# MILLENNIUM BULK TERMINALS—LONGVIEW NEPA ENVIRONMENTAL IMPACT STATEMENT

# NEPA RAIL TRANSPORTATION TECHNICAL REPORT

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# Acronyms and Abbreviations

| | |
|---|---|
| ABS | Automatic Block Signals |
| Applicant | Millennium Bulk Terminals—Longview, LLC |
| BNSF | BNSF Railway Company |
| Btu | British thermal unit |
| CFR | Code of Federal Regulations |
| CLC | Columbia and Cowlitz Railway |
| CTC | Centralized Traffic Control |
| FHWA | Federal Highway Administration |
| FRA | Federal Railroad Administration |
| LVSW | Longview Switching Company |
| mph | miles per hour |
| NEPA | National Environmental Policy Act |
| PTC | Positive Train Control |
| RCW | Revised Code of Washington |
| SEPA | Washington State Environmental Policy Act |
| TWC | Traffic Warrant Control |
| UP | Union Pacific Railroad |
| USC | United States Code |
| USDOT | U.S. Department of Transportation |
| WAC | Washington Administrative Code |
| WSDOT | Washington State Department of Transportation |
| WUTC | Washington Utilities and Transportation Commission |

# Chapter 1
# Introduction

This technical report assesses the potential rail transportation impacts of the proposed Millennium Bulk Terminals—Longview project (On-Site Alternative), Off-Site Alternative, and No-Action Alternative. For the purposes of this assessment, rail transportation refers to the project-related trains that would service the terminal as well as the type and volume of other rail traffic using the same rail lines. This report describes the regulatory setting, establishes the method for assessing potential rail transportation impacts, presents the historical and current rail transportation conditions in the study area, and assesses potential impacts.

## 1.1 Project Description

Millennium Bulk Terminals—Longview, LLC (Applicant) proposes to construct and operate an export terminal in Cowlitz County, Washington, along the Columbia River (Figure 1). The export terminal would receive coal from the Powder River Basin in Montana and Wyoming and the Uinta Basin in Utah and Colorado via rail shipment, then load and transport the coal by ocean-going ships via the Columbia River and Pacific Ocean to overseas markets in Asia. The export terminal would be capable of receiving, stockpiling, blending, and loading coal by conveyor onto ships for export. Construction of the export terminal would begin in 2018. For the purpose of this analysis, it is assumed the export terminal would operate at full capacity by 2028. The following subsections present a summary of the On-Site Alternative, Off-Site Alternative, and No-Action Alternative.

### 1.1.1 On-Site Alternative

Under the On-Site Alternative, the Applicant would develop an export terminal on 190 acres (project area). The project area is located within an existing 540-acre area currently leased by the Applicant at the former Reynolds Metals Company facility (Reynolds facility), and land currently owned by Bonneville Power Administration. The project area is adjacent to the Columbia River in unincorporated Cowlitz County, Washington near Longview city limits (Figure 2).

The Applicant currently and separately operates at the Reynolds facility, and would continue to separately operate a bulk product terminal on land leased by the Applicant. Industrial Way (State Route 432) provides vehicular access to the Applicant's leased land. The Reynolds Lead and the BNSF Spur rail lines, both operated by Longview Switching Company (LVSW),[1] provide rail access to the Applicant's leased area from the BNSF Railway Company (BNSF) main line (Longview Junction) located to the east in Kelso, Washington. Ships access the Applicant's leased area including the bulk product terminal via the Columbia River and berth at an existing dock (Dock 1) operated by the Applicant in the Columbia River.

[1] LVSW is jointly owned by BNSF Railway Company (BNSF) and Union Pacific Railroad (UP).

