9	0	0.7	0	-0.1
NSA-03	B	114	441 - 623	65	52 - 55	53 - 56	1	53 - 56	0	1 - 1	0	0 - 0
ST-04	C	1	207	65.0	51.4	52.4	1.0	56.8	0	5.4	0	4.4
R04-01	E	1	59	70.0	51.4	52.4	1.0	68.8	0	17.4	1	16.4
R04-02	E	1	424	70.0	51.4	52.4	1.0	54.4	0	3.0	0	2.0
R04-03	E	1	335	70.0	51.4	52.4	1.0	54.5	0	3.1	0	2.1
R04-04	E	1	290	70.0	51.4	52.4	1.0	57.9	0	6.5	0	5.5
NSA - 04	C/E	5	59 - 424	65/70	51	52	1	54 - 69	0	3 - 17	1	2 - 16
ST-05	B	2	18	65.0	64.4	66.9	2.5	67.3	2	2.9	0	0.4
R05-01	B	1	5	65.0	65.2	67.6	2.4	Take	Take	Take	Take	Take
R05-02	B	1	7	65.0	65.2	67.5	2.3	Take	Take	Take	Take	Take
R05-03	B	1	12	65.0	65.0	67.4	2.4	67.6	1	2.6	0	0.2
NSA-05	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	67 - 68	3	3 - 3	0	0 - 0
ST-06	B	1	21	65.0	70.9	72.7	1.8	73.2	1	2.3	0	0.5
R06-01	B	1	91	65.0	63.4	65.4	2.0	65.8	1	2.4	0	0.4
R06-02	B	1	63	65.0	50.1	52.2	2.1	54.0	0	3.9	0	1.8

Table J-19 Noise Impacts Associated with JTA Phase using Option C

					Existing	No Build Alternative		JTA Phase using Option C				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R06-03	B	1	167	65.0	48.1	50.2	2.1	51.8	0	3.7	0	1.6
R06-04	B	3	313	65.0	45.3	47.2	1.9	49.6	0	4.3	0	2.4
R06-05	B	2	299	65.0	44.9	46.8	1.9	49.7	0	4.8	0	2.9
NSA-06	B	9	21 - 313	65	45 - 71	47 - 73	2	50 - 73	2	2 - 5	0	0 - 3
ST-07	B	1	142	65.0	60.9	62.2	1.3	62.2	0	1.3	0	0.0
NSA-07	**B**	1	142	65	61	62	1	62	0	1	0	0
ST-08	B	1	22	65.0	53.0	54.0	1.0	64.8	0	11.8	1	10.8
R08-01	B	1	20	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R08-02	B	1	429	65.0	53.0	54.0	1.0	56.0	0	3.0	0	2.0
R08-03	B	1	108	65.0	53.0	54.0	1.0	61.0	0	8.0	0	7.0
R08-04	B	1	24	65.0	53.0	54.0	1.0	65.4	1	12.4	1	11.4
R08-05	B	1	83	65.0	53.0	54.0	1.0	61.6	0	8.6	0	7.6
R08-06	B	1	348	65.0	53.0	54.0	1.0	52.7	0	-0.3	0	-1.3
R08-07	B	2	475	65.0	53.0	54.0	1.0	50.1	0	-2.9	0	-3.9
NSA-08	B	9	20 - 475	65	53	54	1	50 - 65	1	-3 - 12	2	-4 - 11
ST-08	B	1	22	65.0	53.0	54.0	1.0	64.8	0	11.8	1	10.8
R09-01	B	1	81	65.0	53.0	54.0	1.0	Take	Take	Take	Take	Take
R09-02	B	1	93	65.0	53.0	54.0	1.0	63.9	0	10.9	1	9.9
R09-03	B	3	1042	65.0	53.0	54.0	1.0	48.1	0	-4.9	0	-5.9
R09-04	B	1	320	65.0	53.0	54.0	1.0	58.7	0	5.7	0	4.7
R09-05	B	1	741	65.0	53.0	54.0	1.0	50.6	0	-2.4	0	-3.4
R09-06	B	3	1103	65.0	53.0	54.0	1.0	47.3	0	-5.7	0	-6.7
R09-07	B	1	122	65.0	53.0	54.0	1.0	63.2	0	10.2	1	9.2
R09-08	B	1	305	65.0	53.0	54.0	1.0	56.9	0	3.9	0	2.9
R09-09	B	1	542	65.0	53.0	54.0	1.0	52.2	0	-0.8	0	-1.8
R09-10	B	1	227	65.0	53.0	54.0	1.0	59.9	0	6.9	0	5.9
R09-	B	2	1141	65.0	53.0	54.0	1.0	46.8	0	-6.2	0	-7.2

Table J-19 Noise Impacts Associated with JTA Phase using Option C

11	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Existing	No Build Alternative		JTA Phase using Option C				
					Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R09-12	B	1	556	65.0	53.0	54.0	1.0	52.6	0	-0.4	0	-1.4
R09-13	B	3	1024	65.0	53.0	54.0	1.0	46.7	0	-6.3	0	-7.3
NSA-09	B	21	22 - 1141	65	53	54	1	47 - 65	0	-6 - 12	3	-7 - 11
ST-09	B	1	90	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R10-01	B	1	20	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R10-02	B	1	26	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
NSA-10	B	3	20 - 90	65	49	50	1	0 - 0	0	0 - 0	0	0 - 0
ST-11	B	1	1346	65.0	49.1	50.1	1.0	46.0	0	-3.1	0	-4.1
R11-01	B	3	1294	65.0	49.1	50.1	1.0	45.0	0	-4.1	0	-5.1
NSA - 11	B	4	1294 - 1346	65	49	50	1	45 - 46	0	-4 - -3	0	-5 - -4
ST-09	B	1	90	65.0	48.9	49.9	1.0	Take	Take	Take	Take	Take
R12-01	B	1	83	65.0	48.9	49.9	1.0	64.4	0	15.5	1	14.5
R12-02	B	1	44	65.0	48.9	49.9	1.0	65.9	1	17.0	1	16.0
R12-03	B	3	1072	65.0	48.9	49.9	1.0	46.8	0	-2.1	0	-3.1
R12-04	B	1	91	65.0	48.9	49.9	1.0	63.9	0	15.0	1	14.0
R12-05	B	1	50	65.0	48.9	49.9	1.0	65.0	0	16.1	1	15.1
R12-06	B	1	12	65.0	48.9	49.9	1.0	51.9	0	3.0	0	2.0
R12-07	B	1	278	65.0	48.9	49.9	1.0	49.6	0	0.7	0	-0.3
R12-08	B	1	537	65.0	48.9	49.9	1.0	47.1	0	-1.8	0	-2.8
NSA - 12	B	11	12 - 1072	65	49	50	1	47 - 66	1	-2 - 17	4	-3 - 16
ST-10	B	1	1059	65.0	45.8	46.8	1.0	48.3	0	2.5	0	1.5
R13-01	B	1	331	65.0	45.8	46.8	1.0	56.5	0	10.7	1	9.7
NSA - 13	B	2	331 - 1059	65	46	47	1	48 - 57	0	3 - 11	1	2 - 10
R14-01	B	1	1417	65.0	50.0	51.0	1.0	45.9	0	-4.1	0	-5.1
NSA - 14	B	1	1417	65	50	51	1	46	0	-4	0	-5
ST-12	B	1	1240	65.0	51.5	52.5	1.0	55.2	0	3.7	0	2.7

Table J-19 Noise Impacts Associated with JTA Phase using Option C

					Existing	No Build Alternative		JTA Phase using Option C				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R15-01	B	1	26	65.0	51.5	52.5	1.0	Take	Take	Take	Take	Take
R15-02	B	1	663	65.0	51.5	52.5	1.0	55.9	0	4.4	0	3.4
NSA - 15	B	3	26 - 1240	65	52	53	1	55 - 56	0	4 - 4	0	3 - 3
ST-13	B	1	635	65.0	55.2	55.9	0.7	54.3	0	-0.9	0	-1.6
R16-01	B	1	611	65.0	56.7	57.3	0.6	55.3	0	-1.4	0	-2.0
R16-02	B	1	702	65.0	50.2	50.8	0.6	52.2	0	2.0	0	1.4
R16-03	B	1	53	65.0	70.7	71.1	0.4	71.3	1	0.6	0	0.2
R16-04	B	1	92	65.0	52.1	52.6	0.5	55.2	0	3.1	0	2.6
R16-05	B	1	390	65.0	49.4	50.0	0.6	51.9	0	2.5	0	1.9
R16-06	B	1	502	65.0	50.7	51.2	0.5	52.0	0	1.3	0	0.8
R16-07	B	1	984	65.0	48.7	49.5	0.8	50.3	0	1.6	0	0.8
R16-08	B	1	918	65.0	48.8	49.6	0.8	50.3	0	1.5	0	0.7
NSA - 16	B	9	53 - 984	65	49 - 71	50 - 71	0 - 1	50 - 71	1	-1 - 3	0	-2 - 3
ST-14	E	1	547	70.0	50.6	51.7	1.1	52.2	0	1.6	0	0.5
R17-01	B	1	66	65.0	51.1	51.6	0.5	52.4	0	1.3	0	0.8
NSA - 17	B/E	2	66 - 547	65/70	51	52	1	52 - 52	0	1 - 2	0	1 - 1
ST-15	B	1	790	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-01	B	1	170	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-02	B	1	419	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
R18-03	B	1	174	65.0	46.6	47.6	1.0	47.6	0	1.0	0	0.0
NSA - 18	B	4	170 - 790	65	47	48	1	48 - 48	0	1 - 1	0	0 - 0
ST-16	B	1	121	65.0	62.9	64.3	1.4	64.5	0	1.6	0	0.2
R19-01	B	1	562	65.0	49.1	50.4	1.3	50.6	0	1.5	0	0.2
R19-02	B	1	102	65.0	65.8	67.8	2.0	68.0	1	2.2	0	0.2
R19-03	B	1	289	65.0	54.6	56.5	1.9	56.7	0	2.1	0	0.2
R19-04	B	1	44	65.0	67.6	69.5	1.9	69.7	1	2.1	0	0.2
R19-05	B	1	366	65.0	59.7	61.7	2.0	61.9	0	2.2	0	0.2

Table J-19 Noise Impacts Associated with JTA Phase using Option C

					Existing	No Build Alternative		JTA Phase using Option C				
	Land Use Activity	Equival. Units	Roadway Distance[a] (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
R19-06	B	1	439	65.0	55.9	57.9	2.0	58.1	0	2.2	0	0.2
R19-07	B	1	582	65.0	51.4	53.5	2.1	53.8	0	2.4	0	0.3
R19-08	B	1	383	65.0	54.3	56.2	1.9	56.4	0	2.1	0	0.2
R19-09	B	1	263	65.0	61.1	63.1	2.0	63.3	0	2.2	0	0.2
R19-10	B	1	114	65.0	68.9	70.8	1.9	71.0	1	2.1	0	0.2
R19-11	B	1	422	65.0	58.1	59.8	1.7	59.9	0	1.8	0	0.1
NSA - 19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	51 - 71	3	2 - 2	0	0 - 0
Summary		Minimum			45	47		45		-6		
		Maximum			71	73		73		17		
		ODOT NAAC Impacts							12			
		Substantial Increase Impacts									11	

[a] Distance to the edge of the closest modeled roadway

Table J-20 Noise Impacts (by NSA) Associated with JTA Phase using Option C

					Existing	No Build Alternative		JTA Phase using Option C				
NSA ID	Land Use Activity	Equival. Units	Roadway Distance (feet)	ODOT NAAC	Level	Level	Increase over Existing	Level	ODOT NAAC Impacts	Increase over Existing	Substan. Increase Impacts	Increase over No Build
NSA-1	C	2	19 - 58	65	63 - 68	64 - 69	1	64 - 69	1	1 - 1	0	0 - 0
NSA-2	E	3	163 - 372	70	49 - 67	50 - 68	1	50 - 68	0	1 - 1	0	0 - 0
NSA-3	B	114	441 - 623	65	52 - 55	53 - 56	1	53 - 56	0	1 - 1	0	0 - 0
NSA-4*	C/E	5	59 - 424	65/70	51	52	1	54 - 69	0	3 - 17	1	2 - 16
NSA-5	B	5	5 - 18	65	64 - 65	67 - 68	2 - 3	67 - 68	3	3 - 3	0	0 - 0
NSA-6	B	9	21 - 313	65	45 - 71	47 - 73	2	50 - 73	2	2 - 5	0	0 - 3
NSA-7	B	1	142	65	61	62	1	62	0	1	0	0
NSA-8*	B	9	20 - 475	65	53	54	1	50 - 65	1	-3 - 12	2	-4 - 11
NSA-9*	B	21	22 - 1141	65	53	54	1	47 - 65	0	-6 - 12	3	-7 - 11
NSA-10*	B	3	20 - 90	65	49	50	1	0 - 0	0	0 - 0	0	0 - 0
NSA-11*	B	4	1294 - 1346	65	49	50	1	45 - 46	0	-4 - -3	0	-5 - -4
NSA-12*	B	11	12 - 1072	65	49	50	1	47 - 66	1	-2 - 17	4	-3 - 16
NSA-13*	B	2	331 - 1059	65	46	47	1	48 - 57	0	3 - 11	1	2 - 10
NSA-14*	B	1	1417	65	50	51	1	46	0	-4	0	-5
NSA-15*	B	3	26 - 1240	65	52	53	1	55 - 56	0	4 - 4	0	3 - 3
NSA-16	B	9	53 - 984	65	49 - 71	50 - 71	0 - 1	50 - 71	1	-1 - 3	0	-2 - 3
NSA-17	B/E	2	66 - 547	65/70	51	52	1	52 - 52	0	1 - 2	0	1 - 1
NSA-18*	B	4	170 - 790	65	47	48	1	48 - 48	0	1 - 1	0	0 - 0
NSA-19	B	12	44 - 582	65	49 - 69	50 - 71	1 - 2	51 - 71	3	2 - 2	0	0 - 0
Summary		Minimum			45	47		45		-6		
		Maximum			71	73		73		17		
		ODOT NAAC Impacts							12			
		Substantial Increase Impacts									11	

[a] Distance to the edge of the closest modeled roadway

* Existing levels for this NSA are based on field measurement data

Appendix K USDOT, FHWA and ODOT Efforts Related to Climate Change

FHWA Activities

FHWA acknowledges the complexity of climate change and focuses resources on supporting transportation and climate change research and disseminating the results, providing technical assistance to stakeholders, and coordinating its activities within US Department of Transportation and with other federal agencies in the areas of mitigation, adaptation and sustainability. FHWA's Climate Change website, http://www.fhwa.dot.gov/environment/climate_change/, provides the most up-to-date information on climate change activities.

