



# West Vancouver Freight Access Project Schedules 2-4 Final Environmental Assessment

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# West Vancouver Freight Access Project Schedules 2-4 Final Environmental Assessment

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Prepared for: U.S. Department of Transportation Federal Railroad Administration

Prepared by: Port of Vancouver, USA

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# **Table of Contents**

EXECU	TIVES	SUMMARY	IX
1.0	INTR	ODUCTION	1-1
1.1	Ва	ckground	1-1
1.2	Re	lated NEPA Processes	1-1
2.0	Puri	POSE AND NEED	2-1
2.1	Pu	rpose of the Project	2-1
2.2	Ne	eed for the Project	2-2
3.0	Desc	CRIPTION OF NO ACTION, PROPOSED ACTION, AND ALTERNATIVES NOT CARRIED FORWARD.	3-1
3.1	No	o Action Alternative	3-1
3.2	Pre	oposed Action Alternative	
3	.2.1	Proposed Rail Alignment	3-6
3	.2.2	Roadways	3-7
3.3	Pro	oject Scheduling	3-7
3.4	Pro	oject Area Description	3-8
3.5	Alt	ternatives Evaluated and Dismissed	3-9
3	.5.1	Alternative 1: Great Western Malting Pit Route	3-9
3	.5.2	Alternative 2: United Grain Corporation Pit Route	3-9
3	.5.3	Alternative 3: United Grain Corporation Extended Route	3-11
3	.5.4	Alternative 4: Hill Track Route	3-11
3	.5.5	Alternative 5: Northwest Route	3-12
3	.5.6	Alternative 6: Northeast Route	3-13
3.6	Ар	plicable Laws, Regulations, and Permits	

4.0	AFFEC	TED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES	4-1
4.1	Air	Quality	4-1
4.	1.1	Study Area and Methodology	4-1
4.	1.2	Affected Environment	4-1
4.	1.3	Environmental Consequences	4-2
4.	1.4	Minimization and Mitigation Measures	4-4
4.2	Nois	se and Vibration	4-4
4.	2.1	Study Area and Methodology	4-4
4.	2.2	Affected Environment	4-5
4.	2.3	Environmental Consequences	4-6
4.	2.4	Minimization and Mitigation Measures	4-15
4.3	Trar	nsportation	4-15
4.	3.1	Study Area and Methodology	4-15
4.	3.2	Affected Environment	4-16
4.	3.3	Environmental Consequences	4-18
4.	3.4	Minimization and Mitigation Measures	4-21
4.4	Geo	logy and Soils	4-21
4.	4.1	Study Area and Methodology	4-21
4.	4.2	Affected Environment	4-22
4.	4.3	Environmental Consequences	4-22
4.	4.4	Minimization and Mitigation Measures	4-24
4.5	Wat	ter Resources and Floodplains	4-24
4.	5.1	Study Area and Methodology	4-24
4.	5.2	Affected Environment	4-24
4.	5.3	Environmental Consequences	4-25
4.	5.4	Minimization and Mitigation Measures	4-28

4.6	W	ater Quality	
4.6	5.1	Study Area and Methodology	
4.6	5.2	Affected Environment	
4.6	5.3	Environmental Consequences	
4.6	5.4	Minimization and Mitigation Measures	
4.7	W	etlands	
4.7	7.1	Study Area and Methodology	
4.7	7.2	Affected Environment	
4.7	7.3	Environmental Consequences	
4.7	7.4	Minimization and Mitigation Measures	
4.8	Ec	ological Resources	
4.8	3.1	Study Area and Methodology	
4.8	3.2	Affected Environment	
4.8	3.3	Environmental Consequences	
4.8	3.4	Minimization and Mitigation Measures	
4.9	Tł	nreatened and Endangered Species	
4.9	9.1	Study Area and Methodology	
4.9	9.2	Affected Environment	
4.9	9.3	Environmental Consequences	
4.9	9.4	Minimization and Mitigation Measures	
4.10		Cultural and Historic Resources	
4.1	10.1	Study Area and Methodology	
4.1	10.2	Affected Environment	
4.1	10.3	Environmental Consequences	
4.1	10.4	Minimization and Mitigation Measures	

4.11	Section 4(f) Resources	
4.11.1	Study Area and Methodology	
4.11.2	Affected Environment	
4.11.3	Environmental Consequences	
4.11.4	Minimization and Mitigation Measures	
4.12	Aesthetics	
4.12.1	Study Area and Methodology	
4.12.2	Affected Environment	
4.12.3	Environmental Consequences	
4.13	Socioeconomics and Environmental Justice	
4.13.1	Study Area and Methodology	
4.13.2	Affected Environment	
4.13.3	Environmental Consequences	
4.13.4	Minimization and Mitigation Measures	
4.14	Land Use, Zoning, and Recreation	
4.14.1	Study Area and Methodology	
4.14.2	Affected Environment	
4.14.3	Environmental Consequences	
4.14.4	Minimization and Mitigation Measures	
4.15	Public Health and Safety	
4.15.1	Study Area and Methodology	
4.15.2	Affected Environment	
4.15.3	Environmental Consequences	
4.15.4	Minimization and Mitigation Measures	

4	.16	Hazardous Materials and Solid Waste	
	4.16.1	Study Area and Methodology	
	4.16.2	Affected Environment	
	4.16.3	Environmental Consequences	
	4.16.4	Minimization and Mitigation Measures	
4	.17	Energy Use and Greenhouse Gases	
	4.17.1	Study Area and Methodology	
	4.17.2	Affected Environment	
	4.17.3	Environmental Consequences	
	4.17.4	Minimization and Mitigation Measures	
4	.18	Indirect Impacts	
	4.18.1	No Action Alternative	
	4.18.2	Proposed Action Alternative	
4	.19	Cumulative Impacts	
	4.19.1	No Action Alternative	
	4.19.2	Proposed Action Alternative	
5.0	Coc	DRDINATION AND CONSULTATION	5-1
6.0	LIST	OF PREPARERS	6-1
7.0	Авв	REVIATIONS AND ACRONYMS	7-1
8.0	Ref	ERENCES	8-1
9.0	Арр	ENDICES	

#### **List of Appendices**

Appendix A: Air Quality Discipline Report Appendix B: Noise and Vibration Discipline Report Appendix C: Transportation Discipline Report Appendix D: Geology and Soils Discipline Report Appendix E: EPA Approval Letters Appendix F: Water Quality Discipline Report Appendix G: Wetlands Discipline Report Appendix H: Biological Assessment Appendix I: ESA Section 7 Letters of Concurrence Appendix J: DAHP Section 106 Consultation Correspondence/Memorandum of Agreement Appendix K: Section 4(f) Analysis Appendix L: Socioeconomics and Environmental Justice Discipline Report Appendix M: Land Use and Shorelines Discipline Report Appendix N: Hazardous Materials Discipline Report Appendix O: Environmental Assessment (2008) Appendix P: Kinder Morgan Phase 2 Site Assessment Appendix Q: Terminal 4 Pond Phase 2 Site Assessment Appendix R: Ecology Approval of Terminal 5 Cap Disturbance Appendix S: Ecology Approval of Carborundum Cap Disturbance Appendix T: Ecology Approval of North/North 2 Landfill Cap Disturbance Appendix U: West Vancouver Freight Access Project Updates Appendix V: Federal, State, and Local Approvals Appendix W: Community Outreach Summary

#### **List of Tables**

Table 1. Applicable Laws and Related Permits and Approvals for the Proposed Action Alternative	3-15
Table 2. Estimated Construction Noise Levels at NSR-3 from Construction of the Pile-Supported Rail Trench .	4-14
Table 3. Estimated Construction Noise Levels at NSR-1 and NSR-2 from Construction of At-Grade Rail Lines	4-14
Table 4. Estimated Construction Noise Levels at NSR-4 from Construction of the NW Gateway Avenue Overp	ass4-15
Table 5. Comparison of Train Delays under Existing Conditions <sup>1</sup>	4-16
Table 6. Delay per 10 Miles and Transit Time per 10 Miles	4-17
Table 7. Comparison of Train Delays under the No Action and Proposed Action Alternatives <sup>1</sup>	4-19
Table 8. ESA-Listed Species in the WVFA Project Area <sup>1</sup>	4-41
Table 9. Sites Identified for Hazardous Materials Review	4-67
Table 10. Comparison of Fuel Consumption Rates for Idling Trains	4-73
Table 11. Comparison of Fuel Consumption Rates for Idling Trains for the Average 3-Day Delay	4-75
Table 12. Comparison of Fuel Consumption Rates for Idling Trains for the Daily Average	4-75
Table 13. Comparison of Fuel Consumption Rates for Idling Trains for the Average 3-Day Delay	4-76
Table 14. Comparison of Fuel Consumption Rates for Idling Trains for the Daily Average	4-77
Table 15. WVFA Project Permits and Approvals	5-2

# List of Figures

Figure 1. Project Vicinity	1-3
Figure 2. Existing Rail Operations	1-4
Figure 3. Proposed Project Overview	2-3
Figure 4. Project Detail: East Terminus	
Figure 5. Project Detail: Rail Yard East	3-3
Figure 6. Project Detail: Parcel 6 and Rail Yard West	
Figure 7. Project Detail: West Terminus	
Figure 8. Alternatives	
Figure 9. Project Detail: East Terminus	4-7
Figure 10. Project Detail: Rail Yard East	
Figure 11. Project Detail: Parcel 6 and Rail Yard West	4-9
Figure 12. Project Detail: West Terminus	4-10
Figure 13. Train Horn Noise Impact Zone for Temporary Increase in Train Crossings	4-12
Figure 14. Geologic Hazard Areas	4-23
Figure 15. Floodplain Map	4-26
Figure 16. West Project Area Clark County Corrections Facility Wetland Impacts	4-33
Figure 17. Central Project Area Parcel 1A Wetland Mitigation Area Impacts	4-34
Figure 18. Riparian Mitigation Area–Frenchman's Bar Park & Buckmire Slough	4-36
Figure 19. Proposed Parcel 2 Wetland Mitigation Site Planting Plan	4-40
Figure 20. 4(f) Resources – Great Western Malting Drum House and Grain Storage Silo	4-47
Figure 21. Existing Zoning Project Environs	4-61
Figure 22. GHG Emissions by Sector, 2005, U.S. and Washington State	

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#### **EXECUTIVE SUMMARY**

The Port of Vancouver (port) is requesting funds for the WVFA Project through the Railroad Rehabilitation and Improvement Financing (RRIF) program administered through the Federal Railroad Administration (FRA). FRA concluded that lending Federal funds to implement the West Vancouver Freight Access Project Schedules 2 through 4<sup>1</sup> (WVFA Project) is a major Federal action within the meaning of Section 4(b) of FRA's Procedures for Considering Environmental Impacts ("FRA Environmental Procedures"; 64 FR 28545; May 26, 1999). This Environmental Assessment (EA) was prepared for FRA consistent with Section 10 of the FRA Environmental Procedures.

The WVFA Project was evaluated under the National Environmental Policy Act (NEPA) in 2009 as a Documented Categorical Exclusion (DCE) for the Federal Highway Administration (FHWA). This EA incorporates information and analysis completed for the 2009 FHWA DCE to meet FRA NEPA requirements. Several design modifications have occurred to the WVFA Project since the DCE was completed in 2009. The port coordinated with FHWA in early 2011 to update the 2009 DCE to address substantive modifications that have occurred to the WVFA Project, and those design modifications are incorporated into this EA. The update to the FHWA DCE was completed on April 4, 2011.

The purpose of the WVFA Project is to:

- expand port rail capacity and operations within the existing port facility, specifically unit train capacity, to enhance the rail network for future growth and development while minimizing disruption to existing port tenants and businesses; and,
- relieve congestion, improve operational efficiencies, and ensure continued safe rail operations as rail traffic grows in and around the port, and along the existing BNSF north-south and east-west main lines.

The need for the WVFA Project is the port's existing rail infrastructure's insufficient capacity to meet the current and future industrial needs of Vancouver, Washington and southwestern Washington. Three elements contribute to this problem of inadequate capacity and are likely to cause the situation to worsen in the future: 1) the port's existing rail infrastructure does not allow for efficient construction of unit trains; 2) projected economic growth will increase demands on existing and future tenants for more efficient rail operations; and 3) projected increases in traffic along the BNSF main line corridors will increase rail congestion within the general vicinity, further reducing service.

The port identified a Proposed Action and seven other alternatives, including the No Action Alternative. During the course of the environmental review of all alternatives, all but the Proposed Action and No Action alternatives were considered unreasonable. Therefore, the subsequent analysis of alternatives was focused on the remaining reasonable alternatives: Proposed Action and No Action.

The No Action Alternative would consist of operating the current track and continuing the current level of maintenance; there would be no appreciable change to current track configuration or operating conditions.

The Proposed Action would implement the WVFA Project to expand the capacity of the rail system and to reduce track congestion. The Proposed Action would extend from the BNSF main lines to Terminal 5 to accommodate existing and future port tenants (Figure 1). The projects would include an expanded rail facility, roadway modifications, building removal and relocation, stormwater facilities, import of clean fill, disposal of some excavation materials, utility relocation, wetland and riparian mitigation, and right-

<sup>&</sup>lt;sup>1</sup> The term Schedules 2 through 4 refers to phases of the project for construction sequencing purposes.

West Vancouver Freight Access Project – Schedules 2-4 Final Environmental Assessment

of-way acquisition. The project would also include both above ground and below-grade construction elements.

The eastern end of the proposed rail alignment would tie into the BNSF main lines in two locations (north lead track and south lead track) (Figure 4). The existing Hill track (the north lead track) and at-grade crossing at Thompson Avenue/W 16th Street would continue to provide port access for BNSF's operations supporting port carload customers and Union Pacific Railroad (UPRR) traffic arriving from and departing to the south, across the Columbia River Rail Bridge.

The new south lead track would begin at the end of the port's completed Schedule 1<sup>2</sup> alignment located south of the wye (triangular) intersection east of the Columbia River Rail Bridge completed in 2008. The Schedule 1 lead track also currently provides rail access to the Lafarge and Albina facilities. Access to all port facilities would be provided via the Schedule 1 alignment directly from the BNSF Fallbridge Subdivision at Columbia Street and continue south of the main line, paralleling the main line westerly through Grant Street where the alignment veers southerly towards Albina and Lafarge. A Lafarge cement offloading pipe bridge would be retrofitted at this location to allow clearance for train passage as the south lead makes its way into the port. At Lafarge, existing tracks would be extended near the existing dock and several retaining walls would be installed. The existing wash down facility would be relocated and a new outfall from the facility to the sanitary sewer line would be constructed. The proposed rail alignment would continue on westerly, lowering in elevation to be able to cross under the Columbia River Rail Bridge at Port Way. In order to pass beneath the Columbia River Rail Bridge with minimal required clearances, a pile-supported trench would be constructed along the Columbia River shoreline (Figure 4).

After crossing under the Columbia River Rail Bridge to the west, the proposed rail alignment would climb into the port operating area offshore of Pacific Coast Shredding; continue west through the Great Western Malting facility and meet up with the existing United Grain staging tracks (Figure 4). Just beyond Great Western Malting, the existing port grain yard would be rebuilt to provide four unit train tracks, three arrival and departure tracks and two lead tracks (Figure 4). Between United Grain and a new Kinder Morgan facility, two unit train tracks would be provided for Kinder Morgan, for a total of 11 unit train tracks (Figure 5). Access to Terminal 3 would be reconstructed from the west. The port arrival and departure tracks would run west to NW Gateway Avenue, where they would connect back into the proposed rail alignment, the existing Subaru tracks would be relocated south and extended to the east to provide improved load tracks. The Jimmy Yard, located north of Subaru and used to store railcars, would be reconfigured on the west end in line with a new grade-separated overpass of NW Gateway Avenue (Figure 6). West of NW Gateway Avenue a loop track would be constructed and would include yard tracks and a car preparation track at Terminal 5.

The port evaluated the anticipated environmental impacts of all reasonable alternatives (Proposed Action and No Action alternatives) as summarized in the following table.

 $<sup>^{2}</sup>$  Schedule 1 was the first construction phase of rail improvements for the port. Schedule 1 was an independent project that was completed in 2008.

Summary of Impacts

Resource Area	Anticipated Environmental Effects		
	No Action Alternative	Proposed Action Alternative	
Air Quality	No Impact.	<ul> <li>General Conformity determination is not required.</li> <li>Locomotive emissions and ambient diesel particulate matter (DPM) concentration increases would be minimal and locomotive emissions over time would decrease.</li> <li>Temporary air quality effects during construction.</li> </ul>	
Noise and Vibration	No Impact.	<ul> <li>No long-term impacts to noise-sensitive receptors.</li> <li>Train horn noise at Thompson Avenue/W 16th Street would decrease.</li> <li>Slight increases in vibration at two vibration-sensitive receptors.</li> <li>Temporary noise effects during construction.</li> </ul>	
Transportation	<ul> <li>Long-term increase in truck traffic to move additional freight to and from the Port.</li> <li>Increase in rail traffic congestion in port and main line.</li> <li>No impact to pedestrians/bicycles.</li> </ul>	<ul> <li>Increase in daily train trips.</li> <li>Decrease in train delays and rail traffic congestion in port and on BNSF main line.</li> <li>Realignment of several internal port roads but no long-term road closures.</li> <li>No impact to pedestrians/bicycles.</li> <li>Minor train, vehicle, pedestrian and bicycle transportation disruptions during construction.</li> </ul>	
Geology and Soils	No Impact.	<ul> <li>No long-term impacts to geologic hazard areas or soils.</li> <li>Temporary disturbance of soils and sediments by construction activities.</li> <li>No impacts to timber or mineral resources.</li> </ul>	
Water Resources and Floodplains	No Impact.	<ul> <li>Permanent impacts to Columbia River from construction of pile supported trench and associated in-water work.</li> <li>Negligible impact on Columbia River water surface elevations and velocities related to floodplains.</li> <li>No adverse impacts to the Troutdale aquifer.</li> <li>Short-term impacts to water resources during construction.</li> </ul>	
Water Quality	No Impact.	<ul> <li>Long-term reduction in impervious surface resulting in a reduction in water quality impacts.</li> <li>Temporary water quality impact during construction from erosion, stormwater runoff, and turbidity.</li> </ul>	
Wetlands	No Impact.	<ul> <li>Permanent wetland and wetland buffer impacts will be mitigated.</li> <li>Construction effects to wetlands and buffers would be temporary and would result in a short-term loss of wetland functions.</li> </ul>	

#### Summary of Impacts

Resource Area	Anticipate	Anticipated Environmental Effects		
	No Action Alternative	Proposed Action Alternative		
Ecological Resources	No Impact.	<ul> <li>Permanent impacts to Columbia River and riparian habitat will be mitigated.</li> <li>Removal of trees will be mitigated.</li> <li>Short-term impacts to ecological resources during construction.</li> </ul>		
Threatened and Endangered	No Impact.	<ul> <li>Permanent impacts to Columbia River and riparian habitat will be mitigated.</li> <li>Short-term impacts to aquatic habitat and fish during construction from increased turbidity and noise.</li> </ul>		
Cultural and Historic Resources	No impact.	<ul> <li>Adverse effect on historic property; however, a Memorandum of Agreement was issued to mitigate the impact (Appendix J).</li> <li>No impacts to archeological resources or the Vancouver Lake Archeological District.</li> </ul>		
Section 4(f) Resources	No Impact.	<ul> <li>Adverse effect on historic property; however, a Memorandum of Agreement was issued to mitigate the impact (Appendix K).</li> </ul>		
Aesthetics	No Impact.	- No Impact to aesthetics.		
Socioeconomics and Environmental Justice	No Impact.	<ul> <li>No impacts to community cohesion.</li> <li>No impacts to elderly and handicapped populations.</li> <li>No environmental justice impacts.</li> <li>Several businesses with port facilities would be relocated and replaced "in kind" consistent with the Uniform Relocation Assistance and Real Property Acquisition Policy Act (Uniform Act).</li> <li>Temporary construction impacts to businesses in the Port.</li> </ul>		
Land Use, Zoning, and Recreation	No Impact.	<ul> <li>No impacts to land use, zoning, or recreation.</li> <li>Potential impacts to a planned trail at the rail bridge.</li> <li>Shoreline environment and critical areas would be permanently impacted and mitigation to offset impacts is proposed.</li> </ul>		
Public Health and Safety	No Impact.	<ul> <li>Reduction in public safety concerns at NW Gateway Avenue crossing.</li> <li>Short-term risk to public safety during demolition and construction activities.</li> <li>Temporary construction impacts to public health from activities in areas containing hazardous materials.</li> </ul>		
Hazardous Materials and Solid Waste	No Impact.	<ul> <li>Construction activities would disturb several environmental caps regulated by the Washington Department of Ecology (Ecology) that require Ecology approval.</li> <li>Construction activities may encounter contaminated media.</li> </ul>		
Energy and Greenhouse Gases	Increase in rail traffic delays would increase overall energy consumption and contribute to greenhouse gas emissions.	<ul> <li>Reduction in rail traffic delays, resulting in a decrease in energy consumption and greenhouse gas emissions.</li> </ul>		

Summary of Impacts

Resource Area	Anticip	Anticipated Environmental Effects	
	No Action Alternative	Proposed Action Alternative	
Indirect Impacts	No Impact.	<ul> <li>Indirect impact of promoting growth; growth would be consistent with land use planning and zoning requirements.</li> <li>Beneficial long-term economic growth and increase in jobs for the community.</li> <li>Indirect impacts to wetlands from vegetation removal, introduction of invasive species, and accidental spills.</li> </ul>	
Cumulative Impacts	No Impact.	<ul> <li>Beneficial cumulative effect on socioeconomic resources.</li> <li>Beneficial cumulative effect by reducing greenhouse gas emissions and energy consumption.</li> </ul>	

The port also proposes minimization and mitigation measures to avoid and lessen the anticipated environmental impacts of the Proposed Action. These measures are summarized in the table below.

Resource Area	Proposed Measures
Air Quality	- During demolition, port would retain certified inspectors to identify all material in the buildings, and remove asbestos-containing material before building
	demolition begins - All construction equipment must satisfy EPA emission standards for nonroad engines
Noise and Vibration	- No measures are proposed.
Transportation	- No measures are proposed.
Geology and Soils	- Use Best Management Practices (BMPs) to eliminate or minimize effects of erosion, sedimentation, and accidental fuel or oil tank leaks.
Water Quality	<ul> <li>Use BMPs to eliminate or minimize effects of erosion, sedimentation, and accidental fuel or oil tank leaks.</li> <li>Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP).</li> <li>Provide stormwater treatment per Ecology guidelines.</li> </ul>
Water Resources and Floodplains	<ul> <li>Use BMPs to eliminate or minimize effects of erosion, sedimentation, and accidental fuel or oil tank leaks.</li> <li>Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP).</li> <li>Provide stormwater treatment per Ecology guidelines.</li> </ul>
Wetlands	<ul> <li>Use BMPs to eliminate or minimize effects of erosion, sedimentation, and accidental fuel or oil tank leaks.</li> <li>Provide stormwater treatment per Ecology guidelines.</li> <li>Restore temporarily impacted wetlands to pre-existing conditions following construction.</li> <li>Mitigate permanent wetland and buffer impacts at the Columbia River Wetland Mitigation Bank and Buckmire Slough.</li> </ul>
Ecological Resources	<ul> <li>Use BMPs to eliminate or minimize effects of erosion, sedimentation, and accidental fuel or oil tank leaks.</li> <li>Provide stormwater treatment per Ecology guidelines.</li> <li>Use BMPs to minimize spread of noxious weed seeds.</li> <li>Install and monitor riparian mitigation at Frenchman's Bar and Buckmire Slough.</li> <li>Conduct tree plantings at Parcel 2 to offset tree removal impacts.</li> <li>Install large woody debris along Columbia River and remove existing concrete as part of mitigation for in-water and shoreline impacts.</li> </ul>
Threatened and Endangered Species	<ul> <li>Use BMPs to eliminate or minimize effects of erosion, sedimentation, and accidental fuel or oil tank leaks.</li> <li>Provide stormwater treatment per Ecology guidelines.</li> <li>Install and monitor riparian mitigation at Frenchman's Bar and Buckmire Slough.</li> <li>Conduct tree plantings at Parcel 2 to offset tree removal impacts.</li> <li>Install large woody debris along Columbia River and remove existing concrete as part of mitigation for in-water and shoreline impacts.</li> </ul>
Cultural and Historic Resources	<ul> <li>Mitigation measures will be implemented as outlined in the Memorandum of Agreement.</li> <li>During construction, identified archeological resources would be avoided to the extent practicable.</li> </ul>
Section 4(f) Resources	Mitigation measures will be implemented as outlined in the Memorandum of Agreement.
Aesthetics	- No measures are proposed.

Summary of Proposed Avoidance, Minimization, and Mitigation Measures

Resource Area	Proposed Measures
Socioeconomic and	<ul> <li>During construction, the port will send mailings to affected businesses and residents.</li> </ul>
Environmental Justice	<ul> <li>Provide adequate signage for the road closure at Port Way and W 8th Street.</li> </ul>
	- Business relocations will be mitigated "in kind" consistent with the Uniform Act.
Land Use, Zoning, and	- The port will comply with a condition of approval of the SSDP for the Proposed Project that requires "an agreement with Vancouver-Clark Parks &
Recreation	Recreation relating to the potential trail crossing over the rail lines in the area of this project." The port will address this condition and coordinate with
	vancouver-Clark Parks & Recreation for the adoption of an agreement before approval of final construction documents.
	- A Shoreline Substantial Development Permit (SSDP) and Shoreline Conditional Use Permit will be required from the City for the relocation of existing
	rail tracks, and a stormwater pump station within the jurisdiction of the City Shoreline Management Master Program (SMMP) jurisdiction at Terminal 5.
Public Health and Safety	- Contractors will obtain a Transportation Worker Identification Credential (TWIC) card or be accompanied by a TWIC certified individual.
-	<ul> <li>Contractors will obtain all appropriate railroad safety requirements.</li> </ul>
	<ul> <li>Temporary construction fencing and permanent fencing following construction will be installed.</li> </ul>
	<ul> <li>Use BMPs to eliminate or minimize effects of accidental fuel, oil tank leaks, or other hazardous spills.</li> </ul>
	<ul> <li>Construction equipment and materials will be stored and used properly during construction.</li> </ul>
	<ul> <li>Contaminated Media Management Plan (CMMP) will be prepared prior to construction.</li> </ul>
	- Tenant and Port audits will continue.
Hazardous Materials and	<ul> <li>Approvals from Ecology would be obtained prior to disturbance of any environmental caps.</li> </ul>
Solid Waste	<ul> <li>Use BMPs to eliminate or minimize effects of accidental fuel, oil tank leaks, or other hazardous spills.</li> </ul>
	- Tenant and port audits will continue.
	<ul> <li>Construction equipment and materials will be stored and used properly during construction.</li> </ul>
	- Contaminated Media Management Plan (CMMP) will be prepared prior to construction.
Energy and Greenhouse	- Construction areas, staging areas, and material transfer sites will be designed to reduce wait times for equipment and engine idling.
Gases	

#### Summary of Proposed Avoidance, Minimization, and Mitigation Measures

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# **1.0 INTRODUCTION**

The port is requesting funds for the WVFA Project through the Railroad Rehabilitation and Improvement Financing (RRIF) program administered through the Federal Railroad Administration (FRA). FRA concluded that lending Federal funds to implement the West Vancouver Freight Access Project Schedules 2 through 4<sup>3</sup> (WVFA Project) is a major Federal action within the meaning of Section 4(b) of FRA's Procedures for Considering Environmental Impacts ("FRA Environmental Procedures"; 64 FR 28545; May 26, 1999). This Environmental Assessment (EA) was prepared for FRA consistent with Section 10 of the FRA Environmental Procedures.

### 1.1 Background

The port is served by a single track connection along the west side of the BNSF Railway (BNSF) northsouth main line (Figure 1). This track currently allows the railroad to move cars across the BNSF main line from the Vancouver Rail Yard into the Northern Pacific (NP) Siding, and then down into the port via the port's north lead track, also called the Hill track or Alcoa lead (Figure 2).

The at-grade crossings that provide access to the port cause significant delays and safety and reliability issues on the main lines in the region, as all crossings into the port block rail movement in any other direction. To alleviate the blocked main line movements, BNSF assigns various priorities to all train traffic on their main lines. The highest priority is given to Amtrak trains, then to unit train main line movements, Vancouver Rail Yard switching moves, and finally to trains seeking access to the port, thus constraining the rail service to port tenants.

In the past decade, the rail industry has shifted from shipping a few cars at a time to a customer, to focusing on unit trains. Unit train operation, with an entire train dedicated to a single customer, reduces the transport costs and time associated with the delivery of goods. This focus on unit train operations has been the primary area of expansion in the rail industry; however, the existing port rail infrastructure does not have the capacity or tracks to handle unit trains efficiently. Because the port's internal rail system is at its capacity, trains traveling within the port are experiencing maximum delay times as a result of current rail congestion.

Projected increases in freight and passenger traffic will further contribute to congestion and delays along the BNSF main line corridors, thus negatively affecting an already insufficient movement of goods to and from the port if additional future capacity is not provided. As discussed previously, the BNSF's priority system would result in port rail traffic being severely delayed, thus decreasing the ability of the port to continue current operations and effectively threatening the viability of port expansion and growth.

#### 1.2 Related NEPA Processes

The WVFA Project was evaluated under the National Environmental Policy Act (NEPA) in 2009 as a Documented Categorical Exclusion (DCE). The Federal Highway Administration (FHWA) was the lead federal agency for the DCE that was administered through the Washington Department of Transportation (WSDOT). Because detailed design information has become available, some design modifications have occurred to the WVFA Project since the DCE was completed in 2009. The port coordinated with FHWA in early 2011 to update the 2009 DCE to address substantive design modifications that have occurred to the WVFA Project. This EA incorporates these design modifications. The FHWA DCE update was completed on April 4, 2011. As part of the NEPA documentation for the DCE, the port prepared several reports to evaluate project impacts on environmental resources. These reports have been augmented as necessary to meet FRA NEPA requirements and used in the preparation of this EA and include:

<sup>&</sup>lt;sup>3</sup> The term Schedules 2 through 4 refers to phases of the project for construction sequencing purposes.

- Air Quality Discipline Report (ICF Jones and Stokes 2009a)
- Biological Assessment (ICF Jones and Stokes 2007a)
- Supplemental Biological Assessment (ICF Jones and Stokes 2007b)
- Biological Assessment Addendum (ICF Jones and Stokes 2009b)
- Biological Assessment Addendum (HDR 2011)
- Cultural Resources Survey (ICF Jones and Stokes 2009c)
- Geology and Soils Discipline Report (ICF Jones and Stokes 2009d)
- Flood Impact Analysis Columbia Gateway Project (Jones and Stokes 2006)
- Technical Memorandum Addendum to the Port of Vancouver Floodplain Analysis (ICF 2009e)
- Hazardous Materials Discipline Report (ICF Jones and Stokes 2009f)
- Land Use and Shorelines Discipline Report (Berger Abam 2009a)
- Port of Vancouver West Vancouver Freight Access Project Addendum to the Land Use and Shorelines Discipline Report (ICF International 2011a)
- Noise and Vibration Discipline Report (ICF Jones and Stokes 2009g)
- Port of Vancouver West Vancouver Freight Access Project Addendum to the Noise and Vibration Discipline Report (ICF International 2011b)
- Section 4(f) Evaluation (ICF Jones and Stokes 2009h)
- Social Effects and Environmental Justice Discipline Report (Berger Abam 2009b)
- Transportation Discipline Report (ICF Jones and Stokes 2009i)
- Water Quality Discipline Report (ICF Jones and Stokes 2009j)
- Wetlands Discipline Report (Berger Abam 2009c)
- Port of Vancouver West Vancouver Freight Access Project Updates (ICF International 2011c)



> Figure 1. Project Vicinity

# Legend

- Current Port Operations
- === Schedule 1 of the West Vancouver Freight Access Project (Complete)
- ---- BNSF Existing Railway
- ---- Roadways

#### Location Map





## 2.0 PURPOSE AND NEED

The Washington State legislature created the port to be an economic engine for Vancouver and Southwest Washington. The port is one of the oldest ports in the State of Washington, established in 1912. Ports exercise local governmental authority. The port's authority includes the ability to construct, operate, and expand terminals and industrial facilities. The port can use its tax and eminent domain authority to attract, encourage, and develop industry; and to promote trade (Revised Code of Washington [RCW] 53.04.010).

In 2004, the port adopted its South Lead Access Plan, later renamed the West Vancouver Freight Access (WVFA) Master Plan (Port of Vancouver 2006). The WVFA Master Plan identifies potential projects designed to improve access and capacity between the port facilities and the BNSF main lines (north-south and east-west) (Figure 1). The WVFA Master Plan represents the design plan for overall improvements to the port's rail system that would be implemented over the course of many years. Although the end goal is to design a cohesive rail system, the WVFA Master Plan consists of discrete projects that can be independently built to function separately from each other. These projects are grouped into phases referenced as Schedule 1, and Schedules 2 through 4. The schedules are proposed for construction separately over several years to minimize impacts to the port and tenants, as well as to accommodate funding for the project. Schedule 1 is a new rail connection between the port and the BNSF main line. The environmental documentation and construction for Schedule 1 was completed in 2008.

WVFA Master Plan, Schedules 2 through 4, would be broken into approximately 19 construction projects slated for construction from 2009 through 2017. This EA evaluates these projects collectively as the WVFA Project (Figure 3).

#### 2.1 Purpose of the Project

The purpose of the WVFA Project is to: 1) expand port rail capacity and operations (within the existing port facility), specifically unit train capacity, to enhance the rail network for future growth and development while minimizing disruption to existing port tenants and businesses; and 2) relieve congestion, improve operational efficiencies, and ensure continued safe operations as rail traffic grows in and around the port and along the existing BNSF north-south and east-west main lines.