**Figure 1. Project Vicinity**

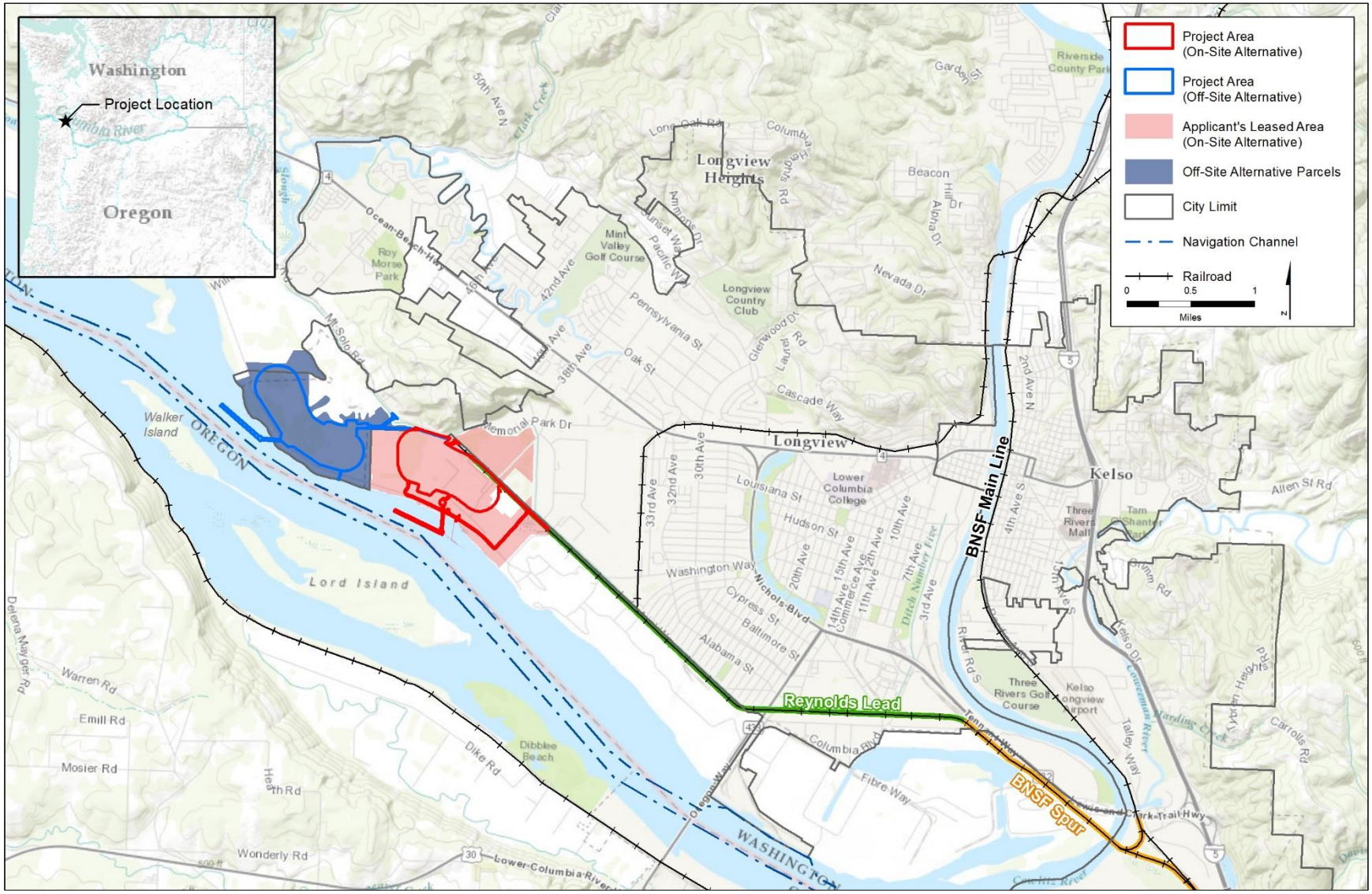
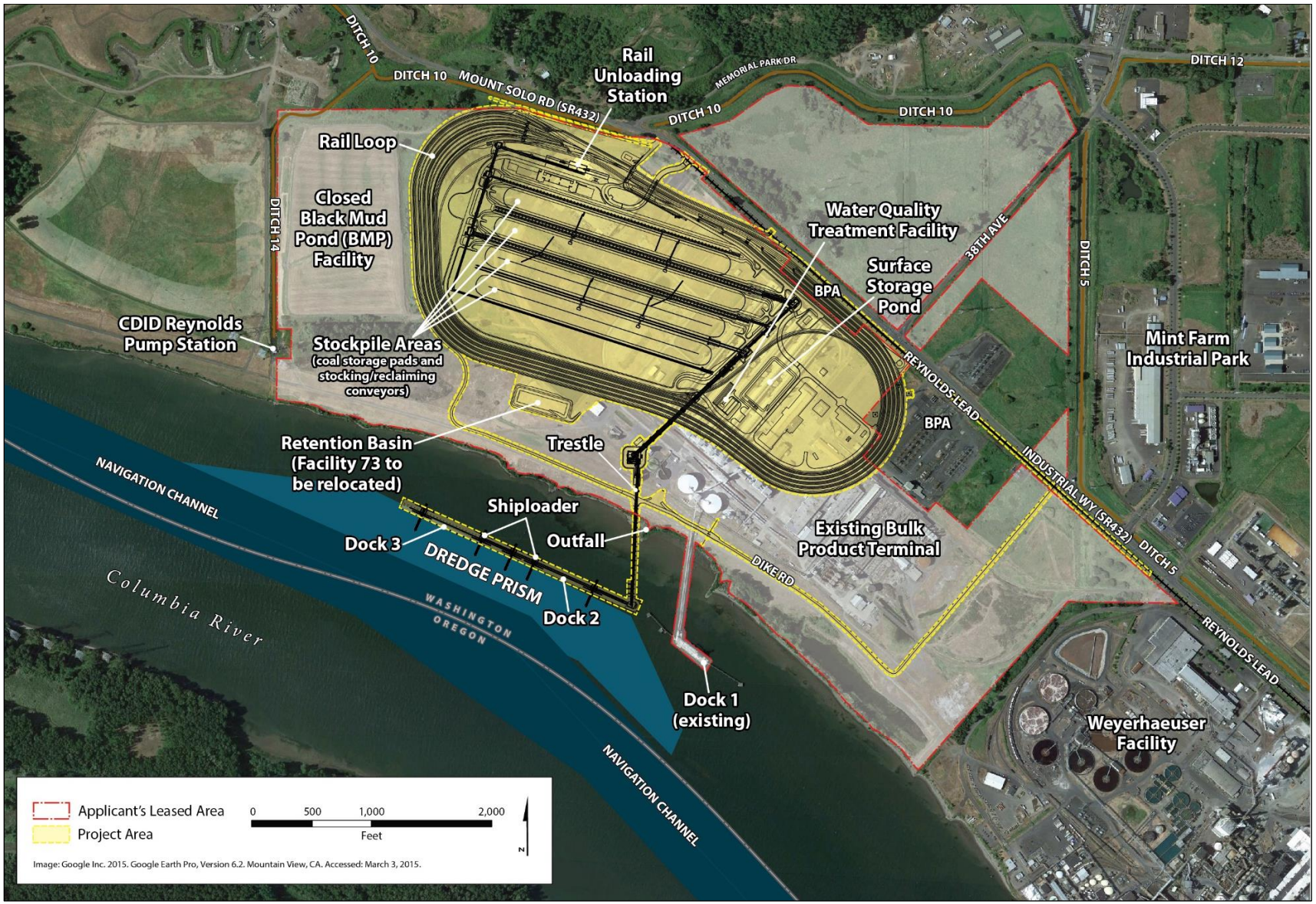