FHWA is committed to improving transportation mobility and safety while protecting the environment, reducing GHG emissions, and preparing for climate change effects on the transportation system. FHWA is actively involved in efforts to initiate, collect, and disseminate climate-change-related research and to provide technical assistance to stakeholders. FHWA is also involved in climate change initiatives with the U.S. DOT Center for Climate Change and Environmental Forecasting and other partners.

The following list of activities was taken from FHWA website in summer and autumn 2009.

Technical Assistance

- *Modeling Assistance* – The FHWA Resource Center Air Quality Technical Services Team can provide assistance with the use of existing and new models and tools to analyze greenhouse gas emissions, including a workshop on the US Environmental Protection Agency's MOVES Model. For more information and contacts please refer to the FHWA Resource Center Air Quality. Team web site at: http://www.fhwa.dot.gov/resourcecenter/teams/airquality/index.cfm.

Outreach/Education:

- *American Association of State Highway and Transportation Officials (*AASHTO*) Center for Environmental Excellence Climate Change Webinars* – FHWA is partnering with AASHTO's Center for Environmental Excellence to conduct a series of webinars on Climate Change in 2010. For more information, contact Diane Turchetta (Diane.Turchetta@dot.gov or 202-493-0158).

- *U.S. Department of Transportation's Center forTransportation and Climate Change Clearinghouse* is a "one-stop" source of information for the transportation community on transportation and climate change issues and is located at http://www.climate.dot.gov/about-the-center.html. For more information, contact Diane Turchetta (Diane.Turchetta@dot.gov or 202-493-0158) or Kathy Daniel (Kathy.Daniel@dot.gov or 202-366-6276).

- *Summary Report:* FHWA/AASHTO *Peer Workshop on Climate Change Adaptation (December 2008)* – FHWA, in partnership with AASHTO, conducted a Peer Exchange on Climate Change Adaptation in Washington, DC. The peer

exchange was an opportunity for senior representatives of selected state Department of Transportations to share experiences and learn from one another regarding adaptation issues. For more information, contact Rob Ritter (Robert.Ritter@dot.gov or 202-493-2139).

- *Transportation and Climate Change News* is a monthly newsletter that provides transportation stakeholders with up-to-date information on transportation and climate change milestones. These newsletters are available at http://www.fhwa.dot.gov/environment/climate_change/newsletter/. For more information, contact Becky Lupes (Rebecca.Lupes@dot.gov or 202-366-7808).

Intra-agency and Interagency Coordination:

- FHWA *Working Group on Adaptation of Transportation Infrastructure to Climate Change Effects* – FHWA has formed an internal working group to begin coordinating, leading and implementing agency activities on adaptation to address the various program, policy and technical challenges that the impacts of climate change will present to the transportation industry. For more information, contact Mike Culp (Michael.Culp@dot.gov or 202-366-9229).
- USDOT *Center for Climate Change and Environmental Forecasting* - FHWA is a member of this multi-modal effort to research and evaluate transportation strategies to reduce greenhouse gases and to prepare for the potential effects of climate change on transportation systems.

Ongoing/Current Research:

- *Adaptation Conceptual Model Pilots* – This project will fund pilots for Departments of Transportation and Metropolitan Planning Organizations to implement a conceptual model to use in conducting vulnerability and risk assessments of infrastructure to the projected impacts of global climate change. The purpose of the pilots is twofold: 1) to assist State Departments of Transportation and Metropolitan Planning Organizations to more quickly advance existing adaptation assessment activities and 2) to assist FHWA in “test-driving” the model. Based on the feedback received through the pilots, FHWA will revise and finalize the model for national application.

- *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 Metropolitan Planning Organizations 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. For more information, contact Rob Kafalenos (Robert.Kafalenos@dot.gov or 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,

greenhouse gas emissions, global climate change, local air quality, fatalities and injuries, congestion, noise pollution, low mobility, ecosystem damage and lack of equity. For more information, contact Diane Turchetta (Diane.Turchetta@dot.gov or 202-493-0158).

- *Travel Demand and Climate Change* – Developing Effective Policy Approaches for Slowing Vehicle-Miles Traveled Growth – Through research and dialogue with pivotal stakeholders this project will help determine the extent to which new energy/greenhouse gas performance goals may complement or conflict with fundamental transportation system performance and inform the development of effective policy frameworks for slowing vehicle-miles traveled growth and reducing greenhouse gas emissions. For more information, contact Diane Turchetta (Diane.Turchetta@dot.gov or 202-493-0158).

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.
Point of Contact: 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.
Point of Contact: MJ Fiocco, mj.fiocco@dot.gov, 202.366.8018.

Climate Change Clearinghouse
The USDOT Transportation and Climate Change Clearinghouse, was launched in January 2009, and 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/.
Point of Contact: 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.
Point of Contact: 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. Currently, modes are identifying what internal administrative changes are available to emphasize livability in transportation planning and design.
Point of Contact: 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.
Point of Contact: 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 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 CO_2 emissions) and reduction in nitrogen oxides emissions (which affects distributions of ozone and methane – both of which are greenhouse gases).
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: 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
Point of Contact: Supin Yoder, supin.yoder@dot.gov, 708-283-3554.

Puget Sound Regional Council (PSRC) Modeling Improvement
FHWA has provided funding to PSRC to update their existing models and develop new models to more accurately account for transportation-related GHG emissions. Five major model improvements have been implemented and calibrated for the year 2006. This includes the trip assignment improvements, the restructuring of the mode choice model, the development of the activity generator, and the inclusion of walk and bike factors in mode choice. The forecasting of these new improvements in underway and will be tested for the 2040 baseline conditions as well as for five alternatives for the transportation plan update process. In addition, PSRC is preparing to test the sensitivity of the models to changes in gas prices with the new modeling structure.
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: Tina Hodges, tina.hodges@dot.gov, 202-366-4287.

Transit Greenhouse Gas Management Compendium
The compendium will provide transit agency mangers with an easy to use handbook on actions to reduce greenhouse gas emissions from transit operations and construction.
Point of Contact: 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.
Points of Contact: 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.
Point of Contact: 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).
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: 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).
Point of Contact: 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.
Point of Contact: 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 bio-based 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.
Point of Contact: 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.
Point of Contact: 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.
Point of Contact: 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 “straw man” 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.
Point of Contact: Gloria Shepherd, gloria.shepherd@dot.gov, 202-366-0581.

Ongoing Climate Change Adaptation Work at DOT as of July 2009

Initiated or Ongoing Activities

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.
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*Status*: Pending
Timeframe: Several years as it requires rulemaking.

FHWA Coordination/Activities with NOAA/NWS

- Consulting with 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

ODOT Efforts

ODOT Issues Climate Change Adaptation Strategy Report. In May 2012, the Oregon Department of Transportation made available a Climate Change Adaptation Strategy Report to assist in preparing for more frequent landslides, flooding, and wildfires. The report provides an assessment of the climate change impacts to ODOT; underscores the need for an in-depth vulnerability and risk assessment of ODOT's assets and systems operations; and highlights potential adaptation strategies and existing adaptive capacity within ODOT. The report is focused on ODOT's assets and suggests that linking the adaptation planning process with existing programs like asset management, design standards, and emergency response will allow ODOT to manage its resources efficiently and effectively. ODOT will next conduct a vulnerability and risk assessment of assets and systems and eventually develop an Adaptation Plan to guide its planning, project development, maintenance and operations, and emergency response teams in preparing the agency and the transportation system for the impacts of climate change. The strategy report is available online at: http://www.oregon.gov/ODOT/TD/CLIMATECHANGE/docs/ODOT_Adaptation_Strategy_Final.pdf.

ODOT Sustainability

Program Facts

ODOT's Internal Efforts on Climate Change

Introduction

The Oregon Department of Transportation is actively working toward reducing the amount of greenhouse gases (GHG) emitted by our operations and the transportation sector. By collaborating with others to develop innovative responses we are minimizing energy use in facilities, increasing fuel efficiency and use of low carbon fuels in the fleet, and encouraging employees to reduce their commuting energy use. ODOT is striving to operate sustainably; to be responsible for the impacts of our transportation operations and activities on our workforce, the environment, and the planet. Although ODOT may not achieve every emissions reduction goal, simply by focusing attention on GHG reductions and climate change, ODOT will move beyond what would have been achieved in a business-as-usual scenario.

Process of Internal Climate Change Related Efforts

- ODOT was the first state agency in Oregon to have a comprehensive Sustainability Program and the first to develop a sustainability plan.
- ODOT has a Sustainability Program manager, who reports to ODOT's chief of staff and interacts regularly with ODOT staff. Climate change is one of the many topics within the scope of **ODOT's Sustainability Program**.[1]
- 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 GHG production, climate change and the planning and operation of Oregon's transportation systems.
- ODOT has a **Climate Change Technical Advisory Committee** (TAC), the purpose of which is to develop an understanding of the implications of climate change initiatives to the agency and its work. This group also provides credible technical advice regarding the interrelationship of GHG production, climate change, and the planning and operation of Oregon's transportation systems.
- ODOT representatives participate in a number of key groups:
    - Department of Environmental Quality Mandatory Greenhouse Gas Reporting Rulemaking
    - The Oregon Global Warming Commission (OGWC)
        - The Transportation and Land Use Committee of the OGWC
    - Oregon Sustainability Board
    - Low Carbon Fuel Advisory Committee
    - Truck Efficiency and Idle Reduction Committee

[1] 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.

Internal Operations

- **ODOT Sustainability Volume II:**
  - The ODOT Sustainability Program is developing a Sustainability Plan comprised of three volumes covering the vision of sustainability at ODOT, ODOT's internal operations, and ODOT's sustainable management of the statewide transportation system.
  - **Volume II: *Sustainability Management Framework for ODOT's Internal Operations*** sets goals, strategies and performance measures for ODOT's internal operations, such as its facilities and fleet. There are seven focus areas in Volume II:
    - energy/fuel use and climate change
    - material resource flows
    - environmental stewardship
    - land use and infrastructure
    - economic health
    - social responsibility/ workforce well-being and development
    - health and safety
  - The goals and strategies in these seven focus areas will act as a roadmap for implementing sustainability within ODOT and its operations.
- **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.
- ODOT undertakes annual reporting of its own GHG 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 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.
  - Facilities Services is installing energy-efficient lighting, windows, insulation, thermostats, and white roofs to reduce energy costs in certain buildings when a replacement is needed. Through these actions ODOT is actively working to meet the Governor's energy goals.
  - The recommended project plans for the Transportation Building renovation meets Leadership in Energy and Environmental Design (LEED) Gold certification. 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's Fleet Section** is a leader in state government.
    - As of 2009, there were 164 E85 (85% ethanol and 15% gasoline) vehicles in ODOT's fleet.
    - ODOT is replacing its older fleet with increased use of hybrid and all Electric Vehicles (EV) technology in sedans; including two 100 mpg Plug-in Hybrid Electric Vehicles (PHEV). Additionally, ODOT is exploring the feasibility of expanding electric plug-in facilities beyond the two located in Portland and Salem.
    - The Fleet Section updated the policy and fleet manual on proper tire inflation and maintenance to reduce tire wear and fuel consumption and improve safety.
    - ODOT successfully tested the Autotherm energy recovery system to reduce idling to conserve fuel and lower emissions in the heavy equipment fleet.
    - ODOT highway plans to meet and sustain a 30% B-20 biodiesel use by summer of 2010.
- ODOT strives to reduce energy consumption by its highway lighting systems.
    - For example, ODOT's Region 1 annual electric bill was over $1.2 million of which 50 percent 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 continues to research and test innovative highway lighting technology that will reduce energy use, but still serve the essential purpose of lighting Oregon's highways.
- ODOT encourages alternative employee commute practices.
    - 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, and the "Governor's Commute Challenge", which is aimed at reducing drive-alone trips.
    - ODOT employs technology solutions such as video conferencing, tele-conferencing, and web casts (I-link) to allow employees to participate remotely in meetings and conferences and avoid excessive travel.

