



Appendix A. Acronyms and Abbreviations



Appendix A. Acronyms and Abbreviations

°C	degrees centigrade
°F	Fahrenheit
µg/m ³	micrograms per meter cubed
AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
a.m.	ante meridiem
APE	area of potential effect
B/TDB	Alternative B with temporary detour bridge
BES	City of Portland Bureau of Environmental Services
BMP	best management practice
BRT	bus rapid transit
Btu	British thermal units
CD	compact disk
Census	2000 United States Census
CEQ	Council on Environmental Quality
CETAS	Collaborative Environmental and Transportation Agreement for Streamlining
CFR	Code of Federal Regulations
CO	carbon monoxide
<i>Comprehensive Plan</i>	<i>City of Portland Comprehensive Plan</i>
<i>Comprehensive Plan Map</i>	<i>City of Portland Comprehensive Plan Map</i>
CRD	Columbia River Datum
CSO	Combined Sewer Overlay
CTF	Community Task Force
CWA	federal Clean Water Act
dBA	decibels on an A-weighted scale
DEIS	Draft Environmental Impact Statement
DEQ	Oregon Department of Environmental Quality
DOE	Determination of Eligibility
EIS	environmental impact statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	final environmental impact statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration

Appendix A: Acronyms and Abbreviations

HABS/HAER	Historic American Building Survey/Historic American Engineering Record
HGM	Hydrogeomorphic
HRI	Historic Resource Inventory
I-205	Interstate 205
I-5	Interstate 5
IAMP	Interchange Area Management Plan
ITS	Intelligent Transportation System
JPACT	Joint Policy Advisory Committee on Transportation
lf	lineal feet
LOS	level of service
LRT	light rail transit
LWCF	Land and Water Conservation Fund
Metro	Portland area metropolitan planning organization
mph	miles per hour
MS4	Municipal Separate Storm Sewer System
MSATs	Mobile Source Air Toxics
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NMFS	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O ₃	ozone
OAR	Oregon Administrative Rule
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OHSU	Oregon Health & Science University
ONHIC	Oregon Natural Heritage Information Center
OR 43	Oregon 43, also known as SW Macadam Avenue in the City of Portland
OR 99E	Oregon 99E, also known as SE McLoughlin Boulevard
OTIA	Oregon Transportation Investment Act
PAG	Policy Advisory Group
PAH	polycyclic aromatic hydrocarbon (by-product of incomplete combustion)
Pb	lead
PDOT	City of Portland Office of Transportation

PGE	Portland General Electric
p.m.	post meridiem
PM _{2.5}	particulate matter less than 2.5 micrometers in aerodynamic diameter
PM ₁₀	particulate matter less than 10 micrometers in aerodynamic diameter
PMSA	Primary Metropolitan Statistical Area
PMT	Project Management Team
PP&R	Portland Parks and Recreation Department
ppm	parts per million (by volume)
RTP	Metro's 2004 Regional Transportation Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SAS	Senior Agency Staff
Section 4(f)	Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 USC 303(c))
Section 6(f)	Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965
Section 106	Section 106 of the National Historic Preservation Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMILE	Sellwood Moreland Improvement League
SO ₂	sulfur dioxide
SOI	Secretary of the Department of the Interior
SPIS	Safety Priority Index System
STIP	Statewide Transportation Improvement Program
TCM	transportation control measure
THPO	Tribal Historic Preservation Officer
TPH	total petroleum hydrocarbon (such as gasoline, diesel, heating oil, motor oil)
TSS	total suspended solids
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound (such as cleaning solvents, degreasers, paint thinners)
WQS	water quality standards
WSE	water surface elevation



Appendix B. References



Appendix B. References

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Appendix C. List of Preparers



Appendix C. List of Preparers

Table C-1. List of Sellwood Bridge Project Draft Environmental Impact Statement Preparers.

Name	Affiliation	Area of EIS Responsibility	Education	Years of Experience
Management Team				
Michael Eaton	Multnomah County	Project Manager	B.S. Civil Engineering and Biology	24
Marcy Schwartz	CH2M HILL	Consultant Project Manager	M.A. Urban Planning, B.A. English	38
Emily Moshofsky	ODOT	ODOT Environmental Lead	B.A. Geography	8
Donna Kilber-Kennedy	CH2M HILL	Consultant Environmental Lead	M.B.A. Business Administration, B.S. General Social Science	34
Technical Team Leads				
Kath Althen	CH2M HILL	Lead Technical Editor	M.A. Economics, B.A. Economics	28
Darren Muldoon	CH2M HILL	Lead DEIS Author	M.U.R.P. Urban and Regional Planning, B.S. Environmental Science	6
Kathryn Westcott	CH2M HILL	Lead Graphics Designer	B.A. Journalism/Public Relations	3
Technical Team				
Mark Anderson	CH2M HILL	Hydraulics	M.S. Civil Engineering, B.S. Civil Engineering	10
Rick Attanasio	CH2M HILL	Water Resources	M.S. Environmental Engineering, B.S. Civil Engineering	27
Theresa Carr	CH2M HILL	Environmental Justice	M.U.R.P. Urban and Regional Planning, B.S. Economics	10
Josh Cooper	CH2M HILL	Energy	B.A. Economics	3
Dave Dailer	CH2M HILL	Geological Resources	M.S. Geotechnical Engineering, B.S. Civil Engineering	27
Jessica Feldman	CH2M HILL	Archaeological and Historic Resources	M.A. Historic Preservation Planning, B.S. History	11
Patrick Heins	CH2M HILL	Hazardous Materials	B.A. Biology, B.S. Environmental Management	10
Ben Hoffman	CH2M HILL	Geological Resources	M.S. Civil Engineering, B.S. Civil Engineering	6
Michael Hoffmann	CH2M HILL	Land Use, Section 4(f) Evaluation	M.U.R.P. Urban and Regional Planning, B.S. English	7
Lwin Hwee	CH2M HILL	Structural Design, Construction Impacts	M.B.A. Business Administration, B.S. Civil Engineering	22