**Figure 2. On-Site Alternative**



Under the On-Site Alternative, BNSF or Union Pacific Railroad (UP) trains would transport coal in rail cars from the BNSF main line at Longview Junction to the project area via the BNSF Spur and Reynolds Lead. Coal would be unloaded from rail cars, stockpiled and blended, and loaded by conveyor onto ocean-going ships at two new docks (Docks 2 and 3) on the Columbia River for export to Asia.

Once construction is complete, the export terminal would have an annual throughput capacity of up to 44 million metric tons of coal.[2] The export terminal would consist of one operating rail track, eight rail tracks for the storage of rail cars, rail car unloading facilities, stockpile areas for coal storage, conveyor and reclaiming facilities, two new docks in the Columbia River (Docks 2 and 3), and ship-loading facilities on the two docks. Dredging of the Columbia River would be required to provide access to and from the Columbia River navigation channel and for berthing at the two new docks.

Vehicles would access the project area from Industrial Way (State Route 432). Ships would access the project area via the Columbia River and berth at one of the two new docks. Trains would access the export terminal via the BNSF Spur and the Reynolds Lead. Terminal operations would occur 24 hours per day, 7 days per week. The export terminal would be designed for a minimum 30-year period of operation.

### 1.1.2 Off-Site Alternative

Under the Off-Site Alternative, the export terminal would be developed on an approximately 220-acre site adjacent to the Columbia River, located in both Longview, Washington, and unincorporated Cowlitz County, Washington, in an area commonly referred to as Barlow Point (Figure 3). The project area for the Off-Site Alternative is west and downstream of the project area for the On-Site Alternative. Most of the project area for the Off-Site Alternative is located within Longview city limits and owned by the Port of Longview. The remainder of the project area is within unincorporated Cowlitz County and privately owned.

Under the Off-Site Alternative, BNSF or UP trains would transport coal from the BNSF main line at Longview Junction over the BNSF Spur and the Reynolds Lead, which would be extended approximately 2,500 feet to the west. Coal would be unloaded from rail cars, stockpiled and blended, and loaded by conveyor onto ocean-going ships at two new docks (Docks A and B) on the Columbia River. The Off-Site Alternative would serve the same purpose as the On-Site Alternative.

Once construction is complete, the Off-Site Alternative would have an annual throughput capacity of up to 44 million metric tons of coal. The export terminal would consist of the same elements as the On-Site Alternative: one operating rail track, eight rail tracks for the storage of rail cars, rail car unloading facilities, stockpile areas for coal storage, conveyor and reclaiming facilities, two new docks in the Columbia River (Docks A and B), and ship-loading facilities on the two docks. Dredging of the Columbia River would be required to provide access to and from the Columbia River navigation channel and for berthing at the two new docks.

[2] A metric ton is the U.S. equivalent to a tonne per the International System of Units, or 1,000 kilograms or approximately 2,204.6 pounds.