The Department is already reducing emissions throughout the agency in its fleet and facilities. ODOT will need to continue this work and create new programs to both mitigate future emissions from its internal operations and adapt its facilities to potential climate change.

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."

OTP Policy 4.2.2 supports the conversion of fleets to more fuel-efficient and alternative fuel vehicles, especially those using renewable and cleaner fuels.

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 the state government's fleet vehicles will be E85 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% by 2025.

DAS Policy 125-6-010 "Sustainable Facilities Standards and Guidelines" requires:

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

DAS Policy 107-009-0050 "Sustainable Acquisition and Disposal of Electronic Equipment" requires the use of Electronic Products and Acquisition Technology (EPEAT) environmental and energy criteria for the purchase of computer equipment such as desktops, computer laptops, computer monitors, and input or output devices.

ODOT Sustainability

Program Facts

Sustainable Transportation System and Climate Change

Introduction

The Oregon Department of Transportation recognizes that the transportation sector in Oregon generates significant greenhouse gases (GHG) and contributes to climate change. In Oregon, transportation accounts for an estimated 38 percent of Oregon's carbon dioxide emissions, with vehicle carbon dioxide emissions predicted to increase by 33 percent by 2035 due to increased driving. The purpose of this fact sheet is to provide a topical listing of ODOT's current climate change efforts in the area of the sustainable transportation system.

Land Use and Planning

- The 2006 **Oregon Transportation Plan** provides a vision for the state's transportation system and lays out the policy foundations for addressing climate change. The Plan includes a sustainability goal which has policy statements relating to environmental responsibility, energy, and creation of communities. Some of the strategies related to these policy statements relate directly to climate change.
- Under the **Transportation Planning Rule** (TRP) and the Statewide Planning Goal 12, ODOT provides financial and technical support to local governments and Metropolitan Planning Organizations (MPO). Oregon's TRP requires reduced reliance on Single Occupant Vehicles (SOV) and local actions to encourage the use of alternative modes of transportation.
- **Transportation and Growth Managemen**t (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 communities 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 GHG 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 the future.
- **"Least cost planning"** methods currently in progress will lead toward better consideration of transportation demand management, system management, and non-highway mode alternatives in the planning process.

Multi-Modal System

- **ODOT's Public Transit Division** assists communities with the development of alternative transportation options including transit, rideshare programs, walking, bicycling, and other alternatives to driving alone:

  - Over the last several years, ODOT has worked with local jurisdictions on a number of innovative **Transportation Demand Management** (TDM) projects that promote the use of alternative modes of transportation. A few of the programs include: TravelSmart, The Drive Less/ Save More Campaign, Commuter Solutions Group, and the Central Oregon Commute Options program.
  - In 2004 ODOT Public Transit Division used flexible federal funds to initiate a program to assist urban transit providers in replacing older and less efficient mass transit vehicles.

- ***Connect*Oregon** is a lottery bond based initiative to invest in air, rail, marine, and transit infrastructure to ensure Oregon's multi-modal transportation system is strong, diverse, and efficient.
  - *Connect*Oregon I funded 38 projects, all of which are underway, with many completed. *Connect*Oregon II, building off the success of *Connect*Oregon I funded an additional 30 projects which will continue to improve the flow of commerce, remove delays and improve safety. The 2009 Oregon Legislature has approved a *Connect*Oregon III, with projects currently in the application process. All three *Connect*Oregon projects are improving the connections between the highway system and other modes of transportation.
- 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.
  - Oregon was awarded $8 million from the 2009 American Recovery and Reinvestment Act for a high-speed rail line from Eugene to Portland. While this is not enough money to complete a project it has helped fund research into the project and project alternatives.
- 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 Improvement Program** provides approximately $14 million per year of funds across Oregon for TDM, transit, and bicycle/pedestrian facilities projects in designated urban centers.
- 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.

Freight

- ODOT's **Freight Mobility Unit** commissioned a **Climate Change Study** to analyze GHG emissions, potential mitigation strategies, and impacts to freight from climate change.
- ODOT **Motor Carrier's Green Light program** helps truckers save time and money and reduce emissions by "preclearing" trucks so they do not have to stop at Oregon weigh stations. A DEQ study found that in 2008 this preclearance system will allow trucks to avoid 1.5 million weigh station stops and thus will result in 1,300 metric tons less carbon dioxide emitted into the air.
- 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, cab heat, and air conditioning systems so that truck operators do not have to idle their diesel engines overnight.

Innovative Pilot Projects

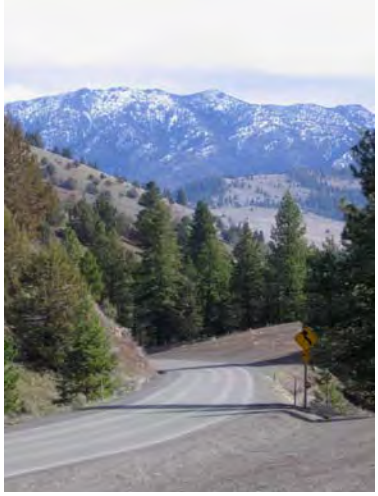
- **The Oregon Solar Highway Initiative** – In 2008, ODOT completed the nation's first solar photovoltaic project in the highway right-of-way. The first demonstration project is located at the interchange of I-5 and I-205. The 594 solar panels produce nearly 112,000 kilowatt hours annually and use the utility grid as a battery, supplying energy during the day to light the interchange at night.
- **Electric Vehicles** – The US Department of Energy announced in August 2009 that Oregon was selected as one of the five test markets for the largest deployment of electric vehicles (EVs) and the associated charging infrastructure. Nissan North America, partnering with the Electric Transportation Engineering Corporation (eTec) will deploy approximately 1,000 Nissan electric cars (the "Leaf") in Oregon and as many as 2,500 charging stations to be installed at homes and businesses. Deployment of Nissan's EVs is scheduled for fall of 2010 and charging infrastructure installations are expected to begin in summer 2010.
- **ODOT Alternative Fuels Corridor** – The Department is leading an effort with Washington and California 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.

Highway Construction Projects

- Various aspects of ODOT's innovative **Context Sensitive and Sustainable Solutions** (CS^3) approach to the **OTIA III Bridge Program** to support GHG reductions:
  - The OTIA III **Access/Staging Performance Standard** limits truck idling to five minutes, except in extreme cold weather or when needed for other reasons.
  - The OTIA III **Materials Procurement and Use Performance Standard** requires contractors to use ultra-low sulfur fuel, bio-diesel, or EPA-verified fuel additives in vehicles and equipment where possible and available, or minimum of highway grade fuel where alternative fuels are not possible.
- The **Columbia River Crossing** (CRC) project, located in a five-mile area between Portland and Vancouver, Washington, undertook an analysis of GHG impacts as part of

a Cumulative Effects analysis in the Draft Environmental Impact Statement (DEIS). The CRC project worked with Washington Department of Transportation, the Federal Highway Administration, and the Federal Transit Authority to analyze potential cumulative impacts of the construction and operation of the project. The DEIS also discussed potential adaptation measures to be taken to prepare for effects of climate change, such as a rise in river level.

- **Greenroads** – ODOT is currently in the process of evaluating three pilot projects, in various levels of completion, based on the Greenroads sustainability performance metric. Greenroads was developed out of the University of Washington in consultation with CH2M HILL. The Greenroads performance metric awards points for more sustainable practices during the design and construction phases of roadway projects and awards a certification level based on the number of points earned, much like the LEED program does for buildings.



Through the efforts of **ODOT's Climate Change Executive Group and Technical Advisory Committee**, ODOT will continue to play an 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 the Transportation System

OTP[1] Policy 1.1 – It is the policy of the State of Oregon to plan and develop a balanced, integrated transportation system with modal choices for the movement of people and goods.

OTP Policy 2.1 – It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long term benefit of people and goods movement.

OTP Policy 4.2 – It is the policy of the State of Oregon to support efforts to move to diversified and cleaner energy supply, promote fuel efficiencies and prepare for possible fuel shortages.

OHP[2] Policy 4B – It is the policy of the State of Oregon to advance and support alternative passenger transportation systems where travel demand, land use, and other factors indicate the potential for successful and effective development of alternative passenger modes.

OHP Policy 4D – It is the policy of the State of Oregon to support the efficient use of the state transportation system through investment in transportation demand management strategies.

ORS 469.010 states that "It is the goal of Oregon to promote the efficient use of energy resources and to develop permanently sustainable energy resources" and includes the following policy: "energy-efficient modes of transportation for people and goods shall be encouraged, while energy-inefficient modes of transportation shall be discouraged."

House Bill 3543 (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.

House Bill 2001 (Oregon Jobs and Transportation Act) is the transportation funding plan adopted by the 2009 Legislature. Three core themes emerged from the legislation:

1) accountability, innovation, and environmental stewardship
2) highway, road, and street funding
3) multimodal funding

House Bill 2186 is wide-ranging legislation that seeks to reduce Oregon's greenhouse gas emissions. Section 10 requires the creation of a Metropolitan Planning Organization (MPO) Greenhouse Gas Emissions Task Force to evaluate alternative land use and transportation scenarios that would meet community growth needs, while reducing greenhouse gas emissions and recommend future legislative action to support such efforts.

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

Appendix L SAFETEA-LU 6002 COORDINATION PLAN

OR 62, I-5 TO DUTTON ROAD PROJECT

ENVIRONMENTAL IMPACT STATEMENT

SAFETEA-LU 6002 COORDINATION PLAN

Revised August 2012

U.S. Department of Transportation

Federal Highway Administration

Oregon Department of Transportation

Contents

Section 1. Introduction 1

Coordination Plan Execution 1

Section 2. Lead/Cooperating/Participating Agencies 3

2.1 List of Agencies, Roles, and Responsibilities 3

Lead Agencies 4

Cooperating Agencies 5

Participating Agencies 5

CETAS 6

Agencies Declining Invitation to Participate 7

Agencies Not Responding to Invitation to Participate 7

2.2 Agency Contact Information 8

Section 3. Coordination Points and Responsibilities 11

Section 4. Project Schedule 13

Section 5. Revision History 14

Appendix - Project Team Information 15

Project Management Team (PMT) 15

Project Delivery Team (PDT) 15

Citizen Advisory Committee (CAC) 16

CETAS 17

Section 1. Introduction

The OR 62, I-5 to Dutton Road project is located in Medford, Oregon, within Jackson County. The project's boundaries along OR 62 extend from approximately I-5, north to Dutton Road in White City, a distance of approximately 8 miles. The project area encompasses the City of Medford, Jackson County, and the unincorporated city of White City, which is under the planning jurisdiction of Jackson County. It is anticipated that project alternatives will extend beyond the City of Medford's Urban Growth Boundary (UGB) as well as the White City Urban Containment Boundary (UCB). The purpose of the proposed action is to improve transportation mobility and safety in the OR 62 Corridor, to simplify transportation system connections, and to identify potential improvements for non-highway modes, while maintaining the regional economic role of the OR 62 Corridor. This project is considered a project of Statewide Significance by the Oregon Transportation Commission (OTC) and has received $100 million in Jobs and Transportation Act funding.

Additional information on the OR 62, I-5 to Dutton Road project can be found on the project web site at http://www.oregon.gov/ODOT/HWY/REGION3/hwy62_index.shtml.

This coordination plan fulfills the requirements related to coordination plans of Section 6002 of the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The purpose of this coordination plan is to:

- Facilitate and document how the coordination between the Federal Highway Administration (FHWA), the Oregon Department of Transportation (ODOT) and other key agencies will be accomplished.
- Outline how FHWA and ODOT have divided the responsibilities for compliance and how the lead agencies will provide opportunities for input from the public and other agencies in accordance with applicable laws, regulations, and policies.
- Establish a schedule of regular meetings and identify which persons, organizations, or agencies should be included for each coordination point, as well as timeframes for input by those persons, organizations, and agencies.

Coordination Plan Execution

The OR 62, I-5 to Dutton Road project has organized a variety of project teams to be involved in the project coordination points, which are described in Section 3.1 and Table 3-1. These teams include representatives of the involved agencies, the project consultant team, and community and technical stakeholders. The coordination points for participating agencies and the public in this coordination plan are the same as the coordination points for the project teams. Participating agencies, which include the project's NEPA cooperating agencies, are defined in greater detail in Section 3.1.

The project teams involved in the project are listed below. An appendix is attached to this plan that provides membership information and the role of each team on the project.

- Project Management Team (PMT)

- Project Development Team (PDT)
- Citizens Advisory Committee (CAC)

In addition, ODOT has coordinated and will continue to do so, with Collaborative Environmental and Transportation Agreement for Streamlining (CETAS), which is described in greater detail in Section 2.1 and the Appendix – Project Team Information. The project's coordination with CETAS serves to meet ODOT's obligations under the CETAS agreement (June 16, 2005).

This coordination plan will be executed by the OR 62 PMT in the following manner:

- The OR 62 PMT will provide information on and discuss coordination points with all project committees. Involvement of cooperating and participating agencies in these collaborative activities will be documented through meeting notes.