Appendix C: List of Preparers

Table C-1, cont. *List of Sellwood Bridge Project Draft Environmental Impact Statement Preparers.*

Name	Affiliation	Area of EIS Responsibility	Education	Years of Experience
Katina Kapantais	CH2M HILL	Wildlife	Certificate, Wetland Science and Management, M.S. Environmental Studies, B.A. Environmental Science	14
Steve Katko	CH2M HILL	Roadway Design Lead, Construction Impacts	B.S. Civil Engineering	13
Michelle Koubek	CH2M HILL	GIS Analyst	B.S. Geography	7
Aaron Leritz	CH2M HILL	Hazardous Materials	B.S. Environmental Health	14
Natalie Liljenwall	CH2M HILL	Air Quality, Noise	M.S. Environmental Engineering, B.S. Environmental Engineering	11
Terra Lingley	CH2M HILL	Environmental Justice	M.U.R.P. Urban and Regional Planning, B.S. Anthropology	1
Sumi Malik	CH2M HILL	Social Elements, Transportation	M.U.R.P. Urban and Regional Planning, B.S. Biology	3
Robin McClintock	CH2M HILL	Archaeological and Historic Resources	B.S. Anthropology	20
Jason Moller	CH2M HILL	Roadway Design, Construction Impacts, Utilities	B.S. Civil Engineering	6
Peggy O'Neill	CH2M HILL	Biological Resources	M.S. Environmental Sciences and Resources, B.A. Earth Sciences	11
Beth Roussel	CH2M HILL	Technical Editing	M.A. Writing, B.A. Writing and English Literature	10
Chris Stebbins	CH2M HILL	GIS Analyst	B.A. Geography	14
Brandy Steffen	CH2M HILL	Public Involvement	B.S. Geography	3
Greg Warren	CH2M HILL	Geological Resources	M.S. Geology, B.S. Geology	16
Larry Weymouth	CH2M HILL	Visual Resources	B.S. Political Science	32
Greg White	CH2M HILL	Biological Resources	M.S. Biological Oceanography, B.S. Fisheries Science	23
David Parisi	Parisi and Associates	Transportation	B.S. Civil Engineering	23
Alex Cousins	JLA	Public Involvement	M.P.A. Public Affairs, B.A. Political Science	17
Mia Birk	Alta Planning + Design	Bicyclists and Pedestrians	M.A. International Relations and Economics, B.A. Government and French	16
Rory Renfro	Alta Planning + Design	Bicyclists and Pedestrians	M.U.R.P. Urban and Regional Planning, B.S. Urban and Regional Planning	7
George Donnerberg	Real Property Consultants	Right-of-Way	B.S. Geography	36
Johanna Young	EcoNorthwest	Economics	M.U.R.P. Urban and Regional Planning, M.S.M.E. Mechanical Engineering, B.S. Mechanical Engineering	4



*Appendix D. List of Supporting
Technical Documentation*



Appendix D. List of Supporting Technical Documentation

Sellwood Bridge Draft Environmental Impact Statement, Multnomah County, Oregon, Draft Section 4(f) Evaluation Technical Report (CH2M HILL, 2008a; available upon request)

Sellwood Bridge Project Air Quality Technical Report (CH2M HILL, 2008b; available upon request)

Sellwood Bridge Project Alternatives Adopted by the Policy Advisory Group for Analysis in the Draft Environmental Impact Statement Technical Memorandum (CH2M HILL, 2007d; located on the project Web site at <http://www.sellwoodbridge.org/ProjectLibrary.aspx>)

Sellwood Bridge Project Biological Resources Technical Report (CH2M HILL, 2008c; available upon request)

Sellwood Bridge Project Construction Activities and Impacts Technical Memorandum (CH2M HILL, 2008d; available upon request)

Sellwood Bridge Project Cultural Resources Technical Report (CH2M HILL, 2008e; available upon request)

Sellwood Bridge Project Decision Process and Public Involvement Summary Report (JLA, 2008; available upon request)

Sellwood Bridge Project Economic Technical Report (ECONorthwest, 2008; available upon request)

Sellwood Bridge Project Energy Technical Report (CH2M HILL, 2008f; available upon request)

Sellwood Bridge Project Environmental Justice Technical Report (CH2M HILL, 2008g; available upon request)

Sellwood Bridge Project Evaluation Framework Technical Memorandum (CH2M HILL, 2007a; located on the project Web site at <http://www.sellwoodbridge.org/ProjectLibrary.aspx>)

Sellwood Bridge Project Final Alternatives Evaluation Findings Technical Memorandum (CH2M HILL, 2007c; located on the project Web site at <http://www.sellwoodbridge.org/ProjectLibrary.aspx>)

Sellwood Bridge Project Geological Resources Technical Report (CH2M HILL, 2008h; available upon request)

Sellwood Bridge Project Hazardous Materials Technical Report (CH2M HILL, 2008i; available upon request)

Sellwood Bridge Project Hydraulics Technical Report (CH2M HILL, 2008j; available upon request)

Sellwood Bridge Project Land Use Technical Report (CH2M HILL, 2008k; available upon request)

Sellwood Bridge Project Noise Technical Report (CH2M HILL, 2008l; available upon request)

Sellwood Bridge Project Range of Alternatives Technical Memorandum (CH2M HILL, 2007b; located on the project Web site at <http://www.sellwoodbridge.org/ProjectLibrary.aspx>)

Sellwood Bridge Project Right-of-Way Technical Report (Real Property Consultants, 2008; available upon request)

Sellwood Bridge Project Social Technical Report (CH2M HILL, 2008m; available upon request)

Sellwood Bridge Project Transportation Technical Report (CH2M HILL et al., 2008; available upon request)

Sellwood Bridge Project Utility Conflict Analysis Technical Memorandum (CH2M HILL, 2008n; available upon request)

Sellwood Bridge Project Visual Resources Technical Report (CH2M HILL, 2008o; available upon request)

Sellwood Bridge Project Water Resources Technical Report (CH2M HILL, 2008p; available upon request)

South Willamette River Crossing Study Findings and Recommendations Report (Metro, 1999; located on the project Web site at <http://www.sellwoodbridge.org/ProjectLibrary.aspx>)



*Appendix E. Distribution and
Notice of Availabilty Lists*



Appendix E. Distribution and Notice of Availability Lists

1.1 Distribution List

Various federal, state, and local agencies, tribes, organizations, and groups representing project stakeholders were provided with copies of this Draft Environmental Impact Statement (DEIS).