Vehicles would access the project area via a new access road extending from Mount Solo Road (State Route 432) to the project area. Trains would access the terminal via the BNSF Spur and the extended Reynolds Lead. Ships would access the project area via the Columbia River and berth at one of the two new docks. Terminal operations would occur 24 hours per day, 7 days per week. The export terminal would be designed for a minimum 30-year period of operation.

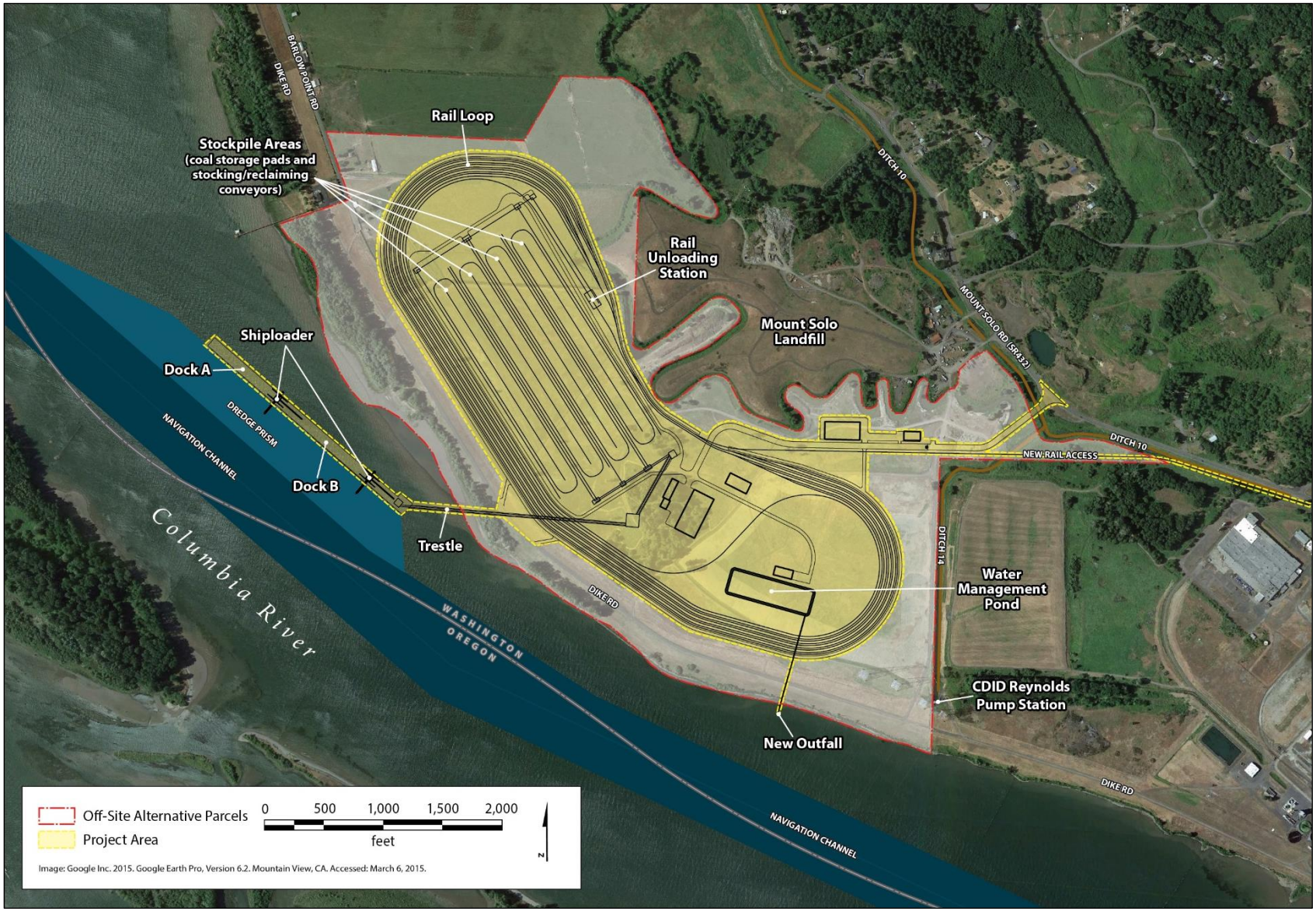
### 1.1.3 No-Action Alternative

Under the No-Action Alternative, the U.S. Army Corps of Engineers would not issue the requested Department of the Army permit under the Clean Water Act Section 404 and the Rivers and Harbors Act Section 10. This permit is necessary to allow the Applicant to construct and operate the proposed export terminal.

The Applicant plans to continue operating its existing bulk product terminal located adjacent to the On-Site Alternative project area, as well as expand this business whether or not a Department of the Army permit is issued. Ongoing operations would include storing and transporting alumina and small quantities of coal, and continued use of Dock 1. Maintenance of the existing bulk product terminal would continue, including maintenance dredging at the existing dock every 2 to 3 years. Under the terms of an existing lease, expanded operations could include increased storage and upland transfer of bulk products utilizing new and existing buildings. The Applicant would likely undertake demolition, construction, and other related activities to develop expanded bulk product terminal facilities.