At the time coordination point materials are made available for review and comment, Anna Henson (ODOT) will notify cooperating and participating agencies of the availability of draft coordination point materials (see Table 2-5). This notification will initiate the 14-day comment period. Cooperating and participating agencies may provide comments on the coordination point materials by notifying Anna Henson (ODOT) through email at Anna.HENSON@odot.state.or.us. Anna will respond by email that the project team has received comment and tell the commenter how ODOT will respond to those comments.

Section 2. Lead, Cooperating, and Participating Agencies

2.1 List of Agencies, Roles, and Responsibilities

This section provides a description of the agency stakeholders for the OR 62, I-5 to Dutton Road project and their roles and responsibilities. There are five categories of agencies addressed in this section: lead agencies; cooperating agencies; participating agencies; CETAS; and agencies not responding to invitation to participate. For cooperating agencies, additional responsibilities may be identified following agency consultation.

On September 18, 2007, FHWA extended cooperating and participating agency invitations. Cooperating agency invitations were sent to: USFWS, US Department of Veterans Affairs, the US Army Corps of Engineers (Corps), National Marine Fisheries Service. The USFWS, US Department of Veterans Affairs, and Corps accepted invitations to be cooperating agencies. Participating agency invitations were sent to: City of Medford, Confederated Tribes of the Grand Ronde, Confederated Tribes of the Siletz, Oregon Department of Land Conservation and Development, Oregon Department of State Lands, US Environmental Protection Agency, Federal Aviation Administration, Federal Emergency Management Agency, Jackson County, Jackson County Fire District 3, Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon Department of Parks and Recreation and Oregon State Historic Preservation Office. FEMA, ODFW, DEQ, FAA, and Jackson County Fire District 3 accepted invitations to be participating agencies. FHWA and ODOT consulted with FAA to determine whether to consider FAA a participating or cooperating agency; it was FAA's decision to be a participating agency. Oregon SHPO responded to the participating agency invitation but did not accept participating agency status.

Lead Agencies

Table 2-1. Lead Agencies

Agency Name	Role	Other Project Role(s)	Responsibilities
Federal Highway Administration	Lead Agency	CETAS PDT	• Manage 6002 process • Provide opportunity for public involvement • Provide oversight of NEPA process and compliance • Make Section 106 and Section 4(f) decisions. • Make NEPA decisions
Oregon Department of Transportation	Co-Lead Agency	CETAS PDT CAC PMT	• Manage 6002 process in cooperation with FHWA • Prepare EIS • Prepare and review project plans and specifications • Provide opportunity for cooperating and participating agency involvement • Prepare documentation for environmental compliance (e.g. ESA, Section 404, Section 106, Section 4(f), Section 6(f), etc.)

Cooperating Agencies

The project's cooperating agency roles and responsibilities are listed in Table 2-2. The responsibilities listed are in addition to the responsibilities of reviewing the EIS for sufficiency in their area of jurisdiction or expertise and providing comments on the project's coordination points.

Table 2-2 Cooperating Agencies

Agency Name	Role	Other Project Role(s)	Responsibilities
US Fish and Wildlife Services	Cooperating Agency	• CETAS	• ESA jurisdiction • Provide comments on listed species and wildlife impacts • Review Biological Assessment and complete Biological Opinion • Comment on Section 404 permit application
US Department of Veterans Affairs	Cooperating Agency	• N/A	• Consultation on project • Potential federal land transfer
US Army Corps of Engineers	Cooperating Agency	• CETAS	• Section 404 permit

Participating Agencies

Table 2-3 lists the roles and responsibilities of participating agencies. The responsibilities listed are in addition to the responsibilities of reviewing the EIS for sufficiency in their area of jurisdiction or expertise and providing comments on the project's coordination points.

Table 2-3. Participating Agencies

Agency Name	Role	Other Project Role(s)	Responsibilities
Federal Emergency Management Agency	Participating Agency	Not Applicable	• Review project for floodplain and floodway impacts
Oregon Department of Fish and Wildlife	Participating Agency	CETAS	• Comment to DSL and Corps on fill removal permits • Comment to USFWS, NMFS on Biological Opinion • Determine fish passage requirements
Oregon Department of Environmental Quality	Participating Agency	CETAS	• Responsible for air quality • Monitor hazardous materials • Grants NPDES permits • Approves conceptual stormwater mitigation plan
Federal Aviation Administration	Participating Agency	Not Applicable	• Ensure compliance with FAA NEPA and airport restrictions • Form 7460-1 Notice of Proposed Construction or Alteration • Land Transfer • Approval of construction equipment in the Runway Protection Zone
Jackson County Fire District 3	Participating Agency	Not Applicable	• Review for potential response time delays • Review design/access issues for emergency vehicle access

CETAS

In February 2001, Oregon's state and federal transportation and environmental agencies signed a Charter Agreement establishing the Collaborative Environmental and Transportation Agreement for Streamlining, or CETAS. The CETAS charter was last amended in June 2005. CETAS member agencies include:

- Federal Highway Administration (FHWA);
- National Marine Fisheries Service (NMFS);
- Oregon Department of Land Conservation and Development (DLCD);
- Oregon Department of Environmental Quality (DEQ);
- Oregon Department of Fish and Wildlife (ODFW);
- Oregon Division of State Lands (DSL);

- Oregon Parks and Recreation Department, State Historic Preservation Office (SHPO);
- Oregon Department of Transportation (ODOT);
- US Army Corps of Engineers (USACE);
- US Environmental Protection Agency (EPA); and
- US Fish and Wildlife Service (USFWS).

ODOT presents projects to CETAS members at regularly scheduled meetings to discuss the environmental aspects of each project and to gain concurrence from each member agency on four points in project development:

1) Purpose and need;

2) Range of alternatives to be studied in an EIS or EA;

3) Criteria for selecting the preferred alternative; and

4) Selection of the preferred alternative.

Concurrence at these four points does not replace each agency's official permitting decisions which occur following the completion of the EIS or EA. Instead of becoming involved at the permitting stage—after ODOT has invested in what it hopes is a final design—CETAS members are involved earlier and can influence decisions through collaborative problem solving. While CETAS is intended to optimize agency review efforts that result in quicker permitting decisions, it is also intended to bring about transportation projects with better environmental outcomes. The CETAS Charter Agreement also includes an elevation procedure to be used when staff cannot resolve an issue.

Agencies Declining Invitation to Participate

No agency formally declined by letter to participate.

Agencies Not Responding to Invitation to Participate

NMFS did not respond to the invitation to become a cooperating agency on the project. The following agencies did not respond to the invitation to become a participating agency for the project and therefore are not serving as participating agencies:

- City of Medford
- Confederated Tribes of the Grand Ronde
- Confederated Tribes of the Siletz
- Oregon Department of Land Conservation and Development
- Oregon Department of State Lands
- US Environmental Protection Agency
- Jackson County

- Oregon Department of Parks and Recreation
- Oregon State Historic Preservation Office

2.2 Agency Contact Information

The following is a list of agency contacts for the OR 62 project for the agencies listed in Tables 2-1 through 2-3.

Table 2-6. Lead, Cooperating, and Participating Agencies

Agency	Contact Person/Title	Phone	E-mail and Mailing Addresses	OR 62 Project Team or CETAS
Federal Highway Administration				
	Phillip Ditzler, Division Administrator	503.399.5749	Phillip. Ditzler@dot.gov 530 Center Street NE, Suite 420 Salem, OR 97301	
Point of Contact:	Chris Bucher, Operations Engineer	503.316.2555	Chris.Bucher@dot.gov 530 Center Street NE, Suite 420 Salem, OR 97301	PDT
	Michelle Eraut, Program Development Team Leader	503.316.2559	Michelle.Eraut@ dot.gov Equitable Center, Suite 100 530 Center Street NE, Suite 420 Salem, OR 97301	CETAS
Jackson County, Oregon				
	Danny Jordan, County Administrator	541.774.6305	jordandl@jacksoncounty.org 10 South Oakdale, Room 214 Medford, OR 97501	
Point of Contact:	John Vial Roads and Parks Director	541.774.8183	VialJM@jacksoncounty.org 200 Antelope Road White City, OR 97503	PDT
Oregon Department of Transportation				
	Art Anderson Region 3 Area Manager	541.774.6353	Arthur.H.ANDERSON@odot.or.us 100 Antelope Road White City, OR 97503	
Point of Contact:	Anna Henson, Environmental Project Manager	541.774.6376	Anna.HENSON@odot.state.or.us 100 Antelope Road. White City, OR 97503	PDT
US Army Corps of Engineers				
Letter mailed to:	Col. Thomas O'Donovan, District Commander	503.808.4500	Thomas.E.ODonovan@usace.army.mil 333 SE First Ave. PO Box 2946 Portland, OR 97208	
Point of Contact:	Dominic Yballe, ODOT-Corps Regulatory Liaison	503.808.4392	Dominic.p.yballe@nwp01.usa.ce.army.mil 333 SE First Ave. PO Box 2946 Portland, OR 97208	CETAS

Agency	Contact Person/Title	Phone	E-mail and Mailing Addresses	OR 62 Project Team or CETAS
US Fish and Wildlife Service				
Letter mailed to:	Paul Henson, State Supervisor	503.231.6179	Kemper_mcmaster@fws.gov Oregon Fish and Wildlife Office 2600 SE 98th Ave. Portland, OR 97266	
Point of Contact:	David Leal, Fish and Wildlife Biologist	503.231.6179	David_leal@fws.gov 2600 SE 98th Ave. Portland, OR 97266	CETAS
National Marine Fisheries Service				
Letter mailed to:	Michael Tehan	503.230.5400	Mike.Tehan@noaa.gov NW Regional Portland Field Office 1201 Lloyd Boulevard, Suite 1100 Portland, OR 97232	
Federal Emergency Management Agency				
Letter mailed to:	Dennis Hunsinger, Regional Director	425.487.4799	Dennis.hunsigner@fema.gov Federal Regional Center 130 228th St., SW Bothell, WA 98021	
Oregon Department of State Lands				
Letter mailed to:	Louise Solliday, Director	503.378.3805 ext. 224	Louise.c.solliday@state.or.us 775 Summer Street NE, Suite 100 Salem, OR 97301	
Point of Contact:	Russ Klassen	503.378.3805 ext. 255	Russ.Klassen@state.or.us 775 Summer Street NE, Suite 100 Salem, OR 97301-1279	CETAS
Oregon State Historic Preservation Office				
Letter mailed to:	Tim Wood, Director	503.986.0719	Tim.wood@state.or.us Oregon Parks and Recreation District Heritage Programs 725 Summer Street NE, Suite C Salem, OR 97301	
Point of Contact:	Matthew Diederich GIS Archaeologist	503.986.0683	Matthew.Diederich@state.or.us 725 Summer St. NE Ste. C Salem, OR 97301	CETAS
Oregon Department of Fish and Wildlife				
Letter mailed to:	Roy Elicker, Interim Director	503.947.6044	roy.elicker@state.or.us Main Office 3406 Cherry Ave. NE Salem, OR 97303	
Point of Contact:	Jon Germond, Land Resources Program Manager	503.947.6088	Jon.p.germond@state.or.us 3406 Cherry Ave. NE Salem, OR 97303	CETAS
Oregon Department of Environmental Quality				
Letter mailed to:	Dick Pederson,Director	503.229.5300	Dick.PEDERSON@deq.state.or.us Northwest Region Headquarters 811 SW 6th Ave. Portland, OR 97204	
Point of Contact:	Sally Puent	503.229.5379	Sally.Puent@deq.state.or.us 811 SW 6th Avenue Portland, OR 97204	CETAS

Agency	Contact Person/Title	Phone	E-mail and Mailing Addresses	OR 62 Project Team or CETAS
Oregon Department of Land Conservation				
Letter mailed to:	Lane Shetterly, Director	503.373.0050 ext. 224	Lane.shetterly@state.or.us 635 Capitol Street NE, Suite 200 Salem, OR 97301	
Point of Contact:	Matt Crall, Land Use and Transportation Planner	503.373.0050 ext. 150	Matthew.crall@state.or.us 635 Capitol Street NE, Suite 150 Salem, OR 97301	CETAS
US Environmental Protection Agency				
Letter mailed to:	Ron Kreizenbeck, Deputy Regional Administrator	503.553.1234	Kreizenbeck.ron@epa.gov 811 SW 6th Avenue, 3rd Floor Portland, OR 97204	
Point of Contact:	Yvonne Vallette, Wetlands / Watershed Coordinator	503.326.2716	Vallette.yvonne@epa.gov 811 SW 6th Avenue, 3rd Floor Portland, OR 97204	CETAS
Confederated Tribes of Grand Ronde				
	Khani Schultz, Cultural Protection Coordinator	503.879.2185	Khani.schultz@grandronde.org 9615 Grand Ronde Road Grand Ronde, OR 97347	
Confederated Tribes of Siletz				
	Robert Kentta, Cultural Resource Specialist	541.444.2532	rkentta@ctsi.nsn.us P.O. Box 549 Siletz, OR 97380	
Jackson County Fire District 3				
	Dan Peterson, Fire Chief	541.826.7100	danp@jcfd3.com 8333 Agate Road White City, OR 97503	
City of Medford				
	Gary Wheeler, Mayor	541.774.2000	mayor@ci.medford.or.us 411 West 8th St. Medford, OR 97501	
Department of Veterans Affairs				
	Max McIntosh, Director	541.826.2111 ext 3202	Sandy.darland@med.va.gov 8495 Crater Lake Highway White City, OR 97503	

Section 3. Coordination Points and Responsibilities

Table 3-1 lists the Section 6002 coordination points for the OR 62, I-5 to Dutton Road project, including which agency or agencies are responsible for activities during the coordination point. Also specified is the information required at each coordination point and who is responsible for transmitting that information. Section 4 documents when ODOT and FHWA have completed or intend to complete agency coordination for each of the project's coordination points.