Once completed, the WVFA Project would allow unit trains—trains that are 60 to 120 cars long, and that carry a single commodity—to be received, stored, utilized, and departed as full trains from inside the port's facility without requiring that the trains be broken into smaller segments of cars. Unit trains could be received directly from the BNSF main line into the port tenants' storage tracks with a similar accommodation for departure. This would free the lead tracks within the port to allow for switching movements from the various storage tracks to the tenants and back, eliminating large delays and congestion that occur when unit trains occupying the leads are broken into smaller segments and dispatched to shorter tenant storage tracks. This would also eliminate arriving and departing trains to the port from blocking the BNSF north-south main line. Businesses within the port would be able to operate at maximum capacity, thus increasing regional employment. The WVFA Project would help ensure the future success and economic growth of current port tenants, allowing them to grow and expand their businesses. The WVFA Project would also facilitate development of new properties, bringing more jobs and revenue to the local community.

#### 2.2 Need for the Project

The Washington State Transportation Commission completed the Statewide Rail Capacity and System Needs Study in 2006 (Cambridge Systematics 2006). The conclusion of the study was that the state should continue to participate in the freight and passenger rail systems. The report explained that the state rail system was nearing capacity, and rail improvements, including service to ports, were needed in order to accommodate future growth and to provide a number of business and societal benefits. The port's rail project was mentioned in the report as a potential solution to resolving a critical bottleneck to port access. A more recent study confirms the 2006 findings, indicating that west coast ports will experience substantial growth over the next 20 years (Cambridge Systematics 2006).

Port operations have been steadily increasing since 2000. Between 2006 and 2007, the number of railcars entering the port increased nearly 25 percent annually, from 44,000 to 57,520 (Port of Vancouver 2009a). Future projections indicate that the number of railcars entering the port annually may increase to around 350,000 by 2025 (Wiser 2009a, Wiser 2009b, Wiser 2009c, Wiser 2009d). With this projected increase, the already strained rail infrastructure will be overwhelmed.

The port and its tenants create about 2,300 direct jobs, providing nearly \$99 million in annual payroll (John Martin Associates 2006). The port plans to add between 3,000 and 4,000 jobs within the next 15 years (Port of Vancouver 2007). In addition to providing jobs, the port currently provides about \$82 million in tax revenue each year, and expects to double this revenue in the next 15 years (Port of Vancouver 2007).

To meet these goals of increased jobs and revenue, the port must remain competitive in the global marketplace. New rail infrastructure will be required to support port businesses preparing for economic growth. The WVFA Project is needed because: 1) the port's existing rail infrastructure does not allow for efficient construction of unit trains; 2) economic growth is projected to increase demands on port tenants for more efficient rail operations; and 3) projected increases in traffic along the BNSF main line corridors will increase rail congestion within the port's general vicinity, further reducing service.



Figure 3. Proposed Project Overview

# Legend

- Current Port Operations
- Mitigation Areas
- Schedules 2 through 4 of the
   West Vancouver Freight Access
   Project (Planned)
- === Schedule 1 of the West Vancouver Freight Access Project (Complete)
- BNSF Existing Railway

— Roadways

Location Map



# 3.0 DESCRIPTION OF NO ACTION, PROPOSED ACTION, AND ALTERNATIVES NOT CARRIED FORWARD

The port evaluated a No Action, Proposed Action, and six additional alternatives not carried forward as part of the NEPA process. The port identified the No Action and Proposed Action alternatives for detailed evaluation in the Environmental Assessment (EA). The alternatives were evaluated based on their ability to meet the WVFA Project purpose and need, to satisfy engineering design criteria, and to avoid or minimize adverse environmental impacts.

#### 3.1 No Action Alternative

The No Action Alternative would consist of operating the current track and continuing the current level of maintenance; there would be no appreciable change to current track configuration or operating conditions. The No Action Alternative would not meet the WVFA Project purpose and need because it would not increase operational efficiencies or capacity of rail within the port. The No Action Alternative is included in this Environmental Assessment to provide a baseline for the comparison of impacts of the Proposed Action Alternative and to help decision-makers and the public understand the consequences of taking no action.

#### 3.2 Proposed Action Alternative

The Proposed Action Alternative would extend from the BNSF main lines to Terminal 5 in order to accommodate existing and future port tenants (Figure 3 through Figure 7). The Proposed Action Alternative would include an expanded rail facility, roadway modifications, stormwater facilities, building removal and relocation, and wetland and riparian mitigation. The Proposed Action Alternative would include both above-ground and below-grade construction, including the following major elements.

- A 1,300-foot-long, pile-supported trench (roughly 30 feet wide and as much as 15 feet deep) would be constructed under the Columbia River Rail Bridge.
- A 600-foot-long trench, using retaining walls, would be constructed through the former Fort Vancouver Plywood site and a portion of the existing Lafarge Cement Company site. This trench would be immediately adjacent and connected to the 1,300-foot-long section constructed in the Columbia River and would be up to 8 feet below the top of the slope. Because of adverse soil conditions, much of this trench section would be supported using gravel-filled, compacted stone columns.
- With the exception of the below-grade trenches described above, most of the proposed rail alignment would be constructed at grade.



#### Figure 4. Project Detail: East Terminus





Figure 5. Project Detail: Rail Yard East





Figure 6. Project Detail: Parcel 6 and Rail Yard West





Figure 7. Project Detail: West Terminus

	Current Port Operations
	Existing Terminals
	Schedules 2 through 4 of the
	West Vancouver Freight Access
	Project (Planned)
	Tristar Transload Facility
	Stormwater Pond
	Proposed Gateway Overpass
	Environmental Caps
	Proposed Roadway Relocaton
	Roadways
Rail	Yard Detail
	I = Clark County Corrections
	J = Alcoa
	K = BPA Access
	L = Evergreen Aluminum
	M = Tidewater Barge Offices
	N = Clark Public Utilities
	River Road Generation Facility
ource: Clark	County (2005). Imagery: ESRI (April 2007) i-cubed.
ap Prepa	red: April 2011
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#### 3.2.1 Proposed Rail Alignment

Under the Proposed Action Alternative, the port would expand its existing rail facilities to serve existing and future port tenants.

The eastern end of the proposed rail alignment would tie into the BNSF main lines in two locations (north lead track and south lead track) (Figure 4).

The Proposed Action would tie into the existing Hill track (the north lead track) west of the at-grade crossing at Thompson Avenue/W 16th Street and would continue to provide port access for BNSF's yard operations supporting port carload customers and Union Pacific Railroad (UPRR) traffic arriving from and departing to the south, across the Columbia River Rail Bridge (Figure 4).

The new south lead track would begin at the end of the port's Schedule 1 alignment, completed in 2008, located south of the wye (triangular) intersection east of the Columbia River Rail Bridge. The Schedule 1 lead track also currently provides rail access to the Lafarge and Albina facilities. Access to the port facilities would be provided via the Schedule 1 alignment directly from the BNSF Fallbridge Subdivision at Columbia Street and continue south of the main line, paralleling the main line westerly through Grant Street where the alignment veers southerly towards Albina and Lafarge. A Lafarge cement offloading pipe bridge would be retrofitted at this location to allow clearance for train passage as the south lead makes its way into the port and a protected at-grade crossing would also be constructed. At Lafarge, existing tracks would be extended near the existing dock and several retaining walls would be installed. The existing wash down facility would be relocated and a new outfall from the facility to the sanitary sewer line would be constructed. The proposed rail alignment would continue on westerly, lowering in elevation to be able to cross under the Columbia River Rail Bridge at Port Way (Figure 4).

In order for the proposed rail alignment to pass beneath the Columbia River Rail Bridge, a pile-supported trench would be constructed along the Columbia River shoreline, lowering the rail alignment and protecting it from the Columbia River (Figure 4). A portion of the trench would extend about 30 feet waterward of the ordinary high water mark (OHWM) and would be approximately 30 feet wide. The structure would be built on pilings and the elevation of the top of the wall would be 27.5 feet National Geodetic Vertical Datum 29 (NGVD29), which is less than 1 foot above the 100-year flood elevation height of 26.8 feet. This intrusion into the high flow channel area would affect approximately 450 linear feet of the riprap-armored riverbank west of the Columbia River Rail Bridge and approximately 475 linear feet of unarmored riverbank under and east of the bridge.

After crossing under the Columbia River Rail Bridge to the west, the proposed rail alignment would climb into the port operating area offshore of Pacific Coast Shredding, continue west through the Great Western Malting facility (Area D in Figure 4) and meet up with the existing United Grain staging tracks. Just beyond Great Western Malting, the existing port grain yard would be rebuilt to provide four unit train tracks, three arrival and departure tracks and two lead tracks for port tenants (Figure 4). At this same point, an interconnection with the Hill track would allow an interchange between the various lead tracks, the three port staging tracks, and their various rail-served tenants. Between United Grain and the new proposed Kinder Morgan facility, two unit train tracks would be provided for Kinder Morgan, for a total of 11 unit train tracks (including the proposed rail alignment) (Figure 5). The two Kinder Morgan tracks would be constructed from the west. The port arrival and departure tracks would run west to NW Gateway Avenue, where they would connect back into the proposed rail alignment as it leads into the loop track on Terminal 5 (Figure 6).

Near the western end of the proposed rail alignment, the existing Subaru tracks would be relocated to the south and extended to the east to provide improved load tracks. The west end of the Jimmy Yard, located

north of Subaru, and used to store railcars for various tenants, would be reconfigured to be in line with a new grade separated overpass of NW Gateway Avenue (Figure 6).

The proposed rail alignment would require modifications to an existing stormwater pond at Terminal 4 and the construction of a retaining wall to avoid impacts on wetlands at Parcel 1A (Figure 6).

West of NW Gateway Avenue, a loop track (accommodating 110 car unit trains) was constructed that included yard tracks and a car preparation track at Terminal 5  $^{4}$ (Figure 7). The northern side of the loop consists of yard tracks and car loading and unloading facilities (Figure 7).

The Proposed Alternative includes modifying the loop track at Terminal 5 to accommodate 120 car unit trains. The modified loop track would shift and extend existing tracks to the south into the shoreline of the Columbia River. A new interior loop track would also be constructed outside of the shoreline.

#### 3.2.2 Roadways

The Proposed Action Alternative would relocate NW Harborside Drive (Figure 5), and replace the atgrade crossing at NW Gateway Avenue with a grade separated crossing (Figure 6). No new at-grade crossings are proposed on public roadways. NW Harborside Drive would be relocated slightly to the south across the northern edge of Terminal 2. Access from Port Way would be relocated parallel to and east of the existing access. West of the Kinder Morgan facility, NW Harborside Drive would be relocated slightly south of a port building across Terminal 3.

The NW Gateway Avenue overpass (Figure 6) would be a dual bridge providing access to interior portions of Terminal 5, Clark County Corrections Facility, and the Subaru facility. The existing straight NW Gateway Avenue will be partially realigned to the west, resulting in an S-shaped NW Gateway Avenue overpass. The overpass structure will include a three-span concrete girder bridge at an elevated intersection, a three-span concrete girder bridge to provide access into the Terminal 5 Yard, and associated approaches.

The approaches will be constructed using either sloped fill, where possible, or vertical mechanically stabilized earth (MSE) walls where the footprint of the grade separation needs to be minimized. Piles and stone columns will be placed to support both the NW Gateway Avenue overpass and Terminal 5 yard access structures. The southern approach will connect to the existing access road for the Clark County Corrections facility and Subaru facility at Terminal 4. The northern approach will match the existing NW Gateway Avenue alignment prior to the intersection with State Route 501. The existing access to the Tristar Transload facility and Parcel 1A will be slightly modified along the northern approach. Minor changes may occur to the existing roadway alignment and cross sections to meet safety and design standards.

#### 3.3 Project Scheduling

To minimize effects to existing port operations and make the process more manageable, the WVFA Project is broken into numerous sub-projects that will be designed and built separately over a period of roughly eight years. As described in Section 1.2, the port completed an initial NEPA process with FHWA and received Federal, state, and local permits and approvals for the WVFA Project in 2009. This allowed the port to commence construction of the sub-projects using Federal and nonFederal funds, separate from the RRIF Loan from FRA. Subsequently, the port proceeded with final design and construction of the first of the sub-projects, which was the Terminal 5 Unit Train Improvements Project completed in June 2010.

<sup>&</sup>lt;sup>4</sup> This element of the Proposed Action was constructed in 2010. Details regarding project scheduling and construction are further described in Section 3.3.

This EA evaluates the entire WVFA Project and discusses in Chapter 4.0 which elements of the project and resources have been affected by construction of the Terminal 5 Unit Train Improvements Project. The RRIF Loan request does not include the completed Terminal 5 Unit Train Improvements Project, which included the following major elements:

- Construction of a loop track at Terminal 5. The northern side of the loop consists of staging tracks and car loading and unloading facilities. The remaining loop accommodates up to 110-car unit trains.
- Construction in the area of the Clark County Corrections Facility permanently impacted 0.14 acre of Wetland 2a and 0.03 acre of Wetland 2b. Wetland mitigation to offset 0.17 acres of permanent wetland impact at Wetland 2a and Wetland 2b will occur at the mitigation bank on Parcel 6 in 2011.
- Trees were removed at the Clark County Corrections Facility resulting in loss of 91.5 tree units. Mitigation to offset the loss of tree units will occur in 2011.
- The port developed designs and replaced the caps at the North/North2 landfill, Spent Pot Liner landfill, and Alcoa/Vanexco Rod Mill landfill. The port received approval from Ecology to excavate in these areas.
- Two property acquisitions were completed:
  - Tristar Transload The port has mitigated the approximately 1,200 square feet of infiltration area and displacement pond volume of approximately 645 cubic feet.
  - Clark County Correction Facility The port has mitigated an approximately 3-acre acquisition necessary from the Clark County Correction Facility by following the requirements of the Uniform Act regarding just compensation and relocation assistance.

No other WVFA sub-projects have been built although it is expected that three more will start construction in 2011: Terminal 3 Rail Access Project (Project 06), Rail Terminal Expansion Project (Project 09), and the Gateway Avenue Grade Separation Project (Project 19). The current schedule and sub-projects proposed for construction in 2011 could shift depending on available funding. In addition, the port has been actively working with tenants and businesses for property acquisitions, and several acquisitions and lease agreements have been completed. Those activities are summarized in Sections 4.13.3.2 and 4.18.2. The port has also been implementing the Section 106 MOA mitigation requirements as described in Section 4.10.

## 3.4 **Project Area Description**

The project area for the Proposed Action Alternative is the same as the WVFA Project area (Figure 1) and is generally defined by the horizontal and vertical extent of the proposed rail alignment and associated improvements (Figure 3). Based on this horizontal and vertical footprint, an additional 75-foot buffer measured from the edge of the footprint was applied. Potential mitigation sites were also included within the area studied. The vertical extent of disturbance includes the depths needed to excavate and grade in preparation for rail construction and construction of mitigation sites. For the most part, this is anticipated to be minor (a few feet) with the exception of piles, shafts, and stone columns used to support the NW Gateway Avenue overpass and pile-supported trench. In these locations, depths to install support structures are anticipated to be 60 feet deep.

The project area includes all port-owned properties that would be bisected by the proposed rail alignment and any property that would be acquired to accommodate the proposed rail alignment. The study area for some resources includes a larger area because the impacts may extend beyond the immediate construction corridor. These differences are described where applicable.

### 3.5 Alternatives Evaluated and Dismissed

In addition to the Proposed Action and No Action Alternatives, the port considered six other alternative routes during the FHWA NEPA process. These alternatives are described below and are shown in Figure 8. For the reasons discussed below, the port determined that all alternatives except for the Proposed Action and No Action Alternatives were unreasonable and, therefore, did not require further consideration.

#### 3.5.1 Alternative 1: Great Western Malting Pit Route

Similar to the Proposed Action Alternative, Alternative 1 would provide access to the port from the eastwest BNSF tracks through the Columbia River Gorge. Alternative 1 would use the W 7th Street corridor that runs under the BNSF main lines at the Columbia River. This alignment differs from the Proposed Action by turning under the Columbia River Rail Bridge, continuing through W 8th Street and entering the port via the Pacific Coast Shredding facility, providing access to the port's rail corridor at the easternmost location and limiting impacts on the Columbia River. It would connect with the existing port rail corridor and the United Grain Corporation storage yard through Pacific Coast Shredding, and the Great Western Malting Malt House and Silos (Figure 8).

Although Alternative 1 would provide storage tracks and a new connection to the BNSF main line, it would result in substantial disruption of existing port businesses. Pacific Coast Shredding would need to be relocated in its entirety, which would cost approximately \$50 million and could also potentially result in inefficient land use allocation within the port (Coleman pers. comm. 2009a). In addition, Alternative 1 would bisect the current operations at Great Western Malting, which would most likely disrupt operations across the rail corridor and could result in increased safety concerns. Up to 10 unit trains per day would travel through this corridor and access could be blocked between the malting facilities and rail loading area for up to 7 hours per day (Wiser 2009c). Some relocation of United Grain Corporation facilities would also be required.

Alternative 1 would provide a solution to addressing rail congestion, but there would also be a potential for increased safety concerns. By placing the main port rail line through an active business not tied directly to loading or unloading along this segment, increased conflicts between unit trains traveling to other port customers and existing business operations could occur. These increased conflicts could result in a higher potential for derailing in the event that unit trains would have to stop suddenly to avoid collisions with people or equipment crossing the tracks. Also, the reverse curve design approaching Great Western Malting would pose some safety concerns. The curved track, combined with the increasing grade at this location, increases the potential for derailing and wear and tear on the track and trains.

Alternative 1 would result in substantial business disruptions and relocation costs, would not alleviate rail congestions, and would result in increased safety concerns; therefore, this alternative was not considered further.

#### 3.5.2 Alternative 2: United Grain Corporation Pit Route

Alternative 2, like the Proposed Action Alternative and Alternative 1, would provide access to the port from the east-west BNSF tracks through the Columbia River Gorge. Alternative 2 would also use the W 7th Street corridor that runs under the BNSF main lines at the Columbia River. Once it turns under the Columbia River Rail Bridge, the alignment would continue along the edge of the Columbia River and would enter the port via the central portion of the United Grain Corporation facility, providing access to the port's rail corridor at the easternmost location.
Although Alternative 2 would provide storage tracks and a new connection to the BNSF main line, it would not improve unit train capacity or maximize efficient operations within the port. Alternative 2 could also increase congestion and delay on the BNSF east-west main line and nullify some of the capacity and reliability gains made by the WSDOT Vancouver Rail Project. Additionally, Alternative 2 would increase safety concerns and result in substantial disturbance to United Grain Corporation.

Because Alternative 2 joins the alignment of the current United Grain Corporation receiving, departure, and storage yard approximately 1,000 feet west of the east end of the yard, it would reduce the length of the potentially available trackage for United Grain Corporation and limit the effectiveness of unit train operations under this alternative. In addition, if any prolonged maintenance of either United Grain Corporation facilities or the rail line were to occur near the United Grain Corporation dust ducts or conveyor house, there is a potential for access through the proposed corridor to be closed, which could disrupt either United Grain Corporation operations or rail traffic into the port for up to several months (Coleman pers. comm. 2009b). Even under prime operating conditions, there could be trains on the track for up to 7 hours each day (Wiser 2009c), potentially causing significant disruption to the transfer of materials and equipment across the proposed corridor.

Some disruption on the BNSF east-west main line would also occur because approximately 4,000 feet of United Grain Corporation's unit trains would have to extend onto the main line. Trains at this location would be required to travel at substantially slower speeds due to limited visibility, which would result in some increased delays along this segment from slow movement of unit trains onto port property and would nullify some of the capacity and reliability gains made by the Vancouver Rail Project. This project, proposed by WSDOT, would provide a third north-south main line through the Vancouver Rail Yard (Yard) and a bypass to the Yard to allow the trains that are coming from the east and going north to transit the area without affecting or being affected by yard operations. The primary goal of the project is to reduce or eliminate low speed main line train movements in the Vancouver area and increase east-west route speed from 10 miles per hour to 25 miles per hour.

The construction and operation of a rail line though the United Grain Corporation facilities also poses significant safety concerns. The location of the dust collectors only allows for an 8.5-foot-wide clearance from the rail line. This is not sufficient space for any type of structural safety separation, such as a wall, or for a maintenance access corridor to provide a safe distance for accessing the conveyors or dust ducts. Although state law allows a minimum of 8.5 feet of available clearance (Washington Administrative Code [WAC] 296 860 20040), the state-allowed clearance is less than the 9-foot minimum safe clearance recommended by the American Railway Engineering and Maintenance of Way Association (AREMA). Similar to Alternative 1, by placing the main port rail line through an active business not tied directly to loading or unloading along this segment, increased conflicts between unit trains traveling to other port customers and existing business operations could occur. These increased conflicts could result in a higher potential for derailing in the event that unit trains would have to stop suddenly to avoid collisions with people or equipment crossing the tracks.

Safety concerns would occur from the close proximity of the unit train and active tracks to workers in the area during transport of equipment on and off dock, and during maintenance work at the storage silos, dust collector ducts, or conveyor house. The close proximity would increase the risk of train-related accidents. The unit trains would also potentially block emergency access for fire and medical emergencies. Such safety issues would compromise port operations and the ability to attract new employees, thus inhibiting growth and expansion.

To address safety concerns, United Grain Corporation would have to be relocated to another facility, adding estimated costs of up to \$300 million to the WVFA Project (Coleman pers. comm. 2009b). The total cost to construct the Proposed Action would be approximately \$140 million (Coleman pers. comm.

2009b). Relocating United Grain Corporation would also create a segmented vacant space at the port that would not be able to be used by another bulk materials tenant, therefore reducing the area available to the port for future tenants.

Furthermore, Alternative 2 would require additional fill in the Columbia River to expand United Grain Corporation's operations into the river.

Alternative 2 would not meet the port's unit train expansion needs or maximize efficient operations, and would result in increased safety concerns and extensive business disruptions and relocations; therefore, this alternative was not considered further.

# 3.5.3 Alternative 3: United Grain Corporation Extended Route

Alternative 3, similar to Alternatives 1 and 2, would provide access to the port from the east-west BNSF tracks through the Columbia River Gorge (Figure 8). Alternative 3 would also use the W 7th Street corridor that runs under the BNSF main lines at the Columbia River. Alternative 3 differs from the other alternatives in that once it turns under the Columbia River Rail Bridge, it would continue along the edge of the Columbia River, through the United Grain Corporation facility, and would enter the port via the eastern end of Terminal 2.

Alternative 3 would not meet the port's unit train expansion needs because the connection point between the proposed alignment and existing rail facilities would occur at about one-half the length of the Kinder Morgan storage tracks before it could be up to grade and functional. This reduced length would not provide sufficient track length for a unit train. Without sufficient unit train capacity, rail congestion along the main line and at existing at-grade crossings would continue.

Congestion caused by unit trains, coupled with the projected rail traffic increases expected at the port, would compromise rail and facility operations and safety in and around the port. All of the issues related to safety and business disruption at United Grain Corporation described under Alternative 2 would also occur under Alternative 3. Additionally, Alternative 3's rail alignment bisects Terminal 2, impacting the buildings, rail and facility operations, and docks at the terminal and prevents ready access to several other port buildings at Terminal 2.

Alternative 3 is likely to have a large impact on the Columbia River because United Grain Corporation's operations would be extended into the river, requiring placement of new fill material and structures in the river. As a result of the extension into the Columbia River, challenges and uncertainty associated with local and federal permitting, including those under Section 404 of the Clean Water Act (CWA) and the Endangered Species Act (ESA), would arise.

Alternative 3 would not meet the port's unit train expansion needs, would result in increased safety concerns and extensive business disruptions, and would impact the Columbia River; therefore, this alternative was not considered further.

# 3.5.4 Alternative 4: Hill Track Route

Alternative 4 would begin at the existing south lead and switching track in the Vancouver Rail Yard and then cross the BNSF north-south main lines via a tunnel or an overpass, thus grade-separating the two rail lines (Figure 8). The alignment would then leave the tunnel or overpass just west of the BNSF main lines and connect to the existing Alcoa lead into the port.

Alternative 4 would provide capacity for the port's increased rail traffic without permanently affecting the BNSF north-south main lines, but would significantly increase rail delays within the port because Alternative 4 would not provide access to the port's rail corridor and the United Grain Corporation

storage yard in a location that would allow for the needed unit train expansion. Nor would this alignment separate UPRR and BNSF train traffic.

In addition, this alignment would bisect the Vancouver Rail Yard, affecting all movement into and out of the south portion of the yard as well as the east-west main lines. The Vancouver Rail Yard office and operations would be affected, requiring relocation of BNSF operations. This alignment would require closure of Port Way, limiting emergency access to the port. Access to the Northwest Packing Company would be severely affected.

Furthermore, the grade (slope) needed for an overpass to go over the BNSF north-south main line would not be feasible from an engineering perspective given the short distance (the rise would be too steep for a freight train to operate). Another option in lieu of an overpass is construction of a tunnel; however, the BNSF main line would have to be shut down for an extended period of time during construction of a tunnel, making this option unfeasible.

Alternative 4 would increase rail delays and not meet the port's need for operational efficiencies, would not provide unit train capacity, would result in business disruptions and relocations, and increase safety concerns; therefore, this alternative was not considered further.

# 3.5.5 Alternative 5: Northwest Route

Alternative 5 would provide access to the port via the main line BNSF tracks north of the Vancouver Rail Yard and west of Vancouver Lake. This route would depart from the BNSF main lines north of Vancouver Lake and would follow the roadway between the wildlife preserve and Vancouver Lake Park. Alternative 5 would then cross over the flushing channel and follow along the south side of State Route 501 (Figure 8).

Although Alternative 5 would separate UPRR and BNSF access, it would not provide the increased yard capacity needed within the port or provide for future development of port lands. This alignment would require trains en route to the port to travel through the already congested Vancouver Rail Yard and cross over both north-south main lines, increasing overall system delays, which would not meet railroad operating standards. It would also restrict access to the port's Parcel 3 property, which is targeted for future development.

Alternative 5 would adversely affect open space lands and interfere with public roadways. Potential impacts could occur at Vancouver Lake Park and at wetlands on the port's Parcels 1A, 2, 3, and 4. Alternative 5's track alignment would displace the houseboat development located along Lake River. Views from properties located on Vancouver Lake would be blocked or vastly reduced in quality. Roadways in the area would experience delays from train operations along at-grade intersections, including the intersection of State Route 501 and NW Lower River Road, as would access for businesses and parcels along NW Lower River Road. NW Erwin O. Rieger Memorial Highway, just northwest of NW Lower River Road, would be closed.

In a letter dated July 20, 2004, BNSF states that it supports a southern port rail connection because such a connection would better serve the port's current operations and access while decreasing the impacts on the existing BNSF main line (Powrie 2004). Without BNSF approval (the owner and operator of the main line), a rail connection could not be made at this northwest location and this alignment could not be built.

Alternative 5 would increase rail delays and not meet the port's need for operational efficiencies, would potentially block future access to Parcel 3, would result in business and residential relocations, would impact public roadways, and would potentially impact additional wetlands and open space; therefore, this alternative was not considered further.

# 3.5.6 Alternative 6: Northeast Route

Alternative 6 would provide access to the port from the northeast via the NP Siding along the west side of the Vancouver Rail Yard. The alignment would then cross from the NP Siding over Fruit Valley Road, over the Frito Lay spur and the NuStar property, and would then proceed southwest through the Vancouver-Clark Parks and Recreation wetland restoration project (Figure 8). The project is jointly sponsored by the U.S. Department of Agriculture, Ducks Unlimited, and local government agencies. It would cross the port's Parcels 6 (Columbia River Wetland Mitigation Bank), 7, and 8 and into the port over State Route 501 in two to three places.

Alternative 6 would separate UPRR and BNSF access but would increase overall system delays and would not provide the increased yard capacity needed at the Port. This alignment would require trains en route to the port to travel through the already congested Vancouver Rail Yard and cross over both north-south main lines. An at-grade crossing would be required at Fruit Valley Road, which is a heavily used major arterial, which could also pose increased safety concerns. In addition, BNSF is opposed to this alternative because of the significant impacts on its yard operations.

This alignment would also adversely affect open space lands and potentially conflict with public roadways. Potential impacts could occur at a parcel designated by the City of Vancouver as Open Space, as well as a number of wetlands on the port's property. Other wetlands located on Washington State's Department of Fish and Wildlife's property just north of State Route 501 would also be affected. Access to Clark County's Public Utilities District River Road Generation facility and State Route 501 would be affected. Closure of Fruit Valley Road and an extension of W 26th Street would be required.

In a letter dated July 20, 2004 (Powrie 2004), BNSF states that it does not support this alignment because it would interfere with current and future freight and passenger rail operations.

Alternative 6 would increase rail delays and not meet the port's need for operational efficiencies, would impact public roadways, and would potentially impact additional wetlands and open space; therefore, this alternative was not considered further.



- Alternative 3: United Grain Corporation Extended Route
- Alternative 4: Hill Track Route
- Alternative 5: Northwest Route
- Alternative 6: Northeast Route
- ---- BNSF Existing Railway

A = Pacific Coast Shredding B = United Grain Corporation C = Great Western Malting D = Kinder Morgan E = Northwest Packing Company F = Vancouver Lake Park G = Clark Public Utilities River Road Generation Facility H = Vancouver Rail Yard I = Frito Lay Inc.



Port of Vancouver West Vancouver Freight Access Project, Schedules 2 through 4

Figure 8. Alternatives

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# 3.6 Applicable Laws, Regulations, and Permits

Federal and state local laws and regulations authorize agencies to issue permits, review plans, or provide consultation regarding potential project impacts. Table 1 identifies the most pertinent federal, state, and local laws and regulations governing permits, consultation, and review requirements for the Proposed Action Alternative. Regulations presented in Table 1 are organized by the issuing agency.

Applicable Law	Primary Agency(ies) Citation-	<b>Description and Requirements</b>
Federal Permits / Approvals		
NEPA of 1969	FRA 42 United States Code (USC) § 4321	The purpose of NEPA is to ensure that environmental factors are weighted equally when compared to other factors in the decision making process undertaken by federal agencies, including a multidisciplinary approach to considering environmental effects. NEPA's basic policy is to ensure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment. The Act declares a national policy, which will encourage productive and enjoyable harmony between man and his environment; to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality
Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act	FRA 40 Code of Federal Regulations (CFR) §§ 1500–1508	Provides regulations for Implementing NEPA procedures. Procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken and that information is of high quality. NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail.
Procedures for Considering Environmental Impacts	FRA 64 FR 28545, May 26, 1999	Provides procedures for the assessment of environmental impacts of actions and legislation proposed by the FRA and for the preparation and processing of documents based on assessments.
Regulations Governing Loans and Loan Guarantees under the Railroad	FRA 49 CFR § 260.35	Requires completion of appropriate environmental and historic preservation documentation prior to a decision by FRA on an applicant's financial assistance request.
CWA Section 404	US Army Corps of Engineers (Corps) & Environmental Protection Agency (EPA) 33 USC § 1344 et seq.	The Corps requires a permit for discharge of dredged and fill material into waters of the U.S., including wetlands. Approval of discharge of dredged and fill material must be in accordance with guidelines [404(b)(1) guidelines] developed by EPA in conjunction with the Corps.
CWA Section 402	Ecology 33 USC § 1344	Projects disturbing 1 acre or more of land during construction will require a National Pollutant Discharge Elimination System (NPDES) permit from the Ecology. The NPDES permit requires that Best Management Practices (BMPs) be in place during construction to avoid and minimize pollutant discharges that may affect water quality.

Table 1. Applicable Laws and I	Related Permits and Approvals for	r the Proposed Action Alternative
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Applicable Law	Primary Agency(ies) Citation-	<b>Description and Requirements</b>
CWA Section 401	Ecology 33 USC § 1341	Section 401 requires state review and authorization for issuance of a Certificate of Reasonable Assurance regarding protection of water quality when discharging dredged or fill material into waters of the U.S. This permit is obtained concurrently with the Clean Water Act Section 404 permit.
Rivers & Harbors Act Section 10	Corps 33 USC § 402-3a (esp.403)	The Act prevents unauthorized obstruction or alteration of U.S. navigable waters defined as "those waters that are subject to the ebb and flow of the tide and/ormaytransport interstate or foreign commerce." The Corps administers Section 10 permits for any structure in or over navigable waters of the U.S. for any dredging, disposal, excavation, drilling, re-channeling, or modification of the waterbody, and for projects outside a water body if they affect the course, location, or condition of the waterbody.
Rivers & Harbors Act Section 9	Corps & U.S. Coast Guard (USCG) 33 USC § 401	Section 9 requires the Secretary of Transportation, through the USCG, or the Corps to issue permits for bridges or structures that cross or could otherwise affect navigation on waters of the U.S.
Endangered Species Act	U.S. Fish and Wildlife Service (USFWS) & National Marine Fisheries Service (NMFS) 16 USC § 1536	Provides for the conservation of species that could become extinct through all or a substantial portion of their range. Prohibits any action that results in "taking" a listed species, adversely affecting identified critical habitat, or trading in listed species. Section 7 of the act requires all federal agencies to consult with USFWS and/or NMFS to determine if any effects to listed species will result from the project.
Magnuson- Stevens Fishery Conservation & Management Act/Sustainable Fisheries Act	NMFS 16 USC § 1801 et seq.	These acts establish national standards for fishery conservation and management and establish regional councils to develop fisheries management plans. The acts also provide for enforcement. Guidelines were developed in accordance with the Sustainable Fisheries Act amendments. A key guideline is delineation of essential fish habitat (EFH) by NMFS. Federal agencies must assess the effects of their actions on EFH and consult with NMFS.
Migratory Bird Treaty Act	USFWS 16 USC § 703 et seq.	Prohibits the taking of migratory birds, unless specifically excepted or authorized. "Taking" can include losses from habitat. A permit or consultation is not required but all federal agencies must comply with the Act. This typically includes performing nest clearances outside the breeding season, avoiding active nests, and minimizing loss of habitat through BMPs. Nest removal must be conducted by an individual permitted by the USFWS.
National Historic Preservation Act (NHPA) Section 106 and Executive Order 11593 Protection & Enhancement of the Cultural Environment Archeological Resource Protection	Advisory Council on Historic Preservation, Washington Department of Archeology and Historic Preservation (DAHP) and City of Vancouver 16 USC § 470 et seq. Vancouver Municipal Code (VMC) 20.710.080	Provides for the identification and protection of historic properties. Requires federal agencies to take into account the effects to properties on or eligible for the National Register of Historic Places (NRHP) and requires federal agencies to check for sites that may be eligible and prepare a Determination of Eligibility. For both historic properties and archaeological resources, a Finding of Effect as a result of the project is prepared and submitted to DAHP for concurrence.