In addition to the current and planned activities, if the requested permit is not issued, the Applicant would intend to expand its bulk product terminal business onto areas that would have been subject to construction and operation of the proposed export terminal. In 2014, the Applicant described a future expansion scenario under No-Action Alternative that would involve handling bulk materials already permitted for off-loading at Dock 1. Additional bulk product transfer activities could involve products such as a calcine pet coke, coal tar pitch, cement, fly ash, and sand or gravel. While future expansion of the Applicant's bulk product terminal business might not be limited to this scenario, it was analyzed to help provide context to a No-Action Alternative evaluation and because it is a reasonably foreseeable consequence of a Department of the Army denial.

**Figure 3. Off-Site Alternative**



# 1.2 Regulatory Setting

The jurisdictional authorities and corresponding regulations, statutes, and guidance for determining potential impacts on rail transportation are summarized in Table 1.

**Table 1. Regulations, Statutes, and Guidelines for Rail Transportation**

| Regulation, Statute, Guideline | Description |
|---|---|
| **Federal** | |
| National Environmental Policy Act (42 USC 4321 *et seq*.) | Requires the consideration of potential environmental effects. NEPA implementation procedures are set forth in the President's Council on Environmental Quality's Regulations for Implementing NEPA (49 CFR 1105). |
| U.S. Army Corps of Engineers NEPA Environmental Regulations (33 CFR 230) | Provides guidance for implementing the procedural provisions of NEPA for the Corps. It supplements CEQ regulations 40 CFR 1500–1508. |
| Federal Railroad Safety Act of 1970 | Gives FRA rulemaking authority over all areas of rail line safety. FRA has designated that state and local law enforcement agencies have jurisdiction over most aspects of highway/rail grade crossings, including warning devices and traffic law enforcement. |
| Highway Safety Act and the Federal Railroad Safety Act | Gives FHWA and FRA regulatory jurisdiction over safety at federal highway/rail grade crossings. USDOT has promulgated rules addressing grade-crossing safety and provides funding for installation and improvement of warning devices. FRA has issued rules that impose minimum maintenance, inspection, and testing standards for at-grade crossing warning devices for highway/rail grade crossings on federal highways and state and local roads (49 CFR Parts 234–236). |
| Federal Railroad Administration general regulations (49 CFR Parts 200–299) | Regulates safety, including operations, engineers, and crew (e.g., control of alcohol and drug use), track, signaling, and rolling stock (e.g., locomotives and passenger and freight cars) for common carrier rail lines that are part of the general rail line system of transportation. |
| Interstate Commerce Commission Termination Act of 1995 (49 USC 101) | Establishes the Surface Transportation Board and upholds the common carrier obligations of railroads; requires railroads to provide service upon reasonable request. |
| **State** | |
| Washington State Environmental Policy Act (WAC 197-11, RCW 43.21C) | Requires state and local agencies in Washington to identify potential environmental impacts that could result from governmental decisions. |
| Washington Utilities and Transportation Commission | Inspects and issues violations for hazardous materials, tracks, signal and train control, and rail operations. WUTC regulates the construction, closure, or modification of public railroad crossings. In addition, WUTC inspects and issues defect notices if a crossing does not meet minimum standards. However, WUTC has no jurisdiction over public crossings in first-class cities.[a] |

| Regulation, Statute, Guideline | Description |
|---|---|
| WSDOT Local Agency Guidelines M 36-63.28, June 2015, Chapter 32, Railroad/Highway Crossing Program | Focuses on adding protection that improves safety and efficiency of railroad/highway crossings. Provides a process for investigating alternatives for improving grade-crossing safety, such as closure, consolidation, and installation of warning devices. |
| WSDOT Design Manual M 22.01.10, November 2015, Chapter 1350, Railroad Grade Crossings | Provides specific guidance for the design of at-grade railroad crossings. |
| Rail Companies—Operation (480-62 WAC) | Establishes operating procedures for railroad companies operating in Washington State. Includes general and procedural rules, safety rules, reporting requirement rules, and the establishment and distribution of a grade-crossing protective fund. |
| **Local** | |
| Cowlitz County SEPA Regulations (CCC Code 19.11) | Provide for the implementation of SEPA in Cowlitz County. |
| Longview Municipal Code 11.40.080 (Railroad Trains Not to Block Streets) | Prohibits trains from using any street or highway for a period of time longer than five minutes, except trains or cars in motion other than those engaged in switching activities. |

Notes:

[a] Per RCW 35.01.01, a first-class city is a city with a population of 10,000 or more at the time of organization or reorganization that has adopted a charter.