Table 3-1 Coordination Points and Responsibilities

Coordination Point	Information distributed	Agency Responsible	Information received	Agency Responsible
Section 6002 Coordination Plan	Draft Coordination Plan	FHWA ODOT	Comment on draft Coordination Plan	All cooperating and participating agencies and public
Notice of Intent	Publish NOI in Federal Register; invite agencies to agency scoping meeting; invite public to public scoping meeting	FHWA ODOT	Comments on project issues, process and alternatives	All cooperating and participating agencies and public
Purpose and Need	Notify participating agencies and public of availability of draft purpose and need statement; solicit comments; hold scoping meeting	FHWA ODOT	Comments on Purpose and Need. Identification of any issues that could substantially delay permit approval	All cooperating and participating agencies and public
Range of Alternatives	Provide participating agencies and public with information regarding alternatives being considered via letters and/or website; solicit comments	FHWA ODOT	Comments on Range of Alternatives. Identification of any issues that could substantially delay permit approval	All cooperating and participating agencies and public

Coordination Point	Information distributed	Agency Responsible	Information received	Agency Responsible
Collaboration on assessment methodologies and appropriate level of detail	Proposed methods conveyed through meetings and site visits with relevant resource agencies. Written documentation provided as agencies agree appropriate	FHWA ODOT	Input on proposed methods, and suggested alternative approaches if concerned about outcome of proposed methods	All cooperating and participating agencies
Completion of DEIS	Notify participating agencies and public of availability of Draft Environmental Impact (EPA publishes the notice) Statement (DEIS); solicit comments; hold public meeting	FHWA ODOT EPA	Comments on DEIS	All cooperating and participating agencies and public
Identify Preferred Alternative and level of design detail	Notify participating agencies and public of preferred alternative; solicit comments; hold public meeting	FHWA ODOT	Comments on the selected preferred alternative; further analysis if required	All cooperating and participating agencies and public
Completion of FEIS	Notify participating agencies and public of the availability of the FEIS	FHWA ODOT	Not Applicable	Not Applicable
Completion of ROD	Notify participating agencies and public of FHWA's project decision	FHWA	Not Applicable	Not applicable
Completion of permits, licenses, approvals after ROD	Documentation needed to comply with various permit, license and approval requirements	ODOT	Approved permits, licenses, etc.	Agencies to be determined based on Preferred Alternative

Section 4. Project Schedule

The project schedule, which is summarized in Table 4-1, includes the project's coordination points, the preliminary impact assessment review by cooperating and participating agencies and the timing of a Statute of Limitations notice. Table 4-1 includes the date information was or will be distributed and timeframe for comments. The table also notes when the documentation for a coordination point is made available for review and comment.

Table 4-1. Project Coordination Points and Schedule

Coordination Point[1]	Date Information is Distributed	Reviewing and Commenting Parties
Notice of Intent[2]	November 3, 2005[3]	All cooperating and participating agencies and public
Purpose and Need[2]	January 2006[3]	All cooperating and participating agencies and public
Range of Alternatives[2]	Sept-Oct 2007	All cooperating and participating agencies and public
Collaboration on impact assessment methodologies	Oct-Nov 2007	All cooperating and participating agencies
Circulation of DEIS	Scheduled September 2012	All cooperating and participating agencies and public
Identify Preferred Alternative	Scheduled November 2012	All cooperating and participating agencies and public

[1] Lead agencies are responsible for distribution of information associated with these points to reviewing and commenting parties

[2] Information associated with these coordination points will be made available to the public for comment via open houses and the project website (http://www.oregon.gov/ODOT/HWY/REGION3/hwy62_index.shtml)

[3]FHWA and FTA issued the Section 6002 SAFETEA-LU Environmental Review Process – Final Guidance in November 15, 2006, subsequent to publication of the project's Notice of Intent and preparation of the project's draft Purpose and Need Statement. Cooperating and participating agencies were given the opportunity to comment on those coordination points.

Section 5. Revision History

The following table will be updated to record changes to the Coordination Plan as they occur. Note: As per Section 6002 guidance, if a schedule was included in the original coordination plan and it is the item that requires modification, concurrence on the schedule change is required only if the schedule is being shortened and then only from joint lead agencies, not all participating agencies.

Table 5-1. Document Revision History

Version	Date	Document Name	Revision description and why it was needed.
1	April 2007	Coordination Plan	First Draft
2	July 2011	Coordination Plan	Updated Agency contact information; Updated schedule
3	August 2012	Coordination Plan	Updated Agency contact information; Updated schedule; Various text edits (e.g., clarify coordination points, key points of CETAS concurrence, participating/cooperating agency definitions, etc.)

Appendix - Project Team Information

This appendix provides a description of the project teams described by acronym in this Coordination Plan. Sections 1 and 2 of the Coordination Plan provides an overview of how the various teams support project activities, including how ODOT implements its compliance with Section 6002. In particular, it is through these teams that ODOT will produce the documents associated with the coordination points called for in the Coordination Plan. This appendix also provides additional detail on the roles of the various teams within the overall project that extend beyond compliance with Section 6002. Finally, this appendix provides additional information on the Collaborative Environmental and Transportation Agreement for Streamlining (CETAS), which is not a project team, but it is an established committee that ODOT coordinates with and that has members that are designated by this project as cooperating or participating agencies. Additional information on CETAS may also be found in Section 2 of the Coordination Plan.

Project Management Team (PMT)

The OR 62 PMT is comprised of representatives from ODOT, consulting staff and the Rogue Valley Council of Governments. The PMT is charged with developing overall strategy, daily project management and delivery of the environmental impact statement (EIS). The PMT prepares presentation materials and coordinates various technical analyses. Technical leaders and discipline experts will be invited to attend specific PMT meetings on an as-needed basis.

The PMT is comprised of:

Anna Henson	Oregon Department of Transportation
Dick Leever	Oregon Department of Transportation
Gary Leaming	Oregon Department of Transportation
Chris Zelmer	Oregon Department of Transportation
Lisa Cortes	Oregon Department of Transportation
Terry Kearns	URS
Vicki Guarino	RVCOG/RVMPO

Project Development Team (PDT)

The PDT is the body for the project. It is responsible for project management, technical quality of the project and assisting in the successful development of the project. While making project-related decisions, the PDT strives to come to resolution of issues through a consensus model. It reviews technical data, community input, and considers recommendations brought forward from the CAC. This working group is also charged with providing overview and direction related to policy level project issues. Agency representatives are responsible for acting as an information conduit between this working group and their affiliated organizations. Every effort will be made to coordinate with PDT members and conduct document reviews via electronic mail.

The PDT is comprised of:

Chris Bucher	Federal Highway Administration
Al Densmore*	City of Medford
Brian Dunn*	Oregon Department of Transportation (Transportation Planning and Analysis Unit)
David Elliot*	Citizen at Large
Mark Gibson*	Freight/Trucking
Vicki Guarino*	RVCOG/RVMPO
Anna Henson	Oregon Department of Transportation
Dale Lininger*	Medford Chamber of Commerce
Suzanne Myers*	City of Medford
Mike Quilty*	RVMPO City of Medford
Paige Townsend*	Rogue Valley Transportation District
John Vial*	Jackson County
Chris Zelmer*	Oregon Department of Transportation
Dick Lever	Oregon Department of Transportation
Debbie Timms	Oregon Department of Transportation

* denotes voting member

Citizen Advisory Committee (CAC)

The CAC is a group of technical and community stakeholders selected to represent various constituents in the project area, including business, environmental, bicycle and pedestrian, institutional and neighborhood interests. The committee is actively involved in by reviewing and advising the lead agencies and PDT on key issues at all project coordination points. Consensus decision-making is used to meet project goals and objectives and provide recommendations. A principal function of the CAC is to serve as a conduit to the public and to ensure project decisions reflect a variety of perspectives.

The CAC is comprised of:

Bill Blair	Agriculture (retired)
Becky Brooks	Siskiyou Velo
Curt Burrill	Land Development
David Christian	Social work (retired) VA SORCC
Mike Gardiner	Freight
Mike Malepsy	Land Development
Mike Montero	Land Development
Bob Plankenhorn	Logging
Don Riegger	Human Services Manager (retired)
Wade Six	Commercial Realtor
Nanci Watkins	Small Business

CETAS

ODOT has implemented a coordinated review process for highway construction projects. The process, the Collaborative Environmental and Transportation Agreement for Streamlining (CETAS), establishes a working relationship between FHWA and ODOT and nine state and federal transportation, natural resource, cultural resource, and land-use planning agencies. The intent of this process is to reduce redundancy, efficiently use agency resources and determine solutions to resource constraints. Typically CETAS signatory agencies concur at four key points (listed below). The project will comply with the CETAS requirements (as specified in the CETAS charter agreement), as well as the Section 6002 requirements and this Coordination Plan.

- Following is a list of agencies that are members of CETAS:
- Oregon Department of Transportation
- Federal Highway Administration
- US Army Corps of Engineers
- Oregon Department of Environmental Quality
- US Environmental Protection Agency
- Oregon Department of Land Conservation and Development
- Oregon Department of Fish and Wildlife
- US Department of Fish and Wildlife
- National Marine Fisheries Service

- Oregon Department of State Lands
- Oregon State Historic Preservation Office

The CETAS Major Transportation Projects Agreement (MTPA) applied to NEPA Class 1 and Class 3 projects has four points at which project sponsors need concurrence from regulatory agencies signatory to the MTPA. These are:

1. Purpose and Need
2. Range of Alternatives
3. Criteria for Selection
4. Preferred Alternative

CETAS members have elected to participate in the MTPA process and these four concurrence points for the OR 62, I-5 to Dutton Road project.

At key points during the project development, ODOT staff presented project information to CETAS representatives. Following is a summary of those meetings.

- ***March 2005***: The project's first presentation to CETAS occurred in March 2005. ODOT staff presented the draft Purpose and Need, draft Goals and Objectives, and a general project overview, including potential alternatives, known cultural and natural resources in the area, compatibility with applicable plans, and potential impacts.
- ***July 2005:*** CETAS representatives and ODOT staff toured various Region 3 project sites in July 2005, including the OR 62: I-5 to Dutton Road Project. The focus of the tour was on natural resources. They viewed the general alignment of the proposed bypass, traveled OR 62, and walked the area near the intersection of Dutton Road and OR 62. During the field trip they discussed potential mitigation strategies.
- ***February 2006:*** ODOT presented draft evaluation criteria to CETAS in February 2006.
- **February 2007**: ODOT presented the draft range of alternatives to CETAS in February 2007. At that time, the range did not include Design Options B or C. CETAS members requested that ODOT develop a bypass alignment that would reduce impacts on vernal pools. In response, ODOT created Design Option B, which would reduce adverse impacts to vernal pools by shifting the alignment to the east to an area that has been previously developed.
- ***April 2008:*** ODOT presented a project update to CETAS in April 2008. ODOT described Design Option B, summarized project impacts, informed CETAS about the vernal pool hydrology study, and outlined the DEIS schedule.
- ***August 2010:*** During its August 2010 meeting, CETAS voted to approve its concurrence on the project's Goals, Objectives, Screening Criteria, and Evaluation Measures.

Appendix M Recommendations for Transit and Non-Motorized Transportation

The OR 62 Transit Study was intended to complement the OR 62: I-5 to Dutton Road Project by gathering community input to develop a range of capital improvements that could be implemented to improve transit in and around the OR 62 corridor.

This study was initiated and led by ODOT, but many of the improvement concepts affect roads under the jurisdiction of the City of Medford or Jackson County and are outside of the authority of ODOT. Implementation of many of these recommendations will require coordination between ODOT, Rogue Valley Transit District (RVTD), the City of Medford, and Jackson County.

A subcommittee made up of representatives from the OR 62 Project's Citizen's Advisory Committee, RVTD, the City of Medford, and Jackson County was formed to guide the transit study process. The transit subcommittee met four times in 2011 to discuss and evaluate potential transit improvement strategies for the OR 62 corridor. Committee members developed potential strategies to improve transit in the corridor and made recommendations on which projects to prioritize. In addition to this input, two public open houses were held to solicit citizen suggestions and priorities.

The transit improvement concepts are listed in the table below. The improvements listed here represent a wide range of concepts that could improve the transit experience. There are a number of concepts that were developed, but are beyond ODOT's jurisdiction. These concepts are included in the report as a documentation of the wide range of concepts that the subcommittee discussed.

One theme that carried through the discussions was the challenge of providing transit service on OR 62. The limited number of pedestrian crossings, inadequate sidewalks, and other safety concerns led members of the subcommittee to discuss the idea of converting the bypassed segment of OR 62 into a boulevard that better balances the needs of pedestrians, bicyclists, buses, private automobiles, and delivery vehicles. Converting a segment of the bypassed OR 62 roadway into a boulevard would pose a number of design and engineering challenges. This would be an extensive project that would be beyond the scope of this study. ODOT is currently in the process of transferring ownership of the segment of OR 62 that will be bypassed to the City of Medford and Jackson County, and this jurisdictional transfer is anticipated to be completed in the near future. As a result, any subsequent plan to modify that segment of the roadway will need to be led by the City of Medford and by Jackson County.