Applicable Law	Primary Agency(ies)	Description and Requirements
Department of Transportation (USDOT) Act of 1966, Section 4(f)	FRA 49 USC § 303 23 USC § 138	Forbids USDOT from using public parks, recreation areas, wildlife/waterfowl refuges, or historic sites unless there is no "prudent and feasible" alternative and the agency employs "all possible planning to minimize harm." Amendments to Section 4(f) in Section 6009(a) of Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) allows projects with de minimis effects on historic properties to be approved.
Land and Water Conservation Fund Act (LWCFA)	National Park Service and Washington State Recreation and Conservation Office 36 CFR § 59.3	Section 6(f) of the LWCFA concerns projects that propose to convert outdoor recreation property that was acquired or developed with LWCFA grant assistance, which in Washington is distributed by the Washington State Recreation and Conservation Funding Board (RCFB).
Executive Order 13175 Consultation /Coordination with Tribes	FRA	Requires responsible agency(ies) to follow specific processes, including policymaking criteria, consultation, and coordination before taking certain actions that affect "Indian tribes" as defined by the Order.
Clean Air Act (CAA)	EPA, Southwest Clean Air Agency & Ecology 42 USC § 7506	Requires federal agencies to conduct an air quality analysis (air quality conformity) per an approved implementation plan to determine the likelihood and extent of potential impacts on air quality.
CAA Amendments	EPA, Southwest Clean Air Agency & Ecology 42 USC § 85	Intended to affect transportation decision-making, not only to achieve air quality goals but also to affect broader environmental goals related to land use, travel mode choice, and reduction in vehicle miles traveled. A key section of the CAA Amendments relating to conformity is Title I, Provisions for the Attainment and Maintenance of National Ambient Air Quality Standards (NAAQS).
Executive Order 12898 Environmental Justice	FRA 59 FR 7629, Feb. 11, 1994	Requires that federal agencies ensure there are no disproportionately high and adverse effects on minority and low-income populations for their agency actions. An evaluation of potential effects and potential mitigation or avoidance measures is required.
Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency	FRA 65 FR 50121	Requires federal agencies to examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to ensure that recipients of Federal financial assistance provide meaningful access to their LEP applicants and beneficiaries. It is expected that agency plans will provide for such meaningful access consistent with, and without unduly burdening the fundamental mission of the agency.
Uniform Relocation & Real Property Acquisition Act	FRA 42 USC § 4601 et seq.	Requires agencies that must use private property to acquire it at fair market value and assist in any necessary relocation of residences or business.
Americans with Disabilities Act (ADA)	US Department of Justice Public Law 101-336	Prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, state and local government services, public accommodations, commercial facilities, and transportation.
Fish & Wildlife Coordination Act	USFWS, NMFS, FRA 16 USC § 662	Requires federal agencies to consult with wildlife agencies regarding effects to fish and wildlife for any project that involves impoundment (only were surface area is 10 acres or more), diversion, channel deepening, or other modification of a stream or other body of water.

Applicable Law or Order	Primary Agency(ies) Citation-	Description and Requirements
Executive Order 11990 Protection of Wetlands	FRA 42 FR 26961	Prohibits federal agencies from undertaking or providing assistance for new construction located in wetlands unless the agency finds there is no practicable alternative to the construction and the proposed action includes all practicable measures to minimize harm to wetlands. Agencies shall provide for early public review of any plans or proposals for new construction in wetlands in accordance with Executive Order 11514 Protection and Enhancement of Environmental Quality, Mar. 5, 1970, 35 FR 4247. Compliance with Executive Order 11990 is demonstrated as part of the Clean Water Act Section 404 permit process.
Executive Order 11988 Floodplain Management	Federal Emergency Management Agency (FEMA) 42 FR 26951	Requires federal agencies to evaluate the potential effects of any actions located in a floodplain with the aim of reducing the risk of floodplain loss and restoring and preserving "the natural and beneficial values" of floodplains. Agencies shall consider alternatives to avoid adverse effects and incompatible development in floodplains and shall modify its action using mitigation measures. Agencies shall also circulate a notice to the public and provide opportunity for early public review of any plans or proposals for actions in floodplains. Furthermore, agencies shall include adequate provisions for the evaluation and consideration of flood hazards in the regulations and operating procedures for licenses, permits, loan or grant aid programs they administer.
Use of Locomotive Horns at Highway- Rail Grade Crossings, Final Rule	FRA 49 CFR Parts 222 and 229	The FRA is the federal agency responsible for regulating noise from heavy rail operations. Requires the use of locomotive horns at public grade crossings, but gives FRA the authority to make reasonable exceptions.
Oil Spill Prevention and Response Plans	US Department of Transportation (USDOT) 49 CFR Part 130	Prescribes prevention, containment and response planning requirements of the USDOT applicable to transportation of oil by motor vehicles and rail vehicles.
Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements	USDOT 49 CFR Part 172	Requires persons transporting hazardous materials to have shipping papers, package marking, labeling, and transport vehicle placarding for shipment and transportation of hazardous materials.
	St	tate Permits / Approvals
Model Toxics Control Act	Ecology Washington Administrative Code (WAC) Chapter 173- 340	The Act establishes administrative processes and standards to identify, investigate, and clean up facilities where hazardous substances have been identified. Approvals from Ecology are required for disturbances to sites with a restrictive covenant.
Resource Conservation and Recovery Act Hazardous Waste Management Act of 1976	Ecology 40 CFR Parts 239-282 WAC Chapter 173-303	Governs the disposal of solid waste and hazardous waste. Approvals from Ecology are required for disturbances to sites with a restrictive covenant.

Applicable Law	Primary Agency(ies)	Description and Requirements
Emergency Response	WAC Chapter 296-824	Sets minimum requirements for employers to implement for the health and safety of employees during a response to a hazardous substance release in the workplace or any other location.
Greater Standards for Hazardous Materials Operations	VMC Chapter 14.26.130	This section of the Water Resources Protection Ordinance requires residential, industrial, and commercial activities that may involve the use of stationary facilities, equipment, transport vehicles, or transfer equipment to use and prepare structural best management practices, spill and emergency response plans, operational inspections training program, closure plan, engineering and operating report, records, and protections or stormwater to prevent releases of hazardous materials to water resources.
Water Pollution Control Act	Ecology Revised Code of Washington (RCW) Chapter 90.48	Isolated wetlands are considered waters of the state. Ecology has broad authority under the Water Pollution Control Act to control and prevent the pollution of streams, lakes, rivers, ponds, inland waters, salt waters, and other waters of the state.
Hydraulic Project Approval	Washington Department of Fish and Wildlife (WDFW) RCW Chapter 77.55 WAC Chapter 220-110	Approval from WDFW is required before beginning any activity that uses, diverts, obstructs, or changes the natural flow or bed of any salt or fresh waters of the state must provide protective measures for fish.
Washington Clean Air Act	Ecology RCW Chapter 70.94 WAC § 173-400-040(8)	Similar to the federal Clean Air Act, it requires adherence to state air quality standards and an evaluation of potential impacts on air quality.
	L	ocal Permits / Approvals
State Environmental Policy Act (SEPA)	Ecology and port VMC Chapter 20.790 WAC Chapter 173-11	Similar to NEPA, it is state policy that requires state and local agencies to consider the likely environmental consequences of a proposal before approving or denying the proposal.
Shoreline Substantial Development Permit	City of Vancouver and Ecology RCW Chapter 90.58 WAC Chapters 173-18, 20, 22, 26, and 27 VMC Chapter 20.760	A Shoreline Substantial Development Permit (SSDP) is required under the Shoreline Management Act (SMA), which aims to "prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." SSDP is needed for any development that has a total cost or fair market value over \$5,000, or that materially interferes with normal public use of the water or shorelines of the state.
Shoreline Conditional Use Permit	City of Vancouver and Ecology RCW Chapter 90.58 WAC Chapters 173- 18, 20, 22, 26, and 27 VMC Chapter 20.760	A Shoreline Conditional Use Permit (SCUP) is required under the SMA. SCUP is needed for placement of fill in the water or shorelines of the state. Conditional uses may be authorized by the local government if the Proposed Action Alternative is consistent with the SMA and local SMP, does not interfere with normal public use of public shorelines, is compatible with other uses in the area, and will cause no adverse effects to the shoreline environment or detriment to the public interest. A SCUP is approved by Ecology.
Tree Conservation	City of Vancouver VMC Chapter 20.770	Establishes a process and standards to provide for the protection, preservation, replacement, proper maintenance, and use of trees, associated vegetation, and woodlands located in the City of Vancouver. Requires a tree removal permit and a tree removal plan unless exempted under the VMC (exemptions include undeveloped property, small trees, and minor development).

Applicable Law or Order	Primary Agency(ies) Citation-	<b>Description and Requirements</b>
Floodplain Development Permit	City of Vancouver 42 USC § 4001 et seq. 44 CFR § 60.3 RCW Chapter 86.16 WAC Chapter 173-158 VMC § 20.740.120	Under the state's Flood Control Management Law, a local Floodplain Development Permit or other permit identifying the floodplain management conditions is required for any development within the mapped 100-year floodplain.
Critical Areas Ordinance Compliance	City of Vancouver RCW Chapter 36.70A VMC Chapter 20.740	Under Washington's Growth Management Act (GMA), all cities and counties are required to adopt critical areas regulations to protect the natural environment and public health and safety. Critical areas are locally delineated wetlands, fish and wildlife habitats, frequently flooded areas, aquifer recharge areas, and geologically hazardous areas. A permit is generally required to perform any clearing, grading, building, or other development in a critical area or its buffer.
Greater Standards for Hazardous Materials Operations	VMC Chapter 14.26.130	This section of the Water Resources Protection Ordinance requires residential, industrial, and commercial activities that may involve the use of stationary facilities, equipment, transport vehicles, or transfer equipment to use and prepare structural best management practices, spill and emergency response plans, operational inspections training program, closure plan, engineering and operating report, records, and protections or stormwater to prevent releases of hazardous materials to water resources.
Off-site Impacts	City of Vancouver VMC Chapter 20.935.030(A)	City code prohibits noise impacts that exceed the maximum environmental noise levels at a receiving property as established by the Washington State noise regulation and also ensures compliance with federal law. The Washington State noise regulations (and by reference, the City regulation) include two key exemptions: "Sounds created by surface carriers engaged in interstate commerce by railroad" are exempted from both daytime and nighttime noise limits; and, "Sounds originating from temporary construction sites as a result of construction activity" are exempted from daytime noise limits.

# 4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

# 4.1 Air Quality

# 4.1.1 Study Area and Methodology

The study area for air quality is defined as the Portland/Vancouver carbon monoxide (CO) maintenance area. Maintenance areas are those geographic areas that had a history of nonattainment, but are now consistently meeting the National Ambient Air Quality Standard (NAAQS).

Construction emissions were estimated using the approximate duration of construction and equipment used. Tailpipe and fugitive dust emissions generated from the upland grading activities were analyzed using emission factors from EPA's NONROAD2005 model. As a conservative step, emission factors were based on the year 2009. If the peak year of construction is later than that, then the actual emission factors would likely be lower than the 2009 values used for the analysis (ICF Jones and Stokes 2009a).

To evaluate emissions associated with locomotive operations the analysis considered the existing train operations, increase in train operations, average train speed and horsepower. Locomotive emissions were estimated using EPA emission factors (U.S. Environmental Protection Agency 1997) and the rail traffic assumptions specified in Appendix A (ICF Jones and Stokes 2009a).

# 4.1.2 Affected Environment

The Portland-Vancouver area in which the WVFA Project is located has been designated a maintenance area for CO and an attainment area for all other pollutants.

# 4.1.2.1 Federal General Conformity Regulations

A General Conformity determination is required for a federal action in a maintenance area where the total of the direct and indirect emissions (including emissions from temporary construction emissions) resulting from the action would exceed the threshold emission rates (40 CFR Part 93). The General Conformity determination criterion for CO within a designated CO maintenance area is 100 tons per year (tpy) (40 CFR Part 93); thus, for purposes of the port's analysis, air quality impacts would be considered significant if:

- CO emissions generated by construction of the project, combined with CO emissions from additional trains traveling within the Portland-Vancouver maintenance area, are predicted to exceed 100 tpy, and/or
- the ambient air pollutant concentrations generated by the project construction and operations are predicted to exceed the NAAQS.

# 4.1.2.2 Federal Emissions Standards for Construction Equipment and Locomotives

Diesel-powered construction equipment and diesel locomotives that run over the port's rail system emit soot particles, referred to as diesel particulate matter (DPM). DPM is recognized as an important air pollutant, because it consists of ultra-fine particles that can be inhaled into the lungs, and it contains a mix of recognized toxic compounds and suspected carcinogenic compounds (California Air Resources Board 1998). In response to the recognized importance of DPM, the U.S. Congress enacted the Diesel Emission Reduction Act of 2005 (Public Law 109-58). As required by that federal act, EPA enacted aggressive new regulations that require new and remanufactured nonroad diesel equipment (including construction equipment and locomotives) to steadily reduce per-vehicle DPM emissions in the future (EPA 2009).

DPM emissions generated by rail operations are expected to gradually decrease as a result of those aggressive regulations.

# 4.1.3 Environmental Consequences

# 4.1.3.1 No Action Alternative

#### **Operational Impacts**

No construction of rail facilities or infrastructure improvements would occur as part of the No Action Alternative; however, train volumes on the main line and within the port are expected to increase. The port estimates three times more trains will be in use by port tenants by 2025 (ICF Jones and Stokes 2009a). The total number of trains operating on the lines is expected to increase by 84 percent in this time period (MainLine Management 2005). The increase in the number of trains would result in additional delay times, thereby increasing train idling times (see Sections 4.3, Transportation and 4.17, Energy Use and Greenhouse Gases). Vehicular traffic would also be delayed at crossings as a result of the increased congestion on the main line. To compensate for the lack of expanded rail capacity, a No Action Alternative would likely involve greater truck traffic within the port. Increased train and truck traffic to the port, creating train and vehicular delays, would increase emissions.

Ambient air pollutant concentrations as well as DPM concentrations would not likely exceed the NAAQS because the locomotive emission increase would be minimal and distributed over miles of rail corridor, within the port, and along the BNSF main lines serving the west coast. Emissions from vehicular traffic while idling during train delays is expected to result in a negligible increase in emissions. In addition, as federal emission standards require continued improvements to newly manufactured and remanufactured locomotive engines, the amount of pollutants released by rail operations will continue to decrease. Therefore, the emissions associated with the increase in rail activity under the No Action Alternative would be offset by improved emissions ratings for locomotives.

# 4.1.3.2 Proposed Action Alternative

#### **Operational Impacts**

The Proposed Action Alternative would allow tenants to assemble unit trains within the port, rather than doing so at the current locations at the BNSF Vancouver Yard and main line. Doing so would increase the amount of switch engine traffic within the port, but it would decrease switch engine usage outside the port by a similar amount. Therefore, the Proposed Action Alternative is not anticipated to cause an emission increase by switch engines; it would simply change the location where those emissions occur.

Direct operational emission increases caused by the Proposed Action Alternative would be generated by additional long-haul trains traveling within the CO maintenance area. The Proposed Action Alternative would result in 10 unit train trips per day compared to current levels averaging 3 train trips per day (MainLine Management 2005). The estimated increase in operational CO emissions would be 35 tpy, which, even when combined with estimated annual construction emissions of 38 tpy during the construction period, is below the General Conformity threshold of 100 tpy. Therefore, a conformity determination is not required for the Proposed Action Alternative (ICF Jones and Stokes 2009a). Emissions from vehicular traffic while idling during train delays is expected to decrease, resulting in a decrease in emissions.

The Proposed Action Alternative would contribute approximately 2 percent of the total main line rail traffic (ICF Jones and Stokes 2009a). This relatively small contribution to rail activity would not cause a significant increase in regional locomotive emissions. The contribution to ambient air pollutant

concentrations near the port rail yards and the regional rail lines would not likely exceed the NAAQS because the relatively small increase in rail activity would lead to a small locomotive emission increase that would be distributed over many miles of rail corridor, within the port, and along the BNSF main lines serving the west coast. In addition, as federal emission standards require continued improvements to newly manufactured and remanufactured locomotive engines, the amount of pollutants released by rail operations should continue to decrease, offsetting the emissions associated with the expected increase in rail activity.

The port's contribution to ambient DPM concentrations at public areas near the port's tracks is also expected to gradually decrease over time. The anticipated gradual reduction in port-related emission rates, combined with the fact that the port's relatively low rail-related DPM emission rates would be distributed over a large geographical area, indicates that the port's contribution to ambient DPM concentrations at any given public location are not expected to be significant.

In conclusion, the Proposed Action Alternative would not cause any significant air quality impacts. because total estimated annual CO emissions would be below the 100 tpy threshold for CO in the General Conformity regulations (40 CFR Part 93), and because the increase in pollutant emissions near the port rail yards and regional rail lines would not likely exceed the NAAQS due to their relatively small magnitude and the relatively large area over which they would be distributed. Detailed analysis of air quality impacts are provided in Appendix A.

#### **Construction Impacts**

The demolition of buildings would generate limited emissions from fugitive dust and from dieselpowered construction equipment. These emissions would be temporary and localized, and are not expected to affect areas beyond the port facility boundary.

Federal and local regulations prohibit demolition of structures that contain asbestos-containing material. The port would retain certified inspectors to identify all such material in the buildings, and would remove asbestos-containing material before building demolition begins.

The highest construction emissions are expected to occur during grading, excavation, and embankment placement for the rail alignment. For this analysis it is assumed that all construction emissions are subject to the General Conformity regulation. The forecasted construction emissions for CO during the anticipated peak year of construction would be 38 tpy which, even when combined with the estimated annual increase in project-related operational CO emissions of 35 tpy, is still below the General Conformity threshold of 100 tpy (ICF Jones and Stokes 2009a).

Ambient air pollutant concentrations at public areas beyond the construction zones during construction would likely be below the NAAQS because the construction emissions would be relatively small and would be distributed over a large area. The Proposed Action Alternative is a linear rail construction project along several miles of rail corridor, and construction activity would generally not occur along the alignment for extended periods of time. All construction equipment must satisfy EPA emission standards for non-road engines. These factors ensure that ambient air pollutant concentrations at public areas outside the construction zones would not approach significant levels.

# 4.1.4 Minimization and Mitigation Measures

#### No Action Alternative

No significant air quality impacts would occur, so no mitigation measures are required.

#### **Proposed Action Alternative**

As explained above, the Proposed Action Alternative would not result in significant air quality impacts; therefore, no air quality mitigation would be required.

# 4.2 Noise and Vibration

### 4.2.1 Study Area and Methodology

The study area for noise and vibration is defined by the regulatory guidance provided by the FRA and VMC 20.935(a)(4), and is larger than the WVFA Project area (ICF Jones and Stokes 2009g; ICF International 2011b).

The impact methodologies developed by the Federal Transit Authority (FTA) (2006) were used to assess noise and vibration impacts of the Proposed Project. The assessment of increased train noise used a two-step process as defined by FTA guidelines (FTA 2006).

- Step 1 (Noise Screening): The "noise screening distance" is calculated according to FTA guidelines (2006), and the receptors that are closer than the noise screening distance are identified. The noise screening distance is the distance at which the projected 24-hour average noise level caused by projected train traffic exceeds 50 dBA Ldn.
- Step 2 (General Noise Analysis): For receptors closer than the screening distances described above, the difference in 24-hour Ldn noise levels between existing conditions and the future full buildout condition was forecast, and the projected Ldn noise increase was compared to the FTA significance thresholds (2006). The FTA significance thresholds use a sliding scale based on the existing background Ldn noise level.

The process accounted for noise associated with inbound and outbound trains, switch engines and railcars, and rail yard activity. Similar to the noise analysis, the vibration analysis used a two-step process: vibration screening analysis and general vibration analysis. Additionally, the FRA safety regulations require all trains to sound their horns at the at-grade crossings of public roads (49 CFR 222 and 229). The FRA train horn assessment methodology was used (FRA 2008). FRA defines a train horn noise impact by comparing the projected noise increase with the existing condition, using the sliding scale developed by the FTA (2006). The methodology is further described in the Noise and Vibration Discipline Reports in Appendix B (ICF Jones and Stokes 2009g; ICF International 2011b).

The significance criteria used for both the noise and vibration analysis are listed below. Noise and vibration impacts would be considered significant and would require mitigation if any of the criteria listed below are triggered (ICF Jones and Stokes 2009g; ICF International 2011b):

 City and state noise regulations exempt interstate rail operations from numerical noise limits. However, it is acknowledged that temporary daytime construction noise could potentially be disruptive to nearby residents. Therefore, for this analysis, daytime construction noise is determined to be significant if modeled short-term (i.e., 1-hour average) construction noise levels are more than 10 dBA above existing background at any existing dwelling, as recommended by FTA guidelines (2006);

- If train traffic increases along a rail line that is closer to existing dwellings than the noise screening distances specified by FTA (2006);
- If increases in train traffic cause the 24-hour Ldn noise levels at a dwelling to increase by more than the significance criteria specified by FTA (2006);
- If vibration levels caused by train coupling along the proposed rail alignment are high enough to disrupt vibration sensors and safety shutoffs at the closest industrial facility (FTA 2006); or,
- If vibration levels are high enough to be discernible at the residential areas and quiet office buildings closest to the proposed new rail line, based on sensitivity criteria set by FTA (2006).

# 4.2.2 Affected Environment

#### 4.2.2.1 Existing Noise-Sensitive Receptors

FTA guidance identifies three categories of noise-sensitive land uses that are subject to different impact thresholds depending on the category. Category 1 includes tracts of land where quiet is an essential element in their intended purpose. Category 2 includes residences and buildings where people sleep. Category 3 includes institutional land uses with daytime and evening use where quiet conditions are important for the function of the building. This analysis considered the following noise-sensitive receptors (NSR), which represent residential areas closest to the WVFA Project area:

- NSR-1 is a residential area located at W 20th Street and W Thompson Avenue and the small community park (Liberty Park) at the corner of W Thompson Avenue and Mill Plain Boulevard (Figure 9). It is considered to be a Category 2 noise-sensitive receptor.
- NSR-2 is the residential area located at W 27th Street and W Weigel Avenue (Figure 9). It is considered to be a Category 2 noise-sensitive receptor.
- NSR-3 is a residential area located between Mill Plain Boulevard and W 13th Street (Figure 9) and is closest to the proposed construction of the pile-supported rail trench along the Columbia River. It is considered to be a Category 2 noise-sensitive receptor.
- NSR-4 represents the sleeping facilities and outdoor recreation areas at the Clark County Correctional Facility (Figure 11 and Figure 12). WSDOT noise specialists<sup>5</sup> were consulted, and they determined that this facility qualifies as a noise-sensitive receptor based on its sleeping quarters and outdoor use areas (Magnoni 2007, 2009). It is considered to be a Category 2 noise-sensitive receptor.

FRA noise regulations require all trains to sound their horns at the at-grade crossings of public roads (49 CFR 222 and 229). There are two public at-grade crossings associated with the WVFA Project: One at NW Gateway Avenue within the port facilities; the other is located at the Thompson Avenue/W 16th Avenue crossing shown in Figure 9. NW Gateway Avenue was not evaluated further as this road is within the port facility and neither federal nor state regulations require trains to sound their horns at this crossing (Magnoni 2007).

# 4.2.2.2 Existing Vibration-Sensitive Receptors

FTA guidance identifies three categories of vibration-sensitive land uses that are subject to different impact thresholds similar to those used in the noise analysis. Category 1 includes special vibration-sensitive building uses in which work activities cannot tolerate vibration of the building. Category 2

<sup>&</sup>lt;sup>5</sup> As part of previous related NEPA efforts with FHWA for the WVFA Project, WSDOT was consulted during analysis of the Proposed Action to provide guidance in evaluating the proposed project's effects on the various resources. See Sections 3.3 and 5.0 for further discussion regarding coordination and consultation efforts.

includes residences and buildings where people sleep. Category 3 includes institutional land uses with daytime and evening use where quiet conditions are important for the function of the building. Three vibration-sensitive receptors (VSR) were identified within 500 feet of the proposed rail alignment:

- VSR-1 is the industrial cooling towers at the Clark County Public Utility River Road Generation Plant located west of NW Gateway Avenue and south of NW Lower River Road. The power plant has vibration sensors and automatic shutoffs on its mechanical-draft cooling towers. This is a Category 3 vibration-sensitive receptor.
- VSR-2 is the existing Tidewater Barge office building at the western boundary of the port operations (Figure 12). This office building qualifies as a Category 3 vibration-sensitive receptor.
- NSR-4 is the living and sleeping areas at the Clark County Correctional Facility. It qualifies as a Category 2 vibration-sensitive receptors.

#### 4.2.2.3 Existing Noise Conditions

Cars and trucks on local streets are the primary sources of existing noise levels at the closest noisesensitive residential areas. Within the port, an average of three trains currently travel to and from the port each day (1.5 trains in each direction) on the existing rail alignment, and 37 switch engine trips move back and forth in the 70s rail yard (MainLine Management 2005).

Sound level monitoring (SLM) was conducted in 2005 (ICF Jones and Stokes 2009g) in the vicinity of the NSR-2 (SLM-1) in Figure 10. The measurements taken at SLM-1 were used for this analysis to represent background conditions at the residential receptors on the north side of the project area (NSR-1, NSR-2, and NSR-3).

Sound level monitoring was also conducted at the Clark County Correctional Facility (SLM-2) (Figure 11 and Figure 12). Details regarding the results of the noise monitoring are provided in Appendix B (ICF Jones and Stokes 2009g).

# 4.2.3 Environmental Consequences

# 4.2.3.1 No Action Alternative

#### **Operational Impacts**

No construction of rail facilities or infrastructure improvements would occur as part of the No Action Alternative; however, train volumes on the main line and within the port are expected to increase. The port estimates three times more trains will be in use by port tenants by 2025 (MainLine Management 2005). The increase in train volumes is expected to be less under the No Action than the Proposed Action (MainLine Management 2005). As a result, increases in noise and vibration levels under the No Action Alternative would be less than under the Proposed Action and significant impacts are not expected.

#### **Construction Impacts**

No construction is expected as part of the No Action Alternative; therefore, no construction-related noise or vibration impacts would occur.



# Figure 9. Project Detail: East Terminus

# Legend Current Port Operations Existing Terminals - Schedules 2 through 4 of the West Vancouver Freight Access Project (Planned) **==**: Schedule 1 of the West Vancouver Freight Access Project (Complete) ---- Existing Port Rail Access ---- BNSF Existing Railway GWM Drum House and Storage Silos Relocation (Building #1895) United Grain Corporation Maintenance and Operations Relocation (Building #1955) Port Warehouse Partial Removal (Building #2045) • Existing At-Grade Crossing • Future At-Grade Crossing Noise Sensitive Receiver Environmental Caps Proposed Roadway Relocation ---- Roadways East Terminus Detail A = Former Boise Cascade Site C = Lafarge Cement Company D = Great Western Malting E = United Grain Corporation B = Albina Fuels F = Former Fort Vancouver Plywood Pacific Coast Shredding Source: Clark County (2005). Imagery: ESRI (April 2007) i-cubed. Map Prepared: April 2011





Figure 10. Project Detail: Rail Yard East

# Legend





Figure 11. Project Detail: Parcel 6 and Rail Yard West

#### Legend





Figure 12. Project Detail: West Terminus

# Legend



### 4.2.3.2 Proposed Action Alternative

#### **Operational Impacts**

#### Noise Impact Analysis

Rail traffic is expected to increase from an average of 3 train trips per day to 10 train trips per day (MainLine Management 2005).

The results of the noise assessment (ICF Jones and Stokes 2009g; ICF International 2011b) indicated NSR-1 and NSR-2 (which are shielded from rail noise by existing structures) are outside the screening distances for noise impacts and, therefore, no noise impacts would occur at those locations. Potential impacts to NSR-3 and NSR-4 (which are not shielded by existing structures), were more likely because these receptors are inside the screening distance for noise impacts. A refined noise assessment to evaluate future noise increases at NSR-3 and NSR-4 concluded that there is no impact based on the background noise level and the project-related noise increase (ICF Jones and Stokes 2009g; ICF International 2011b). Therefore, increased train operations would not cause significant noise impacts at residential receptor NSR-3 and NSR-4.

The schedule for the Proposed Action Alternative calls for constructing the Terminal 5 rail loop before the south lead track is opened. During that interim period it is possible that a new industrial tenant could occupy Terminal 5. Unit and switching trains to serve a new tenant would be routed along the Hill track through the Thompson Avenue/W 16th Street crossing, and would thereby cause a temporary increase in rail traffic until the new south lead track opens in 2017. Under the temporary future condition, train traffic could increase by two crossings per day related to planned growth, plus up to 18 crossings with a new tenant at Terminal 5, for a potential addition of 20 crossings, resulting in as many as 57 crossings at Thompson Avenue/W 16th Street per day, compared to 37 crossings per day under the existing condition. After the Proposed Action Alternative is complete and the new south lead track is opened in 2017, traffic across the Thompson Avenue/W 16th Street crossing is expected to decrease to 28 crossings per day.

Train horn analysis used an FRA train horn noise model to determine whether the temporary increase in rail use and the resulting noise from train horns at the Thompson Avenue/W 16th Street crossing would significantly increase 24-hour Ldn noise levels at Liberty Park and the surrounding residential neighborhood (i.e., NSR-1).

FRA defines a train horn noise impact by comparing the projected noise increase with the existing condition, using the sliding scale developed by the FTA (FTA 2006). Figure 13 shows the boundary of the FRA temporary train horn noise impact zone. The FRA train horn noise model indicates that the temporary impact zone could extend as far as 730 feet north and south of the rail crossing (Appendix B). As shown in Figure 13, the impact zone would not extend to either Liberty Park or the residential neighborhood north of W Mill Plain Boulevard. Based on these conservative modeling results, the temporary increase in train horn noise caused by a hypothetical tenant at Terminal 5 would not cause a significant noise impact at the closest noise-sensitive residential receivers (ICF Jones and Stokes 2009g; ICF International 2011b). After completion of the new south lead in 2017, train traffic and train horn noise at the Thompson Avenue/W 16th Street crossing would decrease compared to existing conditions because the new south lead track would be open to access the port, and fewer trains would be using the Thompson Avenue/W 16<sup>th</sup> Street crossing.



The Tidewater Barge Corporation (VSR-2) has contacted the port to express concern about the potential for excessive increased indoor noise levels inside its office building. WSDOT indicated the Tidewater Barge office building does not qualify as a noise-sensitive receptor eligible for federal funding for noise abatement because the building does not include outdoor use areas. The Tidewater Barge Corporation and the port are currently meeting to address these concerns. Measures to reduce noise may include providing a noise wall between the proposed rail alignment and the existing office building, and/or retrofitting the acoustical insulation on the office building to reduce indoor noise levels. Another option is for Tidewater Barge Corporation and the port to conduct a future study to evaluate the actual post-construction noise impacts and determine the appropriate approach based on those measurements.

#### Vibration Impact Assessment

Similar to the noise analysis, the vibration analysis used a two-step process: vibration screening analysis and general vibration analysis. According to the FTA screening procedure (FTA 2006), the vibration screening distance for Category 2 receptors is 200 feet and the screening distance for Category 3 receptors is 120 feet. NSR-4 (Figure 12) is well outside the screening distance, so it is concluded that vibration impacts at that receptor would not be significant (ICF Jones and Stokes 2009g; ICF International 2011b). Both of the identified Category 3 VSRs (VSR-1 and VSR-2) are within 60 to 80 feet of the proposed rail alignment (Figure 12). Therefore, a general vibration analysis was conducted for both Category 3 receptors. A detailed analysis of the vibration screening analysis and assumptions is in the Noise and Vibration Discipline Report and Addendum to the Noise and Vibration Discipline Report in Appendix B.

The port conducted a field study to predict vibration levels at VSR-1 (Figure 12), the industrial cooling towers at the Clark County Public Utility River Road Generation Plant (Earth Dynamics 2008). Vibration levels were measured at the foundations of the cooling towers to establish existing conditions. Vibration levels were also measured at a distance of 80 feet from railcar coupling operations on a nearby rail line. The 80-foot distance used for this vibration test corresponds to the minimum setback that would be established between the proposed rail alignment and the cooling towers. The measured vibration acceleration near the railcar coupling operations was only 0.5 percent to 1 percent of the routine vibration level at the cooling towers. This small, temporary increase in vibration is below the shutoff threshold of the sensors and is not expected to be a concern, so vibration impacts at VSR-1, Clark County Public Utilities River Road Generation Plant, would not be significant.

The Proposed Action Alternative would construct a new rail loop within 60 feet of the existing VSR-2 (Figure 12). Indoor office spaces might be subject to increased vibration caused by train coupling operations and by low-speed locomotives operating close to the building. The port conducted field measurements of ground vibration levels at a location 60 feet from train coupling operations, to assess potential vibration impacts at VSR-2 (Tidewater Barge office building) (Earth Dynamics 2008). The vibration levels at the Tidewater Barge building are predicted to be lower than the FTA impact criteria for Category 3 commercial buildings. Therefore, operations along the proposed rail alignment would not cause significant vibration impacts at the nearby Tidewater Barge office building (ICF Jones and Stokes 2009g; ICF International 2011b).