USC = United States Code; NEPA = National Environmental Policy Act; CFR = Code of Federal Regulations; FRA = Federal Railroad Administration; FHWA = Federal Highway Administration; USDOT = U.S. Department of Transportation; WAC = Washington Administrative Code; RCW = Revised Code of Washington; WUTC = Washington Utilities and Transportation Commission; WSDOT = Washington State Department of Transportation; CCC = Cowlitz County Code

The Surface Transportation Board (STB) oversees the nation's freight rail system. STB has regulatory jurisdiction over the reasonableness of rates railroads charge shippers, mergers, line acquisitions, new rail-line construction,[3] and abandonments of existing rail lines. Because the proposed project would not construct new rail lines or meet the criteria of STB's other jurisdiction, it is not subject to STB review.

# 1.3 Study Area

The study area for direct impacts is the project area for both the On-Site Alternative and Off-Site Alternative. For indirect impacts, the study area includes the project area and the rail corridor of the Longview industrial area, which was defined as the rail corridor (Reynolds Lead and BNSF Spur) between the project area and the junction with the BNSF main line (Longview Junction).

[3] The Surface Transportation Board (STB) grants the authority to construct and operate proposed rail lines and associated facilities under 49 USC § 10901.

# Chapter 2
# Affected Environment

This chapter describes the methods for identifying the affected environment and determining impacts, and describes the affected environment in the study areas as they pertain to rail transportation.

## 2.1 Methods

This section describes the sources of information and methods used to characterize the affected environment and assess the potential impacts of the On-Site Alternative, Off-Site Alternative, and No-Action Alternative on rail transportation.

### 2.1.1 Data Sources

Existing and projected rail traffic for the Reynolds Lead and BNSF Spur were based on information from LVSW as operator of the Reynolds Lead and BNSF Spur and field observations. The following information sources were used for project-related rail operations.

- **Volumes.** Project-related rail traffic to the project areas for the On-Site Alternative or Off-Site Alternative at full operations would include 8 loaded trains per day and 8 empty trains per day. The types and number of trains from Longview Junction to the project area for 2015 and 2028 were developed from meetings with LVSW and the Port of Longview. Rail traffic in 2028 under the No-Action Alternative would require approximately 2 additional trains per day.
- **Train parameters.** Train parameters including the number of rail cars per unit train and locomotives were based on information provided by the Applicant, input from BNSF, and existing BNSF coal train operations.
- **Reynolds Lead, BNSF Spur, and project area operations**. Train operations on the Reynolds Lead, BNSF Spur, and in the project areas was based on information provided by LVSW and the Applicant.

### 2.1.2 Impact Analysis

LVSW has indicated it would expand system capacity as needed to meet additional future volume increases. LVSW would likely upgrade the traffic control technology on both the BNSF Spur and the Reynolds Lead from Traffic Warrant Control (TWC)[4] to Centralized Traffic Control (CTC).[5] However, this improvement is not currently funded or authorized. In addition to converting to the CTC system,

[4] Under this control system, train crews obtain authority to occupy and move on a main track from the dispatcher in the form of a completed track warrant form. Usually the track warrant information is transmitted to the train crew by phone, radio, or electronic transmission to the locomotive.

[5] With CTC, electrical circuits monitor the location of trains, allowing dispatchers to control train movements from a remote location, usually a central dispatching office. The signal system prevents trains from being authorized to enter sections of track occupied by other trains moving in the opposite direction.

LVSW indicated it would upgrade the track on the Reynolds Lead and BNSF Spur by adding ballast, replacing ties, and upgrading the rails. These improvements would provide safer operation and increase maximum speed from 10 miles per hour (mph) to 25 mph on the Reynolds Lead. The speed limit on the BNSF Spur is limited by the Cowlitz River Bridge, and so would remain at 10 mph. LVSW would also install a remotely operated electric switch connecting the BNSF Spur to the Reynolds Lead to allow continuous movement and more consistent operation. The electronic switch would eliminate the need for project-related trains to stop while a train crew member operates the switch (Wolter pers. comm.). While LVSW has developed upgrade plans, it has not begun work or applied for permits. Construction of these improvements would take approximately 6 months. LVSW would start the permit and project funding processes once future volume increases become reasonably certain. Because these improvements are not certain, the impact analysis analyzes infrastructure with and without these planned improvements.

For the purposes of this analysis, potential impacts during operations is based on the Applicant's planned throughput capacity (up to 44 million metric tons per year), which would require 8 loaded and 8 empty trains per day on the Reynolds Lead and BNSF Spur. No rail construction outside of the project area for the On-Site Alternative and Off-Site Alternative is proposed by the Applicant. The following methods and assumptions were used to evaluate the potential impacts of the On-Site Alternative, Off-Site Alternative, and No-Action Alternative on rail transportation.