Although converting the bypassed segment of OR 62 to a boulevard-style street is beyond ODOT's scope for this transit study, there are other, less expensive measures that could be taken to improve transit operations and bicycle/pedestrian safety. The following table

lists a summary of the wide range of improvement concepts that the subcommittee discussed, along with very rough cost estimates[1] and priority levels.

Summary of Transit Subcommittee Recommendations from 11-15-11

Improvement	Locations	Notes	Cost	Priority Level
Sidewalks[2]				
Add sidewalks where needed	OR 62: I-5 to Vilas Road		$3 - 5 million	**High**
	OR 62: Vilas Road to Medford UGB		$2 - 3 million	Low
	Crater Lake Avenue: Delta Waters Road to Vilas Road		$2 - 4 million	**High**
	Crater Lake Avenue: Vilas Road to Medford UGB		$2 - 3 million	Low
	Delta Waters Avenue: Springbrook Road to OR 62		$100,000 to $150,000	**High**
	OR 62: Medford UGB to White City UUCB		$4 – 6 million	Low
	Crater Lake Avenue: Medford UGB to White City UUCB		$4 – 6 million	Low
	OR 62: Within White City UUCB		$7 - 8 million	**High**
Pedestrian Crossings				
Upgrade existing signalized intersections to meet current standards for pedestrian crossings	Top priorities: I-5 Interchange Ramps Poplar/Bullock Delta Waters Vilas OR 140 Antelope		Requires further analysis	**High**
Pedestrian refuge islands (within existing median or center left-turn lane)	Focus on existing signalized intersections		$10,000 to $15,000 each	**High**
Pedestrian refuge islands (requiring road widening to accommodate)	Focus on existing signalized intersections		$25,000 to $35,000 each	Medium
Improve pedestrian crossings of OR 62	JTA North Terminus at OR 62 OR 140 intersection	Design JTA North Terminus (and other intersections that will be modified as a part of the project) to be safe for pedestrians	Design is currently under way. Increase to construction cost would be insignificant.	**High**

[1] *Cost estimates are generic and not specific to the actual conditions in the corridor. They are provided for comparative, planning purposes only.*

[2] *The cost estimates for sidewalks assume a seven-foot sidewalk, curb and gutter wherever there are current gaps in the sidewalk network and sidewalk improvements are not yet planned. It was assumed that sidewalks would be constructed on both sides of each street. Where OR 62 and Crater Lake Avenue are immediately adjacent to each other, there may be locations where sidewalks would not be needed between the two streets, and costs could be considerably less than what is estimated here. Further study would be needed to determine more detailed sidewalk needs and cost estimates.*

Improvement	Locations	Notes	Cost	Priority Level
Reduce corner radii at major intersections	Where feasible and will not interfere with truck traffic.	Recommended as a general design strategy; may be difficult to implement due to high truck volumes	$15,000 to $25,000 each intersection	Low
Pedestrian overpass	Near Coker Butte or Owens	This is a long-range concept that may become more important once the nearby TOD is developed	$250,000 to $350,000	Low
Pedestrian tunnel	Near Coker Butte or Owens	This is included as a point of comparison with an overpass, but much less desirable than an overpass.	$550,000 to $650,000	Low
Bicycle Facilities				
Increase official markings for bike lanes on OR 62	On existing OR 62 where sidewalks will be present	May be incorporated with construction of new sidewalks	$25 per lineal foot	**High**
Widen street to add bike lanes	Delta Waters Road, from 450' east of Crater Lake Avenue (CLA) (where bike lanes end) up to OR 62	Right-of-way is constrained between OR 62 and CLA. Roadway would need to be widened and right-of-way purchased in order to add bike lanes.	$100,000 to $150,000 to widen roadway plus right-of-way acquisition cost	**High**
Re-stripe street with bike lanes	Lear Way, from Delta Waters Road to Commerce Drive	Because there is no on-street parking, the street is wide enough for bike lanes as-is.	$25 per lineal foot	Medium
Create direct multi-use path connection between OR 62 and Bear Creek Greenway	OR 62, west of I-5 interchange	Medford Parks has applied for a Flex Funds grant for this connection.	$1 million	**High**
Add directional signage to guide people from surface streets to the Bear Creek Greenway	North Medford Interchange area	The Highway 62 project includes signage as a potential mitigation strategy for the Split Diamond Alternative, but the priority is high regardless of whether that Alternative is selected.	$10,000 to $15,000 total	**High**
Bike Racks		RVTD has collected bike ridership data and now needs to evaluate it to determine whether or where additional bike parking would be needed. Because RVTD is already working on this item, it was considered to be a low priority for this transit study.	$350 each	Low (see notes column)
Bike Lockers (either install new lockers or move existing lockers to outlying areas)			$2,500 each (installed)	Low (see notes column)
Bus Stop Amenities and Rider Information				
Shelters, benches, lighting, and other bus stop improvements to make waiting more comfortable. Schedules, route information		RVTD has set aside $150,000 from an ARRA grant for stop improvements and will install them over the next few years. Because RVTD is already working on this item, it was considered to be a low priority for the transit study.	Variable	Low (see notes column)
Real-time bus arrival display	VA SORCC, Cascade Shopping Center, or Walmart stop	Potential for a pilot test at one of these locations	$10,000 each (installed)	**High**

Improvement	Locations	Notes	Cost	Priority Level
Bus Pull-Outs				
Build bus pull-outs	At Walmart bus stops[3]	RVTD buses frequently dwell for long periods at this location. Also, this location is often used for exchanging buses that need maintenance. Limited street width and passing cars are a safety concern.	$200,000 each plus right-of-way	**High** (May be an RVTD task outside the scope of this project)
Park-and-Rides				
Formalize agreement between RVTD and landowners for park-and-ride use	Cascade Shopping Center, VA SORCC	Currently handshake agreements; nothing written.	Further work needed to estimate cost	**High**
Add signs on OR 62 to advertise park-and-rides	VA SORCC, Cascade Shopping Center	Will need to formalize use agreements prior to adding signs	$10,000 to $15,000 total	**High**
Set aside publicly-owned right-of-way for future Park-and-Ride	Location TBD. Potential to use a portion of OR 140 right-of-way east of OR 62.	Current park-and-ride usage is low, but could increase in the future. May be better to develop more use agreements for P&Rs in existing parking lots.	Further work needed to determine if any excess right-of-way is available	Low
Intersection operations				
Add queue bypass lanes	On Delta Waters at OR 62	Could help transit speed, but would require right-of-way acquisition, and cost may exceed benefit.	>$1 million	Low
Transit signal priority	On Delta Waters at OR 62	Medford is completing the upgrade of signals on OR 62 to enable the implementation of signal priority.	$30,000	**High**
Transit signal priority	On Poplar Drive at OR 62 (Route 1 outbound)	See note above. This intersection may be challenging to implement because of southbound traffic coming from the JTA Phase (traffic will be random).	$30,000	More information required
Transit signal priority	On Antelope at OR 62	Probably not possible due to potential conflicts with existing communications infrastructure.	$30,000	More information required
Transit signal priority	Remaining signalized intersections along Route #60 not specified above	Medford is looking at adaptive signal timing on Crater Lake Ave. The City may consider shifting funding to OR 62.	$30,000 per intersection	Medium

[3] *As part of its expansion plans, Walmart will soon build a private street that would function as an Owens Drive extension. The site plan has been approved. RVTD noted that ideally, Route 60 would use this new street to connect between Lear Way and the existing OR 62 rather than continuing north on Lear Way to Coker Butte Road. If the route were changed, it would make sense to move the Walmart stop to the private street/Owens Drive and put the pull-outs on that new street. Because it would be a private street, RVTD would need to coordinate with Walmart to make this change.*

Appendix N List of Abbreviations

Annual Average Daily Traffic	AADT
Average Annual Rate of Growth	AARG
American Association of State Highway and Transportation Officials	AASHTO
Advisory Council on Historic Preservation	ACHP
Americans with Disabilities Act	ADA
Average Daily Traffic	ADT
Annual Energy Outlook 2010	AEO2010
Access Management Strategy	AMS
Area of Potential Effect	APE
Area of Potential Impact	API
Analysis Procedures Manual	APM
Air Quality Conformity Determination	AQCD
Medford-Ashland Air Quality Maintenance Area	AQMA
Archaeological Resources Protection Act	ARPA
Biological Assessment	BA
Best Management Practices	BMPs
Biological Opinion	BO
Clean Air Act	CAA
Clean Air Act Amendments	CAAA
Citizens Advisory Committee	CAC
Comprehensive Environmental Response, Compensation and Liability Act	CERCLA
Collaborative Environmental and Transportation Agreement for Streamlining	CETAS
Cubic Feet per Second	CFS
Contaminated Media Management Plan	CMMP
Carbon Monoxide	CO
Conservation Opportunity Area	COA
U.S. Army Corps of Engineers	Corps
Clean Water Act	CWA
Compensatory Wetland Mitigation	CWM
Demand-to-capacity ratio	d/c
Draft Environmental Impact Statement	DEIS
Oregon Department of Environmental Quality	DEQ
Bypass with a Directional Interchange at OR 62 Alternative	DI
Determination of Eligibility	DOE
Department of State Lands	DSL
Environmental Cleanup Site Information	ECSI
Essential Fish Habitat	EFH
Exclusive Farm Use	EFU
U.S. Energy Information Administration	EIA
Environmental Impact Statement	EIS
Environmental Justice	EJ
Executive Order	EO
U.S. Environmental Protection Agency	EPA

Endangered Species Act	ESA
Evolutionary Significant Unit	ESU
Geographic Information System	GIS
Final Environmental Impact Statement	FEIS
Federal Emergency Management Agency	FEMA
Federal Highway Administration	FHWA
Federal Insecticide, Fungicide, and Rodenticide Act	FIFRA
Farmland Protection Policy Act	FPPA
Full-time Equivalent	FTE
Greenhouse Gas	GHG
General Services Administration	GSA
Hazardous Waste Operations and Emergency Response	HazWOPER
Highway Design Manual	HDM
Hydrogeomorphic	HGM
Interstate 5	I-5
Interchange Area Management Plan	IAMP
Intelligent Transportation Systems	ITS
Jobs and Transportation Act	JTA
Land Development Ordinance	LDO
Linear Foot	LF
Level of Effect	LOE
Level of Service	LOS
Land and Water Conservation Fund	LWCF
City of Medford Local Wetland Inventory	LWI
Metropolitan Planning Organization	MPO
Mobile Source Air Toxics	MSAT
Mechanically Stabilized Earth	MSE
Metropolitan Transportation Improvement Program	MTIP
Million Vehicle Miles Travelled	MVMT
Noise Abatement Approach Criteria	NAAC
National Ambient Air Quality Standards	NAAQS
National Air Toxics Assessment	NATA
Northbound	NB
National Environmental Policy Act	NEPA
National Historic Preservation Act	NHPA
National Highway System	NHS
National Marine Fisheries Service	NMFS
Nitrogen Dioxide	NO_2
National Pollutant Discharge Elimination System	NPDES
National Priority List	NPL
National Register of Historic Places	NRHP
Noise Sensitive Area	NSA
National Wetland Inventory	NWI
Ozone	O_3
Oregon Administrative Rule	OAR

Oregon Department of Agriculture	ODA
Oregon Department of Fish and Wildlife	ODFW
Oregon Department of Transportation	ODOT
Oregon Office of Economic Analysis	OEA
Oregon Highway Plan	OHP
Ordinary High Water Line	OHWL
Oregon Parks and Recreation Department	OPRD
Oregon Highway 62	OR 62
Oregon State Police	OSP
Open Space Reserve	OSR
Oregon Sustainable Transportation Initiative	OSTI
Programmatic Agreement	PA
Lead	Pb
Programmatic Biological Opinion	PBO
Project Development Team	PDT
Potential Environmental Concern	PEC
Programmatic Formal Consultation on the U.S. Fish and Wildlife Service's Vernal Pool Conservation Strategy for Jackson County, Oregon	PFC
Public Involvement Plan	PIP
Public Law	PL
Particulate Matter less than 2.5 Micrometers in Size (Fine)	$PM_{2.5}$
Particulate Matter less than 10 Micrometers in Size (Respirable)	PM_{10}
Pavement Management Program	PMP
Prospective Purchase Agreement	PPA
Parts per Million	ppm
Preliminary Site Investigation	PSI
Resource Conservation and Recovery Act of 1976	RCRA
Recognized Environmental Concern	REC
Record of Decision	ROD
Regional Transportation Plan	RTP
Rogue Valley Council of Government	RVCOG
Rogue Valley Metropolitan Planning Organization	RVMPO
Rogue Valley Sewer Services	RVSS
Rogue Valley Transportation District	RVTD
State Agency Coordination Program	SAC
Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users	SAFETEA-LU
Southbound	SB
Split Diamond Interchange at I-5 Interchange	SD
Oregon State Historic Preservation Office	SHPO
State Implementation Plan	SIP
Sulfur Dioxide	SO_2
Site of Concern	SOC
Southern Oregon/Northern California Coast	SONCC
Southern Oregon Transportation Engineering	SOTE
Safety Priority Index System	SPIS