# **Construction Impacts**

City and state noise regulations exempt temporary daytime construction activity from numerical noise ordinance limits. However, it is acknowledged that temporary daytime construction noise could potentially be disruptive to nearby residents. Therefore, for this analysis daytime construction noise was evaluated by predicting the temporary increase in construction noise levels compared to existing background levels. In addition, FTA regulations set a threshold of significance at 10 dBA above existing

ambient noise levels (Miller 1995). This threshold was also taken into consideration in evaluating construction noise levels.

Construction noise would be limited to daytime hours (between 7:00 a.m. and 8:00 p.m.). The port would be required to obtain a variance from the City to proceed with construction outside the 7:00 a.m. and 8:00 p.m. period. Construction noise levels were evaluated based on three types of construction activity: construction activity related to the pile-supported rail trench along the Columbia River; construction of the new NW Gateway Avenue overpass; and construction activity for the at-grade rail lines along the remainder of the proposed rail alignment.

The construction of the pile-supported rail trench at the east end of the project area would generate noise through activities such as mass excavation, vibratory pile-driving for H piles, and the use of rotary augers. Source noise levels for each of those operations and the estimated ambient noise levels for the closest residential area (NSR-3) are listed in Table 2. Although construction activities may generate temporary, localized noise increases, ambient noise levels would not exceed 65 dBA at NSR-3 or approach the FTA significance threshold of 10 dBA greater than existing background noise; therefore no significant impacts from construction noise would occur at NSR-3 (ICF Jones and Stokes 2009g; ICF International 2011b).

Table 2. Estimated Construction Noise Levels at N	SR-3 from Construction of the Pile-Supported Rail
Trench	

Construction activity	Typical Noise Level at 50 feet (dBA Leq)	Estimated Noise Level at NSR-3 during Construction (dBA Leq)	Measured Existing Daytime Background Noise Levels at SLM-1 (dBA Leq)
Excavation	89	57	57-66
Vibratory pile-driving	88	56	57-66
Rotary auger for stone column installation	78	46	57-66

Source: Noise and Vibration Discipline Report (ICF Jones and Stokes 2009g)

Construction activity for the proposed at-grade rail alignment along the central and western portions of the project area would occur approximately 1,400 feet from NSR-1 and NSR-2, and may generate temporary, localized noise level increases (Table 3). The construction noise caused by the Proposed Action Alternative would likely be similar to or less than background noise levels due to the distance (more than 1,400 feet) of the construction activities from the receptors.

# Table 3. Estimated Construction Noise Levels at NSR-1 and NSR-2 from Construction of At-Grade Rail Lines

Construction activity	Typical Noise Level at 50 feet (dBA Leq)	Estimated Noise Level at NSR-1 and NSR-2 during Construction (dBA Leq)	Measured Existing Daytime Background Noise Levels at SLM-1 (dBA Leq)
Ground clearing	87	58	49-65
Rail bed excavation and compaction	89	60	49-65

Source: Noise and Vibration Discipline Report (ICF Jones and Stokes 2009g)

As shown in Table 3, the predicted noise levels during construction at both NSR-1 and NSR-2 are lower than the highest measured existing daytime levels. Construction activity along the proposed rail alignment might occasionally be discernible at those residential areas compared to normal background noise, but the construction activity would not cause noise increases approaching the FTA significance threshold of 10 dBA greater than existing background noise.. Therefore, construction noise impacts are expected to be less than significant at receptors NSR-1 and NSR-2 (ICF Jones and Stokes 2009g; ICF International 2011b).

The construction of the proposed NW Gateway Avenue overpass near NSR-4 would generate noise through activities such as ground clearing, excavation, foundation construction, and roadway construction. The loudest expected activity would include pile driving and excavation. Source noise levels for each of those activities and the estimated ambient noise levels for NSR-4 are listed in Table 4. Although construction activities may generate temporary, localized noise increases at NSR-4, ambient noise levels are expected to be only 4 to 8 dBA higher than the measured daytime background levels. Those forecast noise increases are less than the FTA significance threshold of 10 dBA. Therefore, temporary construction noise would not cause significant impacts at NSR-4 (ICF Jones and Stokes 2009g; ICF International 2011b).

Table 4. Estimated Construction Noise Levels at NSR-4 from Construction of the NW Gatewa	ay
Avenue Overpass	

<b>Construction Activity</b>	Typical Noise Level at 50 feet (dBA Leq)	Estimated Noise Level at NSR-4 during construction (dBA Leq)	Measured Existing Daytime Background Noise Levels at SLM-2 (dBA Leq)
Excavation	90	59-67	56-63
Vibratory pile-driving	94	63-71	56-63

Source: Noise and Vibration Discipline Report (ICF Jones and Stokes 2009g)

# 4.2.4 Minimization and Mitigation Measures

#### 4.2.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

# 4.2.4.2 Proposed Action Alternative

As the analysis under the Proposed Action Alternative did not exceed the FTA significance thresholds, there are no significant impacts from noise and vibration and no mitigation is required.

# 4.3 Transportation

# 4.3.1 Study Area and Methodology

The project study area for transportation correlates to the WVFA Project area described in Section 3.4 and extends to the north to NW Lower River Road (SR 501), to the west along NW Old Lower River Road, south to the Columbia River, and east to Port Way (ICF Jones and Stokes 2009i).

Transportation was evaluated through a qualitative analysis of train travel along the port's main rail line, and on vehicular travel and pedestrian access in the project vicinity and regionally in relation to the proposed impacts from the No Action and Proposed Action Alternatives. Details regarding the

methodology are provided in the Transportation Discipline Report in Appendix C (ICF Jones and Stokes 2009i).

# 4.3.2 Affected Environment

## 4.3.2.1 Rail Traffic

The proposed rail alignment would commence near the wye intersection of the two BNSF main lines: east-west and north-south (Figure 4). There is heavy rail traffic in the Vancouver area because of the intersection of these two main lines at the wye. On an average day there are 75 trains operating on these tracks; three are generated by the port's tenants (MainLine Management 2005). The port's rail activity consists mainly of grain trains going to and from United Grain and Great Western Malting, unit trains going to and from Kinder Morgan, and a mixture of cars gong to and from other port tenants such as Subaru.

In rail operational modeling, the term "delay" is the amount of time that a train has to stop and wait for another train to move or the time it takes a train to cross another track before it can complete its movement. Using the model simulation, MainLine Management calculated the number of trains (referred to as events in the modeling) that have been delayed for greater than 30 minutes over 3 days (referred to as the average 3-day delay) and the average daily delays were calculated (Table 5). Port trains experience average daily delays of 211 minutes, compared to an average delay of 17 minutes for all other trains (ICF Jones and Stokes 2009h).

Tuble 5. comparison of fram Delays under Existing conditions								
	Average 3-Day Delays (Events)	Average Daily Delay (Total for All Trains in Minutes)						
Entire Network <sup>2</sup>	27	1,878						
Port of Vancouver Trains <sup>3</sup>	11	634						
Port of Vancouver Trackage <sup>4</sup>	7	844						

#### Table 5. Comparison of Train Delays under Existing Conditions<sup>1</sup>

<sup>1</sup> Adapted from MainLine Management 2005

<sup>2</sup> "Entire network" includes all BNSF, UPRR, Amtrak, port, and other trains that use either the main line or port tracks within downtown Vancouver.

<sup>3</sup> "Port of Vancouver Trains" includes all port trains using both the main line and the port tracks.

<sup>4</sup> "Port of Vancouver Trackage" includes all port trains using only the port tracks.

In addition to average daily delay, the minutes of delay over a 10-mile length of track in the Vancouver yard and leading into the Port of Vancouver, and the transit time<sup>6</sup> over the same 10-mile length was calculated, highlighting differences in specific sections and areas of congestion (Table 6). The results indicate that port rail activity is slower than rail over the entire network.

<sup>&</sup>lt;sup>6</sup> Transit time is the amount of time required for a train to travel a specific network segment. Typically this amount of time is expressed as a ratio over a 10-mile segment (i.e., transit time per 10 miles).

Table 6. Delay per 10 Miles and Transit Time per 10 Miles								
	Existing Conditions							
	Delay/10 Miles (minutes)	Transit Time/10 Miles (minutes)						
Entire Network								
BNSF (All)	21.6	57.8						
Port of Vancouver Traffic Only	85.7	169.6						
Union Pacific (All)	2.7	21.3						
Port of Vancouver Trackage								
Port of Vancouver Traffic Only	93.6	192.1						
Vancouver Yard Trackage								
BNSF (All)	46.8	118.8						
Port of Vancouver Traffic Only	142.4	219.9						
Main Line through Vancouver Yard								
BNSF (All)	30.2	64.0						
Port of Vancouver Traffic Only	89.8	140.9						
Union Pacific (All)	7.2	35.6						

Adapted from MainLine Management 2005

### 4.3.2.2 Vehicular Traffic

The street system includes City of Vancouver (City) streets and the port's internal roads (Figure 9) within the WVFA Project area. These streets and their functions are described below.

**Port Way/W 8th Street** are classified as minor arterials. They link the industrial area to the City center and provide access to several port tenants and industrial properties. As the roadway passes beneath the Columbia River Rail Bridge it runs adjacent to the shoreline. The current average daily traffic volume on these roads in the WVFA Project area is approximately 1,400 vehicles. The roadways are two lanes and do not have sidewalks; the speed limit is 25 miles per hour.

**W 26th Avenue Extension** is the major access to the port's facilities. This road connects Lower River Road to NW Harborside Drive. W 26th Avenue is a two-lane roadway with no parking, has a posted speed of 25 miles per hour, is surrounded by industrial land uses, and includes a 740-foot-long bridge over the port's rail yards. The City classifies W 26th Avenue as a minor arterial. Traffic volume during the peak PM hour at the intersection of W 26th Avenue and SR-501 includes 146 vehicles northbound and 6 vehicles southbound. W 26th Avenue has a sidewalk on the west side.

**NW Harborside Drive** is owned by the port and traverses port property in an east-west direction. The roadway runs from Port Way on the east to NW Gateway Avenue on the west. The roadway is the primary link between W 26th Avenue and port property.

**NW Gateway Avenue** is owned by the port and provides access to Parcel 3 and Terminal 4. The roadway is two lanes wide with shoulders and has low traffic volumes. NW Gateway Avenue has an at-grade crossing of the tracks.

## 4.3.2.3 Bicycles and Pedestrians

Pedestrian facilities within the WVFA Project area consist of sidewalks, wide shoulders, and shared roadways. Sidewalks are provided along Mill Plain Boulevard. These sidewalks convert to a walking path on the south side of Lower River Road east of Fourth Plain Avenue. This path ends at W 26th Avenue and continues southward as a sidewalk on the west side of W 26th Avenue until entering the port.

There are few sidewalks or pedestrian-only paths on port property. The edges of most roadways, primarily NW Harborside Drive, are delineated with paint stripes with room for walking outside the delineated area on the shoulder. The existing sidewalks are located along Mill Plain Boulevard adjacent to port property. Lower River Road has striped-shoulder bicycle lanes on both sides, ranging from 4.5 to 6 feet in width. There is also a bicycle path near the port's offices.

The City's Renaissance Trail currently exists along the south side of SR-501 as an incomplete system of paved multiuse paths. The City plans to complete the extension of the Renaissance Trail from its current terminus along the Columbia River waterfront near Interstate 5 westward to allow bikes and pedestrians to connect with the multiuse trail that links Vancouver Lake Regional Park and Frenchman's Bar Regional Park. The portions of the Renaissance Trail extension that have been completed include a section along W Mill Plain Boulevard between the BNSF overpass and W 26th Avenue that was completed in 2005, and the section that passes in front of the port's administrative offices that was completed in 2007.

# 4.3.3 Environmental Consequences

#### 4.3.3.1 No Action Alternative

#### **Operational Impacts**

#### Rail Traffic

No construction of rail facilities or infrastructure improvements would occur as part of the No Action Alternative; however, train volumes on the main line are expected to increase. To evaluate potential impacts of the No Action Alternative on the system and within the port, a qualitative analysis for a No Action Alternative was completed in conjunction with the Proposed Action Alternative (ICF Jones and Stokes 2009i). Under the No Action Alternative, as train volumes increase in the future along the main line, the delays for trains entering the rail yard are projected to increase. As shown in Table 7, under the No Action Alternative, the number of port trains experiencing a 3-day delay greater than 30 minutes remains the same because the No Action Alternative assumes no increase in port freight volume. Even with no increase in freight volume the overall delay increases by 44 percent because of the projected train volumes on the main line. As a result, the number of all trains delayed greater than 30 minutes (average 3day delay) increases by 19 percent and the average delay per train increases 24 percent. Additional information regarding the transportation analysis is in Appendix B.

	Average 3-Day Delays (Events)			Average Daily Delay (Minutes)		
	Existing Conditions	2025 No Action	2025 with Proposed Action	Existing Conditions	2025 No Action	2025 with Proposed Action
Entire Network <sup>2</sup>	27	32	23	1,878	2,330	1,251
Port of Vancouver Trains <sup>3</sup>	11	11	6	634	910	324
Port of Vancouver Trackage <sup>4</sup>	7	9	5	844	757	360

#### Table 7. Comparison of Train Delays under the No Action and Proposed Action Alternatives<sup>1</sup>

<sup>1</sup> Adapted from MainLine Management 2005

<sup>2</sup> "Entire network" includes all BNSF, UPRR, Amtrak, port, and other trains that either use the main line or port tracks within downtown Vancouver.

<sup>3</sup> "Port of Vancouver Trains" includes all port trains using both the main line and the port tracks.

<sup>4</sup> "Port of Vancouver Trackage" includes all port trains using only the port tracks.

#### Vehicular Traffic

Under the No Action Alternative, no modifications to roads are expected. To compensate for the lack of expanded rail capacity, a No Action Alternative would likely involve greater truck traffic within the port, resulting in higher levels of truck traffic on the primary arterials (Fourth Plain Boulevard, Lower River Road, and Mill Plain Boulevard) that lead to the port.

#### Pedestrians and Bicycles

Under the No Action Alternative, no modifications to roads are expected; therefore, no impacts to pedestrians or bicycles would occur.

#### **Construction Impacts**

No construction would occur as part of the No Action Alternative; therefore, no construction impacts would occur to transportation.

#### 4.3.3.2 Proposed Action Alternative

#### **Operational Impacts**

#### Rail Traffic

The port estimates that three times more trains will be in use by port tenants by 2025 (MainLine Management 2005), an increase from 955 trains operating in 2008 to 3,541 trains in 2025. In this same time frame, the total number of trains operating on the lines is expected to increase by 84 percent (MainLine Management 2005)<sup>7</sup>.

<sup>&</sup>lt;sup>7</sup> The 2005 MainLine Management study (MainLine Management 2005) projected rail traffic to 2025 assuming construction of industrial facilities, including a loop track at the Columbia Gateway site, to the west of the project area. Although the Proposed Action Alternative would have the loop track at Terminal 5, the functions and rail traffic associated with the new loop track are considered to be similar to the loop track factored into MainLine Management's 2005 analysis.

West Vancouver Freight Access Project – Schedules 2-4 Final Environmental Assessment

Under the Proposed Action Alternative, the number of port train 3-day delays were projected to decrease by 5 and the port train daily delays were projected to decrease by 49 percent when compared to No Action. This is an average train delay of 32.4 minutes, given the port projection of 10 trains per day by 2025. MainLine Management similarly predicted an improvement with the Proposed Action Alternative in the delays per 10 miles and the transit time per 10 miles for the peak days of rail operations. For average days of operation, with the port's number of trains increasing under the Proposed Action Alternative, further reduction in delays and travel times were projected to occur (ICF Jones and Stokes 2009i). Additional information regarding the transportation analysis is in Appendix C.

#### Vehicular Traffic

**Port Way/W 8th Street** would be adjacent to the proposed rail alignment as it passes beneath the Columbia River Rail Bridge. Access from Port Way at this location would be relocated parallel to and east of the existing access. Access would be maintained post construction and no modifications to vehicular traffic patterns are expected; therefore, no impacts to vehicular traffic would occur.

**W 26th Avenue** would not be modified by the Proposed Action Alternative and traffic conditions on this roadway are not expected to change substantially; therefore, no impacts to vehicular traffic would occur.

**NW Harborside Drive** would be realigned at two locations on port property. NW Harborside Drive would be relocated slightly to the south across the northern edge of Terminal 2 near Great Western Malting and relocated slightly south of a port building across from Terminal 3 near the Kinder Morgan Facility. The realignments would be designed to meet American Association of State Highway and Transportation Officials (AASHTO) guidelines. The roadways would be two lanes with paint delineating the edge of roadway. The realigned roadways would not affect roadway operations.

**NW Gateway Avenue** is currently an at-grade crossing with the existing rail tracks. The construction of the NW Gateway Avenue overpass would follow an alignment west of the existing roadway alignment. The overpass would eliminate vehicular delays and improve safety at NW Gateway Avenue. The structure would provide unencumbered access to the port's western property, which includes the Subaru facility. The current road access to Terminal 5, Subaru, and the Clark County Corrections Facility from Lower River Road would be closed at the proposed rail alignment crossing. New access would be provided from Lower River Road via the new grade-separated crossing.

#### Pedestrians and Bicycles

The Proposed Action Alternative would have no impact on existing sidewalks, paths, or trails. There are no sidewalks in the area immediately affected by the Proposed Action Alternative. Where road shoulders exist they would be maintained and would allow for pedestrian traffic. Roadways relocated within the port would continue to be delineated by paint stripes and outside the striped areas there would be adequate room for pedestrians. The new NW Gateway Avenue overpass would include a sidewalk to allow restricted pedestrian access to the port, the Clark County Corrections Facility, and Terminal 5. The City's Renaissance Trail would not be affected by the Proposed Action Alternative.

#### **Construction Impacts**

# Rail Traffic

Construction work would begin with the loop track on Terminal 5, followed by construction of the main rail yard, and then the construction of the south lead track. As each stage of construction is completed, rail capacity and efficiency would be added to the port's rail system, allowing train traffic to increase slightly.

Disruption of operations on the BNSF main lines during construction would be minimal, resulting primarily from the delivery of construction materials to the site. Rail activity for port tenants with rail service may be disrupted as tracks are relocated or reconstructed.

#### Streets

Port Way/W 8th Street would be closed periodically to vehicle traffic during the 2 to 4 months of construction of the pile-supported trench below the Columbia River Rail Bridge. During the closure of Port Way/W 8th Street, traffic would be diverted to Mill Plain Boulevard, increasing the average daily traffic on Mill Plain Boulevard by approximately 1,400 vehicles. Detour traffic using this route would also affect some north-south City center streets as it moves to and from the industrial area around 8th Avenue and Jefferson Streets.

Other port roadways would be constructed prior to rail construction. Detours during construction to NW Harborside Drive or other access roads would be in place less than a week while these roads are modified to accommodate the rail design. Access to businesses would be maintained throughout construction of the Proposed Action Alternative.

Surplus excavation materials that cannot be reused on site would be deposited at the port's Parcel 8, which is located a half mile north of the proposal site or Terminal 5. The haul route would utilize NW Harborside Drive, W 26th Avenue, and SR 501 to transport surplus materials from the construction site to Parcel 8 (Figure 5). Surplus materials would be minimal and result in fewer than 5 trips per day during construction. Trucks hauling material will conform to existing traffic regulations.

#### Pedestrians and Bicycles

Pedestrian and bicycle traffic would be temporarily affected during the closure of Port Way/W 8th Street. An alternative route would be provided during the temporary closure.

# 4.3.4 Minimization and Mitigation Measures

# 4.3.4.1 No Action Alternative

No adverse impacts to transportation will occur as a result of the No Action Alternative; therefore, no mitigation is proposed.

#### 4.3.4.2 Proposed Action Alternative

No adverse impacts to transportation will occur as a result of the Proposed Action Alternative; therefore, no mitigation is proposed.

# 4.4 Geology and Soils

# 4.4.1 Study Area and Methodology

The project study area for geology and soils correlates to the WVFA Project area described in Section 3.4.

Geology and soils in the study area were evaluated by reviewing existing documentation, including Natural Resources Conservation Service soil surveys and geotechnical reports prepared for the project. Effects of the project were determined by comparing design information with data from the existing geologic and soil conditions of the project area. Further information regarding the methodology for analyzing geology and soils is in the Geology and Soils Discipline Report in Appendix D (ICF Jones and Stokes 2009d).

# 4.4.2 Affected Environment

### 4.4.2.1 Geology and Soils

Alluvial deposits consisting primarily of an upper silt layer underlain by sand are found under the WVFA Project area. The alluvium is underlain by the Pliocene-age Troutdale Formation. The Troutdale Formation consists of braided or interbedded layers of channel deposits consisting of sand, gravel, cobbles, and boulders, and can contain cemented zones. Columbia River Basalt, which represents the bedrock unit at the site, is believed to underlay the Troutdale Formation at a depth of about 1,400 feet below ground surface. The developed areas of the Vancouver Lowlands located between Vancouver Lake and the Columbia River are relatively flat and slope gently toward the Columbia River. Elevations in this area range from about 10 to 27 feet NGVD29. The shoreline of the Columbia River near the WVFA Project area consists of constructed riprap slopes with an elevation of 10 feet NGVD29.

The port conducted several geotechnical, environmental, and hazardous materials assessments of soils underlying the proposed construction areas for the proposed rail alignment, cut slopes, and overcrossings (Geotechnical & Environmental Consultants 2005 and 2006; Zimmerman 2006). Detailed soil characteristics for these investigations are in Appendix D. Data from geotechnical borings indicated that the upper 10 feet of soil consists of fill underlain by alluvium and gravel. Groundwater was typically encountered between a depth of 20 to 35 feet below ground surface (ICF Jones and Stokes 2009f).

The WVFA Project area contains geologic hazard areas as shown in Figure 14. The entire project area is classified as geologically hazardous as a result of the potential for liquefaction, dynamic settlement, or ground shaking amplification during earthquakes. The City has designated several areas along the Columbia River as having steep or unstable slopes (Figure 14); however, these areas are outside the WVFA Project area.

#### 4.4.2.2 Minerals and Timber Resources

No mineral or timber resources are located within the WVFA Project area.

# 4.4.3 Environmental Consequences

#### 4.4.3.1 No Action Alternative

There will be no impacts to geology, soils, minerals, and timber resources because no rail or other improvements would occur as part of the No Action Alternative.

# 4.4.3.2 Proposed Action Alternative

#### **Operational Impacts**

The primary geotechnical concerns include seismic loads on ground-level structures and foundations generated by earthquakes; settling, downdrag and lateral spreading caused by liquefaction during major earthquakes; differential settling caused by either liquefaction or routine settling of compressible soils; and uplift of the pile-supported trench at the Columbia River Rail Bridge undercrossing during high-water flooding events. Specific seismic design assumptions (e.g., the magnitude of the design earthquake) for the above structures would be established as part of the detailed design process. Geotechnical borings would be conducted as needed for individual construction projects to determine physical properties of the subsurface materials.



## **Construction Impacts**

Construction of the Proposed Action Alternative would result in temporary disturbance of upland soils and sediments in the immediate area of construction activities.

As part of the building permit application to the City, the port would evaluate how the proposed rail alignment could affect foundations of existing structures near the rail corridor, and demonstrate that no impacts would occur. The proposed rail alignment and associated structures including the NW Gateway Avenue overpass would be constructed to address geotechnical and seismic constraints according to the 2003 International Building Code (International Code Council 2003) or the most recent code adopted by the City. Geotechnical studies would also ensure that additional structural loadings caused by the operation of freight trains along the proposed rail alignment would not affect soil or foundations of existing buildings near the proposed rail alignment and ancillary structures.

# 4.4.4 Minimization and Mitigation Measures

#### 4.4.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

#### 4.4.4.2 Proposed Action Alternative

There are no impacts from this alternative. No mitigation is required. BMPs in accordance with the approved NPDES Construction Stormwater Permit would be used to minimize effects to surrounding resources.

# 4.5 Water Resources and Floodplains

# 4.5.1 Study Area and Methodology

The project study area for water resources and floodplains correlates to the WVFA Project area described in Section 3.4, focusing on the proposed rail alignment and access roads, and existing and proposed port properties. All project elements drain to the Columbia River.

Water resources were evaluated by reviewing existing documentation, including aerial photography, floodplain mapping, and water-related regulations. Effects of the project on water resources were analyzed qualitatively by evaluating design information with regard to surface waters, floodplains, and groundwater. Further detail regarding the methodology is in the Water Quality Discipline Report in Appendix F (ICF Jones and Stokes 2009j).

# 4.5.2 Affected Environment

#### 4.5.2.1 Surface Water Resources

The WVFA Project area is located in the Lake River subbasin of Water Resources Inventory Area (WRIA) 28, along the northeast side of the Columbia River between river mile (RM) 102 and RM 106. The Columbia River is the single major waterbody in the project area. Northeast of the WVFA Project area are Vancouver Lake and its outlet, Lake River. Approximately 12 miles of dikes along the Columbia River and Lake River have been constructed to help protect roughly 3,000 acres of lowlands from flooding, including portions of the project area. The bank of the Columbia River within the project area is mostly devoid of vegetation except for a small area consisting primarily of Himalayan blackberry, small shrubs, willows, and black cottonwoods.

#### 4.5.2.2 Coastal Zone Management Areas

The WVFA Project is not located within a designated coastal zone management area.

#### 4.5.2.3 Floodplains

A portion of the project area is within the 100-year floodplain of the Columbia River in an area known as the Vancouver Lowlands (Figure 15). In the WVFA project area near RM 103, the low water is at an elevation of 1.6 feet NGVD29, and the OHWM is approximately at elevation 16.74 feet NGVD29.

The 100-year flood elevation at RM 99 is 26.5 feet NGVD29, which is higher than a small portion of the proposed rail alignment near NW Gateway Avenue. The wall associated with the pile-supported trench under the Columbia River Rail Bridge is above the 100-year flood elevation of 27.9 feet NGVD29 at RM 105 (ICF Jones and Stokes 2009e). The 500-year flood elevation is 30.2 feet NGVD29. Since 1998, the Columbia River has not reached the OHWM elevation at the river gauge closest to the project area, (located about 0.9 mile upstream of the Columbia River Rail Bridge) (USGS 2006a).

#### 4.5.2.4 Groundwater

Groundwater level changes in the project area generally correspond to changes in the Columbia River stage level. The correlation between river stage and groundwater elevation in the project area indicates that infiltration from the project area has a relatively small impact on groundwater levels. The primary direction of groundwater movement is toward the Columbia River (EPA 2006).

The Proposed Action Alternative is entirely within the Troutdale Aquifer Sole Source Area, a federally designated sole-source aquifer. Groundwater elevations in the Troutdale Aquifer are highest on the east side of the aquifer (EPA 2006). Most of the groundwater in the Troutdale Aquifer has a minimum age of less than 100 years; in many areas groundwater is less than 10 years old (EPA 2006).

There are several water supply wells in the WVFA Project area, including private (Great Western Malting) and port-owned wells (Parametrix 2006).

# 4.5.3 Environmental Consequences

#### 4.5.3.1 No Action Alternative

There will be no impacts to water resources or floodplains because no rail improvement projects will be constructed.

#### 4.5.3.2 Proposed Action Alternative

#### **Operational Impacts**

#### Surface Water Resources

The Proposed Action Alternative will permanently impact the Columbia River. Approximately 450 feet of riprapped riverbank west of the rail bridge and 475 feet of unarmored riverbank under and east of the bridge (0.18 acre below the state OHWM; 0.40 acre below the Federal OHWM) would be affected by the construction of the pile-supported trench. Fill in watercourses has the potential to increase peak flows as a result of channel constriction; however, due to the overall hydrologic capacity of the Columbia River, these effects would be minimal.


The Proposed Action Alternative would replace impervious surfaces (at Terminals 2, 3, 4, and 5) with pervious open ballast rock, allowing for infiltration of stormwater. New impervious surfaces created by the project would be collected and treated per the requirements in Ecology's Stormwater Management Manual for Western Washington (Ecology 2005). Because the Columbia River is exempt from flow control requirements, stormwater treatment would be designed for water quality treatment only. The project would result in a net decrease in impervious surfaces, which would reduce stormwater runoff. A reduction in stormwater runoff and increased infiltration would reduce peak flows and contribute to base flows in receiving waters (i.e., the Columbia River).

## Floodplains

The original floodplain analysis, *Rail Access Project Floodplain Analysis* (Jones and Stokes 2006), considered the impacts of a previous version of the alternative and a separate proposed development (the Columbia Gateway Project to the northwest of the Proposed Action Alternative) on flood elevations and velocity in the Columbia River upstream and downstream of the project area. The analysis indicated that the project would have essentially a negligible impact on Columbia River water surface elevations and velocities. Subsequent review of the analysis in the context of the currently Proposed Action Alternative, including additional project components located farther inland within the floodplain, has determined that the outcome of the original analysis is still valid (ICF Jones and Stokes 2009e).

## Groundwater

Under the Sole Source Aquifer Program, no federal assistance may be granted to any project the EPA determines may contaminate a designated sole source aquifer through a recharge zone so as to cause a significant hazard to public health. EPA reviewed the WVFA Project in 2007 and determined that the project would not be expected to have any adverse impact on the Troutdale Aquifer (Appendix E). To verify that changes in the project since 2007 would not result in an adverse impact, additional coordination with EPA occurred in 2011. EPA reviewed the project revisions and determined that the updated project would not affect the aquifer (Appendix E).

The Proposed Action Alternative would install stone column piles under the pile-supported trench along the shoreline at the former Fort Vancouver Plywood site. This could increase the vertical migration of groundwater contaminants, but little risk of contamination to the aquifer is expected (Appendix N). The potential effect of groundwater movement is discussed in the Hazardous Materials Section 4.16, and the Construction Impacts Section.

## **Construction Impacts**

Construction of the pile-supported trench along the north bank of the Columbia River shoreline will require in-water work below the OHWM of the Columbia River. In-water construction has the potential to affect hydrology in the Columbia River; however, due to the high volumes in the Columbia River and the relatively small construction footprint associated with the project, these effects would be negligible.

The Proposed Action Alternative would require installation of piles and/or drilled shafts to a depth of between 70 and 100 feet to support the NW Gateway Avenue overpass at Terminal 5. These piles and/or drilled shafts would encounter groundwater, and it is expected that some of these piles and drilled shafts will be located within the North/North 2 Landfill at Terminal 5. Polychlorinated biphenyl (PCB)-contaminated materials from the cleanup of sediments in the Columbia River offshore of the site were placed in the North/North 2 Landfill in 2009. Concentrations of contaminants in the sediments are below the Model Toxics Control Act (MTCA) Industrial Method A cleanup levels for PCBs in soil. To prevent direct contact with remaining contaminated materials, the North/North 2 Landfill is covered with a layer

of sand (a minimum of 1 foot thick). This sand is a pervious layer and allows stormwater to infiltrate the landfill. PCBs are not considered water soluble, and, therefore, the placement of pilings within the landfill is not expected to create a conduit to groundwater. While a small amount of contaminated soil may be pushed down within the footprint of the piling, this de minimis amount of material will not create a situation in which PCBs enter groundwater.

Construction proposed in or near other deed-restricted areas at the port (e.g., Carborundum Plant and Pond Cap, Ingot Cap, Spent Pot Liner Cap, and Vanexco Cap) are not expected to encounter groundwater or result in contamination of groundwater.

All disturbed areas would be stabilized following construction. For the pile-supported trench, construction is expected to occur during low flows in the summer; therefore, construction-related effects during flood events are not expected.

No construction impacts to the Troutdale Aquifer are anticipated.

## 4.5.4 Minimization and Mitigation Measures

## 4.5.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

## 4.5.4.2 Proposed Action Alternative

Impacts to surface waters would be avoided or minimized through the implementation of BMPs consistent with the minimum technical requirements of the *Stormwater Management Manual for Western Washington* (2005).

# 4.6 Water Quality

## 4.6.1 Study Area and Methodology

The project study area for water quality and floodplains correlates to the WVFA Project area described in Section 3.4, focusing on the proposed rail alignment and access roads, and existing and proposed port properties.

Water quality was evaluated by reviewing existing documentation, including aerial photography, floodplain mapping, and water-related regulations. Effects of the project on water quality were analyzed qualitatively by evaluating design information. Further detail regarding the methodology is in the Water Quality Discipline Report in Appendix F (ICF Jones and Stokes 2009j).

## 4.6.2 Affected Environment

The Lower Columbia River is listed under Section 303(d) of the CWA, as impaired for several water quality conditions: temperature, arsenic, dichlorodiphenyl-dichloroethylene (DDE, a metabolite of dichlorodiphenyltrichloroethane [DDT]), PCBs (RM 38.2 to RM 142), and polycyclic aromatic hydrocarbons (PAHs) (RM 98 to RM 142) (ODEQ 2007). Ecology includes the Lower Columbia River in WRIA 28, 303(d) listed (Category 5) for fecal coliform bacteria at Sauvie Island, and at several locations for temperatures that exceed standards (Ecology 2009). Columbia River sediments have also been assessed as impaired (Category 5) adjacent to the port for sediment bioassay and PCBs (Ecology 2009). Total Maximum Daily Loads (TMDLs) have been set on the Lower Columbia River for dioxin, invasive exotic species (Eurasian milfoil), and total dissolved gas.

Adjacent to the WVFA Project area, the Columbia River is a water of concern (303(d) Category 2) for arsenic, temperature, and fecal coliform bacteria (Ecology 2009). Elevated total arsenic has been detected in the Lower Columbia River; however, the standard is for inorganic arsenic, so this waterbody is not listed as impaired due to arsenic.

The water quality issues of the Lower Columbia River are generally the result of dam operations (total dissolved gas), agriculture (DDT, DDE, fecal coliform), and industrial point and nonpoint sources (PCBs and PAHs).

## 4.6.2.1 Stormwater

Industrial stormwater flows from impervious surfaces in the project area to stormwater collection facilities that discharge treated stormwater to the Columbia River. These existing port stormwater facilities are covered under the Western Washington Phase II Municipal Stormwater NPDES permit currently held by the port (Ecology 2006).

## 4.6.3 Environmental Consequences

## 4.6.3.1 No Action Alternative

There will be no impacts to water quality because no rail improvement projects will be constructed.