1.1.1 Federal Agencies

- Federal Emergency Management Agency
- National Marine Fisheries Service
- National Park Service
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service

1.1.2 State Agencies

- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Land Conservation and Development
- Oregon Department of Parks and Recreation
- Oregon Department of Water Resources
- Oregon Division of State Lands
- Oregon State Historic Preservation Office
- Oregon State Marine Board

1.1.3 Tribes

- Confederated Tribes of Siletz

1.1.4 Local Agencies

- City of Milwaukie
- City of Portland
- Clackamas County
- Metro
- TriMet

1.1.5 Organizations

- American Automobile Association of Oregon
- Association of Portland Neighborhood Business Associations
- Bicycle Transportation Alliance
- Clackamas County Economic Development Commission
- Oregon Trucking Association
- Portland Business Alliance
- SMILE
- South Portland Neighborhood Association
- Westmoreland Business Alliance

1.1.6 Local Libraries

- Clackamas County
- Multnomah County

1.2 Notice of Availability Recipients

The following federal, state, and local agencies, tribes, organizations, and individuals have been notified that the DEIS is available and provided instructions related to accessing and commenting on the document.

1.2.1 Elected Officials

- Ron Wyden, U.S. Senator, Oregon
- Gordon Smith, U.S. Senator, Oregon
- Earl Blumenauer, U.S. Representative, Oregon
- Carolyn Tomei, Oregon State Representative
- Kate Brown, Oregon State Senator

1.2.2 Organizations and Businesses

- Brinsfield Boat Basin
- Macadam Bay Club
- Oaks Amusement Park
- Portland Kayak and Canoe Team
- Portland Streetcar
- River Park Homeowners Association
- River View Cemetery
- River View Cemetery
- Riverside Corral
- Sellwood Harbor Homeowners Association
- Southeast Uplift
- Staff Jennings
- Union Pacific Railroad (Oregon Pacific Railroad)
- Willamette Pedestrian Coalition
- Willamette Shoreline Trolley
- All 9 businesses in the Sellwood Building
- All 37 businesses in the River Park Center
- All businesses on the project's mailing list
- Other businesses within several miles of the bridge

1.2.3 Educational Organizations

- Oregon Health & Science University
- Portland Public Schools
- Portland State University

1.2.4 Media

- KATU
- KGW
- KOIN
- KPTV
- Oregon Public Broadcasting (OPB)
- *Portland Tribune*
- *Sellwood Bee*
- *The Oregonian*
- *Willamette Week*

1.2.5 Citizens

A postcard was sent to the project mailing list announcing the availability of the DEIS and providing instructions related to accessing and reviewing the document on the project Web site. This list was comprised of over 5,000 individuals who took one of the four online surveys, attended an open house, or commented during the previous project phases. The postcard was also distributed to other residents within several miles of the bridge.



Appendix F. Summary of Permits and Clearances Needed



Appendix F. Summary of Permits and Clearances Needed

Table F-1. *Summary of Permits and Clearances Needed.*

Agency	Regulation or Approval
Federal Highway Administration	Section 4(f) of the U.S. Department of Transportation Act of 1966
National Park Service	Section 6(f) of the Land and Water Conservation Act
U.S. Army Corps of Engineers/ Oregon Department of State Lands	Clean Water Act, Section 404
U.S. Army Corps of Engineers/ Oregon Department of State Lands	Oregon's Removal-Fill Law
U.S. Army Corps of Engineers/ Oregon Department of State Lands	Section 10 of the Rivers and Harbors Act
U.S. Coast Guard	Section 9 of the Rivers and Harbors Act
U.S. Fish and Wildlife Service/ National Marine Fisheries Service	Section 7 Endangered Species Act Consultation
U.S. Fish and Wildlife Service/ National Marine Fisheries Service	Fish and Wildlife Coordination Act
U.S. Fish and Wildlife Service/ National Marine Fisheries Service	Magnuson-Stevens Fishery Conservation and Management Act
U.S. Fish and Wildlife Service/ National Marine Fisheries Service	Migratory Bird Treaty Act
Oregon Department of Agriculture	Oregon Endangered Species Act (Plants)
Oregon Department of Environmental Quality	Clean Water Act Section 401: Water Quality Certification
Oregon Department of Environmental Quality	Clean Water Act Section 402: National Pollutant Discharge Elimination System (NPDES) Program
Oregon Department of Environmental Quality	Clean Water Act Section 402: NPDES Municipal Separate Storm Sewer System (MS4) Program
Oregon Department of Environmental Quality	Conformance with Oregon Department of Environmental Quality's National Ambient Air Quality Standards
Oregon Department of Fish and Wildlife	Oregon Endangered Species Act (Wildlife)
Oregon Department of Transportation	Interchange Area Management and Access Management Plan (Oregon Administrative Rule [OAR] 734-051-0155)
Oregon State Marine Board	Recreational Waters Coordination Requirements
State Historic Preservation Office	Section 106 Consultation, National Historic Preservation Act
City of Portland	Floodplain Development Permit
City of Portland	Type II Greenway Permit
City of Portland	Type II Environmental Permit
City of Portland	Conditional Use Permit
City of Portland	Non Park Use Permit
City of Portland	Noise Ordinance Variance