Single Point Urban Interchange	SPUI
Transportation Demand Management	TDM
Transportation Improvement Program	TIP
Total Maximum Daily Load	TMDL
The Nature Conservancy	TNC
Traffic Noise Model	TNM
Transportation Planning and Analysis Unit	TPAU
Transportation Planning Rule	TPR
Transportation Safety Action Plan	TSAP
Toxic Substances Control Act	TSCA
Transportation System Management	TSM
Transportation System Plan	TSP
Urban Growth Boundary	UGB
United States Code	USC
United States Citizenship and Immigration Services	USCIS
United States Department of Energy	US DOE
United States Department of Transportation	US DOT
U.S. Fish and Wildlife Service	USFWS
Underground Storage Tank	UST
Urban Unincorporated Community Boundary	UUCB
Veterans Administration Southern Oregon Rehabilitation Center and Clinics	VA SORCC
Volume-to-Capacity ratio	v/c
Vehicle Miles Travelled	VMT
Vernal Pool Complex	VPC
Vernal Pool Complex Assessment Units	VPC AU
Vernal Pool Mitigation and Conservation Bank	VPMCB
World War II	WWII

Appendix O Glossary of Technical Terms

303(d), water quality limited waters	This is a Clean Water Act classification for waters where application of best management practices or technology-based controls are not sufficient to achieve designated water quality standards. Under Section 303(d) of the 1972 Clean Water Act, states, territories, and authorized Tribes are required to develop a list of water quality limited segments. Waters on the 303(d) list do not meet water quality standards, even after the minimum required levels of pollution control technology have been installed at the point sources of pollution.
Access control	The limiting or regulating of access to a roadway.
Access management	Access management seeks to protect the function of a roadway by restricting access to it from driveways and cross-streets.
Alignment	Geometric arrangement of a roadway (e.g., curvature).
Ambient Noise	The background sound of an environment in relation to which all foreground sounds are heard. Ambient noise level is a measure of the background noise of an environment over a given period of time.
Anadromous	Anadromous refers to fish that hatch in fresh water, spend their adult lives in salt water, and return to fresh water to spawn.
Archaeological site	The Oregon State Historic Preservation Office (SHPO) defines an archaeological site as: A) Ten or more artifacts likely to have been generated by patterned cultural activity within a surface area reasonable to that activity; or B) The presence of any archaeological feature, with or without associated artifacts. Examples of features include peeled trees, cache pits, hearths, house pits, rock shelters, cairns, historic mining ditches, petroglyphs, or dendroglyphs.
Area of Potential Effect (APE)	An area within which an action may directly or indirectly cause changes in the character or use of historic properties or cultural resources. This term is generally associated with Section 106 analysis.
Area of Potential Impact (API)	The area likely to be impacted by a project. The API is influenced by the scale and nature of impacts caused by a project, and may differ by type of resource being analyzed. This term applies to all studied disciplines with the exception of cultural resources.
Attainment and Maintenance Areas	Attainment and Maintenance Areas refer to a region's ability to meet National Ambient Air Quality Standards and to maintain them over time.
Average Daily Trips (ADT)	The average number of vehicles passing a certain point each day on a highway, road or street over the course of the measurement period.
Annual Average Daily Trips (AADT)	ADT adjusted to reflect seasonal fluctuations in traffic volumes.
Background	Background in the context of visual impact analysis, is the area farthest from the viewer, where distance effects are primarily explained by aerial perspective (i.e., emphasis is primarily on outlines or edges).
Best Management Practice(s) (BMPs)	BMPs, typically state-of-the-art technology, are designed to prevent or reduce impacts. They represent physical, institutional, or strategic approaches to environmental problems.
British thermal unit (Btu)	To compare energy use from different sources such as diesel, gasoline, and electricity, energy is often expressed in British thermal units (Btu) which assigns a common value to the energy used.
Candidate Species	Within the Endangered Species Act, this term refers to species for which information indicates that listing is possible, but conclusive data are not yet available.
Capacity	Maximum volume of traffic that the roadway section is able to carry on a sustained basis.
Census block groups	Census block groups are a subset of census tracts, which are used to convey population data from the U.S. Census Bureau, generally collected during the decennial census.
Collaborative Environmental and Transportation Agreement for Streamlining (CETAS)	A group, including representatives of federal and state agencies, of which some agencies have jurisdictional authority over transportation-related environmental issues, that meets to help streamline the environmental review process for major ODOT transportation projects.

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)	The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised.
Comprehensive Plan	A general community plan stating the long-range goals and policies that govern a county or city's future development. Adopted comprehensive plans in Oregon must include citizen participation, address statewide planning goals, and be reviewed periodically.
Compensatory wetland mitigation (CWM)	Mitigation to replace functions and values of impacted wetlands to compensate for unavoidable adverse impacts on wetlands.
Conformity	Within the realm of the Clean Air Act, transportation conformity is a way to ensure that Federal funding and approval goes to those transportation activities that are consistent with air quality goals outlined in the State implementation plan (SIP). Conformity applies to transportation plans, transportation improvement programs (TIPs), and projects funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) in areas that do not meet or previously have not met air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. These areas are known as "nonattainment areas" or "maintenance areas," respectively.
Congestion	Overcrowding of a highway with vehicles that makes movement slow or difficult.
Conservation Opportunity Area (COA)	An area for which broad fish and wildlife conservation goals were developed by the Oregon Department of Fish and Wildlife, in the Oregon Conservation Strategy, to guide voluntary actions.
Crash rate	Crash rates are calculated with the number of crashes, length of highway segment (in miles) and annual traffic volumes.
Criteria Pollutants	Six air quality pollutants that have been linked to potential health concerns and are regulated by US EPA through National Ambient Air Quality Standards.
Cumulative impacts	Cumulative impacts are the result of incremental impacts of an action, when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or nonfederal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.
dBA	The term dBA stands for A-weighted decibels. For comparative purposes, human breathing is approximately 10 dBA, a calm room ranges 40-50 dBA, normal talking ranges 40-60 dBA, typical television setting is about 60 dBA at 10 feet, and a passing car is 60-80 dBA at 50 feet.
Demand-to-capacity ratio (d/c)	The d/c is the number of vehicles at a snapshot in time, divided by the capacity of the roadway. A road link with a d/c greater than 1.0 would be extremely congested (demand for the roadway is greater than the roadway's capacity), while a link with a low d/c like 0.2 would be free-flowing. The d/c also implies how the intersections at either end of the link are operating. If the d/c of the roadway link is greater than 1.0, the intersections at either end of that link would also be over capacity.
Detention	A water detention pond is designed to temporarily detain storm water runoff from impervious surfaces and to release the runoff at a desired rate.
Direct impacts	Direct impacts are caused by an action and occur at the same time and place as the action.
Directional interchange	A directional interchange is any interchange that allows movements in some directions, but not in others.
Electrofishing	Method to remove fish from an area using an electric current to stun fish so they can be netted and removed from the area.
Endangered Species Act (ESA)	The ESA provides for the protection of animal and plant species currently in danger of extinction (endangered) and those species that may become so in the near future (threatened).

Energy use for vehicles	Energy use is calculated using the number of average daily vehicles, the average distance those vehicles travel, and fuel consumption rates.
Environmental Impact Statement (EIS, DEIS, FEIS,)	An EIS is a statement of the potential environmental impacts of a proposed action and alternatives to the action. A Draft EIS (DEIS) is released to the public and other agencies for review and comment. A Final EIS (FEIS) is issued after consideration of public comments.
Environmental Justice (EJ)	A 1994 Executive Order which states, “Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."
Equivalent Sound Level (Leq)	The energy-average decibel level (usually in the units of dBA), is a commonly used noise measurement.
Essential Fish Habitat (EFH)	An area defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.
Evaluation Criteria	Criteria used to rank/evaluate feasible alternatives based on various factors (e.g., cost, safety, natural environmental impacts, socioeconomic environmental impacts, and local preference).
Evolutionary Significant Unit (ESU)	A sub-portion of a species that has different behavioral traits due to its isolation, and represents an important component of the evolutionary legacy of the species.
Exclusive Farm Use Zone (EFU)	A zone in which land use is intended to preserve large parcels for profitable farming outside a city’s urban growth boundary. These lands are protected by Statewide Planning Goal 3 and are based on soil types conducive to farming.
Expressway	Expressways are generally high-speed, limited-access facilities whose function is to move inter- and intra-urban traffic. Expressways often serve as major freight corridors and may be located on a designated freight route.
Farmland Protection Policy Act (FPPA, 7 USC 4201-4209)	The Farmland Protection Policy Act (FPPA, 7 USC 4201-4209) is federal law intended to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses.
Feasible Noise Abatement Measure	Abatement measure that has been determined to be effective at lowering noise levels by at least 5 dBA for the majority of the impacted receptors and is possible to construct based on acoustical and engineering factors.
Foreground (visual resources)	Foreground in the context of visual impact analysis is the area closest to the viewer, which can be designated with clarity and simplicity because the observer is a direct participant.
Habitat	An area with the combination of necessary resources (food, cover, water) and environmental conditions (temperature, precipitation, presence or absence of predators and competitors) that encourages occupancy by individuals of a given species (or population), and allows those individuals to survive and reproduce.
Herbaceous plants	Plants that have leaves and stems that die down to the soil level at the end of the year growing season. They have no persistent woody stem above ground.
Historic resource	A historic property is defined in the National Historic Preservation Act (NHPA) [16 U.S.C. 470w(5)] as any “prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register, including artifacts, records, and material remains related to such a property or resource.”
Hydrogeomorphic (HGM) Method	An approach used to assess wetlands based on the functions that the wetlands perform and their level of performance for those functions.
Impacted Receiver	A receiver with a build alternative noise level 2 dBA less than the corresponding FHWA Noise Abatement Criteria (NAC). Oregon also calls this type of an impact an “absolute” or Noise Abatement Approach Criteria (NAAC) impact. A receiver can also be impacted when there is at least a 10 dBA increase for the build alternative scenario over existing noise levels (also called Substantial Increase Impact).
Impervious surface	Impervious surfaces are mainly constructed surfaces such as rooftops, sidewalks, roads, and parking lots, covered by impenetrable materials such as asphalt or concrete. These materials seal surfaces, repel water, and prevent precipitation from infiltrating soils. Soils compacted by urban development can also be highly impervious.

Indirect impacts	Impacts on the environment that are caused by the action and occur later in time or farther removed in distance but are still reasonably foreseeable.
Intactness (visual resources)	Intactness in the context of visual impact analysis looks at the integrity of visual order and how much the view is free from encroaching features.
Interchange area management plan (IAMP)	An interchange area management plan is a plan intended to be adopted by both ODOT and the city and/or county where an interchange is located to prolong the function of the interchange through measures that can include transportation facility improvements, transportation demand management, transportation system management, and land use controls.
In-water work (IWW) period	Periods of time identified by the Oregon Department of Fish and Wildlife when work conducted in waterways would have the least impact on important fish and wildlife and are typically during the dry season.
Isolate	In Oregon, isolate refers to up to nine artifacts discovered in a location that appears to reflect a single event or activity. Oregon SHPO defines 10 artifacts as an archaeological site.
Lead agency	The agency or agencies that have the primary responsibility for preparing the environmental impact statement.
Level of service (LOS)	LOS is a qualitative measure to describe how a road is operating in terms of performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. The levels range from A (least congested) to F (most congested).
Limited access	Limited access generally means that access to, from, and across a highway is limited to intersections or interchanges.
Listed species	A plant, animal, or wildlife species that has been identified as threatened or endangered under the Federal Endangered Species Act.
Lithic	Lithic refers to remains associated with stone tools and tool-making, such as flakes or chips remaining from tool-making.
Location hydraulic study	An elevation of a proposed action in a floodplain that addresses risks associated with the action, impacts on natural and beneficial floodplain values, support of probable incompatible floodplain development, measures to minimize floodplain impacts, and measures to restore and preserve natural and beneficial floodplain values.
Longitudinal Encroachment	Development that runs along a floodplain, instead of crossing the floodplain.
Low-income	The FHWA Order defines "low-income" as "a person whose household income is at or below the Department of Health and Human Services poverty guidelines."
Metropolitan Planning Organization (MPO)	A planning body in an urbanized area of over 50,000 population which has responsibility for developing transportation plans for that area. In Oregon, MPOs currently exist in the Eugene/Springfield, Medford, Portland, Salem, Corvallis/Philomath, and Bend areas.
Minimize	Refers to the reduction or lessening of impacts.
Minorities	Minorities are defined as Black (or African American, having origins in any of the black racial groups of Africa); Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race); Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or American Indian and Alaskan Native.
Mitigation	Mitigation measures are designed to counteract environmental impacts or to make such impacts less severe.
Mobile Source Air Toxics (MSATs)	Mobile Source Air Toxics refers to several hazardous air pollutants that cause or may cause cancer or other serious health effects.
Mobility Targets	Standards set in the *Oregon Highway Plan* for mobility on highways based on volume-to-capacity ratios that vary according to the highway classification and urban or rural locations.