## 4.6.3.2 Proposed Action Alternative

## **Operational Impacts**

The Proposed Action Alternative would replace impervious surfaces (at Terminals 2, 3, 4, and 5) with pervious open ballast rock. This would allow for stormwater infiltration and natural filtration of pollutants from stormwater to occur in the soil. Overall the project would result in a net decrease of impervious surface area and, as a result, a decrease in pollutant loading to the Columbia River.

Where new impervious surfaces are created, stormwater would be collected and treated in compliance with the recommendations of the Stormwater Management Manual for Western Washington (Ecology 2005). Operational (source control) BMPs, the port's Emergency Response Plan (Port of Vancouver 2002), and audits of port tenants' environmental procedures would also be implemented during operation of the Proposed Action Alternative to prevent the contamination of stormwater from port or rail-related sources. Through the use of BMPs and plans, the impacts of the Proposed Action Alternative on water quality would be negligible. Stormwater discharge would also be in compliance with the port's NPDES permit. The Columbia River is exempt from flow control requirements (Ecology 2005), and, as a result, stormwater treatment would be designed for water quality treatment rather than flow control.

The pile-supported trench would add new impervious surface area. Stormwater from the pile-supported trench would be collected in catch basins and piped to a sump where the stormwater would be pumped to a stormwater treatment vault, which would discharge to the Columbia River. The stormwater system would be designed to collect and discharge up to the 25-year flood levels. Flow in excess of this event (which, on average, occurs less than twice per year) would bypass the system and discharge to the Columbia River. Although the high flows would be untreated, the greatest quantity of pollutants in runoff is often associated with the first flush of runoff, which is treated. Contaminants could still be present during bypass events, although the discharge following the first flush is typically much cleaner and whatever contaminants remain are further diluted by high flows. Furthermore, bypassing the system is acceptable as long as the water quality flow rate for the drainage basin (approximately 91 percent of the volume) is treated (Ecology 2005), which is the case here.

The stormwater system would allow the port to shut off the discharge in the case of a spill. The walls of the pile-supported trench would allow this area to contain a large spill until it can be cleaned up and it is not anticipated that spills would exceed the capacity of the trench.

The grade-separated overpass at NW Gateway Avenue would add new impervious surface area. Runoff from the area would be routed to filtration stormwater treatment systems. The systems that would be installed for the Proposed Action Alternative would be designed to meet or exceed Ecology's stated performance goals.

In addition to the stormwater considerations discussed above, the Proposed Action Alternative would result in filling approximately 25,000 to 35,000 cubic yards in the northeast corner of the existing Terminal 4 stormwater pond (Figure 6). As part of the Proposed Action Alternative, the port would replace the lost capacity, as required by City regulations, by excavating other areas of the pond. The reconfiguration of the Terminal 4 pond will lengthen the overall flow path of the pond while maintaining the existing volume, forebay configuration, and invert elevation. A new outlet structure will be constructed, and the side slopes of the pond will be vegetated.

In addition, a small amount of fill (20 to 30 cubic yards) was placed in the southern corner of the stormwater pond at the Tristar Transload facility on Parcel 1C in 2010. As with the Terminal 4 pond, the port replaced the lost capacity as required by the City by shifting the pond to the west<sup>8</sup>. The proposed configuration of the NW Gateway Avenue overpass would also require a second modification to the Tristar Transload facility stormwater pond located on Parcel 1C. The port would replace the lost capacity per the City regulations.

As a result of track installation on Terminal 5, an existing stormwater pump station would be replaced and relocated to the south to intercept the existing force main. No upgrades to the trunk line, force main, or existing overflow outfall are proposed as part of the Proposed Action Alternative.

Because the Proposed Action Alternative would treat stormwater from all new impervious surface areas, and would result in a net reduction in impervious surfaces, the pollutant loads would potentially be reduced from existing conditions. The Proposed Action Alternative would result in no net increase in pollutant loading and would not alter flow (base flow, peak flow, or duration). Additional detail regarding water quality impacts is in Appendix F.

## **Construction Impacts**

Construction of the pile-supported trench along the north bank of the Columbia River shoreline will require in-water work below the OHWM of the Columbia River and would have the potential to temporarily impact surface water quality. Other temporary construction-related activities could result in uncovered or otherwise uncontained soils eroding into surface waters and increasing turbidity. BMPs would be used to minimize impacts to water resources.

Heavy equipment use during construction has the potential to result in spills of fuel, lubricants, antifreeze, and other materials into receiving waters. In addition, clearing, grading, excavation, and fill placement all expose sediment to the erosive action of wind and precipitation, which could also result in water quality impacts. Once construction of the Proposed Action Alternative is complete, all areas would be stabilized and there would be no further impacts from ground disturbance. Construction of the NW Gateway

<sup>&</sup>lt;sup>8</sup> This element of the Proposed Action was completed in 2010. Details regarding project scheduling and construction are further described in Section 3.3.

Avenue overpass may encounter contaminated media at the North/North 2 landfill. Measures would be in place to prevent a release of the contaminated media.

## 4.6.4 Minimization and Mitigation Measures

### 4.6.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

### 4.6.4.2 Proposed Action Alternative

Water quality impacts would be avoided or minimized through the implementation of BMPs consistent with the minimum technical requirements of the *Stormwater Management Manual for Western Washington* (2005). The conditions of the site and the configuration of the proposed rail alignment would effectively avoid water quality impacts, with the possible exception of the pile-supported trench.

The port would be required to meet local, state and federal water quality standards during construction. The Proposed Action Alternative would be subject to coverage under a NPDES Construction Stormwater General Permit. Under this permit the construction contractors will operate under a Stormwater Pollution Prevention Plan (SWPPP), including provisions for prevention and management of spills in both construction and staging areas.

The SWPPP would also include stabilization and structural BMPs that would be used during and after the completion of construction. Any disturbed earth not covered by ballast materials should be planted with grass, mulched, or otherwise covered as soon after earthwork is completed as is practical. Reseeding must be done early enough in the season to ensure a uniform stand of grass, able to withstand the erosive forces it would be subject to, before the rainy season commences. Other measures, such as jute matting, erosion control blanket, or clear plastic covering, would be employed temporarily, until seeding/planting with grasses or other appropriate species is complete. A Temporary Erosion and Sediment Control Plan will also be developed to minimize the mobilization of sediment. Monitoring requirements specified in the SWPPP would provide a feedback mechanism to ensure that these and other erosion control practices are properly and effectively operating.

Other BMPs used for the Proposed Action Alternative may vary based on the final design and actual conditions encountered in the field. Additional BMPs would be required during the construction of the pile-supported trench due to it being located within the OHWM of the Columbia River.

# 4.7 Wetlands

## 4.7.1 Study Area and Methodology

The project study area for wetlands correlates to the WVFA Project area described in Section 3.4.

Wetlands within the project study area were delineated using the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and rated using the *Washington State Wetland Rating System in Western Washington, Revised* (Hruby 2004). Wetland buffer widths were calculated based on the City's critical areas ordinance. Once wetlands and buffers were established, the project footprint was overlain to determine potential project effects. Additional details regarding the methods for evaluating wetlands are in the Wetlands Discipline Report in Appendix G (Berger Abam 2009c).

# 4.7.2 Affected Environment

Two small wetlands (Wetlands 2a and 2b) are located at the west end of the project area on the Clark County Corrections Facility property (Figure 16). The Corps reviewed the wetland delineation for the Proposed Action Alternative and determined that these wetlands are isolated and are not federally jurisdictional wetlands (NWP-2007-721). The larger of the two wetlands, Wetland 2a, is located near the entrance driveway to the facility, and is a Category 3 depressional, palustrine forested/emergent wetland. Wetland 2a is dominated by reed canarygrass and black cottonwood trees. The vegetated wetland buffer is limited to the south side of the wetland and consists of scattered, planted lodgepole pine, and a few planted red-osier dogwood, willow, and Douglas' spiraea. The second, smaller wetland, Wetland 2b, is located in a shallow depression at the toe of the railroad embankment. This wetland is a Category 4 depressional, palustrine emergent wetland. The wetland is inundated periodically by runoff into the wetland from two small culverts. Vegetation consists primarily of red fescue, common tansy, hairy catsear, reed canarygrass, and smartweed. The buffer is mainly composed of patchy groundcover, mostly moss and upland weeds. A detailed description of the wetlands is in Appendix G.

The Parcel 1A wetland mitigation site is located along the eastern border of Parcel 1A (Figure 17). This 7.9-acre mitigation site extends north from the project area to the toe of slope of SR 501. The site was developed as wetland mitigation for a previous port project over 10 years ago. The wetland is a Category 3 depressional, palustrine, forested and emergent wetland. Reed canarygrass, various sedges and bulrush, black cottonwood, Pacific willow, and red-osier dogwood are the dominant vegetation species. The wetland buffer is composed of black cottonwood, Oregon ash, snowberry, sword fern, Nootka rose, and Himalayan blackberry. A detailed description of the wetland is in Appendix G.

## 4.7.3 Environmental Consequences

## 4.7.3.1 No Action Alternative

There will be no impacts to wetlands because no rail or other improvements would occur.

## 4.7.3.2 Proposed Action Alternative

## **Operational Impacts**

Construction in the area of the Clark County Corrections Facility would permanently fill 0.14 acre of Wetland 2a and 0.03 acre of Wetland 2b. These impacts would occur as a result of construction of the proposed rail alignment through this corridor<sup>9</sup>.

The proposed expansion of the rail alignment at the southeast corner of Parcel 1A would have no permanent wetland impacts, but would result in approximately 0.08 acre of permanent fill within the wetland buffer. The permanent impacts on the buffer would occur as a result of the placement of a T-wall up to the edge of the wetland boundary within the existing buffer area.

The increased number of train trips associated with future conditions under the Proposed Action Alternative would increase the risk of spills, primarily of diesel fuel, into adjacent wetlands and wetland buffers. In the event of a spill, the impact on wetlands would depend on the location, timing, quantity spilled, and the toxicity of the spilled material. However, as discussed in Section 4.16, all regulatory and safety requirements would be met concerning hazardous materials.

<sup>&</sup>lt;sup>9</sup> This element of the Proposed Action was completed in 2010. Details regarding project scheduling and construction are further described in Section 3.3.





## **Construction Impacts**

Temporary construction impacts to wetlands would occur as a result of the project and result in short-term loss of wetland functions associated with habitat and water quality. Ground disturbance could result in erosion of disturbed soils into wetlands and buffer areas, impairing vegetation and habitat. Clearing and grading activities in the vicinity of wetlands would have the potential to impact surface water quality during seasonal events when surface water is present. Uncovered or otherwise uncontained soils may erode into surface waters, increasing turbidity. Construction of the retaining wall at Parcel 1A has the highest potential for impacts to wetlands because of its close proximity to the wetland mitigation site. Clearing of vegetation at the Parcel 1A wetland mitigation site will remove trees and shrubs, resulting in short-term loss of habitat and water quality functions of the buffer and wetland.

# 4.7.4 Minimization and Mitigation Measures

## 4.7.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

## 4.7.4.2 Proposed Action Alternative

Implementation of the Proposed Action Alternative would result in minor, permanent impacts on wetlands and wetland buffers; therefore, wetland mitigation is required. Wetland mitigation to offset 0.17 acres of permanent wetland impact at Wetland 2a and Wetland 2b will occur at the mitigation bank on Parcel 6<sup>10</sup>. The second mitigation site is located along Buckmire Slough, adjacent to Vancouver Lake (Figure 18). This site would be mitigation for the 0.08 acres of wetland buffer mitigation at Parcel 1A. The Buckmire Slough mitigation site would be planted with native trees and shrubs on a 0.80-acre reach along the western bank of the slough. To protect the wetland at Parcel 1A from potential stormwater runoff, stormwater will be collected landward of the proposed T-Wall and directed to an existing stormwater treatment pond located south of the rail alignment and Parcel 1A wetland.

Timing of construction and implementation of BMPs, including sediment and erosion control measures and spill prevention would be used to reduce potential construction impacts on wetlands.

# 4.8 Ecological Resources

# 4.8.1 Study Area and Methodology

The project study area for ecological resources correlates to the WVFA Project area described in Section 3.4.

Existing ecological resources were evaluated through a review of aerial photography, WDFW habitat databases, and other existing mapping for the study area. A site visit was performed to document site-specific ecological conditions and assess habitat value. Effects to ecosystems were analyzed by cross-referencing project design information with the existing conditions.

<sup>&</sup>lt;sup>10</sup> All approvals have been obtained for the mitigation bank;, however, the port will not purchase the credits until 2011.



## 4.8.2 Affected Environment

Historically, the WVFA Project area was forested but over time it has been converted to primarily industrial uses (WSDOT and ODOT, 2008). This conversion has removed the majority of terrestrial habitat capable of supporting native plant and animal species. Vegetation is absent from most of the project area, which is predominantly covered with impervious surfaces or existing rail alignments. Flood control levees protected with riprap along their riverward faces extend along the length of the Columbia River shoreline in this area. Riparian vegetation is mostly absent from the shoreline. Near the Columbia River Rail Bridge underpass, narrow strips of vegetation present along the bank are dominated by dense thickets of Himalayan blackberry and a few black cottonwood trees. A small thicket of mature cottonwoods is present just east of the Columbia River Rail Bridge, along the river frontage at the Lafarge facility. These riparian areas provide little habitat to shoreline species both terrestrial and aquatic as they are small in patch size and fragmented from other habitat areas by the surrounding industrial development. The Columbia River is the dominant ecological resource in the WVFA Project area and is discussed in the Water Resources Section 4.5. Wetlands are discussed in Section 4.7.

Wildlife present within the urban landscape depends on viable habitat for survival as habitat loss is a primary reason for species decline. Industrial development has fragmented habitat, limiting the suitable habitat available for many species.

The fragmentation of habitat interrupts wildlife movement in and through the WVFA Project area, although the high degree of human activity day and night, as well as the security fencing surrounding the site, detours the majority of species from using the area. The terrestrial species most likely to use the WVFA Project area include squirrels, raccoons, nutria, a variety of bird species, and deer. Near the wetland areas and along the Columbia River great blue herons, waterfowl, and amphibians, particularly Pacific tree frogs, are likely to be found. Numerous aquatic species are present in the Columbia River, including salmon, trout, sculpin, minnows, shellfish, turtles, and frogs. Aquatic species that are listed under the ESA are discussed in Section 4.9.

The Washington State Noxious Weed Control Board maintains a list of plant species considered to be noxious (WSNWCB, 2010). Noxious weeds are nonnative, invasive species that contribute to the loss of agricultural production or ecological diversity. Weeds are designated as either class A, B, or C. Class A weeds have limited distribution state-wide and should be eradicated according to state law. Class B weeds are species that are only abundant in some parts of the state. In areas of limited abundance (i.e., B designate), control of seed production is required; otherwise, control is a local option. Class C weeds are species present throughout the state or of agricultural importance and where control is left to the local entities. Noxious weeds were found at the port and include reed canarygrass (Class C).

## 4.8.3 Environmental Consequences

## 4.8.3.1 No Action Alternative

Ecological resources would not be affected by the No Action Alternative because no rail or other improvements would occur.

## 4.8.3.2 Proposed Action Alternative

## **Operational Impacts**

The Proposed Action Alternative would remove streamside and wetland vegetation that can alter shading, affecting water temperature. The City of Vancouver has permitted the removal of 207 trees with the

project (PRJ2007/00322/PST2009-00003). These trees equal approximately 398 tree units as calculated under Table 20.770.080-1 of the Vancouver Municipal Code (VMC).

Along the Columbia River shoreline, riparian vegetation would be removed for construction of the pilesupported trench. The riparian vegetation along a large river like the Columbia has a minimal effect on water temperatures because the shaded area is such a small proportion of the river surface. This vegetation serves as valuable vertebrate habitat and a source of woody debris along the shoreline in this area. The modification of the loop track at Terminal 5 places the new track into the shoreline of the Columbia River. The shoreline is currently devoid of vegetation and placement of project elements is not expected to affect ecological resources or threatened and endangered species.

Potential effects to threatened and endangered species are discussed in the Threatened and Endangered Species Section 4.9. Potential effects to wetlands are discussed in Section 4.7.

## **Construction Impacts**

In-water construction would occur in the Columbia River as part of the pile-supported trench. In-water work would increase turbidity temporarily, potentially affecting aquatic species. In addition, in-water work is anticipated to occur during low water in the summer. This will minimize the extent of in-water work and turbidity. Underwater noise from pile driving and heavy machinery could injure or kill nearby fish. During construction, contaminants, such as accidental spills and leaks, could enter the water during work. The project will use BMPs during construction to avoid and minimize unavoidable impacts to aquatic habitat. In addition, standard terms and conditions of approvals from regulatory agencies have been incorporated into the designs for the Proposed Action Alternative.

Activities at construction sites and at staging areas may cause disturbance, displacement, or injury to species as a result of changes to habitats, grading, vegetation impacts, increased nighttime lighting, hydrologic changes, water quality changes, elevated noise during construction, or visual disturbance. Exposed soil during construction could also temporarily increase the presence of noxious weeds as these plants frequently colonize disturbed areas. The project will use BMPs during construction to avoid and minimize unavoidable impacts to terrestrial habitat. In addition, standard terms and conditions of approvals from regulatory agencies have been incorporated into the designs for the Proposed Action Alternative.

# 4.8.4 Minimization and Mitigation Measures

## 4.8.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

# 4.8.4.2 Proposed Action Alternative

Implementation of the Proposed Action Alternative would result in permanent fill in wetlands.

Two sites are proposed for riparian habitat plantings to mitigate for 400 linear feet of riparian impact: Frenchman's Bar Park and Buckmire Slough. The first would be located along the Columbia River near Frenchman's Bar Park. Two separate areas within Frenchman's Bar Park, totaling 1.2 acres, would be planted with native trees and shrubs, and will include placement of snags and brush piles (Figure 18). Mitigation for riparian impact also includes removal of concrete debris (6,000 square feet (0.14 acres)) near the eastern end of the project at the Columbia River Rail Bridge. The second site is located at Buckmire Slough. The Buckmire Slough site is also being used to mitigate for wetland impacts to Parcel 1A as described in the Wetlands Section 4.7. The Buckmire Slough mitigation site would be planted with native trees and shrubs on a 0.80-acre reach along the western bank of the slough. To mitigate for riprap placement along 900 linear feet of the Columbia River, large woody debris (LWD) will be placed at the toe of the bank adjacent to the rail underpass and the pile-supported trench. This would include approximately 15 pieces of LWD along roughly 4,000 square feet of shoreline within the Columbia River channel.

The removal of trees associated with the project, which could total up to 398 tree units, would be mitigated by planting an equivalent number of tree units of native tree species (Oregon ash, pacific willow, and black cottonwood) at the Parcel 2 wetland mitigation site (Figure 19). A tree plan for this effort was prepared consistent with City of Vancouver standards (VMC 20.770).

Further discussion of mitigation for impacts to wetlands is discussed further in Section 4.7.

# 4.9 Threatened and Endangered Species

## 4.9.1 Study Area and Methodology

The study area for threatened and endangered species is the same as the action area as defined in the Biological Assessment for the project (Appendix H). This includes the project footprint as described in Section 3.4. Because underwater sound from pile driving would elevate noise above ambient levels as far as the opposite shore of the Columbia River and up to 6.2 miles upstream and downstream of the pile-supported trench element, this area is also included in the study area (ICF Jones and Stokes, 2007a).

Because the Columbia Gateway project would use the upgraded rail access provided by the project, it is also included in the study area for threatened and endangered species. The Columbia Gateway project would include industrial development and a wide array of mitigation and habitat creation activities on industrial lands just downstream of the WVFA Project. The study area includes the extent of pile-driving noise created by the Columbia Gateway project, which could potentially affect waters within several miles of each pile driving location.

Existing conditions were evaluated through a review of existing information, including WDFW habitat databases and aerial photography. A site visit was performed to document existing habitat for ESA-listed species and to survey the study area for the presence of threatened or endangered species. Effects to these species were determined by evaluating project activities and relating them to potential direct, indirect, interdependent, and interrelated effects on individuals and their habitats.



## 4.9.2 Affected Environment

The WVFA Project area supports one or more life stages of 14 species of anadromous salmonids, bull trout, eulachon, and Steller sea lions listed under the ESA. The species and occurrence within the action area as evaluated in the Biological Assessment (Appendix H) are summarized in Table 8. Critical habitat for all ESA-listed salmonid species (except lower Columbia River coho), bull trout, green sturgeon, eulachon, and Steller sea lions has been designated to include the mainstem Columbia River in the WVFA Project area. No ESA-listed terrestrial species are present in the project area. Essential Fish Habitat (EFH) is designated in the Columbia River for various life stages of Chinook and coho salmon. In addition, Steller sea lions are also protected under the Marine Mammal Protection Act (MMPA).

*			
		Critical Habitat	
Species Name	ESA Listing	Designated	<b>Occurrence in the WVFA Project Area</b>
Lower Columbia River Chinook salmon Evolutionarily Significant Unit (ESU)	Threatened	Yes – Present in Project Area	Lower Columbia River Chinook migrate through the action area as adults and juveniles and may rear along the action area shoreline.
Upper Columbia River spring-run Chinook salmon ESU	Endangered	Yes – Present in Project Area	Juvenile spring-run Chinook salmon migrate through the Columbia River in the action area from April through August.
Fall run of the Snake River Chinook salmon ESU	Threatened	Yes – Present in Project Area	These fish are likely to pass through the action area during their outmigration, and are likely to occur in shallow-water habitat along the river margin, close to the project area.
Snake River spring- and summer-run Chinook salmon ESU	Threatened	Yes – Present in Project Area	Juveniles are present in the Columbia River in the action area from days to weeks during their outmigration, which lasts from April through August.
Spring run of the upper Willamette River Chinook salmon ESU	Threatened	Yes – Present in Project Area	Juvenile and adult Chinook salmon of the upper Willamette River ESU may migrate through the action area via the Columbia River.
Columbia River chum salmon ES	Threatened	Yes – Present in Project Area	This ESU extends from areas upstream of the action area to the mouth of the Columbia River; thus, chum salmon may migrate through the Columbia River in the action area, but do not currently spawn in the action area.
Lower Columbia River coho salmon ESU	Threatened	Yes – Present in Project Area	Migrating adult and juvenile coho salmon are known to occur in the Columbia River and in the action area. Coho salmon enter streams in the action area from mid-August into early December and spawn from late September into January. Spawning habitat does not exist in the action area.
Snake River sockeye salmon ESU	Endangered	Yes – Present in Project Area	Juvenile and adult sockeye of the Snake River ESU may migrate through the action area via the Columbia River.

#### Table 8. ESA-Listed Species in the WVFA Project Area<sup>1</sup>

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		Critical			
Species Name	ESA Listing	Designated	Occurrence in the WVFA Project Area		
Winter and summer runs of the lower Columbia River steelhead Distinct Population Segment (DPS)	Threatened	Yes – Present in Project Area	Adult steelhead of the lower Columbia River ESU migrate in the Columbia River from December through April, with spawning occurring from late February through May. No spawning is documented in the vicinity of the port, and no suitable spawning habitat is found there. Juveniles migrate through the action area from April through August. Steelhead in general are rarely observed in the nearshore environments of the lower Columbia River and thus are unlikely to be common near the project area; most steelhead in the action area are expected to out-migrate through the main channel.		
Winter and summer runs of the middle Columbia River steelhead DPS	Threatened	Yes – Present in Project Area	Their use of the Columbia River in the action area is likely to be substantially the same as for lower Columbia River DPS steelhead.		
Summer and winter runs of the upper Columbia River steelhead DPS	Threatened	Yes – Present in Project Area	Juveniles have been observed in the freshwater zone of the lower Columbia River mainstem between February and July, peaking in May. Their use of the Columbia River in the action area is likely to be substantially the same as for lower Columbia River DPS steelhead.		
Snake River Basin steelhead DPS	Threatened	Yes – Present in Project Area	Their use of the Columbia River in the action area is likely to be substantially the same as for lower Columbia River DPS steelhead.		
Winter run of the upper Willamette River steelhead DPS	Threatened	Yes – Present in Project Area	Juveniles migrate through the lower Willamette River and at Columbia River RM 102 in both nearshore and offshore areas between November and June. Their use of the Columbia River in the action area is likely to be substantially the same as for lower Columbia River DPS steelhead.		
Columbia River bull trout DPS	Threatened	Yes – Present in Project Area	Adults migrate in the fall and winter months in the lower Columbia River basin.		
Southern Eulachon DPS	Threatened	Yes – Present in Project Area	Principal spawning runs occur in the Columbia River from the upper estuary (RM 25) to Bonneville Dam (RM 146).		
Southern Green Sturgeon DPS	Threatened	Yes – Present in Project Area	Green sturgeon utilize both freshwater and saltwater habitat. Both the northern and southern DPS commingle in the Columbia River estuary during the summer as sub- adults and adults. Neither is known to be present in the action area but critical habitat is listed for this reach of the Columbia River.		
Steller Sea Lion	Endangered	Yes – Not present in the Project Area	Also listed as Depleted under the MMPA. Primarily found in saltwater habitats, sea lions are known to occur in the Columbia River in the action area. Critical habitat has been designated for the Stellar sea lions but no critical habitat is present in the action area.		

#### Table 8. ESA-Listed Species in the WVFA Project Area<sup>1</sup>

<sup>1</sup> ICF Jones and Stokes 2007a; ICF Jones and Stokes 2007b.

Within the WVFA Project area, the Columbia River channel provides freshwater rearing and migration habitat, albeit in a degraded condition. Water quality is adequate for rearing and migration; however, there is little overhanging vegetation, no submerged wood, and little habitat complexity. With the exception of the Flushing Channel, there are no side channels in the WVFA Project area.

## 4.9.3 Environmental Consequences

## 4.9.3.1 No Action Alternative

Threatened and endangered species would not be affected by the No Action Alternative because no rail, in-water work, stormwater treatment, or other improvements would occur.

## 4.9.3.2 Proposed Action Alternative

### **Operational Impacts**

## Effects to Listed Fish Species

A Biological Assessment (BA) (Appendix H) was submitted to the NMFS and the USFWS in 2007 as part of the consultation completed with the FHWA for the original WVFA Project. A joint concurrence letter from NMFS and USFWS was issued on June 25, 2008 (Appendix I). The concurrence letter determined that the project *may affect, not likely to adversely affect* ESA-listed Pacific salmon species and Columbia River bull trout. This determination was made because the project will result in a net reduction in pollution-generating impervious surfaces and the project will provide stormwater treatment for all new imperious surfaces. In 2009, a BA Addendum (Appendix H) was submitted to the FHWA (lead federal agency for consultation) to address the proposed listing of eulachon. However, the listing was "proposed", and therefore, consultation with NMFS did not occur. In 2010, FHWA consulted on behalf of the port for the listing of bull trout critical habitat. NMFS issued a letter of concurrence determining that the project *will not destroy or adversely modify* bull trout critical habitat (Appendix I).

Since the 2009 BA Addendum, eulachon have been listed as threatened under the ESA. Consultation for Steller sea lions under both the ESA and MMPA is also required although this species has been listed for several years. A second BA Addendum was prepared and submitted to NMFS and USFWS to include updated information on the project, species and critical habitat listings, and the MMPA (Appendix H). FHWA determined that the proposed project changes would not change the 2008 *may affect, not likely to adversely affect* concurrence from USFWS; therefore, additional consultation with USFWS did not occur. A concurrence letter was received from NMFS that determined the project is not likely to affect these species or their habitats (Appendix I). The FRA is the lead agency for the consultation as part of the NEPA process for the RRIF loan. FHWA completed the original consultation with NMFS and USFWS. As such, the FHWA is continuing to act in a lead agency capacity for purposes of the consultation.

## Effects to Listed Critical Habitat and Essential Fish Habitat

The Proposed Action project area includes designated critical habitat for the listed salmonid species. NMFS concurred with the determination of *may affect, not likely to adversely modify* critical habitat. In addition, NMFS determined the Proposed Action Alternative would not adversely affect Essential Fish Habitat (EFH) (Appendix I). As discussed above, since the 2009 BA Addendum, three new critical habitat designations have occurred that are relevant to the WVFA Project area; southern green sturgeon Distinct Population Segment (DPS), Columbia River bull trout DPS, and southern eulachon DPS. A second BA Addendum was prepared and submitted to NMFS and USFWS to include updated information on the project, species and critical habitat listings, and the MMPA (Appendix H). FHWA determined that the proposed project changes would not change the 2008 *may affect, not likely to adversely affect* concurrence from USFWS; therefore, additional consultation with USFWS did not occur. A concurrence letter was received from NMFS that determined the project is not likely to affect these species or their habitats (Appendix I). FRA is the lead agency for the consultation as part of the NEPA process for the RRIF loan. FHWA completed the original consultation with NMFS and USFWS. As such, the FHWA is continuing to act in a lead agency capacity for purposes of the consultation.

The only portion of the Proposed Action Alternative to affect habitat directly is the pile-supported trench. This effect would be limited as the pile-supported trench is on the occasionally inundated riverbank rather than the permanently inundated portion of the river channel. Although the Proposed Action Alternative would prevent this portion of the riverbank from developing riparian vegetation, less than half of the affected riverbank currently supports vegetation, the remainder being armored with riprap.

Currently, juvenile salmon and steelhead probably move relatively quickly through the affected area during outmigration, since the lack of overhanging vegetation, instream cover, and habitat complexity make this area poor habitat for rearing. Because adequate space for fish migration would remain north of the project, the project would not inhibit migration. Because of the locations of the support piles and the pile-supported trench structure, they would only be in the water during moderate to high flows.

Adverse effects on habitat would be associated with the piles of the pile-supported trench, and a small amount of embankment fill where the trench crosses the OHWM. During moderate and high flows when support piles are located in the active stream, small eddies behind piles could provide microhabitats of reduced velocity. However, because the piles would only be H-piles 12 inches in diameter, individual piles would have minimal fish habitat value. The net effect of all of the piles could reduce localized velocity and introduce minor changes in flow patterns in the immediate vicinity of the piles during high flow and flooding conditions. When water is present, the H-piles could provide cover and a velocity refuge for out-migrant juvenile salmonids, but could also provide cover for salmonid predators such as largemouth bass and northern pike minnow.

The project would have virtually no effect on shading in the Columbia River because the riverbank and pile-supported trench have a south-southwest aspect. Thus, sunlight will penetrate a proportionate distance beneath the pile-supported trench. The project would require clearing 28 trees from the riparian area southeast of the Columbia River Rail Bridge. However, the pile-supported trench would also provide shade in this area, and to a greater extent than the existing trees. In general, the portion of the Columbia River Rail Bridge, and this would continue to be the case.

Benthic invertebrate production would be minimally impaired because the affected area is seldom inundated, and existing riprap provides little habitat for invertebrates in this area. Terrestrial invertebrate and fine litter inputs would be lost due to removal of riparian vegetation, but this is likely to be a very minor effect because the area currently has little riparian vegetation, none of it overhanging the water.

## **Construction Impacts**

## General Construction

Construction activities associated with the pile-supported trench have the greatest potential to negatively impact listed species and critical habitat. Potential impacts include localized turbidity near work areas, underwater noise disturbances, and construction activities that cause fish to avoid the project area. For the most part, Proposed Action Alternative construction would be conducted in the dry, above the usual seasonal low water level. However, a portion of the pile-supported trench would be installed at an elevation that could be at or below daily river surface elevations.

The project will use BMPs during construction to avoid and minimize unavoidable impacts to listed species. In addition, in-water work is anticipated to occur during low water. This will minimize the extent of in-water work and turbidity. Due to the use of these avoidance and minimization measures, NMFS and USFWS have determined that the project would have an insignificant effect on ESA-listed Pacific salmon species and Columbia River bull trout. Since the 2009 BA Addendum (Appendix H), eulochon have been

listed as threatened, and southern green sturgeon DPS and Columbia River bull trout DPS critical habitats have been designated under the ESA. Consultation for Steller sea lions under both the ESA and MMPA is also required. A second BA Addendum was prepared and submitted to NMFS and USFWS to include updated information on the project, species and critical habitat listings, and the MMPA (Appendix H). FHWA determined that the proposed project changes would not change the 2008 *may affect, not likely to adversely affect* concurrence from USFWS; therefore, additional consultation with USFWS did not occur. A concurrence letter was received from NMFS that determined the project is not likely to affect these species or their habitats (Appendix I).

## Placement of Large Woody Debris

Effects resulting from permanent loss of habitat and riparian buffer from the pile-supported trench would be mitigated by placement of 15 LWD pieces in water during the summer low flow period. This placement would include use of shore-based equipment to place the LWD pieces and anchor them. Also, either shore-based equipment or barges would be used to deliver the LWD to the placement site. During LWD placement there would be activity in the water. Very short-term, near-field turbidity effects are possible but unlikely due to the low fines content of the coarse sand riverbed in this area. Because some life form of all of the listed fish species could be present during LWD placement, it is likely that any individuals present would avoid the immediate area. The duration of construction-related disturbance would be limited to some portion of the low-flow period (August through October), but would be completed within a period of not more than 30 days.

## Underwater Noise

Underwater noise from pile driving can affect fish through direct injury, or induce behavioral effects, including avoidance and startle responses to sudden loud sounds. The Proposed Action Alternative would drive the majority of piles in the dry which has the potential for transmitting flanking sounds through the soil to the water column, where it could affect fish (WSDOT 2006). The pile-supported trench would require installation of 410 steel H-piles in the vicinity of the Columbia River (207 piles within the OHWM, and the remainder at distances of up to 50 feet landward from the OHWM). Background levels of underwater noise in the Columbia River near the proposed pile driving are not known. However, the area is frequented by large and small vessels daily. Therefore, it is reasonable to assume that the ambient sound level would be similar to that found in Puget Sound, typically about 130 dB<sub>RMS</sub> (WSDOT 2006). At this time, there are several sound levels that have been suggested as thresholds for determining the effects of underwater sound on listed salmonid fish species. An injury threshold of 180 dB<sub>PEAK</sub> and a disturbance threshold of 150 dB<sub>RMS</sub> have been used in a number of biological opinions and are the thresholds currently accepted by WSDOT (WSDOT 2006) for injury and behavioral effects.