Appendix G. Summary of Mitigation and Environmental Commitments



Appendix G. Summary of Mitigation and Environmental Commitments

Table G-1. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
3.1 Transportation		
All		Coordinate with the Oregon Pacific Railroad during construction to ensure efficient maintenance of their operation through the project area. Develop new easement and operations and maintenance agreements.
All		Have City of Portland monitor performance of SE Tacoma Street/SE 13th Avenue intersection. Consider part-time or full-time removal of on-street parking on west side of northern (southbound) leg of intersection.
All		As part of the Interchange Area Management Plan (IAMP), consider limiting driveway access to right turns in and out only; or right turns in and out plus left turns in only. Do this because the spacing on OR 43 between the Sellwood Bridge northbound on-ramp junction and the Macadam Bay Club driveway would be substandard for the Oregon Department of Transportation (ODOT) access management spacing standard, potentially resulting in unsafe northbound merging, weaving, and/or diverging conditions. Note that current spacing is 1,130 feet. A deviation from the standard (1 mile) would be required.
A, B		Consider metering lights to control traffic flow into the roundabout from OR 43's off-ramps because capacity constraints on SE Tacoma Street would extend eastbound traffic across the Sellwood Bridge into the roundabout during the afternoon/evening peak period. This would impede traffic flow and cause additional traffic delays and back ups. In addition, consider vehicle queue detectors on the Sellwood Bridge, tied to the traffic signals at SE Tacoma Street/SE 13th Avenue and SE Tacoma Street/SE 17th Avenue.
C		Because direct access from OR 43 to River View Cemetery would be removed, provide improved access at the cemetery's main entrance on SW Taylors Ferry Road by providing pavement marking, a left-turn lane at the access, and signage on OR 43 guiding motorists to SW Taylors Ferry Road to access River View Cemetery.
C		Monitor traffic volumes along neighborhood roadways, including SE Spokane Street, SE Nehalem Street, and SE 7th Avenue. Consider implementation of additional traffic calming measures, if appropriate. Do this because, even though the SE Grand Avenue extension would provide improved accessibility between the Sellwood Bridge and areas north of SE Tacoma Street and west of SE 13th Avenue, moderate levels of increased traffic volumes could result.
C		With the SE Grand Avenue extension, consider providing pedestrian refuge islands on SE Tacoma Street's western legs at SE 6th Avenue and SE 7th Avenue, substantially improving pedestrian mobility and safety in crossing SE Tacoma Street. Consider these measures during final design if this alternative or this option were selected.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
D, E		To obtain acceptable LOS conditions with a traffic signal, either (1) remove left-turn lanes in addition to on-street parking and pedestrian refuge islands on SE Tacoma Street or (2) widen SE Tacoma Street to one or both sides. Both options would increase traffic levels along local streets parallel to SE Tacoma Street west of SE 13th Avenue. Do this because signalization of the SE Tacoma Street/SE 6th Avenue (or SE Tacoma Street/SE 7th Avenue) intersection would result in Level-of-Service (LOS) F conditions, with traffic demands exceeding the intersection’s capacity by about 40 percent. This would cause unacceptable vehicle delays and back ups, as well as substantial increases in neighborhood cut-through traffic levels. Consider these measures if one of the alternatives with this option were selected.
3.2 Bicyclists and Pedestrians		
All		Because access would be closed temporarily for construction equipment staging and construction activities in the west-side interchange area between River View Cemetery and the Willamette Greenway Trail, redirect bicyclists and pedestrians to detour routes, such as SW Taylors Ferry Road. Routes might be circuitous roadways with high traffic volumes, high vehicle speeds, and few or no bicyclist and pedestrian facilities. Provide signage to alert motorists to the presence of bicyclists.
All		Because the Springwater Corridor Trail would be temporarily closed near the existing Sellwood Bridge for construction equipment staging and construction activities, redirect bicyclists and pedestrians to detour routes, depending on the location of the trail closure, the topography, and the street system connectivity. Provide signage to direct bicyclists.
3.3 Right-of-Way and Relocation		
All		Design the Build alternatives to minimize displacements and impacts to private property, which has been done.
All		Implement the provisions as required under the Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act), as amended, for all businesses and residential displacements, and for real property acquisitions. Compensate all property owners at fair market value, and provide relocation assistance in accordance with the Uniform Act.
A, B, D, E	River View Cemetery	After construction, restore on site the 8 out of 12 parking spots displaced, to the extent possible.
A, B, C, D	River Park Sellwood Harbor	Because some condominium units would be removed, reconstruct the remaining adjacent condominium units and common areas.
A, B, C, D	River Park	Although 14 parking spaces under the existing bridge would be displaced during construction, there is adequate parking in the area to accommodate the displacement of these parking spaces during construction. After construction, restore these parking spaces through an easement from Multnomah County, to the extent possible.
A, B, D, E	Staff Jennings River View Cemetery Powers Marine Park	Modify access from OR 43. A roadway would diverge from the new River View Cemetery access and would pass under OR 43 south of the interchange to provide access to Staff Jennings and Powers Marine Park.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
3.4 Utilities		
All		Replace, reconstruct, or realign impacted utilities. The extent of the impacts will be determined when more detailed design is available.
3.5 Land Use		
All	City of Portland	Obtain Greenway, Environmental, and Floodplain Permits, as required, and a Goal 15–Greenway goal exception, if necessary.
All	ODOT	Prepare an IAMP, an Access Management Plan, and deviations to access standards.
3.6 Economics		
B, D, E		Minimize economic impacts by maintaining traffic across the river during construction.
All		Maintain access to local business in the project area and along detour routes and provide signage to direct traffic to businesses with modified access.
3.7 Social Elements		
All		Communicate closures and temporary closures of the bridge or OR 43, or blockage of the navigation channel, to the following potential emergency services personnel—Portland Police and Fire, Multnomah County River Patrol, Oregon Health & Science University, and Providence Milwaukie, and to ambulance dispatching services such as American Medical Response and Metro West. Notify the public with reader boards and distribution to various public media sources.
3.8 Parks and Recreation		
All	Powers Marine Park Willamette Moorage Park Oaks Pioneer Park Sellwood Riverfront Park	When converting existing park property to transportation use, directly compensate Portland Parks and Recreation Department (PP&R) and use other mitigation measures. Coordinate with real estate specialists to determine property needs and just compensation based on the fair market value.
All		Provide a Willamette Greenway Trail (West Bank) segment to be co-located with the future Willamette Shoreline Trolley. This would be done to offset the incorporation of the existing Willamette Greenway Trail (West Bank) into the interchange footprint.