National Ambient Air Quality Standards (NAAQS)	These standards are used to measure air quality, expressed as concentrations of pollutants averaged over fixed time periods.
National Environmental Policy Act (NEPA)	In enacting NEPA, Congress recognized that nearly all federal activities affect the environment in some way and mandated that before federal agencies make decisions, they must consider the effects of their actions on the quality of the human environment.
National Historic Preservation Act (NHPA)	In 1966, NHPA established a National Register (NR) of Historic Places and the Advisory Council on Historic Preservation (ACHP).
National Pollutant Discharge Elimination Systems (NPDES)	As authorized by the Clean Water Act, the permit program controls water pollution by regulating point sources that discharge pollutants into water of the United States.
National Priority List (NPL)	The NPL (Superfund) database is a subset of CERCLIS properties and identifies over 1,200 facilities for priority cleanup under the Superfund Program. It is one of the databases associated with identifying potential hazardous materials sites or risks.
National Register of Historic Places (NRHP)	The official list of sites, districts, buildings, structures, and objects significant in the nation's history or whose artistic or architectural value is unique.
No build alternative	This designation represents the most likely condition expected to exist in the future if current policies, plans, and programs were to continue unchanged.
No Further Action (NFA)	NFA is a term used by the Oregon Department of Environmental Quality (ODEQ) for a cleanup site where sufficient cleanup has been done to reduce the hazard of potential exposure of contamination in soil and/or groundwater to human health and environmental receptors to acceptable standards. NFAs are so worded that the ODEQ has the ability to reclassify a site if changes occur such as a change in land use, buildings are removed that covered the contamination, and/or excavations expose buried contamination.
Noise Abatement Criteria (NAC)	Noise levels specified in 23 CFR 772 that define a noise impact for certain activity or land use category.
Noise barrier	A wall constructed out of wood, concrete, metal or other materials to reduce noise levels. Noise barriers are usually constructed between highways and adjacent residences.
Noise impacts	Noise impacts occur when traffic noise levels exceed the Oregon Department of Transportation (ODOT) impact criteria or if levels increase by 10 dBA or more over existing levels for the build alternative(s).
Noise Sensitive Area	A geographical area that includes a variety of individual noise sensitive receptor units (individual homes, apartment units, institution properties, etc.) which have a similar land use and noise environment, and if impacted, would likely be protected by a single noise abatement element, such as a noise barrier. An NSA might represent a single isolated property or an entire neighborhood. Within each NSA, several representative noise measurement and noise prediction locations may be identified. Typically, each NSA would have one measurement location and multiple noise prediction locations.
Non-attainment area	A geographic area has not met the the U.S. Environmental Protection Agency National Ambient Air Quality Standards (NAAQS).
Nonpoint source pollution	Pollution caused by rainfall or snowmelt moving over and through the ground, picking up and carrying away natural and human-made pollutants and depositing them into receiving waters.
Noxious Weeds	Plants classified by the Oregon State Weed Board and U.S. Department of Agriculture as injurious to public health, agriculture, recreation, wildlife, or any public or private property.
Ordinary High Water Line (OHWL)	The line on the bank or shore where the high water ordinarily rises annually in season.
Oregon Administrative Rules (OARs)	Regulations issued by agencies of the State of Oregon to implement laws enacted by the Oregon Legislative Assembly.
Oregon Revised Statutes (ORS)	The laws passed by the legislature to govern the State of Oregon, as codified.

Particulate Matter (PM)	Dust, soot, and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, garbage incineration, fertilizer and pesticide application, road construction, industrial processes (e.g., making steel), mining operations, agricultural field burning, and operation of fireplaces and woodstoves. Particulate pollution can cause eye, nose, and throat irritation and other health problems.
Peak hour	Hour of the day with the most traffic, usually during morning or evening commute times.
Pedestrian	Person on foot, in a wheelchair, or walking a bicycle.
Pier	The upright support pillar of a bridge.
Point source pollution	A single identifiable source from which pollutants are discharged, such as a pipe, ditch, ship or factory smokestack.
Pollution	Foreign, undesirable physical, chemical, or biological substance, often human-made, that causes contamination of the environment.
Purpose and Need	A preliminary step when developing a proposed project requiring an Environmental Impact Statement. Clarifying the project's purpose and confirming the project's need are critical when developing large-scale proposals requiring public expenditure.
Queuing	Queuing is the lining up of vehicles at a traffic light or stop sign and can have a major effect on roadway operation and safety.
Reasonable Abatement	An abatement measure that has been determined to be cost effective, approved by a simple majority of property owners and residents, and is able to achieve ODOT's noise reduction design goal.
Receiver	A modeling or measurement location that represents a noise sensitive land use and may represent multiple receptors or equivalent units.
Receptor	A subset of a receiver. It is an activity or unit, such as one dwelling, represented by a measured or modeled receiver (which can include multiple units). A receptor is also called an equivalent unit.
Record of Decision (ROD)	A public document that reflects the agency's final decision, rationale behind that decision, and commitments to mitigation.
Resource Conservation and Recovery Act (RCRA)	The RCRA list identifies facilities that have obtained identification numbers from the Environmental Protection Agency (EPA), which designate these businesses as generators, transporters, or storers/disposers of hazardous waste. It is one of the databases associated with identifying potential hazardous materials sites or risks.
Right-of-way	Property rights needed for construction of the transportation project.
Riparian	Riparian areas have distinctive soil and vegetation between a stream or other body of water and the adjacent upland, including wetlands.
Safety corridor	Safety corridors are stretches of state or local highway with an incidence of traffic crashes higher than expected for that type of roadway. Typical actions taken in these corridors to increase safety include more frequent enforcement, low cost engineering improvements and education efforts such as media events, brochures, and poster distribution.
Safety Priority Index System (SPIS)	A method for identifying potential safety problems on state highways and is recognized as an effective problem identification tool for evaluating safety issues on state highways with higher than average crash histories. The 2010 SPIS score is based on three years of crash data (2007-2009) and considers crash frequency (weighted 25 percent), crash rate (weighted 25 percent), and crash severity (weighted 50 percent) using a 0.10 mile segment length. ODOT considers locations in the top 10 percent to be of concern and annually investigate the top 5 percent sites.
Section 106	Section 106 of the NHPA requires federal agencies to "take into account" the effects of their undertakings on historic properties and to provide the Advisory Council on Historic Preservation a "reasonable" opportunity to comment in particular cases.
Section 4(f)	Section 4(f) property means i publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance. FHWA's Section 4(f) regulations are codified in 23 CFR 774.

Section 4(f) *de minimis* use	As amended by SAFETEA-LU (Public Law 109-59) in August 2005, Section 4(f) *de minimis* provides for FHWA approval of a Section 4(f) *de minimis* use when that use so small that it is not considered to have an adverse effect on the activities, features, and attributes that qualify the Section 4(f) property for protection.
Sole source aquifer	Underground water supply designated by the U.S. Environmental Protection Agency as the "sole or principal" source of drinking water for an area.
Species of concern	Species of concern are those species that might be in need of conservation action, ranging from a need for periodic monitoring of populations and threats to the species and their habitat to the necessity for listing as threatened or endangered.
Split Diamond Interchange	A variation of a standard diamond interchange (where straight freeway ramps intersect with a single cross street, resembling a diamond shape). In a split diamond interchange, the highway ramps intersect with two parallel cross streets at two separate intersections.
State Agency Coordination Program (SAC)	The administrative rules an Oregon state agency adopts to implement the requirement that it coordinate its programs with city and county comprehensive plans.
Statewide Planning Goals	A set of 19 goals required by OAR 660, Division 15, that express the State of Oregon's policies on land use and on related topics such as citizen involvement, housing, and natural resources. Local comprehensive planning is used to achieve Oregon's statewide goals.
Statewide Planning Program	The system of lands and regulations stemming from enactment of Senate Bill 100 in 1973 that requires that local and state agency plans comply with the Statewide Planning Goals and they be coordinated with each other. Urban growth boundaries are required by the Statewide Planning Program.
Storm water	Precipitation flowing from a land surface into streams, lakes or other waterways; storm water often contains pollutants.
Strategy Habitats	Native vegetation assemblages identified by the Oregon Department of Fish and Wildlife as needing conservation and restoration.
Texas turnaround interchange	An interchange that involves free flowing ramps that allow traffic from a one-way frontage road on one side of the freeway to make a U-turn to the other side.
Threatened/ endangered species	Threatened – an animal or plant species likely to become endangered within the foreseeable future. Endangered – an animal or plant species in danger of extinction throughout all or a significant portion of its range.
Total Maximum Daily Load (TMDL)	A calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.
Transportation Demand Management (TDM)	Actions and policies that encourage people to modify their travel behavior so that the highway system has reduced peak-period single occupant vehicle traffic. Examples of TDM include rideshare programs, discounted transit passes, pricing strategies, and flexible work hours.
Transportation System Management (TSM)	Techniques and technologies applied to the system to improve traffic flow. Examples include ramp metering, automated sign controls, bus priority signaling, video surveillance, and incident response services.
Transportation System Plan (TSP)	A long-range plan that guides transportation investments and contains goals, objectives, policies, and projects for improving livability.
Unity (visual resources)	Unity in the context of visual impact analysis looks at the degree to which the visual resources of the landscape form a coherent, harmonious visual pattern and the compositional harmony or compatibility between landscape elements.
Upland habitat	Non-riparian areas that provide wildlife with food, shelter, and corridors for moving from one habitat area to another.
Underground storage tank (UST) and leaking underground storage tank (LUST)	An underground storage tank (UST) system is a tank and any underground piping connected to the tank that has at least ten percent of its combined volume underground. Federal UST regulations apply only to underground tanks and piping storing either petroleum or certain hazardous substances. An LUST is a leaking underground storage tank.

Urban Growth Boundary (UGB)	In the Oregon Statewide Planning Program, this line divides lands intended for urban uses from lands intended for rural uses. All incorporated Oregon cities have UGBs.
Vehicle miles traveled (VMT)	The number miles traveled by vehicles using one or more roadways.
Vernal pool wetlands	Wetlands that are created by a shallow, hard soil layer that sits beneath the soil surface and prevents water from seeping into the ground. The pools become inundated by local hydrology during the fall/winter rainy season and dry out during the late spring and summer.
Vividness (visual resources)	Vividness in the context of visual impact analysis is the memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern and looks at: landform, vegetation, water, and man-made development.
Volume/capacity ratio (v/c)	A v/c ratio is the ratio of the volume of traffic on a street or road to the capacity of that street or road.
Waters of the State	Natural waterways including tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in Oregon; navigable and non-navigable waters, including that portion of the Pacific Ocean that is in the boundaries of the state.
Water of the U.S.	Water bodies over which the U.S. Army Corps of Engineers has regulatory jurisdiction under the Clean Water Act. Waters of the U.S. refer to those bodies of water that have been or may be used in interstate commerce, including lakes, rivers, streams, and wetlands.
Watershed	An area bordered by topographic high points causing water to drain to a common destination.
Wellhead protection area	A protected surface and subsurface zone surrounding a well or well field supplying a public water system to keep contaminants from reaching the well water.
Wetland	Wetlands for the purposes of the Clean Water Act, must meet a three-parameter approach that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, and the wetland must be connected to or have a significant nexus with one of the other waters of the US, for an area to be designated as a jurisdictional wetland under the Clean Water Act.
Wildlife collision hot spot	An area along a highway that has a known or potential vehicle safety concern due to frequent or regular animal-vehicle collisions.
Wildlife linkage	An area needed by animals to move from one location to another for needs such as food, shelter, or access to mates.
Zoning	City and county regulations on the use and development of land. In Oregon, zoning must be consistent with the applicable comprehensive plan.

Appendix P List of Technical Reports

This Environmental Impact Statement summarizes the technical documentation prepared for the OR 62 project. The complete technical documents are lengthier and more detailed than their representative sections in this EIS.

These reports are available on request from the Oregon Department of Transportation:

ODOT Environmental Project Manager
Anna Henson
ODOT Region 3
100 Antelope Road
White City, OR 97503
541-774-6376

Report or Study	Preparer(s)
Air Quality Technical Report	Christy Schmitt, PE, URS
Alternatives Considered Technical Report	Terry Kearns, URS Martha Richards, URS
Aquatic Resources Technical Report	Brad Rawls, URS
Archaeological Resources Technical Report	Brian O'Neill, OSMA
Energy Technical Report	Thuy Tu, EIT, URS
Geotechnical Memo	Kimberly Wittenburg, ODOT
Hazardous Materials Technical Report	Jacob Kercher
Historic Resources Technical Report	Martha Richards, URS
Land Use and Planning Technical Report	John Kelly, URS
Noise Technical Report	Paul Burge, URS
Parks, Recreational Facilities, and Wildlife Refuges Technical Report	Martha Richards, URS
Right-of-Way Technical Report	Aaron Isenhart, PE, HHPR
Socioeconomics Technical Report	Katie Carroz, Carroz Consulting, LLC Seth Gallant, URS
Terrestrial Resources Technical Report	Kim Degutis, URS
Traffic Technical Report	Kim Parducci, SOTE, LLC
Utilities Memo	Anna Henson, ODOT
Visual Resources Technical Report	Martha Richards, URS
Water Resources Technical Report	Emily Whiteman, URS
Wetland Hydrology Analysis Report	David Weatherby, URS Mary Pakenham-Walsh, URS
Wetlands Technical Report	Noah Herlocker, PWS, URS Danni Kline, URS
Vernal Pools Habitat Assessment	Noah Herlocker, PWS, URS Danni Kline, URS