- **Train speed and travel time from Longview Junction to project area.** The maximum speed over the Reynolds Lead could increase from 10 mph to up to 25 mph if track improvements are made by LVSW, which would reduce the train travel time from Longview Junction to the project area from approximately 49 minutes to approximately 32 minutes. For purposes of this analysis, it is assumed that project-related trains would reach a maximum speed of 20 mph if the planned improvements were made, with an average speed of approximately 11 mph. However, also included is an analysis of train speeds and transit time over each road crossing assuming the planned improvements are not made. Trains would accelerate or decelerate at various points along the route approaching switches. Estimates of train speeds were used to estimate the time trains would transit each road crossing. The analysis assumes that none of the improvements would be made to the road crossings as proposed in WSDOT's *State Route 432 Rail Realignment and Highway Improvements Project* (Parsons Brinckerhoff 2014).
- **Project-related train parameters.** The number of cars per train and number of locomotives are based on information provided by the Applicant. The coal car type, tare weight,[6] length, and capacity are based on a typical aluminum rotary coal gondola rail cars. The parameters of project-related trains that would service the project area are summarized in Table 2. For purposes of this analysis, all project-related trains are assumed to have the characteristics shown in Table 2.

  According to the Applicant, rail operations would support export terminal throughput of 40 million metric tons per year. The proposed project is based on a throughput of up to 44 million metric tons per year. The Applicant assumes a 10% increase in throughput (4 million metric tons per year) is possible with rail car capacity increases through process efficiencies and technological improvements by 2028.

[6] Weight of the empty railcar.

**Table 2. Project-Related Train Parameters**

| | |
|---|---|
| **Rail Cars** | |
| Type | Alum Rotary Gondola |
| Gross rail load (tons) | 143 |
| Tare weight (tons) | 20.9 |
| Lading per car (tons) | 122.1 |
| Coupled Length (feet) | 53 |
| **Locomotives** | |
| Type | 4400 HP AC |
| Weight (tons) | 216 |
| Length (feet) | 73 |
| Number in train[a] | 3 |
| Configuration[b] | 2-0-1 |
| **Total Train** | |
| Cars per train[b] | 125 |
| Total lading weight (tons) | 15,263 |
| Total tare weight of cars (tons) | 2,613 |
| Weight locomotives (tons) | 648 |
| Total train weight (tons) | 18,524 |
| Total train length (feet) | 6,844 |

[a] Three locomotives and 125 cars are consistent with current BNSF operations (URS Corporation 2014).

[b] Locomotives are distributed through trains (distributed power) in various configurations. Project-related trains would likely have two locomotives at the head and one at the rear of the train (Wolter pers.comm.; verified by field observations December 4, 2014).

- **Rail line capacity.** The capacity of a rail line is generally determined by the number of main tracks, speed, distance, and train parameters. Train speed on the Reynolds Lead and BNSF Spur was estimated using a simulation model.[7] Theoretical capacity[8] was then calculated by plotting time and distance and adjusting to consider trains moving in opposite directions on one main track.
- **Baseline rail traffic.** The types and number of trains between Longview Junction and the project area for existing year and 2028 were developed from meetings with LVSW and the Port of Longview.

[7] Inputs to the model were locomotive horsepower, train length and weight, number of axles, cross section, air brake pounds per square inch, a resistance factor, track grade, and track curvature.

[8] Theoretical capacity is the number of trains that could run over a route in a mathematically generated environment with minimum spacing between trains.

# 2.2 Affected Environment

As described in Section 1.1.1, *On-Site Alternative,* the On-Site Alternative project area is located on 190 acres of a 540-acre existing industrial site. The project area is located on the Reynolds Lead, an existing rail line that serves several industries and connects via the BNSF Spur to the BNSF main line approximately 7 miles away at Longview Junction.

As described in Section 1.1.2, *Off-Site Alternative,* the Off-Site Alternative project area is located on approximately 220 acres adjacent to the Columbia River. The track infrastructure leading to the project area and rail operations is the same as the On-Site Alternative, except that the Reynolds Lead would need to be extended approximately 0.5 mile to extend to the location of the Off-Site Alternative terminal location.

The route along the Reynolds Lead and BNSF Spur has a single main track with TWC (no signals). Two sidings on the Reynolds Lead are currently used to interchange cars with the Columbia and Cowlitz Railway (CLC).[9] Speed limit on the line is 10 mph. At an average speed of 9 mph (allowing for slowing and accelerating at various locations), train travel time from Longview Junction to the On-Site Alternative project area under current conditions is approximately 49 minutes.

## 2.2.1 BNSF and Reynolds Lead

Table 3 summarizes current baseline traffic data for the BNSF Spur and Reynolds Lead to and from the Port of Longview or other industrial customers. The table also includes the estimated train size and average passing time at road crossings and the weighted average of baseline trains per day passing at road crossings. The train counts include both loaded and empty trains.[10]

Between Longview Junction and the project area there are five public at-grade road crossings (Figure 4). These road crossings experience rail traffic from current train operations to and from the Port of Longview and/or from industrial switching activities at locations along the Reynolds Lead. Each project-related train, loaded and empty, would also cross roads at these locations. This section analyzes the train volume and train crossing times at each of these road crossings. The analysis assumes no improvements would be made to the crossings.