C		Install signage directing motorists to parking areas at Willamette Moorage Park for access to Powers Marine Park and to Willamette Park for boat launch ramp facilities.
A, B, C		Provide detour signage for bicyclists indicating the closest Willamette River crossing with bicycle accommodations.
A	Oaks Pioneer Park	Plant trees and vegetation around bridge structure and elsewhere in the park.
All	Powers Marine Park Willamette Moorage Park	Remove invasive plant species and replace with native plant species within the construction disturbed areas.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
C	Powers Marine Park	Assist with the construction of a non-motorized boat launch in the vicinity of Sellwood Riverfront Park.
A, E	Sellwood Riverfront Park	Assist with re-vegetating the riparian zone with cottonwood trees.
A	Sellwood Riverfront Park	Plant trees in parking lot.
All	Springwater Corridor Trail Willamette Greenway Trail —East and West banks	Provide a temporary detour for the trails, which would include the following elements, as necessary—surfacing, signage, and pavement markings.
All	Powers Marine Park	Stabilize the river bank.
E	Oaks Pioneer Park	Consider installation of noise abatement devices on bridge deck.
A	Sellwood Riverfront Park	Replace parking spaces on land adjacent to the park.
All	Willamette Moorage Park Powers Marine Park	Contribute to the City of Portland’s fish habitat restoration efforts currently underway, if PP&R considers it appropriate.
All	Willamette Moorage Park	Enhance wetlands in place or replace wetlands at another nearby location determined with PP&R and Portland Bureau of Environmental Services.
3.10 Archaeological and Historic Resources		
All		Follow Historic American Building Survey/Historic American Engineering Record (HABS/HAER) Level III documentation standards for the River View Cemetery and the Superintendent’s House at River View Cemetery.
All		Salvage materials from the Sellwood Bridge and preserve dedication plaques for reinstallation at a later time.
A, B, D, E	River View Cemetery and Superintendent’s House	Prepare a National Register of Historic Places (National Register) nomination for the River View Cemetery, if River View Cemetery requests it.
A, B, D, E	River View Cemetery and Superintendent’s House	Create a landscaping plan in coordination with River View Cemetery staff, qualified cultural resource specialists, and registered landscape architects with experience in historic landscapes to minimize the effect of the loss of land along OR 43 (which is anticipated in all Build alternatives). This would include replanting of appropriate trees, shrubs, and other plants found at the cemetery. Enhancements to the landscape would include a planting screen to minimize visual impacts related to the widening of OR 43 near the Superintendent’s House. Additionally, replace in kind any foliage removed for the realignment of the access road to the Superintendent’s House.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
A, B, D, E	River View Cemetery and Superintendent's House	Install new signage to direct the visitors to the Superintendent's House and to explain the significance of the historic property.
A, B, D, E	River View Cemetery and Superintendent's House	Document the cemetery gates before removal and relocation, according to HABS/HAER Level III standards. It is assumed that the gates would be moved to a new entrance. Have documentation and relocation meet all possible planning requirements to minimize harm to the gates. Determine and complete appropriate-level HABS/HAER recordation for the Superintendent's House and River View Cemetery prior to construction and prepare documentation.
A, B		Apply the federal government's standards for bridge rehabilitation and seek approval from the Oregon State Historic Preservation Office (SHPO). If not approved, bridge may no longer be eligible for the National Register.
C, D, E	Multnomah County Bridges	Provide support for a new Web site that would provide information about the historic bridges in the area. Make the Web site available to both the City of Portland and the Multnomah County Web sites that link to the ODOT Web site.
C, D, E	Sellwood Bridge	Assess existing bridge materials to determine what materials, if any, are salvageable and would be available to interested parties. Prepare a list of potential interested parties in advance of any proposed salvage or advertisement thereof.
C, D, E	Sellwood Bridge	Offer the truss spans for reuse at an alternate location(s). Place advertisements in appropriate media outlets such as newspapers, trade magazines, and on the Internet. Run the offer for 3 months.
C, D, E	Sellwood Bridge	Create interpretive panels to explain the history of river crossings in the immediate area, as well as to discuss the history of the Sellwood neighborhood. Place these on or near the bridge.
C, D, E	Sellwood Bridge	Remove the existing dedication plaques prior to demolition. Before the plaques are stored, clean and treat them. Then store them in an appropriate manner (that is, in a secure location) until the completion of the new bridge. It is recommended that the original dedication plaques be placed on panels on or near the sidewalk entrance, on the east side of the new bridge, with signage explaining the demolition of the original structure.
C, D, E	Willamette River Bridges	Before the demolition of the existing bridge, review the existing Willamette River Bridges Historic American Engineering Record (HAER) (OR-55) to determine whether Level I documentation was prepared, specific to the Sellwood Bridge. If not, accomplish this prior to the demolition of the bridge. Disseminate copies of the report to the Central and Sellwood-Moreland branches of the Multnomah County Library system, as well as to the City of Portland, ODOT, and SHPO.
C, D, E	Willamette River Bridges	Contribute to a National Register Multiple Property nomination for the Willamette River Bridges (between and including St. Johns Bridge and the Oregon City Bridge), if undertaken by others.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
C	River View Cemetery and Superintendent's House	Permanently remove the cemetery gates from their location at the cemetery entrance on OR 43 to another cemetery entrance, with an interpretive panel explaining the relocation. Images on the panel would show their original setting and location.
C	River View Cemetery and Superintendent's House	Design any proposed retaining walls associated with the bicycle/ pedestrian underpass and the removal of the entrance road to assimilate with the surrounding landscape. Do not construct these walls to a height that would obscure the viewshed to and from the Superintendent's House towards the river.
All		Conduct subsurface archaeological investigations after identification of the preferred alternative to determine if such deposits exist. If they exist, assess potential impacts and develop a mitigation plan, if necessary.
All		In the unlikely event that human remains were discovered during project completion, implement the proper protocol for such a discovery. Immediately stop work in the area of the discovery and secure the area. Contact the Multnomah County Sheriff's Office and Medical Examiner, the Oregon State Archaeologist, the Multnomah County project manager, and the Multnomah County archaeologist. If the discovery were determined not to be Euro-American, notify the tribal representatives of the Confederated Tribes of Siletz Indians and the Confederated Tribes of the Grand Ronde Indians, along with the Oregon State Museum of Anthropology. If the remains were determined to be Native American, have the Tribes, SHPO, and Multnomah County confer related to an appropriate course of action.