Construction of the pile-supported trench will use two methods that could generate sound that could be transmitted to the Columbia River. These are the construction of stone columns using a vibratory probe, and driving steel H-piles using a combination of vibratory and impact driving. Based on analysis completed for the BA, the maximum noise levels would occur when pilings are driven immediately adjacent to the river. Fish within 1,522 feet of a piling could experience sound levels of up to 190 dBPEAK.

The port would minimize the risk and effect of underwater noise by timing pile driving to occur during the summer low flow period (August and September) when there would be the greatest distance between piles and the river. This would also be the time when the smallest number of juvenile salmonids (and the smallest number of total individuals) are likely to be present (WSDOT 2006). Salmonids migrating along the north bank of the Columbia River during pile driving activities would be expected to perceive, and potentially to modify their behavior (and incidentally reducing foraging success), in response to pile driving sound.

Since the 2009 BA Addendum, eulachon have been listed as threatened under the ESA. Consultation for Steller sea lions under both the ESA and MMPA is also required. A second BA Addendum was prepared and submitted to NMFS and USFWS to include updated information on the project, species and critical habitat listings, and the MMPA (Appendix H). FHWA determined that the proposed project changes would not change the 2008 *may affect, not likely to adversely affect* concurrence from USFWS; therefore, additional consultation with USFWS did not occur. A concurrence letter was received from NMFS that determined the project is not likely to affect these species or their habitats (Appendix I).

# 4.9.4 Minimization and Mitigation Measures

## 4.9.4.1 No Action Alternative

As no impacts are proposed to listed ESA species, no mitigation is required.

## 4.9.4.2 Proposed Action Alternative

Mitigation measures related to Threatened and Endangered Species are described in Ecological Resources Section 4.8.

# 4.10 Cultural and Historic Resources

## 4.10.1 Study Area and Methodology

The Area of Potential Effect (APE) for the Proposed Project is located in the Vancouver Lake Archaeological District (45DT101). A literature search and field investigation was performed for the APE. Surveys were conducted to identify and evaluate resources that may be eligible for listing in the National Register of Historic Places (NRHP), pursuant to the requirements of Section 106 of the NHPA of 1966, as amended. For a property to be eligible for listing on the NRHP it should generally be at least 50 years old (ICF Jones and Stokes 2009c).

## 4.10.2 Affected Environment

The literature search and field investigations revealed that the entire Proposed Action APE is located in the Vancouver Lake Archaeological District (45DT101), which is listed in the National Register of Historic Places (NRHP). Eight of the sites in this district are within the boundary of the APE.

A total of 25 properties of 50 years of age occur within the APE. One of these properties, the Columbia River Rail Bridge (officially listed as the Vancouver to Hayden Island Burlington Northern Santa Fe Railway Bridge [45CL312]) is listed in the Washington State Heritage Register and is therefore eligible for listing on the NRHP. The Washington Department of Archaeology and Historic Preservation (DAHP) determined that three additional resources met the criteria to be considered eligible under Section 106 of the NHPA: The Great Western Malting Complex, including the Drum House and grain storage silos (Port Building 1895) (Figure 20), the Rail Car Loading Building (which was also determined to be part of the Great Western Malting complex), and the LaFarge Cement Plant (Houser pers. comm.). All of the other properties in the APE identified as being 50 years of age or older do not meet the eligibility criteria for listing in the NRHP.



## 4.10.3 Environmental Consequences

## 4.10.3.1 No Action Alternative

There will be no impacts to cultural and historic resources because no rail improvement projects will be constructed.

## 4.10.3.2 Proposed Action Alternative

#### **Operational Impacts**

The Proposed Action Alternative is not expected to have an adverse effect on the Columbia River Rail Bridge (45CL312), the Vancouver Lake Archaeological District (45DT101), Lafarge Cement Plant or the Railcar Loading Building portion of the Great Western Malting complex. However, it would require the removal of the Great Western Malting Company Drum House and a portion of the adjacent grain storage silos, which are also part of the Great Western Malting Complex (Port Building 1895). Removal of the Great Western Malting Complex Drum House and grain storage silos, an eligible NRHP property, would cause an adverse effect on the historic property. DAHP concurred with the finding of adverse effect on the Great Western Malting Complex Drum House and grain storage silos.

#### **Construction Impacts**

There is a potential for construction of the Proposed Action Alternative to result in accidental disturbance of unknown and unanticipated archaeological resources, primarily during construction of the Kinder Morgan excavation (ICF Jones and Stokes 2009c).

## 4.10.4 Minimization and Mitigation Measures

#### 4.10.4.1 No Action Alternative

There are no impacts from this alternative, therefore, no mitigation is required.

## 4.10.4.2 Proposed Action Alternative

Consultation with DAHP and tribal consultation was conducted for the Proposed Action Alternative. A Memorandum of Agreement (MOA) among the port, DAHP, and FHWA, and with the concurrence of WSDOT, was developed in accordance with Section 106 of the National Historic Preservation Act to address mitigation of impacts to the Great Western Malting Complex. Concurrence from DAHP was received on April 6, 2009 and the Section 106 Memorandum of Agreement (MOA) was approved June 16, 2009 (Appendix J). Although implementation of the measures presented in the MOA does not avoid an adverse impact to historic properties, it does result in mitigating the adverse impact.

As agreed to in the Section 106 MOA, the following stipulations are either currently being implemented or will be implemented to take into account the adverse effect of the project on the historic property. The current status of each stipulation is specified in italics.

- I. Recordation of the Great Western Malting Company Plant according to Level II of the Historic American Engineering Record (HAER) standards for documentation. The documentation will include the following elements:
  - a. Archival reproduction of existing historic images, maps, technical guide, or sketches of the resource.
  - b. Archival reproduction of existing as-built plans and drawings of the resources.

- c. Production of archive-quality large format photographs of exterior and interior views of the resource (including views of the Tap Room), and views of the setting of the resource.
- d. Narrative history and description of the property, including diagrams and information relevant to its historic use and significance.

The draft report is complete and has been submitted to DAHP.

- II. The HAER documentation as specified above will be provided to the following agencies:
  - a. Washington Department of Archaeology and Historic preservation (DAHP)
  - b. City of Vancouver Department of Long Range Planning
  - c. Vancouver Public Library
  - d. Clark County Historical Society
  - e. Washington State Historical Society

The draft report has been submitted to DAHP. Once final, the report will be provided to the above listed agencies.

III. The port will endeavor to erect an interpretive exhibit at the Amtrak station overlooking the port property subject to City of Vancouver (City) approval. The exhibit will describe the history of the Great Western Malting Company at the port. If approval from the City cannot be obtained, then the port will endeavor to place the exhibit in an alternate public location. The exhibit may employ images, narrative history, drawings, or other materials to illustrate this history and will consist of interpretive display panels or markers. A plan for the design and content of the exhibit will be developed and submitted to DAHP for review and approval within one year of the signing of the MOA.

The design and lease or easement agreement for the interpretive exhibit is in progress. Funds have been budgeted for 2011 to complete the design and evaluate the feasibility of establishing an easement on Amtrak property (land owned by BNSF, train station owned by City of Vancouver). Pending property approvals, construction is planned for 2012.

IV. The history of the Great Western Malting Company at the port will be incorporated into a publication on the history of the port, currently being produced by the port and expected to be published in 2012.

The publication is in progress and the port anticipates publishing the port 100<sup>th</sup> anniversary book in 2011. The publication will also be posted to the port website once complete.

- V. The history of the Great Western Malting Company at the port will be published in an article placed on the port website and offered for publication at HistoryLink.org. *The article is in progress and will be complete and posted to the website following completion of WSDOT review, which is currently in progress.*
- VI. The Great Western Malting Company is currently the owner of the Drum House, which is scheduled for demolition. Great Western Malting retains ownership of the building and may remove its features or contents prior to ownership being transferred to the port. The Drum House's contents include three paintings, wood carving, light fixtures, stained glass door window, and other decorative features in the Tap Room. Upon the transfer of ownership of the property to the port, the port will evaluate the building's remaining features and contents and prepare a written treatment plan for the salvage, removal and relocation of significant elements. The plan will include:
  - a. An inventory of features in the building that are considered historically significant or character-defining and may be removed from their location without substantial damage, or could be reused in educational and interpretive programming or integrated into new development.
  - b. An established methodology for removing, packaging, and properly storing selected features and objects, including provisions for short-term or temporary storage.
  - c. Provisions for the permanent relocation or long-term care and storage of selected features and objects.

d. The treatment plan will be submitted to DAHP for review and approval within 12 months of the transfer of ownership.

The Great Western Malting Company Tap Room Treatment Plan (AINW, 2010) is complete and approved by DAHP.

As determined through consultation with the DAHP (Appendix J), a cultural resources monitor would be present during this portion of construction to ensure that, should any resources be disturbed, construction would halt immediately and the appropriate parties notified to identify and implement the required mitigation.

# 4.11 Section 4(f) Resources

# 4.11.1 Study Area and Methodology

The project study area for Section 4(f) resources correlates to the WVFA Project area described in Section 3.4.

Section 4(f) resources in the study area were evaluated by reviewing existing documentation, including a literature search and field investigation that were performed as part of the Cultural Resources Survey (ICF Jones and Stokes 2009c). Cultural resources (historic sites) are considered Section 4(f) resources and thus the cultural resources surveys that were conducted to identify and evaluate NRHP eligible resources also identified Section 4(f) resources. Effects of the project were determined by comparing design information with data on the existing Section 4(f) resources present in the project area. Further information regarding the methodology for analyzing Section 4(f) resources is in the Section 4(f) Evaluation in Appendix K (ICF Jones and Stokes 2009c).

# 4.11.2 Affected Environment

The Great Western Malting Company Drum House and grain storage silos (Figure 20) and Railcar Loading Facility have been identified as eligible for listing on the National Register of Historic Places as the Great Western Malting Complex and are therefore eligible for protection under Section 4(f) of the U.S. Department of Transportation Act of 1966. Operations at the Great Western Malting Company include drum houses 1 through 4, former administrative offices, and associated grain elevators and silos.

# 4.11.3 Environmental Consequences

## 4.11.3.1 No Action Alternative

The Great Western Malting Company Complex will not be impacted because no rail improvements will be constructed.

# 4.11.3.2 Proposed Action Alternative

## **Operational Impacts**

The Proposed Action Alternative would require the demolition of the Great Western Malting Company Drum House and a portion of the adjacent grain storage silos (Port Building 1895). The Section 4(f) Evaluation documented that there are no feasible and prudent alternatives that would avoid all Section 4(f) resources (ICF Jones and Stokes 2009h). The Proposed Action Alternative includes all possible planning to minimize harm to the property resulting from such use. The Section 4(f) Evaluation has been completed and approved by FHWA (Appendix K).

## **Construction Impacts**

Construction of the Proposed Action Alternative would result in the relocation of facilities at the Great Western Malting complex, a resource determined to be eligible for listing on the National Register of Historic Places and protected under the National Historic Preservation Act and Section 4(f) of the U.S. Department of Transportation Act of 1966. Effects of construction on this resource are fully disclosed in Section 4.10.

# 4.11.4 Minimization and Mitigation Measures

## 4.11.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

## 4.11.4.2 Proposed Action Alternative

All reasonable measures to minimize harm or mitigate for adverse effects to the Section 4(f) resource were identified for the Proposed Action Alternative. The completion of an MOA among the port, DAHP, and FHWA, and with concurrence of WSDOT through the Section 106 process, documents that all other planning has been undertaken to minimize harm to the Section 4(f) resource. Although implementation of the stipulations presented in the MOA does not avoid an adverse impact or use of the Section 4(f) protected resource, it does result in mitigating the adverse effect. The stipulations of the Section 106 MOA are detailed above in Section 4.10.4.2.

# 4.12 Aesthetics

## 4.12.1 Study Area and Methodology

The project study area for aesthetic resources correlates to the WVFA Project area described in Section 3.4.

Aesthetic resources in the study area were evaluated by reviewing ground level and aerial photographs of the study area to evaluate existing site conditions. Effects of the project were determined by comparing design information with data on the existing site conditions present in project area.

## 4.12.2 Affected Environment

The visual landscape of the Proposed Action Alternative is primarily industrial with large warehouses, rail lines, and vacant post-industrial use land. The Columbia River is the only visually scenic feature within the project area; however, it is mostly devoid of vegetation, consisting primarily of armored rock (riprap).

## 4.12.3 Environmental Consequences

## 4.12.3.1 No Action Alternative

Visual quality will remain the same within the port because no rail improvements will be made.

## 4.12.3.2 Proposed Action Alternative

## **Operational Impacts**

Most railroad improvements will occur within the existing right-of-way, where track and supporting structures already exist. Additional railroad facilities will comprise an incremental change that will be

unnoticeable in most locations. Overall, no change in visual quality from the Proposed Action Alternative is anticipated.

### **Construction Impacts**

The presence of construction equipment, staged material, and the associated construction activities would alter the existing visual quality of the site. However, due to the industrial features of the Port of Vancouver property, construction activities are not anticipated to detract from the existing visual quality of the site.

## 4.12.3.3 Minimization and Mitigation Measures

#### No Action Alternative

There are no impacts from this alternative. No mitigation is required.

## **Proposed Action Alternative**

There are no visual impacts associated with the Proposed Action Alternative and therefore no mitigation is proposed.

# 4.13 Socioeconomics and Environmental Justice

## 4.13.1 Study Area and Methodology

The study area for analyzing social and environmental justice effects is roughly bounded by the Columbia River on the south and west, Vancouver Lake to the north, and Grant Street to the east. The study area is larger than the WVFA project study area because the potential social effects of the Proposed Project could extend into the local community beyond the physical footprint of the proposed activities in the project area. These areas include all or portions of the Fruit Valley, Ester Short, Hough, Carter Park, and Lincoln neighborhoods. For consistency and clarity with demographic research conducted for the project, the study area coincides with and includes the full geographic limits of census tracts 410.05 (block groups 1 and 2), and census block groups in tracts 421, 423, and 424.

Socioeconomic resources and environmental justice in the study area were evaluated by conducting a visual survey of the study area and interviewing key port outreach staff to research how people, both residents and employees, within and adjacent to the study area would be affected by the changes that would occur with the Proposed Project. The research conducted was used to establish baseline conditions to attempt to quantify and qualify anticipated social and environmental justice effects of constructing and operating the Proposed Project.

# 4.13.2 Affected Environment

## **General Population**

As of Census 2000, 389,359 persons resided in Clark County and of these, 143,560 resided within the city limits of Vancouver. Approximately 8,850 people live in the study area identified in the *Social Effects and Environmental Justice Discipline Report* (Berger Abam 2009a). In 2005, the Clark County Board of County Commissioners established an anticipated county-wide annual population growth rate of 2 percent for purposes of the development of its 20-year comprehensive growth management plan. The County's 20-year growth is estimated at 163,728 new residents (553,087 total), with 25,930 allocated to the City (169,490 total) (Berger Abam 2009b).

The WVFA Project occurs within the existing port operations, which is not accessible to the public. There are no residential populations in the WVFA Project area.

## **Elderly and Handicapped Populations**

Within the study area, 11.7 percent of the population is 65 and older and 47.4 percent of the elderly population is disabled. There are no residential populations in the WVFA Project area and therefore there are no elderly or disabled populations present. Existing port facilities are in compliance with applicable ADA requirements. Existing port facilities are in compliance with applicable ADA requirements.

## **Environmental Justice Populations**

Of the 8,850 people residing in the study area, approximately 22.7 percent of the population is living below the poverty level. Of the 10 census block groups that comprise the study area, 9 display poverty levels higher than the countywide average of 9.1 percent. Of these nine block groups, six display poverty levels significantly higher than the County average, meaning the proportion of persons living in poverty is at least twice as high as the County average.

Data from Census 2000 indicates that 12.2 percent of the study area's population is composed of individuals who identified themselves as African American (1.4 percent), Asian American (2.5 percent), American Indian or Alaskan Native (1.4 percent), or Hispanic (6.9 percent). In addition, more than 5 percent of the populations in 4 of the 10 census block groups have limited English proficiency. Per WSDOT guidance, project-related materials may need to be translated into languages other than English if 5 percent or more of the population in the project area speak a language other than English (Berger Abam 2009b).

There are no residential populations in the WVFA Project area and therefore no environmental justice populations present. There are no minority-owned businesses within the WVFA Project area.

## **Community Cohesion**

Community cohesion is defined on WSDOT's procedural guidance website as, "the ability of people to communicate and interact with each other in ways that lead to a sense of community, as reflected in the neighborhood's ability to function and be recognized as a singular unit." The WVFA Project will be constructed in an area characterized by heavy industrial use and is predominantly within port property, which is not accessible to the public. The nearest residential uses are approximately 1,100 feet and 1,400 feet away from the WVFA Project and are part of the Fruit Valley neighborhood. However these residences are beyond the limits of the project and there is little to no community cohesion within the project limits.

Neighborhoods located farther away from the project include the Fruit Valley, Ester Short, Hough, Carter Park, and Lincoln neighborhoods. All of these neighborhoods have a reasonably high degree of cohesion. These neighborhoods have active neighborhood associations that meet regularly throughout the year and feature central parks, community centers (Fruit Valley Neighborhood Community Center and the Hough Elementary School Pool), and shopping districts (downtown Esther Short area and Main Street) that serve as central cohesive elements within the neighborhoods.

#### Businesses

There are approximately 50 business tenants at the port. Many businesses depend on the freight access provided by the port. These businesses include but are not limited to Great Western Malting, United Grain

Corporation, Kinder Morgan, Subaru of America, Tristar Transload, CPU River Road Generation Plant, Lafarge, and General Chemical.

## 4.13.3 Environmental Consequences

## 4.13.3.1 No Action Alternative

Operation of the existing port facilities would continue as it does under current conditions. Because there would be no rail expansion, none of the benefits associated with job creation would be realized. Business development within the port would be impeded and the ability of the port to achieve the 3,000 to 4,000 jobs that are anticipated to result from business expansion in the next 6 years may not be achieved.

To compensate for the lack of expanded rail capacity, the No Action Alternative may result in greater truck traffic within the port and higher levels of truck traffic on the primary arterials (Fourth Plain Boulevard, Lower River Road, and Mill Plain Boulevard) that lead to the port. Ambient effects from such increased truck traffic could include a potential for increased noise, associated air emissions, and potential bicycle and pedestrian safety conflicts.

Community cohesion, elderly and disabled populations, and environmental justice populations will not be affected because no improvements will be made to the rail facilities.

## 4.13.3.2 Proposed Action Alternative

## **Operational Impacts**

### General Population

No residential areas would be directly affected by the Proposed Action Alternative. The Proposed Action Alternative, on completion, will not result in any permanent displacements or alterations to transit or pedestrian access in the study area. Buildout of the Proposed Action Alternative would result in substantial improvements to rail congestion and a decrease in rail traffic using the public at-grade crossing at W 16th Street and Thompson Avenue.

## Elderly and Handicapped Populations

Although there are populations that are categorized as disabled and elderly within the study area, there would be no significant effects with respect to air quality, noise, transportation access, or hazardous materials (Sections 4.1, 4.2, 4.3, and 4.16, respectively) anywhere within the study area. Therefore, these populations would not be affected by the Proposed Action Alternative.

#### Environmental Justice Populations

As discussed above, there are low-income and minority populations present in the study area. Effects to environmental justice populations were evaluated for all or portions of the Fruit Valley, Esther Short, Hough, Carter Park, and Lincoln neighborhoods. Implementation of the Proposed Action Alternative would not affect any of the residential areas and there would be no displacement of any residents. None of the businesses that would be relocated as a result of the Proposed Action Alternative are minority-owned and no businesses or establishments frequented by minority or low-income populations would be affected.

Although there are populations that are categorized as environmental justice populations within the study area, there would be no significant effects with respect to air quality, noise, transportation access, or

hazardous materials (Sections 4.1, 4.2, 4.3, and 4.16, respectively) anywhere within the study area. Therefore, there would be no disproportionately high and adverse effects on environmental justice populations and the Proposed Action Alternative has met the provision of Executive Order 12898.

#### **Community Cohesion**

The Proposed Action Alternative will be operated largely within areas with limited public access and would not generate any off-site impacts. As a result, the Proposed Action Alternative would not affect elements of community cohesion.

### Businesses

It is not anticipated that any jobs would be lost or that any businesses would experience any financially significant impacts as a result of the relocation. No businesses will be displaced in their entirety. However, the Proposed Action Alternative would require right-of-way acquisition and modifications to lease agreements for some existing businesses and leaseholders within the port. In most cases the businesses will remain in virtually the same location or located within the port property following the completion of the Proposed Action Alternative. The list below specifies the businesses that would be affected by relocations, right-of-way acquisition, and lease modifications.

- Great Western Malting Plant acquisition of approximately 1.6 acres.
- United Grain Corporation acquisition of approximately 1.25 acres.
- Kinder Morgan bulk handling facility relocation of buildings 2755, 2765, 2775, 2785, and 2795.
- Subaru of America modification to tenant lease for approximately 5.0 acres.
- Clark County Correction Facility acquisition of approximately 3 acres. This property was acquired in 2010.
- Clark Public Utilities (CPU) River Road Generation Plant acquisition of approximately 1.2 acres. This property was acquired in 2010<sup>11</sup>.
- Lafarge acquisition of approximately 0.8 acres.
- City of Vancouver Wastewater Treatment Plant acquisition of right-of-way at the northwest corner of the intersection of Thompson Street and W 16th Avenue.
- Tristar Transload approximately 1,200 square feet of infiltration area and displacement of a pond volume of approximately 645 cubic feet (24 cubic yards). The lease agreement was renegotiated in 2010<sup>10</sup>. The NW Gateway Avenue overpass will require acquisition of about 0.25 acres as well as relocation of a portion of the stormwater pond.
- Boise Building Products acquisition of approximately 0.12 acres.
- Nustar acquisition of approximately 0.33 acres.
- General Chemical acquisition of right-of-way (approximately 0.7 acres) at 2611 W 26th Street near the W 26th Street overpass of the rail corridor and a small easement is required to realign a rail spur leading to the property.
- Vanport Trucking approximately 1.5 acres of the facility would be impacted and require relocation.
- Utility Easements there are various utility easements that would be affected. The utilities would be protected or relocated with new easements prepared.

<sup>&</sup>lt;sup>11</sup> Details regarding project scheduling and construction are further described in Section 3.3

• Pacific Coast Shredding – acquisition of approximately 1.09 acres.

Additional discussion regarding socioeconomics and environmental justice is in Appendix L.

### **Construction Impacts**

Construction-related effects on populations are anticipated to result from noise and dust generated from heavy machinery during construction. However, these impacts are anticipated to occur entirely within industrially-zoned land either owned by the port or land that is in a rail-related industrial use. Construction would not affect neighboring communities, as there are no residential areas within or abutting the construction area. Construction of the Proposed Action Alternative would not affect ADA compliance at the port and ADA access would be maintained during construction. Therefore, disabled, elderly and environmental justice populations are not anticipated to be impacted by the construction of the Proposed Action Alternative.

Construction of the Columbia River Rail Trench at the rail bridge will require the temporary closure of the Port Way/W 8th Street underpass at the Columbia River Rail Bridge. This closure would affect travel between the Port of Vancouver and downtown Vancouver via Port Way/W 8th Street but would affect no critical pedestrian, bicycle, or vehicular connections within the neighboring communities, and thus would not affect the general population, elderly and handicapped populations, environmental justice populations, or community cohesion. It would, however, affect business travel to and from the port. The port intends to communicate closely with its tenants to inform them of temporary traffic closures and alternative travel routes to ensure that such closures do not affect business operations negatively. While the closure may be a short-term inconvenience, it would not result in any impacts on business operations.

The port will also work with the City and County transportation departments' public involvement offices to send mailings to affected businesses and residents (including the general population, elderly and handicapped populations, and environmental justice populations) and provide adequate signage to alert motorists, bicyclists, and pedestrians of the road closure. In addition to the road closure at W 8th Street, in order to avoid the use of downtown streets for construction traffic, most construction traffic may be directed into the port area via Mill Plain Boulevard and Thompson Avenue. Therefore, there will be a slight increase in traffic near Liberty Park, the small park located at the intersection of Mill Plain Boulevard and Thompson Avenue. However, because the park is located at the intersection of a principal arterial and a primary entrance into port operations, the character of traffic adjacent to the park is already heavy industrial in nature and the effects of the temporary closure of W 8th Street are not anticipated to be substantially different from existing conditions. These effects would not reduce community cohesiveness or limit access to any community facilities.

#### **Business Relocation**

Construction effects from the Proposed Action Alternative associated with the relocation of businesses would include operation disturbances and access impediment or use of alternate transportation routes. The construction effects associated with the relocation of these businesses would include removal and/or relocation of the following buildings and right-of-way acquisitions in the following locations:

Great Western Malting Company—Construction of the proposed rail alignment would require demolition of the Great Western Malting drum house and storage silos and railcar loading facility. The Great Western Malting Company will construct a new facility to replace the operational capacity lost through demolition of the drum house and storage silos, and the new facility would be in operation prior to demolition, which is scheduled for May 2013 and is pursuant to the settlement agreement. It is not anticipated that any jobs would be lost or that Great Western Malting would experience any financially significant impacts as a result of the relocation.

- United Grain Corporation—The Proposed Action Alternative would require relocation of a
  maintenance shop and revised pedestrian and vehicular access. There will be interruptions as the
  United Grain operation is shifted onto the new tracks. It is anticipated that these interruptions would
  occur during the annual shutdown period for United Grain to minimize potential effects to operations.
  No jobs would be lost as a result of the Proposed Action Alternative.
- Kinder Morgan Bulk Terminals—The Proposed Action Alternative requires a complete relocation of Kinder Morgan's railcar unloading facility. The port is working closely to facilitate this relocation and minimize disruption to ongoing business operations. There will be an approximate 1 week shutdown when the relocated unloading facility is connected to the existing port rail infrastructure. This 1-week disruption will occur during Kinder Morgan's off season and will not result in the loss of any jobs.
- Subaru of America—The Proposed Action Alternative would decrease Subaru's auto storage area and would require the Subaru rail loading tracks to be relocated further to the south, clear of the new yard tracks. Loss of this area would not result in a significant reduction in business for Subaru because the port will provide 5.0 acres of replacement auto storage area to Subaru before the displacement. Because of this arrangement, impacts to Subaru will be kept to a minimum and would not include any lost jobs.
- Clark County Correction Facility—The Proposed Action Alternative, specifically construction of the Terminal 5 loop track, impacted the Clark County Correction Facility by requiring an approximate 6acre acquisition of property for rail right-of-way. No job losses at this facility were realized as a result of the Proposed Action Alternative<sup>12</sup>.
- Clark Public Utilities—The Proposed Action Alternative, specifically construction of the Terminal 5 loop track, impacted the Clark Public Utilities (CPU) River Road generating plant property by obtaining 1.2 acres for construction of the proposed rail alignment. The area dedicated for the Proposed Action Alternative is not in active CPU use and these impacts, therefore, did not affect ongoing business operations or result in job loss<sup>11</sup>.
- Lafarge North America—0.8 acre of the Lafarge property would be taken for construction of the proposed rail alignment. A Lafarge cement offloading pipe bridge would be retrofitted to accommodate clearances for the railroad. In addition, the product delivery system and utilities would also be relocated. This would result in a temporary disturbance to Lafarge operations. A protected at-grade crossing would also be constructed near the pipe bridge. Existing tracks would be extended near the existing dock and several retaining walls would be installed. The existing washdown facility would be relocated and a new outfall from the facility to the sanitary sewer line would be constructed. No impacts on business operations are anticipated and there would be no loss of jobs or revenue related to construction of the Proposed Action Alternative.
- Tristar Transload The Proposed Action Alternative would require an approximate 25-foot construction non-exclusive easement adjacent to the bridge. There will be some internal use restriction and access disruptions during bridge construction. It is anticipated there would be no loss of jobs.
- Boise Building Products The Proposed Action Alternative would require realignment of the Boise track and entrance road. Business and access disruptions should be very minor with no loss of jobs.
- Nustar The Proposed Action Alternative would require acquisition of property outside of their tank facility. There will be no business or access disruptions and no loss of jobs.

<sup>&</sup>lt;sup>12</sup> This element of the proposed project was completed. Details regarding project scheduling and construction are further described in Section 3.3.

- General Chemical The Proposed Action Alternative would require realignment of their rail spur. It is anticipated that there would be minimal business and rail access interruption and no loss of jobs.
- Vanport Trucking The Proposed Action Alternative would require relocation of Vanport Trucking to a new facility. Business operations will be interrupted but no loss of jobs.
- Utility Easements The Proposed Action Alternative would require relocation of utilities. Disruptions to service, if they occur, would be very minor.
- Pacific Coast Shredding (PCS) The Proposed Action Alternative would require access into the PCS leasehold to construct the pile-supported trench structure and the retaining walls and stone columns supporting the rail bed. Access will be coordinated with PCS to minimize disruption. It is not anticipated that any jobs would be lost or that PCS would experience any financially significant impacts as a result of this relocation.

# 4.13.4 Minimization and Mitigation Measures

## 4.13.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

## 4.13.4.2 Proposed Action Alternative

## Population

Given there are no impacts to the general population, environmental justice populations, elderly and disabled populations or community cohesion, no mitigation is proposed. Project components would be in compliance with ADA requirements where applicable. Although mitigation is not required the port has performed numerous public outreach efforts, including meeting with neighborhood associations, local civic organizations, and business groups and providing material to non-English speaking residents. Appendix W includes the Community Outreach completed for the project. The port will continue public outreach efforts and providing information to the community on the Proposed Action Alternative.

In addition to the public outreach efforts described in Section 5.0 of this EA, the port has met directly with nine nearby neighborhood associations (Fruit Valley, Hough, Carter Park, Arnada, Shumway, Esther Short, Lincoln, Hazel Dell, and Northwest) to provide construction and street closure information and updates on the project. The port meets regularly with these groups, including attending each monthly meeting at Fruit Valley, and typically meets a minimum of once per year with each of the eight other associations.

## Businesses

To mitigate for adverse effects of business relocations from the Proposed Action Alternative, the port will follow the process required by the FHWA and WSDOT as detailed in the Local Agency Guidelines (LAG) Manual. Not all relocations will require compliance with the LAG Manual. For all relocations, the port is in consultation with existing lease holders who would be affected by the Proposed Action Alternative and is developing compensatory measures to ensure that these businesses are provided just compensation and relocation assistance consistent with the Uniform Relocation Assistance and Real Property Acquisition Policy Act (Uniform Act). These consultation efforts are summarized as follows:

• The port has obtained an appraisal and relocation analysis to assess the extent of assistance and mitigation to be provided and will work with Great Western Malting to limit disruption to its operations. A settlement was reached in 2009 with Great Western Malting Company which allows the port to take possession of the property on April 1, 2013 and Great Western Malting is responsible to

make sure that replacement equipment is in place and fully operational before demolition, currently scheduled for May 2013. This will be a coordinated effort, requiring close collaboration and communication. The port has worked with Great Western Malting Company and has amended the company's lease to reflect the changes to its lease premises.

- The port is working with United Grain to establish a workable location for the maintenance building and designing adequate access. The port has tendered a formal offer of just compensation to United Grain that follows the requirements of the Uniform Act regarding just compensation and relocation assistance. The port will work with United Grain to amend the company's lease to reflect the changes to its lease premises upon final settlement.
- To mitigate the impacts of the Proposed Action Alternative, the port will coordinate construction closely with Kinder Morgan. Much of the work will take place independently and not affect the existing facility. When the time comes to switch to the new facility, the port will work with Kinder Morgan to schedule this work to limit the potential impacts on its operations.
- The port will mitigate impacts on the Subaru of America site by relocating the Subaru rail loading tracks and will work with Subaru to potentially reconfigure the tracks to allow greater efficiency based on Subaru's current operations. Additionally, the port will expand Subaru's automobile storage area to replace the area that will be affected by the Proposed Action Alternative. The port will work with Subaru to amend its lease to adjust the lease premises and will follow the requirements of the Uniform Act regarding just compensation and relocation assistance.
- The port has mitigated the approximately 3-acre acquisition necessary from the Clark County Correction Facility by following the requirements of the Uniform Act regarding just compensation and relocation assistance<sup>13</sup>. As part of the negotiated right-of-way acquisition agreement, the port will construct a screening wall along the south and west side of the Clark County Correction Facility. The wall will likely be 1,000 to 1,500 feet long with wall thickness, height, and materials to be determined when final engineering is performed.
- The port has mitigated the approximately 1-acre acquisition necessary from CPU River Road Generation Plant by following the requirements of the Uniform Act regarding just compensation and relocation assistance<sup>12</sup>.
- The port has worked closely with Lafarge and has provided an offer of just compensation and relocation assistance for project impacts. Final negotiations are being completed.
- The port will work closely with Tristar Transload to provide an offer of just compensation and relocation assistance for project impacts. Final negotiations are being completed and will meet the requirements of the Uniform Act regarding just compensation and relocation assistance.
- The port will work closely with Boise Building Products to provide an offer of just compensation and relocation assistance for project impacts. Final negotiations are being completed and will meet the requirements of the Uniform Act regarding just compensation and relocation assistance.
- The port will work closely with Nustar to provide an offer of just compensation and relocation assistance for project impacts. Final negotiations are being completed and will meet the requirements of the Uniform Act regarding just compensation and relocation assistance.
- The port will work closely with General Chemical to provide an offer of just compensation and relocation assistance for project impacts. Final negotiations are being completed and will meet the requirements of the Uniform Act regarding just compensation and relocation assistance.
- The port will work closely with Vanport Trucking to provide an offer of just compensation and relocation assistance for project impacts. Final negotiations are being completed and will meet the

<sup>&</sup>lt;sup>13</sup> This element of the proposed project was completed. Details regarding project scheduling and construction are further described in Section 3.3.

requirements of the Uniform Act regarding just compensation and relocation assistance. The port is looking to find space for their relocation.