3.11 Visual Resources

All		Determine new plant locations, species, and sizes during final design as part of landscape mitigation at the time of construction. Using mitigation measures recommended for consideration during final design, attempt to restore the natural environment along OR 43. Screening of the retaining walls by existing vegetation or replanted vegetation, such as large trees and climbing vegetation over the vertical faces, could reduce the visual impact after approximately 10 years.
All		Consider during final design reducing form, texture, or color contrasts in structures and cut/fill slopes.
All		Consider during final design refining the alignment of the interchange and ramps to lessen the hillside cuts.
All		Consider during final design preserving existing stands of mature trees and other attractive natural vegetation to the greatest extent possible; minimizing clearing for construction; and marking trees for preservation.

3.12 Geology

All	Sellwood Slide	Construct new piers and abutments in stable ground below the slide and use drilled shafts and driven piling to provide structural mitigation. This technique involves driving or drilling the piles or shafts through the slide mass and into stable rock below the slide. Removing the existing fill and replacing it with lightweight fill, such as Styrofoam, would reduce the force on the landslide and reduce the weight of fills.
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Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
All		Include basic rockfall mitigation techniques, such as installing rockfall nets or catch fences to cover slopes and constructing a rock catchment ditch) with a barrier between the ditch and OR 43. Stabilize high rockfall hazard areas using bolts and mesh to cover these areas of weathered zones of rock. The use of rock anchors would increase the stability of the slope. If highly weathered rock or soil-like zones were exposed in rock cuts, employ stabilization techniques (such as mesh or soil nails) to mitigate slope hazards.
All		Apply standard erosion control techniques including Stormwater and Erosion Best Management Practices (BMPs) in construction zones to minimize erosion. For the long-term, control erosion by hydroseeding and establishing vegetation as soon as possible. Also, consider other measures such as diverting stormwater runoff away from cuts and fills and constructing erosion retention basins.
All		Evaluate the level of loading to be expected during design, and perform structural design to withstand the anticipated loads as mitigation for seismic hazards to bridges, structures, and retaining walls. In foundation design consider liquefaction and found the structure on rock or more stable ground (such as the Troutdale formation), if encountered at depth. Use slope stabilization measures (such as installing drilled shafts or micropiles and increasing soil strength) to provide mitigation for seismic hazards.
3.13 Water Resources and Water Quality		
All		Obtain a National Pollutant Discharge Elimination System (NPDES) 1200-C permit. These permits identify activities during construction to assure an acceptable standard of water quality. In addition, the Federal 404 Wetland Removal Fill permit requires that construction stormwater management and construction practices be addressed. Address major areas during construction, such as erosion prevention, sediment control, and in-water work. The project will follow ODOT BMPs.
All		Incorporate water-quality mitigation with the proposed Build alternatives to reduce pollutant loading to the river, with the exception of pollutants that were entirely dissolved. (Mitigation was analyzed for the treatment of stormwater from all impervious areas within the project. With mitigation, the annual pollutant loads would generally decrease below those of the No Build Alternative.) Load reductions for total copper and total zinc would be approximately 1 to 10 percent. However, for dissolved copper and dissolved zinc, annual loads would increase approximately 44 to 60 percent. The greatest decreases would be in particulate pollutant loadings, such as total suspended solids (TSS). With mitigation, approximately 70 percent of particulate pollutants would be removed. Dissolved pollutants would show the least removal (approximately 20 percent removal). This level of removal should be considered conservative; actual removal would likely be higher than calculated.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
All		Use engineered stormwater treatment of runoff as a mitigation measure to reduce project impacts. Mitigation was considered for treatment of stormwater from all impervious surfaces. Various stormwater treatment methods, accepted by the City of Portland, were investigated to determine their viability. Potential facilities were sized using guidelines from ODOT, City of Portland, National Oceanic and Atmospheric Administration, and National Marine Fisheries Service (NMFS). The most stringent and largest mitigation design was selected at this point in the project’s development. The mitigation may be resized once the preferred Build alternative is identified and the actual impervious surface is known. Obtain permits from the City of Portland for stormwater runoff from new impervious areas.
3.14 Hydraulics		
All		Explore during final design the opportunity to reduce hydraulic impacts by reducing the base flood elevation change. This could be accomplished by minimizing the number of in-water piers and shaping piers in a streamlined manner.
All		<p>Develop many of the mitigation measures after hydraulic designs for the bridge have been completed. The following are potential mitigation measures:</p> <ul style="list-style-type: none"> – Design the bridge to span the width of the natural channel. Set the abutments back onto the overbank areas so construction would not encroach into the channel – Size bridge openings to pass the 100-year peak flood discharge with little or no increase to the water surface elevation – Minimize interior piers
All		Request review and approval from Oregon Department of Fish and Wildlife (ODFW) of fish passage mitigation measures resulting from the proposed bridge.
All		Prohibit construction equipment from entering watercourses, except when a specific task can only occur in the stream, such as the construction of piers. This activity would be limited to the in-water work periods for watercourses with listed fish species.
All		Prohibit equipment washing in the watercourses.
All		Prohibit equipment from crossing the watercourses, except at temporary crossings, unless impractical. A temporary crossing plan would be prepared in coordination with the ODFW and ODOT. The plan would identify proposed construction methods and develop appropriate mitigation measures to rehabilitate the watercourse habitats that would be affected by the temporary crossings.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
All		<p>Perform a “no rise” analysis and obtain a City of Portland Floodplain Development Permit prior to construction. Any substantial impacts to the FEMA Special Flood Hazard Area could be mitigated by one or a combination of the following techniques:</p> <ul style="list-style-type: none"> – Excavate part of the streambank to compensate for the permanent loss in flow area (that is, the loss created by the installation of bridge piers) – Lengthen the bridge spans to reduce the number of piers in the floodplain – Investigate pier shaping to minimize energy losses – Have a registered engineer perform a technical analysis to determine that the development would not increase in the base flood elevation.
All		Obtain federal and state removal/fill permits prior to construction.
All		Prepare a detailed erosion control plan during the final design. The plan would meet or exceed requirements of the NPDES I200-C permit.
B		Determine that a permit could be obtained for the temporary detour bridge prior to commitment because the bridge would create an obstruction in the river’s flow for up to 39 months. If a 100-year flood event were to occur during the 39 months of construction, water surface elevation could reach 36.42 feet (an increase of 2.81 feet), and velocities could increase to nearly 8.33 feet per second (an increase of 1 foot per second over the current velocity).
B		Minimize temporary impacts during construction (such as streambank erosion and temporary changes in water surface elevations resulting from other temporary structures) by implementing appropriate construction techniques (such as the careful design of temporary structures) and erosion control BMPs.