- Utilities within the WVFA Project Area will be protected or relocated, with new easements prepared.
- The port has tendered a formal offer of just compensation to Pacific Coast Shredding that follows the requirements of the Uniform Act regarding just compensation and relocation assistance and will work closely with them to amend the lease to reflect the changes to the lease premises upon final settlement.

# 4.14 Land Use, Zoning, and Recreation

## 4.14.1 Study Area and Methodology

The project study area for land use, zoning and recreation correlates to the WVFA Project area described in Section 3.4.

Land use, zoning, and recreation resources in the study area were evaluated by determining the relevant land use plans and land use regulations; reviewing adjacent land uses, planned land uses, critical areas, and shorelines jurisdiction; conducting a visual survey of the study area; and reviewing any previously prepared documentation associated with the WVFA Project. Effects of the project were determined by comparing design information with data on the existing land use, zoning, and recreation resources present in the Project area. Additional information on land use, zoning, and recreation in the WVFA Project area may be found in Appendix M.

## 4.14.2 Affected Environment

#### Existing and Proposed Land Use

The WVFA Project traverses lands currently used for various industrial purposes at the port, including utilities, manufacturing, education/corrections facilities, waterfront terminals/piers, vacant land, and warehouse/storage. The predominant land uses are industrial manufacturing and warehouse/storage. However, exceptions to this rule include the Clark County Corrections Facility, the CPU River Road Generating Facility, port's administrative offices, Tidewater Barge office, and a small portion of the port's Gateway property that is located northwest of the loop track and is currently in agricultural use.

Beginning at the eastern end of the alignment and heading west, businesses that occur within the proposed rail alignment include: Lafarge North America, Pacific Coast Shredding, Great Western Malting Company, United Grain Corporation, Kinder Morgan bulk terminals, Subaru of North America, Clark County Corrections Facility, and CPU River Road Generating Facility. Additional information regarding existing land uses is in Appendix M.

Most of the properties that are adjacent to the WVFA Project area are either in current industrial production or were formerly used as industrial sites. It is anticipated that the industrial properties within and adjacent to the WVFA Project area that are zoned for industrial use will continue to be used for industrial purposes.

## **Comprehensive Plan and Zoning Designations**

The entirety of the WVFA Project located south of Lower River Road is within the City of Vancouver (City) with a comprehensive plan designation of Heavy Industrial (IH), (Figure 21).


### Shoreline Environment and Critical Areas

The WVFA Project is located immediately adjacent to the Columbia River, which is designated as a Shoreline of Statewide Significance and is consequently regulated by the City's Shoreline Management Master Program (SMMP). The SMMP applies to all areas of the site that fall within 200 feet of the state OHWM of the Columbia River, associated wetlands, and 100-year floodplain areas adjoining the river. The City's SMMP designates the shoreline between Terminal 2 and 5 as Urban: High Intensity and areas below the OHWM of the Columbia River as Aquatic.

Other areas of the WVFA Project that are designated as Critical Areas by the City include the riparian area, 100-year floodplain and floodway of the Columbia River, and wetlands located near NW Gateway Avenue, Parcel 1A, Parcel 2, and Parcel 6. Permits from the City would be required for activities occurring within the Shoreline and Critical Areas.

### Recreation

There are no existing trails within the WVFA Project area; however, within the general vicinity of the Proposed Action Alternative, the Columbia River Renaissance Trail connects downtown Vancouver to the renovated riverfront area east of Interstate 5 and generally parallels the northern shoreline of the Columbia River, extending about 4 miles east of Interstate 5 to Wintler Park. A planned 8-mile extension of the trail would extend west along a redeveloped downtown waterfront, beneath the Columbia River Rail Bridge, north to Lower River Road, connecting to recreational paths and trails around Vancouver Lake and Frenchman's Bar parks, north of the flushing channel (Berger Abam 2009b). The proposed trail near the Columbia River would cross the proposed rail alignment in the area of W 8th Street, just east of the Columbia River Rail Bridge. No trail right-of-way has been acquired within the proposed rail alignment. No other recreational facilities or activities occur in the WVFA Project Area.

# 4.14.3 Environmental Consequences

### 4.14.3.1 No Action Alternative

The No Action Alternative would not result in additional construction of rail tracks and associated infrastructure; therefore, no impacts to land use, zoning, or recreation are expected.

# 4.14.3.2 Proposed Action Alternative

### **Operational Impacts**

### Land Use and Zoning

The Proposed Action Alternative involves expansion of the port's existing freight right-of-way in areas currently in rail use and also into new areas currently used for industrial business operations, existing stormwater ponds, and on unused land zoned IH by the City. This would result in the conversion of 10.71 acres of land that is zoned for and in industrial use to rail facilities; however, this conversion would not conflict with any existing land uses or land use zoning. Rail lines and railroad yards are permitted uses in the heavy industrial zoning provisions of Vancouver Municipal Code (VMC) Section 20.440.030. Thus, this conversion is consistent with the planned uses for the property. A detailed list of land conversion is in Appendix M.

The realignment of existing tracks at the Terminal 5 rail loop would place tracks within the City's SMMP jurisdiction. These tracks would also conflict with an existing stormwater pump station. The pump station will be relocated to an adjacent site that is within the City's SMMP jurisdiction. The area proposed for

track placement will require grading, removal of concrete foundations, and placement of sub ballast and ballast to support the tracks. Installation of the new pump station will also require additional grading and placement of fill. Therefore, this project will require review and approval of a SSDP and SCUP from the City. A detailed discussion of land use is in the Land Use and Shoreline Discipline Report and Addendum to the Land Use and Shoreline Discipline Report in Appendix M.

### Recreation

Construction of the proposed rail alignment could potentially conflict with the Columbia Renaissance Trail extension being proposed by the City near the Columbia River in the vicinity of the Columbia River Rail Bridge. The current terminus of the existing Columbia Renaissance Trail is approximately 4,000 feet east of the Columbia River Rail Bridge. The Proposed Action Alternative rail alignment is planned in the same location as the planned extension of the Columbia Renaissance Trail. This potential conflict was recognized by the City in its review of the SSDP for the project (SHL2007-00004) and the conditions of approval included conditions (21, 22, 44, and 45) that require that the port establish an agreement with the City regarding a potential trail crossing over the rail alignment in this area. Details regarding these conditions are in Appendix M. No other adverse effects to recreational resources are expected.

### **Construction Impacts**

### Land Use and Zoning

Construction would occur within the existing port facilities and no effects to land use from construction are anticipated.

#### Recreation

Construction of the Proposed Action Alternative is not expected to affect recreation.

# 4.14.4 Minimization and Mitigation Measures

### 4.14.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

### 4.14.4.2 Proposed Action Alternative

### Land Use and Zoning

No adverse impacts are anticipated from the Proposed Action Alternative on land use and zoning; therefore, no mitigation is required. An SSDP and SCUP will be required from the City for the relocation of existing rail tracks and a stormwater pump station within the City's SMMP jurisdiction at Terminal 5.

### Recreation

The port will comply with the condition of approval of the SSDP for the Proposed Action Alternative that requires an agreement with Vancouver-Clark Parks & Recreation relating to the potential trail crossing over the rail lines in the area of this project. The port will address this condition and coordinate with Vancouver-Clark Parks & Recreation for the adoption of an agreement before approval of final construction documents.

# 4.15 Public Health and Safety

# 4.15.1 Study Area and Methodology

The project study area for public health and safety correlates to the WVFA Project area described in Section 3.4. Public health and safety were evaluated by reviewing existing port operations and construction protocols, train and vehicular/pedestrian collision, and use of hazardous materials.

# 4.15.2 Affected Environment

Safety concerns include unauthorized entry to port facilities and train collisions at at-grade crossings. Currently, a 5-foot chain link fence surrounds the existing port operations and prevents unauthorized entry to port facilities. Entry is achieved at entry points secured by a 24-hour security guard. In addition, port security routinely monitors activities in the port.

There is one public road at-grade rail crossing within the port at NW Gateway Avenue near Terminal 5 that presents a public safety issue with potential accidents resulting from train collisions. NW Harborside Drive and several other port roads also cross the existing tracks at several locations. Stop signs are in place at the NW Gateway Avenue at-grade crossing to control vehicular traffic. According to port records, two train-vehicle collisions have occurred in the past 3 years. One occurred at the NW Gateway Avenue crossing and the other was along Port Way. No one was injured in either incident (Krout 2010). The other public at-grade rail crossing is outside the port at Thompson Avenue and W 16<sup>th</sup> Street. This crossing is controlled using gates and flashing light signals. No recent collisions have occurred at this crossing. Near misses have also been reported at both at-grade crossings but records are not maintained for those events (Krout 2010).

Hazardous materials are present on port property and could pose a potential public health concern if not properly handled or maintained. Materials include contaminated soils and groundwater, chemicals, and other materials that may used by tenants or carried by rail and truck to and from the port. All tenants at the port have contractual agreements requiring compliance with all environmental regulations, including requirements to maintain BMPs and equipment for spill prevention and spill response. Interstate and intrastate rail and truck carriers that ship oil and hazardous substances are also required to implement spill prevention measures. Additional information related to hazardous materials present at the port is addressed in Section 4.16.

# 4.15.3 Environmental Consequences

### 4.15.3.1 No Action

Public health and safety would not be affected by the No Action Alternative because no rail or other improvements would occur.

# 4.15.3.2 Proposed Action Alternative

### **Operational Impacts**

The Proposed Action Alternative would comply with existing safety and security requirements of the port and other regulations. In addition, any security fence removed would be replaced and new fencing installed in areas currently undeveloped.

The Proposed Action Alternative would result in construction of the NW Gateway Avenue overpass to provide a grade-separated crossing at NW Gateway Avenue. This would eliminate the potential for train and vehicular collisions at this location. Other at-grade crossings within the port would remain

unchanged. In addition, trains within the port and downtown Vancouver maintain speeds of less than 10 mph, which reduces the potential and severity of train collisions. The Proposed Action Alternative would also reduce train traffic at W 16th Street and Thompson Avenue, thereby reducing the potential collisions that could occur at this crossing. No upgrades to the existing crossing control are proposed at this location.

Public health concerns related to hazardous materials are addressed in detail in Section 4.16.2.2 and are primarily related to the use of hazardous materials at the site.

### **Construction Impacts**

Construction activities have the potential to result in physical harm to construction workers, tenants, port staff, and unauthorized persons entering the construction area. Physical harm can range from minor slips and falls to more serious injuries requiring hospitalization.

Public health concerns related to hazardous materials include potentially encountering unanticipated contaminated soil, materials, or contaminated perched shallow groundwater during construction and building demolition. Unless properly managed by the construction contractor, such unanticipated contaminated materials could adversely impact the environment. Construction contractors would store and use a variety of potential contaminants (e.g., fuel, cleaning solvents, and paint). All construction contractors, tenants, and rail carriers at the port must abide by standard contractual conditions requiring them to maintain spill prevention programs and equipment in the manner required by Federal, state, and local regulations..

# 4.15.4 Minimization and Mitigation Measures

### 4.15.4.1 No Action Alternative

No adverse impacts to public health and safety are anticipated from the No Action Alternative; therefore, no mitigation is proposed.

# 4.15.4.2 Proposed Action Alternative

The Proposed Action is expected to reduce potential safety issues at the NW Gateway Avenue crossing during operations; therefore, no mitigation is proposed. Minimization measures for operational impacts to public health are detailed in Section 4.16.2.2 and include maintaining BMPs and equipment for spill prevention and spill response, properly training staff, and continued annual visual environmental audits as appropriate of port tenants.

To mitigate for potential contaminated media encountered during construction, the port will require construction projects to implement appropriate contingency plans. The construction bid packages issued by the port should notify all bidders of the potential for finding contaminated soil and groundwater along the corridor. General safety concerns during construction would be minimized through the following measures:

• Workers would comply with existing safety and security requirements of the port and other regulations. Contractors would be required to obtain a Transportation Worker Identification Credential (TWIC) or be escorted by a TWIC-certified individual prior to entering or working within areas requiring a TWIC. This credential is administered by the Transportation Security Agency and the USCG and confirms access to secure areas within port facilities in an effort to enhance port security.

- Permanent fencing would remain in place as appropriate. Any fencing removed for construction would be replaced with temporary fencing to prevent unauthorized entry to the construction sites.
- Work on and near active track lines would be completed in compliance with federal and railroad regulations, and port safety requirements. Flaggers would be used when construction activities will interfere with train operations.

# 4.16 Hazardous Materials and Solid Waste

# 4.16.1 Study Area and Methodology

The project study area for hazardous materials and solid waste correlates to the WVFA Project area described in Section 3.4.

Hazardous materials were evaluated through an initial Phase 1 Environmental Site Assessment that included a review of regulatory databases, historic review, site reconnaissance, and title searches to assess whether contaminated soil or groundwater resulting from historic hazardous material releases from facilities might be present within areas where the port would purchase new parcels, upgrade existing rail alignments, or construct new rail alignments. Each identified hazardous materials site was categorized into two groups:

- Reasonably predictable sites: the nature of potential contamination is known based on existing investigation data, or it can be reasonably predicted based on observations of the site, experience at similar sites, or best engineering judgment.
- Substantially contaminated sites: there is a potential for a major liability for the port either in construction delays or by virtue of acquiring all or a portion of the contaminated site.

In addition, sites with potential hazardous materials within the proposed footprint of the Proposed Action Alternative were evaluated further as part of a Phase 2 Environmental Site Assessment. The Phase 2 Environmental Site Assessment evaluates soil and groundwater samples to determine if these materials exceed allowable limits (limits vary depending on the hazardous material) requiring special handling and disposal.

Additional information regarding methodology for both Phase 1 and 2 Environmental Site Assessment are found in Appendix N, Appendix O, Appendix P, and Appendix Q (ICF Jones and Stokes 2009f; PBS Engineering 2008; PBS Engineering 2009; Port of Vancouver 2009).

Solid waste was evaluated by reviewing the existing and proposed solid waste generated by the port and the appropriate disposal measures, and determining the impacts from the No Action and Proposed Action Alternatives.

# 4.16.2 Affected Environment

### 4.16.2.1 Contaminated Sites

Hazardous materials can impact the environment, construction projects, and long-term cleanup liability. Hazardous material is a broad term for media that may be toxic to humans or the environment. This term includes dangerous waste, problem waste and contamination, petroleum products, and hazardous substances. The WVFA Project would be constructed on parcels currently owned or slated for acquisition by the port. Many of these parcels have histories of industrial uses and, therefore, the potential for site contamination, as summarized in Table 9. Additional information on these sites is in the Phase I Site Assessment in Appendix N. Groundwater monitoring wells are located throughout the WVFA Project area. These wells are used to monitor groundwater contamination from various sources at the port.

		Port Ownership	
Site No.	Name	Status	Historic Use
1	Aschieris Site	Will be acquired	Lumber mill
2	Albina Fuel Terminal 2a	Will not acquire	Asphalt products
3	Lafarge Cement Company	Will partially acquire	Cement production
4	Leeds Parcel	Recently acquired	Gas station
6	Former Fort Vancouver Plywood	Owned, leased to tenant	Plywood facility
7	Great Western Malting Facility	Owned; leased to tenant	Malting facility
8	Pacific Cogeneration	Owned; leased to tenant	Steam generation
9	Northwest Packing Company	Owned; leased to tenant	Food processing
10	Former Vanport Industries Facility, Port Maintenance Facility	Owned	Plywood laminating plant, steam cleaning
11	Northwest Packing Company (portion not on port property)	Will not acquire	Food processing
12	Former Swan Manufacturing Facility	Owned	Heater manufacturing
13	Former Carborundum Waste Ponds	Owned	Silicon carbide production
14	NuStar Terminal Services (formerly ST Services)	Owned; leased to tenant	Active fuel terminal. Previously (but no longer) used for chlorinated solvent storage.
15	Kinder Morgan Facility	Owned; operated by tenant	Marine terminal
16	General Chemical	Will not acquire	Aluminum sulfate production
17	Cadet Manufacturing	Owned	Heater manufacturing
18	Alcoa Aluminum Rod Mill Site	Recently acquired	Aluminum extrusion
19	Former Alcoa Landfills	Recently acquired	Landfills for waste from former aluminum smelter
20	Former Vanalco/Evergreen Smelter Site	Recently acquired	Aluminum smelter
21	Vanalco/Evergreen North Parking Area	Recently acquired	No industrial history at this portion of the aluminum smelter complex
22	Clark County Corrections Facility	A portion has been acquired <sup>14</sup>	Industrial landfill
23	Clark Public Utilities	A portion has been acquired <sup>13</sup>	Anodizing plant
24	Existing BNSF Rail Corridor (outside the main line)	Owned by port	Routine, historic railroad operations
25	Bonneville Power Administration, Alcoa Substation	Off-site, will not be acquired	Electrical substation
26	Former Alcoa Wastewater Sludge Disposal	Recently acquired	Wastewater disposal ponds at former aluminum smelter

#### Table 9. Sites Identified for Hazardous Materials Review

<sup>&</sup>lt;sup>14</sup> This element of the Proposed Action was completed. Details regarding project scheduling and construction are further described in Section 3.3.

The Phase I Site Assessment recommended Phase II investigations. The Phase II investigations were conducted in 2008. These investigations were completed as detailed below along the rail alignment and other areas of proposed excavation.

Cap areas located on Terminal 5 are subject to restrictive covenants with Ecology and include: Alcoa Vanexco Rod Mill Facility, Spent Pot Liner landfill, North/North 2 Landfills, East Landfill, the Shoreline Area and Former Ingot Plant landfill. Restrictive covenants are placed on these sites because of potential health and safety hazards from contact with contaminated soils and/or groundwater in these areas. The loop track proposed at Terminal 5 will require disturbance of the Alcoa Vanexco Rod Mill Facility, Spent Pot Liner landfills.

The Former Carborundum Plant and Pond areas are located near Terminal 2. Soil caps have been placed over this area because concentrations of PAHs remain in the soil above the MTCA Method A standards for Unrestricted Land Use. This area is subject to a restrictive covenant.

The Fort Vancouver Plywood site contains two cells (Cell 1 and Cell 2) located near the Columbia River Rail Bridge that are subject to a restrictive covenant. An impermeable cap has been placed over both cells because contaminant concentrations in both cells remain in soils above the applicable MTCA cleanup standards. Cell 1 contains volatile organic compounds (VOCs), petroleum hydrocarbons, and metals, and Cell 2 contains petroleum hydrocarbons, halogenated VOCs, and metals.

Soils along the existing and proposed rail alignment were identified as contaminated from past site activities (Appendix O). Contaminants of concern include lead, diesel, and heavy petroleum residues, and to a lesser extent, arsenic and cadmium. There are several areas where contaminants exceed the MTCA industrial standards. These areas are widespread along the rail alignment but most are located between the Carborundum Cap and NW Gateway Avenue.

Sampling by the port at the Kinder Morgan facility has identified copper and petroleum compounds in asphalt and soil (Appendix P).

At the Terminal 3 Rail Access (Terminal 4 Pond) site, the port conducted soil sampling in August 2009 (Appendix Q). None of the soils had concentrations of organics above the detection limit requiring special handling or disposal. None of the priority pollutant metals exceeded the MTCA Method A for Unrestricted Land Use.

# 4.16.2.2 Hazardous Materials Use

Hazardous materials are used at the site. All tenants at the port have contractual agreements requiring compliance with all environmental regulations, including requirements to maintain BMPs and equipment for spill prevention and spill response in accordance with the regulations described above. Adherence by all port tenants will continue to ensure that tenant staff are properly trained and equipped to prevent spills, and any accidental releases that occur along new and existing rail lines will be promptly cleaned up and reported to appropriate regulatory agencies.

The port conducts annual visual environmental audits of its tenants and its own facilities. In performing these audits, the port reviews products and procedures used by its tenants, especially in the areas of hazardous materials handling, pollution prevention, stormwater management, and surface water protection. Information gathered during the inspections allows the port to increase its tenants' environmental awareness pertaining to issues such as regulations and BMPs. The audit process involves a pre-audit questionnaire, site visit and interview, audit summary letter and follow-up, and a tenant interview.

Interstate and intrastate rail carriers that ship oil and hazardous substances are subject to spill prevention regulations under federal Department of Transportation regulations: Oil Spill Prevention and Response Plans (49 CFR Part 130), and Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements (49 CFR Part 172).

These federal railroad regulations apply to railcars that are in transit, either within or outside port property. They require the rail carrier to maintain emergency response plans and to train their staff to notify off-site emergency responders (e.g., the City fire department) immediately in the event of a spill.

### 4.16.2.3 Solid Waste

Proper solid waste disposal, as with clean air and safe drinking water, is a necessary service and must be properly transported, contained, and located. Solid waste falls under the least restricted category of wastes as classified by the EPA. Solid waste at the port currently consists of domestic and commercial waste. Domestic waste is generated from office and administration activities and generally includes food waste, paper, plastic, glass, metals, and other wastes. These wastes are containerized in waste bins that are collected weekly by Waste Management Systems and disposed of at an approved landfill or recycling center.

Commercial waste is also generated at the port. This waste consists of surplus or demolition materials such as wood, metals, rail ties, tracks, and switches that were removed during construction of other facilities. If these materials are reusable, the port stockpiles the materials on site for later use. As with domestic waste, commercial wastes are containerized in waste bins that are disposed of at an approved landfill or recycling center.

# 4.16.3 Environmental Consequences

### 4.16.3.1 No Action Alternative

As no construction is associated with the No Action Alternative, there is no potential to encounter potentially contaminated or hazardous materials. There would be no change in solid waste disposal. Therefore, no adverse impacts are anticipated.

# 4.16.3.2 Proposed Action Alternative

### **Operational Impacts**

### **Contaminated Sites**

Construction activities, particularly excavation, associated with the Proposed Action Alternative could encounter hazardous materials identified in the Phase II Site Assessments. The potential impacts are identified below.

### Rail Line Construction on Environmental Caps

The proposed rail alignment would be constructed on facilities that are required to maintain special impermeable caps in accordance with Ecology Agreed Orders. The affected sites are North/North2 landfill, Spent Pot Liner landfill, Alcoa/Vanexco Rod Mill Facility, Carborundum Plant and Pond, and Fort Vancouver Plywood site. In accordance with Ecology's Agreed Orders and/or No Further Action determinations for each of those sites, the port would be required to coordinate with Ecology to design and install new impermeable caps following construction of the Proposed Action Alternative. The port has developed designs for replacement caps at the North/North2 landfill, Spent Pot Liner landfill, and Alcoa/Vanexco Rod Mill Facility. The port received approval from Ecology to excavate in these areas for

construction of the Terminal 5 loop track.<sup>15</sup> (Appendix R). Additional approval from Ecology would be required for additional impacts proposed to the Spent Pot Liner landfill from the modification of the loop track at Terminal 5. The port also proposes to excavate in the Carborundum cap and North/North 2 landfill and has received approval from Ecology for disturbances to both caps (Appendix S and Appendix T). In addition, the installation of tracks at the pile-supported trench would require disturbances to the Fort Vancouver Plywood site requiring approval from Ecology. If additional disturbances are proposed, approval from Ecology will be required.

### Asbestos, Lead-Based Paint, and PCB Transformers at Buildings to be Demolished

The Proposed Action Alternative would require the demolition of several industrial buildings, including Great Western Malting, the Kinder Morgan facility, and the Building 3201 warehouse. Care will be taken to properly handle PCBs, lead paint, asbestos and other hazardous materials encountered in demolition.

According to state and federal regulations, asbestos, lead, and PCBs must be surveyed at those buildings, and all such materials must be removed in accordance with environmental and safety regulations before the buildings are demolished. The port would retain Asbestos Hazard Emergency Response Act-certified inspectors to identify all regulated materials. The port would then retain a remediation contractor to abate the identified hazardous substances in accordance with state and federal regulations. After the abatement is complete, the port will issue contracts for building demolition.

Demolition of all structures associated with the Proposed Action Alternative would be done under the Contaminated Media Management Plan (CMMP). The CMMP would be prepared by the port as part of the construction specifications for each construction project. Suspected soil contamination observed during building demolition would be managed and remediated according to the CMMP.

### Hazardous Materials Use

Hazardous materials would continue to be used at the site. The port and all of its tenants would continue to operate as required by federal, Washington State, and local law, including regulations under WAC 296-824 Emergency Response and the City's Greater Standards for Hazardous Materials Operations included in the Water Resources Protection Ordinance (VMC 14.26.130).

### Solid Waste Disposal

The Proposed Action Alternative would result in improved capacity within the port; however, the Proposed Action Alternative would not directly increase solid waste generation. As capacity improves in the port, tenants are expected to expand existing operations and new tenants would likely emerge. The expansion of operations within the port would indirectly result in generation of additional solid waste, both domestic and commercial.

# **Construction Impacts**

### Hazardous Materials

The port could potentially encounter unanticipated contaminated soil or contaminated perched shallow groundwater along the proposed rail alignment. Unless properly managed by the construction contractor, such unanticipated contaminated materials could adversely impact the environment. Construction

<sup>&</sup>lt;sup>15</sup> This element of the Proposed Action was constructed in 2010. Details regarding project scheduling and construction are further described in Section 3.3.

contractors would store and use a variety of potential contaminants (e.g., fuel, cleaning solvents, and paint). All construction contractors, tenants, and rail carriers at the port must abide by standard contractual conditions requiring them to maintain spill prevention programs and equipment in the manner required by federal, state, and local regulations.

The Proposed Action Alternative would require installation of piles, drilled shafts, or stone columns at the pile-supported trench and NW Gateway Avenue overpass at Terminal 5, which may encounter groundwater in areas regulated by a restrictive covenant. During construction of the pile-supported trench at the former Fort Vancouver Plywood site, stone columns are anticipated to be approximately 45 feet below the bottom of the trench (total of approximately 60 feet below ground surface). These columns would consist of compacted crushed stone to decrease the potential for liquefaction. The columns would be constructed using a vibrating auger that horizontally compacts the surrounding soils and then injects and compacts the crushed stone. These stone columns would form an area that is less permeable than the surrounding soil. The tops of the columns would then be covered with an impervious surface that forms the bed of the trench, above which a rail would be placed. As a result of less permeable soils and the placement of impervious surfaces above the columns, impacts to groundwater from the contaminated materials in the former Fort Vancouver Plywood site are not expected to occur.

At Terminal 5, construction of the NW Gateway Avenue overpass would require placement of three types of piles below and near the roadway structures. The deepest of these (anticipated to be up to 60 feet below ground surface) would be stone columns placed to densify the soil to prevent liquefaction. This would create a zone of permeable material below ground surface. Pilings that are installed to support roadway structures would be covered by paving material. Concentrations of contaminants in the sediments contained in the landfill are below the MTCA Industrial Method A cleanup levels for PCBs and PAHs in soil. To prevent direct contact with remaining contaminated materials, the North/North 2 Landfill would be covered with a layer of sand (a minimum of 1 foot thick). This sand is a pervious layer and would allow stormwater to infiltrate the landfill. PCBs are not water soluble; therefore, the placement of pilings within the landfill is not expected to create a conduit to groundwater or the Troutdale Sole Source Aquifer. While a small amount of contaminated soil may be pushed down within the footprint of the piling, this de minimis amount of material would not create a situation in which PCBs or PAHs enter groundwater or the Troutdale Sole Source Aquifer.

Construction proposed in or near other deed-restricted areas at the port (e.g. Carborundum Plant and Pond Cap, Ingot Cap, Spent Pot Liner Cap, and Vanexco Cap) is not expected to encounter groundwater or result in contamination of groundwater.

Construction of the Proposed Action Alternative would likely require the relocation of several groundwater monitoring wells within 20 feet of their original locations and raising the elevation of the well completion of several other wells as a result of additional fill placement. The wells would be decommissioned or replaced in kind per Ecology requirements.

To mitigate for potential contaminated media encountered during construction, the port will develop a CMMP to require all construction projects to implement appropriate contingency plans. The construction bid packages issued by the port should notify all bidders of the potential for finding contaminated soil and groundwater along the corridor. The CMMP requires the contractor to manage contaminated media to prevent "clean" materials, humans, and water (surface and groundwater) from contacting contaminated media. Prevention measures include:

- Known contaminated areas are identified on the construction drawings.
- During construction, handling and managing materials per an approved stockpiling plan and SWPPP are required.
- Equipment and personnel used in known areas of contamination or in handling suspect materials are required to be decontaminated prior to exiting the contaminated area.
- Personnel working in known areas of contamination are required to have the necessary federal and state safety training.
- Following construction in capped areas, a replacement cap will be installed that meets the requirements of the restrictive covenant.
- Known areas of contamination and suspect materials are to be tested and disposed of appropriately.

### Solid Waste Disposal

All waste and materials requiring disposal during construction of the Proposed Acton will be properly disposed of per federal and state requirements.

# 4.16.4 Minimization and Mitigation Measures

### 4.16.4.1 No Action Alternative

There are no impacts from this alternative. No mitigation is required.

### 4.16.4.2 Proposed Action Alternative

The port will follow agreements/approvals from Ecology regarding disturbances to the environmental caps. BMPs will continue to be used as previously described and the port will follow applicable laws to minimize risk of future spills. Tenant and port audits will also continue as described. The Troutdale Sole Source Aquifer approval from EPA requires that, during installation of stone columns, piles, and drilled shafts at the former Fort Vancouver Plywood site and North/North 2 Landfill, groundwater monitoring will occur to determine if contaminants are migrating. If contaminants are migrating, additional sampling and mitigation activities will occur as approved by Ecology and EPA (Appendix E).

# 4.17 Energy Use and Greenhouse Gases

# 4.17.1 Study Area and Methodology

The project study area for energy use and greenhouse gases (GHG) correlates to the WVFA Project area described in Section 3.4 as well as the Portland-Vancouver area main line for evaluating rail traffic and congestion.

To evaluate energy use, rail traffic (as discussed in Section 4.3) was reviewed to determine delay times and potential fuel consumption for trains at the port. Fuel consumption was also used to determine potential emissions to evaluate impacts to GHG.

# 4.17.2 Affected Environment

### 4.17.2.1 Energy Use

The primary source of fuel consumption from trains at the port is a result of idle time. The idle fuel consumption rate for the engines that pull freight trains is approximately 60 gallons per hour, or one gallon per minute (WSDOT 2003). As shown in Table 10, the number of trains (i.e., events), experiencing the average 3-day delay in the port is seven (ICF Jones and Stokes 2009i), which would result in a minimum of 210 gallons of fuel consumed while idling. The average daily delay is 844 minutes (ICF Jones and Stokes 2009i), the equivalent of 844 gallons of fuel consumed. This compares with the fuel consumed while idling along the main line of 810 and 1,878 gallons for average 3-day delays and average daily delays, respectively.

*		0		
	Average 3-Day Delays (Events)	Average 3-Day Delays Fuel Consumption <sup>1</sup> (Gallons)	Average Daily Delays (Minutes)	Average Daily Delays Fuel Consumption <sup>2</sup> (Gallons)
Entire Network <sup>3</sup>	27	810	1,878	1,878
Port of Vancouver Trains <sup>4</sup>	11	330	634	634
Port of Vancouver Trackage <sup>5</sup>	7	210	844	844

#### Table 10. Comparison of Fuel Consumption Rates for Idling Trains

<sup>1</sup> Average 3 day delays fuel consumption calculated by determining total idling time (minimum of 30 minutes multiplied by number of events) multiplied by one gallon per minute for fuel consumption.

<sup>2</sup> Average daily delay fuel consumption calculated by multiplying average daily delay by one gallon per minute of fuel consumed.

<sup>3</sup> "Entire network" includes all BNSF, UPRR, Amtrak, port, and other trains that use either the main line or port tracks within downtown Vancouver.

<sup>4</sup> "Port of Vancouver Trains" includes all port trains using both the main line and the port tracks.

<sup>5</sup> "Port of Vancouver Trackage" includes all port trains using only the port tracks.

Electrical energy is used on the right-of-way to operate switches, crossing guards, and communication devices. In addition, each train operates electrical equipment, such as radios, through on-board power generation. Yard operations also consume diesel fuel although quantities of fuel consumed are not available. In addition, rail and yard operations result in periodic closures from main line and port operations at Thompson Avenue/W 16th Street Crossing, and several other crossings within the WVFA Project area. Vehicles stopped at the crossings consume fuel while delayed.

### 4.17.2.2 Greenhouse Gases

Vehicles emit a variety of gases during their operation; some of these are GHGs. The GHGs associated with transportation are water vapor, carbon dioxide ( $CO_2$ ), methane (also known as "marsh gas"), and nitrous oxide. Any process that burns fossil fuel releases  $CO_2$  into the air. Carbon dioxide makes up the bulk of the emissions GHG from transportation.

National estimates show that the transportation sector (including on-road vehicles, construction activities, airplanes, and boats) accounts for almost 30 percent of total domestic  $CO_2$  emissions (Ecology 2008). However, in Washington State, transportation accounts for nearly half of GHG emissions because the state relies heavily on hydropower for electricity generation, unlike other states that rely on fossil fuels such as coal, petroleum, and natural gas to generate electricity (WSDOT, 2010). Figure 22 below shows the gross GHG emissions by sector, nationally and in Washington State.



Source: Washington State Department of Ecology (Ecology 2008)

Railroads on average are four times more fuel efficient than trucks. Moving freight by rail instead of truck reduces greenhouse gas emissions by 75 percent (Association of American Railroads 2010). Freight railroads account for just 0.6 percent of U.S. greenhouse gas emissions from all sources and just 2.4 percent of emissions from transportation-related sources (Association of American Railroads 2010). In Washington, rail accounts for only 2 percent of the transportation total (Ecology 2008). Moving more freight by rail also reduces highway congestion. The average freight train can take the equivalent of 280 or more trucks off the highways (Association of American Railroads 2010).

# 4.17.3 Environmental Consequences

### 4.17.3.1 No Action Alternative

#### **Operational Impacts**

#### Energy Use

Under the No Action Alternative the number of port trains experiencing a delay greater than 30 minutes (average 3-day delay) remains the same because the No Action Alternative assumes no increase in port freight volume. Even with no increase in freight volume, the overall delay increases by 44 percent because of the additional train volumes on the main line. As a result, the number of port train events delayed for greater than 30 minutes (average 3-day delay) increases by 29 percent (Table 11) and the average daily delay per train decreases 10 percent (Table 12). Fuel consumption will increase at a rate of one gallon per minute of increase in idle time. For port trains, this results in an increase in fuel consumption for the average 3-day delay and decrease for the daily delay (Table 11 and Table 12).

	Existing Conditions		2025	2025 No Action	
	Average 3- Day Delays (Events)	Average 3-Day Delays Fuel Consumption <sup>1</sup> (Gallons)	Average 3- Day Delays (Events)	Average 3-Day Delays Fuel Consumption <sup>1</sup> (Gallons)	Net Change
Entire Network <sup>2</sup>	27	810	32	960	+150 gallons +19%
Port of Vancouver Trains <sup>3</sup>	11	330	11	330	No change
Port of Vancouver Trackage <sup>4</sup>	7	210	9	270	+60 gallons +29%

#### Table 11. Comparison of Fuel Consumption Rates for Idling Trains for the Average 3-Day Delay

<sup>1</sup> Average 3 day delays fuel consumption calculated by determining total idling time (minimum of 30 minutes multiplied by number of events) multiplied by one gallon per minute for fuel consumption.

<sup>2</sup> "Entire network" includes all BNSF, UPRR, Amtrak, port, and other trains that either use the main line or port tracks within downtown Vancouver.

<sup>3</sup> "Port of Vancouver Trains" includes all port trains using both the main line and the port tracks.

<sup>4</sup> "Port of Vancouver Trackage" includes all port trains using only the port tracks.

#### Table 12. Comparison of Fuel Consumption Rates for Idling Trains for the Daily Average

	Existing Conditions		2025	2025 No Action	
	Average Daily Delays (Minutes)	Average Daily Delays Fuel Consumption <sup>1</sup> (Gallons)	Average Daily Delays (Minutes)	Average Daily Delays Fuel Consumption <sup>1</sup> (Gallons)	Net Change
Entire Network <sup>2</sup>	1,878	1,878	2,330	2,330	+452 gallons +24%
Port of Vancouver Trains <sup>3</sup>	634	634	910	910	No change
Port of Vancouver Trackage <sup>4</sup>	844	844	757	757	-87 gallons -10%

<sup>1</sup> Average daily delay fuel consumption calculated by multiplying average daily delay by one gallon per minute of fuel consumed.

<sup>2</sup> "Entire network" includes all BNSF, UPRR, Amtrak, port, and other trains that either use the main line or port tracks within downtown Vancouver.

<sup>3</sup> "Port of Vancouver Trains" includes all port trains using both the main line and the port tracks.

<sup>4</sup> "Port of Vancouver Trackage" includes all port trains using only the port tracks.

#### Greenhouse Gases

With the No Action Alternative, GHG emissions would continue to rise to roughly 38 percent above 1990 Washington State transportation levels (Association of American Railroads 2010) by 2020. Emissions from rail in Washington are anticipated to remain the same over this same time frame (Association of American Railroads 2010).

#### **Construction Impacts**

No construction is expected to occur with the No Action Alternative; therefore, no impacts would occur.

### 4.17.3.2 Proposed Action Alternative

### **Operational Impacts**

### Energy Use

The port estimates that three times more trains will be in use by port tenants by 2025 (MainLine Management 2005). This is an increase from 955 trains operating in 2008 to 3,541 trains in 2025. In this same time frame, the total number of trains operating on the main lines is expected to increase by 84 percent (ICF Jones and Stokes 2009i). Under the Proposed Action Alternative, the number of port train events for 3-day delays decreases by five (Table 13) and the average port train daily delays decrease by 49 percent (ICF Jones and Stokes 2009i) (Table 14). This is an average train delay of 32.4 minutes, given the port projection of 10 trains per day by 2025 (ICF Jones and Stokes 2009i). Similarly, the main line network train events for 3-day delays is expected to decrease by four with the average network train delays decreasing by 33 percent (ICF Jones and Stokes 2009i) (Table 13 and Table 14).

A primary goal of this project is to reduce the existing congestion within the port. This would result in an overall decrease in travel time, which would reduce fuel consumption. In addition, idling time by trains would be substantially reduced and fuel consumed by idling trains would likewise be reduced. Fuel consumption will decrease at a rate of one gallon per minute of decrease in idle time. This results in a decrease in fuel consumption for both the average 3-day delay and daily delay (Table 13 and Table 14).

	<b>Existing Conditions</b>		2025 Proposed Action Alternative		
	Average 3- Day Delays (Events)	Average 3-Day Delays Fuel Consumption <sup>1</sup> (Gallons)	Average 3- Day Delays (Events)	Average 3-Day Delays Fuel Consumption <sup>1</sup> (Gallons)	Net Change
Entire Network <sup>2</sup>	27	810	23	690	-120 gallons -15%
Port of Vancouver Trains <sup>3</sup>	11	330	6	180	-150 gallons -45%
Port of Vancouver Trackage <sup>4</sup>	7	210	5	150	-60 gallons -29%

Table 13. Comparison of Fuel Consumption Rates for Idling Trains for the Average 3-Day Delay

<sup>1</sup> Average 3 day delays fuel consumption calculated by determining total idling time (minimum of 30 minutes multiplied by number of events) multiplied by one gallon per minute for fuel consumption.

<sup>2</sup> "Entire network" includes all BNSF, UPRR, Amtrak, port, and other trains that either use the main line or port tracks within downtown Vancouver.

<sup>3</sup> "Port of Vancouver Trains" includes all port trains using both the main line and the port tracks.

<sup>4</sup> "Port of Vancouver Trackage" includes all port trains using only the port tracks.

	<b>Existing Conditions</b>		2025 Proposed Action Alternative		
	Average Daily Delays (Minutes)	Average Daily Delays Fuel Consumption <sup>1</sup> (Gallons)	Average Daily Delays (Minutes)	Average Daily Delays Fuel Consumption <sup>1</sup> (Gallons)	Net Reduction
Entire Network <sup>2</sup>	1,878	1,878	1,251	1,251	-627 gallons -33%
Port of Vancouver Trains <sup>3</sup>	634	634	324	324	-310 gallons -49%
Port of Vancouver Trackage <sup>4</sup>	844	844	360	360	-484 gallons -57%

#### Table 14. Comparison of Fuel Consumption Rates for Idling Trains for the Daily Average

<sup>1</sup> Average daily delay fuel consumption calculated by multiplying average daily delay by one gallon per minute of fuel consumed.

<sup>2</sup> "Entire network" includes all BNSF, UPRR, Amtrak, port, and other trains that either use the main line or port tracks within downtown Vancouver.

<sup>3</sup> "Port of Vancouver Trains" includes all port trains using both the main line and the port tracks.

<sup>4</sup> "Port of Vancouver Trackage" includes all port trains using only the port tracks.

#### Greenhouse Gases

The Proposed Action Alternative would allow the use of freight trains to transport materials to and from existing and future industrial facilities at the port, and would be expected to reduce the number of trucks on the local roadway network. Because the average freight train can take the equivalent of 280 or more trucks off the highways (Association of American Railroads 2010), the Proposed Action Alternative is expected to generate fewer emissions than if the same amount of freight were hauled by truck. In addition, the Proposed Action Alternative would result in less idling time of trains within the port as well as entering and exiting the facilities. The reductions in fuel consumption described in the Energy Section above would also reduce the overall amount of GHG emissions.

### **Construction Impacts**

### Energy

A temporary increase in energy consumption would occur at the WVFA Project area during construction. Energy would be consumed by diesel-fueled heavy machinery, electrical- or gas-powered hand tools, and battery or generator electrical lighting and safety signals. Specialized heavy machinery that is trackmounted would be fueled within the port facilities. Vehicles and hand-held tools would be replenished with local supplies. Energy impacts resulting from temporary construction would not adversely affect the WVFA Project area. Electricity and diesel fuel are available to meet temporary energy needs. Construction areas, staging areas, and material transfer sites will be designed to reduce wait times for equipment and engine idling.

### Greenhouse Gases

Construction areas, staging areas, and material transfer sites would be designed to reduce wait times for equipment and engine idling. These measures would reduce fuel consumption. Increases in emissions that may occur during construction would be temporary in nature and are not expected to contribute substantially to overall GHG emissions.

# 4.17.4 Minimization and Mitigation Measures

### 4.17.4.1 No Action Alternative

Mitigation for reducing both energy use and GHG emissions is best achieved on a regional and national scale. In February 2007, the Governor of Washington issued Executive Order 07-02, requiring state agencies to find ways to reduce GHG emissions and adapt to the future that climate change may create. On May 3, 2007, the Washington State Legislature passed Senate Bill 6001 which, among other things, adopted the Governor's climate change goals as state law. The law aims to achieve 1990 GHG levels by 2020, a 25 percent reduction below 1990 levels by 2035, and a 50 percent reduction by 2050.

### 4.17.4.2 Proposed Action Alternative

As the Proposed Action Alternative would result in reduced delays and idling of trains as well as an increased use of freight rail, energy use and GHG emissions are expected to decrease as a result of the Proposed Action Alternative. The Proposed Action Alternative would be consistent with the Governor's Executive Order 07-02 and Senate Bill 6001.

# 4.18 Indirect Impacts

# 4.18.1 No Action Alternative

The No Action Alternative would have no indirect environmental impacts. The existing conditions in the project area would remain unchanged.

# 4.18.2 Proposed Action Alternative

The Proposed Action Alternative is anticipated to result in indirect impacts to the general population by fostering future economic growth at the port, adding 1,000 permanent jobs to the local community within the next 6 years (Port of Vancouver 2009b). Although many of these jobs would be filled by current residents, some additional housing, public services, and ancillary business/professional services may be necessary in the community. The proposed job growth is consistent with the 20-year Clark County Comprehensive Plan, which was developed to ensure that adequate public facilities can be provided to accommodate future job and population growth in the community. Thus, the projected job growth at the port has been anticipated by the community and service providers, who have capital facilities plans to ensure such growth can be accommodated.

The Proposed Action Alternative would have the indirect effect of promoting growth within the WVFA Project area for existing tenants because the improved efficiency would allow existing tenants to slightly expand their operations. In addition, the construction of the loop track at Terminal 5 would provide rail infrastructure to a previously vacant industrial area. This ready access to rail would provide added incentive for future tenants to locate in the Terminal 5 area. This would represent a conversion of land from its current use, a vacant industrial lot, to a rail-dependent industrial use. The port is currently working with potential future tenants at the Terminal 5 area. Implementation of the loop track at Terminal 5 could also provide added incentive to convert adjacent lands outside of the port's boundary to industrial uses in the future. Future development in these locations would represent a conversion of land from current agriculture and open space uses to industrial uses. This intensification of future development could result in ambient effects such as additional lighting, increases in operational noise, grading/soils disturbance, increased impervious surfaces, loss of wetlands and habitat, etc. Anticipated growth impacts resulting from the proposal would be consistent with applicable land use planning documents and zoning and are anticipated to be minimal.

The Proposed Action Alternative would also have indirect impacts to wetlands located in the WVFA Project area. Vegetation removal would occur from the area along Parcel 1A to construct a retaining wall to support the new rail alignment, which would reduce available habitat and increase the potential for erosion and sedimentation into the wetland. Some noxious weeds may be eradicated through vegetation and seed bank removal; however, there is also an opportunity to introduce additional noxious and invasive species. This could occur through movement of seeds on construction equipment or vehicles. In addition, accidental spills could occur during operations and result in indirect impacts to terrestrial habitat and species.

# 4.19 Cumulative Impacts

Cumulative impacts result from the incremental impacts of an alternative when added to other past, present, or reasonably foreseeable future actions, regardless of what agency, federal or nonfederal, or person undertakes those other actions. Cumulative impacts were evaluated by considering the impacts from the Proposed Action and reasonably foreseeable future actions on the environmental resources within the study area for each environmental resource.

Within the vicinity of the Proposed Action Alternative, several additional rail improvement projects are being implemented or have been implemented recently. Although coordination between the various projects has optimized the overall functionality of the rail system, each project has independent utility and is being implemented by a different organization or agency. For these reasons, each project has undergone or is currently undergoing separate environmental review and is considered to be independent from the Proposed Action Alternative. These and other ongoing or reasonably foreseeable future actions in the study area are described below.

# BNSF and City of Vancouver Waterfront Access Project

The City and BNSF have partnered to implement the City of Vancouver Waterfront Access Project to improve access to the Columbia River from west downtown Vancouver. Historically, this area has been in heavy industrial use but the City has approved plans to convert the former Boise Cascade industrial site west of the port's Terminal 1 to a mixed-use commercial and residential community that would link downtown Vancouver to the waterfront. Key to this revitalization effort is reconnecting the land currently split by the existing railroad tracks. As part of this project, Esther Street will be extended through the existing rail embankment and the W 6th Street/Grant Street intersection will be expanded and realigned. This would require installing new bridges under the BNSF main lines to provide this new access and to open up visibility toward the waterfront. This project has completed environmental review, with the City acting as the lead agency under the State Environmental Policy Act (SEPA), and WSDOT as the lead agency under NEPA, as delegated by FHWA. Construction began in September 2010.

# WSDOT Vancouver Rail Bypass Project

Amtrak provides intercity passenger rail service south to Oregon and north to Canada. The service is delayed at times because of congestion through the Vancouver Rail Yard, which is located at the intersection of the Columbia River Rail Bridge with the north-south and east-west BNSF main lines. The Vancouver Rail Bypass Project, currently under construction, will construct a bypass track, a short section of a third main line track, and other yard improvements to relieve congestion. Speeding the entrance and exit of freight trains from the north-south main line will help passenger trains operate on time, and will create capacity for additional passenger trains as other projects north of Vancouver are completed.

A large volume of train traffic travels through the Vancouver Rail Yard. In addition, regular yard operations cause delays to train traffic because the BNSF main lines traverse the yard. Train traffic from

the east must travel through the southern part of the yard to access the northbound BNSF main line to Seattle, which in turn affects yard operations. The Vancouver Rail Bypass Project will provide a third north-south main line (the NP Pass track) through the yard and an eastern bypass to the yard to allow the trains that are coming from the east and going north to travel the area without affecting or being affected by the yard operations.

This WSDOT project does rely on completion of the WVFA Project before its full benefit can be realized. With the reduction of rail traffic on the Hill Track, the WSDOT-sponsored improvements will be more effective in reducing congestion.

### Far West Steel

Far West Steel is currently undergoing environmental review with the City of Vancouver to develop approximately 20 acres on the port's Parcel 1A property. The site will be used as a steel processing and distribution facility expected to employ 225 workers. The facility will include an office building with parking, processing and distribution facility structures, the addition of three siding tracks that would connect the main line within the port, as well as associated utilities. This project does not rely on the Proposed Action Alternative to provide full benefit or build-out of the site.

### Keyera Energy Company

Keyera Energy Company is a propane distributor that relocated its facilities to the port at Terminal 5. The 4-acre site is located north of the port's Terminal 5 rail loop and has recently initiated operations. The site includes three 80,000-gallon liquid propane tanks, a fueling rack, a 540-square-foot office and a 160-square-foot shed. Propane arrives at the terminal by rail and is distributed from the facility by truck. No pipeline is involved in the Keyera operations. As part of the project, three additional rail lines were installed to connect the facility to the Terminal 5 rail loop.

### **BHP Billiton**

BHP Billiton is currently undergoing SEPA review to construct a new proposed bulk potash handling facility at the port's Terminal 5 facility. The project will require a new dedicated rail line, relocation of an existing rail line, and the construction of a storage building and a handling facility that will transfer bulk quantities of potash from freight rail to temporary storage, and finally onto cargo ships moored at Terminal 5. The facility will require the installation of new marine structures at Terminal 5 to facilitate the loading of cargo vessels. The BHP Billiton project does not rely on the Proposed Action Alternative to become fully operational.

# United Grain Corporation

United Grain Corporation (UGC) is a grain exporter at the port's Terminal 2. UGC is proposing to expand operations at its current location by adding additional grain storage to increase operational and capacity efficiencies. These efficiencies would allow UGC to accommodate handling new agricultural commodities at its facility. This project is currently under environmental review.

# Columbia River Wetland Mitigation Bank

The Columbia River Wetland Mitigation Bank is a 156-acre parcel located north of Lower River Road on the port's Parcel 6. The mitigation bank site plan includes enhancement of approximately 82 acres of wetlands, creation of an additional 27 acres of wetlands, and improvement of other natural areas, including songbird habitat and floodplain. In addition to credits being available for purchase by the public

for wetland mitigation, the bank will be used by the port to mitigate for wetland impacts resulting from port improvements. Environmental approvals have been obtained and this project is scheduled for construction in 2011.

### Port of Vancouver Columbia Gateway

The port's Columbia Gateway project is a long-term planning effort to develop Parcels 3, 4, and 5. Parcel 3 is a 534-acre site that is zoned heavy industrial but is currently in agricultural use and includes two residences. Parcels 4 and 5 are also currently used for agriculture. Wetlands and shorelines of statewide significance are the primary ecological resources located on the parcels. Preliminary planning proposes to develop Parcel 3 for industrial tenants with water-dependent and water-related uses. Parcels 4 and 5 will be used in the future for habitat restoration and mitigation for development impacts at Parcel 3.

### **Terminal 5 Substation**

As a partnership project, the port and Clark Public Utilities are proposing construction of a new substation to support future tenants at the port's Terminal 5 area. The substation is currently undergoing environmental review to construct a 60 MW facility with an initial capacity of 30 MW, occupying 2.4 acres. The substation will include installation of above-ground or below-ground buried power lines to connect with the new tenants at Terminal 5. The new substation is being sited within the existing port facilities, although an exact location is still being evaluated.

In addition to the above reasonably foreseeable future projects, the other actions considered in the cumulative impact analysis are:

- Previous floodplain filling, altering of riparian areas, filling of wetlands, pollutant loading (past, ongoing and future actions).
- Development of industrial land, rail lines, and other transportation facilities (past, ongoing and future actions).
- The continued operation of the port and associated industrial activity (ongoing and future action).

# 4.19.1 No Action Alternative

The No Action Alternative would have no direct impact on noise and vibration; vehicular, bicycle, and pedestrian traffic; geology and soils; water resources and floodplains; water quality; wetlands; ecological resources; threatened and endangered species; cultural and historic resources; Section 4(f) resources; aesthetics; socioeconomics and environmental justice; land use, zoning, and recreation; public health and safety; and hazardous materials. Therefore, the No Action Alternative would not contribute to a cumulative effect on these resources.

As discussed in Section 4.3.3.1, rail traffic is expected to increase on the main line and in the port. The total number of trains operating on the main line is expected to increase by 84 percent by 2025 (MainLine Management 2005). The port estimates three times more trains will be in use by 2025, including existing tenants and those anticipated under the reasonably foreseeable future actions (MainLine Management 2005). Increased delays would occur as a result of the increases in rail traffic. The Vancouver Rail Bypass Project would relieve congestion within the Vancouver Rail Yard and decrease rail delays; however, congestion would remain on the main line and in the port. The continued and increased delays in rail traffic would potentially consume more fuel, which would increase energy needs and GHG emissions. Therefore, the No Action Alternative would have a cumulative impact on rail traffic, energy, and air quality.

# 4.19.2 Proposed Action Alternative

The Proposed Action Alternative would result in cumulative impacts for most of the environmental resources but most impacts are minimal or, when considered with reasonably foreseeable future action, the impacts are negligible. The cumulative impacts for each environmental resource are discussed below.

- Air Quality Air quality impacts from the Proposed Action would be minimal and air quality impacts are expected from the reasonably foreseeable future projects; therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would have a negligible cumulative effect on air quality.
- Noise and Vibration –Noise impacts from the Proposed Action are expected to remain at current levels or decrease at several locations. Vibration impacts would increase slightly from the Proposed Action. Noise and vibration impacts would be anticipated from the reasonably foreseeable future projects. Therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on noise and vibration.
- Transportation The Proposed Action would result in an increase in rail traffic that would be offset by improvements to rail capacity. Vehicular traffic impacts from construction of the Proposed Action would be coordinated with port tenants to minimize disruptions and would occur over several years, which would also minimize offsite impacts to vehicular, bicycle, and pedestrian traffic. Therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would result in a beneficial cumulative effect to rail traffic and a negligible cumulative effect on vehicular, bicycle, and pedestrian traffic.
- Geology and Soils The Proposed Action would not result in impacts to geology and soils, and would not contribute to a cumulative effect on this resource.
- Water Resources and Floodplains The Proposed Action would result in impacts to water resources and floodplains that would be offset by minimization and mitigation measures. Water resource and floodplain impacts are anticipated to occur from the reasonably foreseeable future projects. Therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.
- Water Quality The Proposed Action would result in minimal impacts to water quality that would be offset by BMPs and other minimization measures. Water quality impacts are anticipated to occur from the reasonably foreseeable future projects. Therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.
- Wetlands The Proposed Action would result in impacts to wetlands that would be offset by minimization and mitigation measures. Wetland impacts are anticipated to occur from the reasonably foreseeable future projects. Therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.
- Ecological Resources The Proposed Action would result in minimal impacts to ecological resources that would be offset by minimization and mitigation measures. Ecological resource impacts are anticipated to occur from the reasonably foreseeable future projects. Therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.
- Threatened and Endangered Species The Proposed Action would result in minimal impacts to threatened and endangered species that would be offset by minimization and mitigation measures. Threatened and endangered species impacts are anticipated to occur from the reasonably foreseeable

future projects. Therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.

- Cultural and Historic Resources The Proposed Action would result in impacts to cultural and historic resources that would be offset by mitigation. Reasonably foreseeable future projects would not result in additional effects to cultural and historic resources identified in Section 4.10. Therefore, the Proposed Action Alternative, when considered with the reasonably foreseeable future actions, would not contribute to a cumulative effect on this resource.
- Section 4(f) Resources The Proposed Action would result in impacts to a Section 4(f) resource that would be offset by mitigation. Reasonably foreseeable future projects would not result in additional effects to Section 4(f) resources identified in Section 4.11. Therefore, the Proposed Action, when considered with the reasonably foreseeable future actions, would not contribute to a cumulative effect on this resource.
- Aesthetics The Proposed Action would not result in impacts to aesthetics, and would not contribute to a cumulative effect on this resource.
- Environmental Justice The Proposed Action would not result in impacts to environmental justice or other sensitive populations, and would not contribute to a cumulative effect on these resources.
- Land Use, Zoning, and Recreation The Proposed Action would result in minimal impacts to shorelines that would be offset by mitigation. Reasonably foreseeable future projects are anticipated to impact shorelines. Therefore the Proposed Action, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.
- Public Health and Safety –The Proposed Action would improve safety at existing at-grade crossings, and result in other minimal impacts to public health and safety that would be offset by minimization and mitigation measures. The reasonably foreseeable future projects are anticipated to have public health and safety effects similar to those associated with the proposed action. Therefore, the Proposed Action, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.
- Hazardous Materials The Proposed Action would result in impacts to hazardous materials that would be offset by minimization and mitigation measures. The reasonably foreseeable future projects are anticipated to have hazardous materials effects similar to those associated with the proposed action. Therefore, the Proposed Action, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.
- Energy The Proposed Action would increase efficiency and capacity of rail operations in the port facilities and would result in reduced delay times and a decrease in fuel usage. The reasonably foreseeable future projects are anticipated to consume energy and fuel. Therefore, the Proposed Action, when considered with the reasonably foreseeable future actions, would result in a negligible cumulative effect on this resource.
- Socioeconomics The Proposed Action Alternative and the reasonably foreseeable future actions are anticipated to help foster future economic growth at the port and add jobs to the local community. This projected job growth at the port has been planned for by the community and service providers who have capital facilities plan to ensure such growth can be accommodated. It is not anticipated that the future growth from the reasonably foreseeable future actions, in combination with the Proposed Action Alternative, will cause negative cumulative impacts to the study area. The jobs created by the Proposed Action Alternative and reasonably foreseeable future actions are anticipated to have a beneficial cumulative effect on socioeconomic resources in the study area.

GHG – The projects included in the cumulative effects analysis would each contribute to GHG emissions. Although the proposed construction and operation of the Proposed Action Alternative would produce GHG emissions, the project would result in fewer emissions compared with shipping the same amount of freight by truck. As stated, the purpose of the Proposed Action Alternative is to increase efficiency and capacity of rail operations in the port facilities. The efficiency and capacity improvements would result in reduced delay times that contribute to GHG emissions. Reasonably foreseeable future actions would also benefit from these improvements and result in reduced delay times that contribute to GHG emissions. Thus, the Proposed Action Alternative, when considered with reasonably foreseeable future actions, is anticipated to have an overall beneficial cumulative effect on GHG emissions.

# 5.0 COORDINATION AND CONSULTATION

Coordination and consultation with agencies, stakeholder groups, and the public was initiated by the port early during preparation of previous NEPA documents in order to incorporate agency and public comments and concerns into the development and analysis of the project purpose and need, alternatives, and potential resultant environmental impacts. The port is actively engaged in discussions with the various Federal, state, and local agencies as part of other project updates independent from this EA. No additional comments or concerns have been raised as part of those discussions. These discussions are summarized below:

- The port has completed an update to the original NEPA Documented Categorical Exclusion issued by FHWA to address substantive project changes since the FHWA NEPA approval received in 2009 (Appendix U). These project changes have been incorporated into this EA. The FRA is the lead federal agency for this EA as part of the RRIF loan process. The FHWA NEPA approval for the project changes was received in April 2011 (Appendix V).
- As discussed in Threatened and Endangered Species (Section 4.9.2), additional species listings and critical habitat designations have occurred since consultation with NMFS and USFWS was completed in 2009. A BA Addendum was prepared to address these new listings as well as substantive changes to the project that may affect species and critical habitat. A letter of concurrence from NMFS was provided in March 2011 (Appendix I). WSDOT had previously consulted with USFWS and a letter of concurrence was issued in May 2010 (Appendix I).
- The port completed a Supplemental SEPA Mitigated Determination of Non-Significance (MDNS) for the WVFA Project in March 2011. As with the update to FHWA, this Supplemental SEPA MDNS addressed substantive project changes since the previous MDNS received in 2010 (Appendix V). A public comment period was completed during the process. No concerns were raised during the public comment period.
- The port has also completed consultation with EPA for the Sole Source Aquifer Program. The port received approval for the WVFA Project in 2007 from the EPA. Since the approval, detailed design information has become available and potential impacts to the Troutdale Sole Source Aquifer were re-evaluated. The EPA issued approval under the Sole Source Aquifer Program in April 2011 (Appendix E).

The port meets regularly with public interest groups, community agencies, representatives of the Greater Vancouver Chamber of Commerce, neighborhood associations, public school districts, and other community groups and stakeholders. The port also meets with local governments in settings such as the joint meeting of the Port Commission and City Council. Additionally, the port provides information to the public and key agencies through electronic updates (port, City, and County list services), port website updates, news releases (posted as necessary) and the Port Report, a community newsletter published three times a year and distributed to each household in the port district. The port complied with all required public notification and comment periods associated with local, state, and federal permits for the proposal. A summary of the port's community outreach for the WVFA Project is provided in Appendix W.

Permits and approvals received to date for the project are listed in Table 15. Documentation of obtained permits and approvals is in Appendix V. The City of Vancouver Demolition and Grading Permit and Final Engineering Approval would be obtained for individual projects prior to construction. In addition, modifications to the shoreline at Terminal 5 would require an additional Shoreline Substantial Development Permit, Critical Areas Permit, and SEPA Environmental Checklist. Furthermore, it should be noted that since the time of the original FHWA NEPA review, a portion of the port's Terminal 5 has been annexed into the City of Vancouver and all land traversed by the proposed project is now in the City

of Vancouver. Therefore, no further land use or environmental permits are anticipated from Clark County for the Proposed Action Alternative.

<b>Regulatory Approval Requirement</b>	Agency	Date of Approval
NEPA DCE	FHWA / WSDOT	August 13, 2009 – Original April 4, 2011 – Update
CWA Section 404 Permit – NWP 14	Corps NWP-2007-721	July 9, 2009
CWA , 404 Permit – Parcel 1A Modification for NWP	Corps NWP-1994-61	June 12, 2009
Rivers and Harbors Act Section 10 Permit	Corps NWP-2007-721	July 9, 2009
ESA Letter of Concurrence	NMFS NMFS Tracking No: 2008/00841	June 25, 2008 March 28, 2011
ESA Letter of Concurrence	USFWS USFWS Reference # 13410-2008-I- 0655	June 25, 2008 May 18, 2010
Section 106	DAHP Log: 062807-03-FHWA	June 16, 2009
Section 4(f)	FHWA / WSDOT Log: 062807-03-FHWA	August 13, 2009
Sole Source Aquifer Approval	EPA	July 12, 2007 April 1, 2011
Private Aids to Navigation (PATON)	USCG NWP-2007-721	Letter received March 6, 2008 stating PATON not needed.
Hydraulic Project Approval	WA Department of Fish and Wildlife (WDFW) Control Number: 109486-2	Issued July 29, 2008 Updated July 2, 2009
401 Water Quality Certification	Ecology NWP-2007-721	July 9, 2009
Administrative Order 6902 Wetland Fill	Ecology	July 14, 2009
NPDES Construction Permit	Ecology	September 15, 2009 December 10, 2010
Planning Director Review	Clark County	July 31, 2007
Essential Public Facilities Conditional Use Permit	City of Vancouver (City)	April 17, 2008
Shoreline Substantial Development Permit	City	April 17, 2008
Shoreline Conditional Use Permit	Ecology	May 22, 2008
Archaeology Permit	City	April 17, 2008
Critical Areas Permit	City	April 17, 2008
Tree Removal Permit	City	April 17, 2008
Post Decision Review Approval – Tree Removal Permit Critical Areas Permit Archaeology Permit Substantial Shoreline Development Permit Shoreline Conditional Use Permit	City	July 31, 2009

### Table 15. WVFA Project Permits and Approvals

	proveno		
<b>Regulatory Approval Requirement</b>		Agency	Date of Approval
SEPA Mitigated Determination of Non- significance (MDNS)	port		November 2, 2007 – Original April 22, 2009 – Supplemental July 30, 2010 – Addendum March 10, 2011 – Supplemental
Modification for Restrictive Covenant on Parcel	City		February–March 2010

#### **Table 15. WVFA Project Permits and Approvals**

# 6.0 LIST OF PREPARERS

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West Vancouver Freight Access Project – Schedules 2-4 Final Environmental Assessment

# 7.0 ABBREVIATIONS AND ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APE	Area of Potential Effects
AREMA	American Railway Engineering and Maintenance of Way Association
BMP	Best Management Practices
BNSF	BNSF Railway
CMMP	Contaminated Media Management Plan
CFR	Code of Federal Regulations
СО	carbon monoxide
$CO^2$	carbon dioxide
Corps	U.S. Army Corps of Engineers
CPU	Clark Public Utilities
CWA	Clean Water Act
DAHP	Department of Archeology and Historic Preservation
dBA	adjusted decibels
DDE	dichlorodiphenyl-dichloroethylene
DDT	dichlorodiphenyltrichloroethane
DPM	diesel particulate matter
DPS	Distinct Population Segment
EA	Environmental Assessment
Ecology	Washington Department of Ecology
EFH	essential fish habitat
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
GMA	Growth Management Act
IH	Heavy Industrial
LAG	Local Agency Guidelines
Leg	equivalent sound level
Ldn	day-night sound level
LEP	limited English proficiency
LWCFA	Land and Water Conservation Fund Act

large woody debris
Marine Mammal Protection Act
Memorandum of Agreement
Model Toxics Control Act
National Ambient Air Quality Standards
National Environmental Policy Act
National Geodectic Vertical Datum
National Marine Fisheries Service
Northern Pacific
National Pollutant Discharge Elimination System
National Register of Historic Places
noise-sensitive receptor
Nationwide Permit
ordinary high water mark
polycyclic aromatic hydrocarbons
Private Aids to Navigation
polychlorinated biphenyls
pentachlorophenol
Washington State Recreation and Conservation Funding Board
Residential, Commercial/Institutional and Industrial
Revised Code of Washington
river mile
Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
shoreline conditional use permit
State Environmental Policy Act
sound level monitoring
Shoreline Management Act
Shoreline Management Master Program
Shoreline Management Program
shoreline substantial development permit
spill, prevention, containment, and countermeasure
Stormwater Pollution Prevention Plan
Total Maximum Daily Load
tons per year
Transportation Worker Identification Credential
United Grain Corporation
enner ermin conformation
Union Pacific Railroad

USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
VMC	Vancouver Municipal Code
VSR	vibration-sensitive receptor
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resources Inventory Area
WSDOT	Washington State Department of Transportation
WVFA	West Vancouver Freight Access

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# **9.0 APPENDICES**

- Appendix A: Air Quality Discipline Report
- Appendix B: Noise and Vibration Discipline Report
- Appendix C: Transportation Discipline Report
- Appendix D: Geology and Soils Discipline Report
- Appendix E: EPA Approval Letters
- Appendix F: Water Quality Discipline Report
- Appendix G: Wetlands Discipline Report
- Appendix H: Biological Assessment
- Appendix I: ESA Section 7 Letters of Concurrence
- Appendix J: DAHP Section 106 Consultation Correspondence/Memorandum of Agreement
- Appendix K: Section 4(f) Analysis
- Appendix L: Socioeconomics and Environmental Justice Discipline Report
- Appendix M: Land Use and Shorelines Discipline Report
- Appendix N: Hazardous Materials Discipline Report
- Appendix O: Environmental Assessment (2008)
- Appendix P: Kinder Morgan Phase 2 Site Assessment
- Appendix Q: Terminal 4 Pond Phase 2 Site Assessment
- Appendix R: Ecology Approval of Terminal 5 Cap Disturbance
- Appendix S: Ecology Approval of Carborundum Cap Disturbance
- Appendix T: Ecology Approval of North/North 2 Landfill Cap Disturbance
- Appendix U: West Vancouver Freight Access Project Updates
- Appendix V: Federal, State, and Local Approvals
- Appendix W: Community Outreach Summary