3.15 Aquatic Resources		
All		Implement ODOT BMPs to minimize or alleviate temporary impacts, see ODOT Hydraulic Manual, Chapter 14—Water Quality, 2008.
All		Restore topographic contours.
All		Stabilize and revegetate disturbed surfaces with native plant species.
3.16 Vegetation		
All		Incorporate BMPs and environmental criteria into pre-construction planning and design, and by good construction and maintenance practices.
All		Treat stormwater according to NMFS guidance and City of Portland requirements to reduce the pollutant loads that would result from construction of the Build alternatives.
All	Riparian area	Replant disturbed riparian areas with native vegetation to reduce the pollutant loads that would result from construction of the Build alternatives.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
3.17 Wetlands		
All		Implement erosion control measures to ensure there is no impact to wetlands functions.
All		<p>Because adverse unavoidable impacts associated with this project are primarily related to construction impacts (mainly the construction of a new access point and driveway to the Macadam Bay Yacht Club and Willamette Moorage Park from OR 43), implement conservation and mitigation measures for impacts such as the following sequentially performed actions:</p> <ul style="list-style-type: none"> – Avoid the impact altogether through design modification or by not taking a certain action or parts of an action – Minimize impacts through design modification or by limiting the degree or magnitude of the action and its implementation – Rectify the impact by repairing, rehabilitating, or restoring the affected environment
All		Compensate for the impact to wetlands by restoring, creating, or enhancing wetlands at another location within the Lower Willamette River Watershed. Construction area is too small for mitigation on site. Select a site with input from PP&R and Portland Bureau of Environmental Services.
All		<p>If PP&R’s active restoration efforts for the Stephens Creek area and associated wetlands remain uncompleted or unfunded at the time of the project, consider contributing to the following activities:</p> <ul style="list-style-type: none"> – Restore hydraulic connectivity between the floodplain of Stephens Creek and the Willamette River. The potential exists for approximately 1.66 acres of wetland restoration and 2.25 acres of riparian enhancement at this location. – Restore the on-site historic side channel to improve the rearing and refuge habitat for juvenile salmon. This channel is intended to provide additional hydrologic connection between Stephens Creek and the Willamette River. – Create a side channel and wetland habitat with connectivity to Stephens Creek and the Willamette River. – Increase the complexity and diversity of the in-channel habitat; increase in-stream wood. – Remove approximately 350 feet of historic Combined Sewer Overlay (CSO) pipe from the site to allow connectivity between Stephens Creek and its floodplain. – Where feasible, regrade steeply incised and eroding banks along Stephens Creek and the Willamette River. Enhance with large wood and boulders to increase the complexity and diversity of the in-channel habitat, improve floodplain connectivity, and increase in-stream wood. – Place naturally anchored large wood in the stream and along banks to enhance in-stream and riparian habitat.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
All		To ensure that no accidental or indirect impacts occur to wetlands outside the proposed disturbance areas, clearly mark wetland boundaries and use sediment fencing or other erosion control methods to protect the wetland.
All		Employ sediment-containment methods during construction of the new bridge piers to minimize impacts to the waterway. Restrict in-water work to the ODFW-recommended work period to reduce potential impacts to fisheries.
3.18 Wildlife		
All		Within the disturbed construction areas, plant native species to help restore riparian functions and improve the health of the existing riparian habitats.
3.19 Noise		
All		A final decision on installation of any mitigation or potential noise abatement measures will be made upon completion of the project design and the public involvement process. All noise mitigation measures will be disclosed in the Record of Decision.
All		Consider placing an 8-foot noise barrier in the right-of-way between property boundaries and sidewalks south of SE Tacoma Street at 8105 SE 7th Avenue to provide sufficient noise reduction for outdoor seating at the restaurant for all Build alternatives. However, because this location is a commercial property, the final determination of reasonable cost and feasibility will be made during final design of the project. Other noise-abatement measures were considered for the potential impacts associated with the Build alternatives, including noise walls. However, no mitigation measures that were both reasonable in cost and feasible were possible for receivers that would be impacted by the 2035 Build alternatives.
All		Perform no construction within 300 meters of an occupied dwelling unit on Sundays, legal holidays, and between the hours of 10:00 p.m. and 6:00 a.m. on other days without approval.
All		Provide sound-control devices no less effective than those provided on the original equipment on all equipment used. No equipment shall have unmuffled exhaust.
All		Comply with all pertinent equipment noise standards of the U.S. Environmental Protection Agency.
All		Perform no pile-driving or blasting operations within 900 meters of an occupied dwelling unit on Sundays, legal holidays, and between the hours of 8:00 p.m. and 8:00 a.m. on other days, without the approval of the Multnomah County Managing Construction Engineer.
All		Strategically place material stockpiles between the operation and the affected dwelling or by other means approved by the Multnomah County Managing Construction Engineer.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
All		<p>Should a specific noise-impact complaint occur during the construction of the project, potentially implement one or more of the following noise mitigation measures:</p> <ul style="list-style-type: none"> – Locate stationary construction equipment as far from nearby noise-sensitive properties as possible – Shut off idling equipment – Reschedule construction operations to avoid periods of noise annoyance identified in the complaint – Notify nearby residences whenever extremely noisy work will be occurring – Install temporary or portable acoustic barriers around stationary construction noise sources – Operate electric-powered equipment using line voltage power
All		Conduct construction activities in a manner that would comply with all applicable local noise ordinances, including Title 18 of the City of Portland’s Noise Control code (Section 18.10.060), unless a variance was granted.
All	River View Cemetery	To mitigate possible noise impacts to River View Cemetery during construction, where possible, restrict the hours of noisier operation.
3.20 Energy		
All		Attempt to minimize roadway congestion and adhere to practices that encourage efficient energy use, such as limiting idling equipment, locating construction staging areas near work sites, and encouraging carpooling.
3.21 Air Quality		
All		Use, where possible, water or other suitable materials to control dust.
All		Apply asphalt, oil, water, or other suitable materials on unpaved roads, material stockpiles, and other surfaces that can create airborne dust.
All		Completely enclose material stockpiles. Stockpiles can be partially enclosed where the application of oil, water, or chemicals is not sufficient to prevent particulate matter from becoming airborne.
All		Use wind fencing to reduce soil disturbances.
All		Locate construction equipment and the truck staging area as far away from sensitive receptors as practical and in consideration of potential effects on other resources.
All		Schedule work tasks to minimize disruption of the existing vehicle traffic on streets.
All		Cover, at all times when in motion, open-bodied trucks that are transporting materials likely to become airborne.
All		When possible, restrict road or land closures to non-peak traffic periods to reduce the effect construction delays might have on traffic flow and resultant emissions.
All		Promptly remove from paved streets any earth or other material that may become airborne.

Table G-1, cont. *Summary of Mitigation and Environmental Commitments.*

Alternatives	Locale	Mitigation Measures and Environmental Commitments
All		<p>Look for opportunities to employ other environmentally friendly techniques to control emissions from vehicles and machines used in construction. Such practices might include but are not limited to the following:</p> <ul style="list-style-type: none"> – Use low-sulfur diesel fuel on all diesel equipment – Use construction equipment with new generation diesel engines when available or equipment with tailpipe diesel particulate removal when available – Use environmentally friendly lubricants, solvents, and chemicals to the greatest extent practicable.
All		<p>Require that contractors comply with Section 290 of ODOT's <i>Standard Specifications for Construction Manual</i>, which has requirements for environmental protection, including air-pollution-control measures. These control measures, which are designed to minimize vehicle track-out and fugitive dust, would be documented in the pollution control plan that the contractor is required to submit prior to the pre-construction conference.</p>
3.22 Hazardous Materials		
All		<p>Conduct a lead and asbestos survey of the existing bridge prior to construction or demolition. This work should include an analysis of existing paint layers for total and toxicity characteristic leaching procedures for heavy metals, such as cadmium, chromium, zinc, and lead.</p>
All		<p>Investigate and address areas of known contaminated soil before or during construction to limit exacerbation. These measures could include direct removal of contaminated media, capping or covering contaminated soils, and pumping contaminated groundwater from impacted aquifers.</p>
All		<p>Implement construction-phase monitoring to identify and manage unknown or unanticipated media.</p>
All		<p>Characterize waste generated during construction (such as excavated soil, wastewater, and construction debris) and assign each waste stream to appropriate waste-disposal facilities.</p>
All		<p>Avoid cross-contamination or carryover of contaminated material to clean areas.</p>
All		<p>Control stormwater runoff from the construction site.</p>
All		<p>Identify appropriate waste disposal for all waste streams.</p>
All		<p>Limit access to contaminated areas.</p>



*Appendix H. SHPO DOE Concurrence
Letter (July 31, 2008)*



Oregon

Theodore R. Kulongoski, Governor

Parks and Recreation Department

State Historic Preservation Office

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July 31, 2008

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

RE: SHPO Case No. 08-1362
ODOT Project 13762 - Sellwood Bridge
Portland, Multnomah County

Dear Mr. Norman:

We have reviewed the above-ground materials submitted on the project referenced above, and we concur with the determination that the following properties are eligible for the National Register of Historic Places in accordance with 36 CFR Part 60.4:

- Riverview Cemetery, 8421 SW Macadam Ave.
- Superintendent's House at Riverview Cemetery, 8421 SW Macadam Ave.
- Southern Pacific Railroad Red Electric Eastside Line
- Willamette River (Sellwood) Bridge
- Oaks Pioneer Church, 455 SE Spokane St. – previously listed on the NR

Our response here is to assist you with your responsibilities under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800). Please feel free to contact me if you have further questions, comments or need additional assistance.

Sincerely,

Sarah Jalving
Historic Compliance Specialist
(503) 986-0679 or Sarah.Jalving@state.or.us

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