[9] CLC is owned by Patriot Rail. It primarily provides switching service inside the Weyerhaeuser plant and serves a few industries. All cars to or from CLC are handled by LVSW for interchange to BNSF and UP. CLC interchanges with LVSW at two sidings on the Reynolds Lead near the LVSW yard.

[10] Train count and train size estimates include both loaded and empty cars based LVSW (pers. comm.) and Port of Longview (pers. comm.). These estimates are similar to those reported in Parsons Brinckerhoff (2014), which shows 450 loaded cars per day.

**Table 3. Baseline Rail Traffic on the BNSF Spur and Reynolds Lead**

| | Trains/ Day | Days/ Week | Trains/ Year | Cars/ Train | Locomotives/ Train | Train Length (Feet)[d] | Estimated Passing Time (Minutes)[e] | Weighted Average Trains per Day over Road Crossings | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | BNSF Spur crossing of Dike Road | Reynolds Lead crossing of 3rd Avenue (SR 432) | Reynolds Lead crossing of California Way | Reynolds Lead crossing of Oregon Way | Reynolds Lead crossing of Industrial Way |
| CLC trains interchange to/from LVSW rail line[a,b] | 2 | 5 | 520 | 15 | 2 | 1,065 | 1.2 | | | | 1.42 | 1.42 |
| LVSW rail line interchange to/from CLC[a,b] | 2 | 5 | 520 | 15 | 2 | 1,093 | 1.2 | | 1.42 | 1.42 | | |
| Reynolds Lead Industry local crew[a,c] | 2 | 3 | 312 | 30 | 2 | 2,068 | 2.4 | | 0.85 | 0.85 | 0.85 | 0.85 |
| Manifest trains from Longview Junction yard to LVSW yard[a,f] | 4 | 5 | 1,040 | 30 | 2 | 2,068 | 2.4 | 2.85 | | | | |
| Grain unit trains to/from EGT[a,g] | 4 | 7 | 1,456 | 110 | 3 | 6,819 | 7.7 | 3.99 | | | | |
| Clay, soda ash and other Port unit trains[a,h] | 2 | 1 | 104 | 110 | 3 | 6,819 | 7.7 | 0.28 | | | | |
| Weighted Average Trains/day | | | | | | | | 7.12 | 2.28 | 2.28 | 2.28 | 2.28 |
| Weighted Average Length (feet) | | | | | | | | 4,919 | 1,459 | 1,459 | 1,441 | 1,441 |
| Weighted Average Cars/train | | | | | | | | 78 | 21 | 21 | 21 | 21 |

[a] Source: Wolter pers. comm.

[b] CLC switch crew from Weyerhaeuser plant delivers and picks up cars to/from interchange sidings just west of California Way. LVSW switch crew from LVSW yard delivers and picks up cars to/from interchange sidings just west of California Way.

[c] Crew works afternoon shift 5 days/week but serves Reynolds Lead 3 days/week. Cars per train range from 5 to 30 depending on whether train is delivering coal or alumina or to the Port of Longview.

[d] Car length is average of car types handled (Wolter pers. comm.) and Hellerworx observations, December 3, 2014. Locomotive type based on Hellerworx observations, December 3, 2014.

[e] Based on 10 mph average speed.

[f] Manifest movements between Longview Junction yard and LVSW yard across bridge are generally cuts of cars moving as a yard transfer (Wolter pers. comm.). Occasionally LVSW yardmaster will direct BNSF or UP road crew to bring a manifest train off BNSF main line into the LVSW yard instead of switching it in Longview Junction yard because most of the cars on the train are destined to the Port of Longview.

[g] EGT capacity for 4 trains per day but current volume is 2 (Wolter pers. comm.). Train size is BNSF standard grain unit shuttle train, 110 cars. Number of locomotives on grain unit trains and locomotive configuration (Wolter pers. comm.). Locomotive specs same as projected coal trains 3 GE AC 4400 units; 2 loaded and 2 empty trains per day.

[h] Miscellaneous Port of Longview unit trains carry the following products: clay,1 train per month; soda ash, 2 or 3 trains per month; a few unit trains per year of potash and urea (Port of Longview pers. comm.) Volume estimates provided by Wolter (pers.comm.), LVSW (pers.comm.), and Port of Longview (pers. comm.). Estimated train length and locomotives provided by Wolter (pers. comm.), LVSW (pers. comm.), and Hellerworx experience. Port of Longview manifest traffic crossing the dike road is included in manifest traffic between the Longview Junction yard and LVSW yard.

CLC = Columbia and Cowlitz Railway; LVSW = Longview Switching Company; mph = miles per hour

**Figure 4a. BNSF Spur and Reynolds Lead**

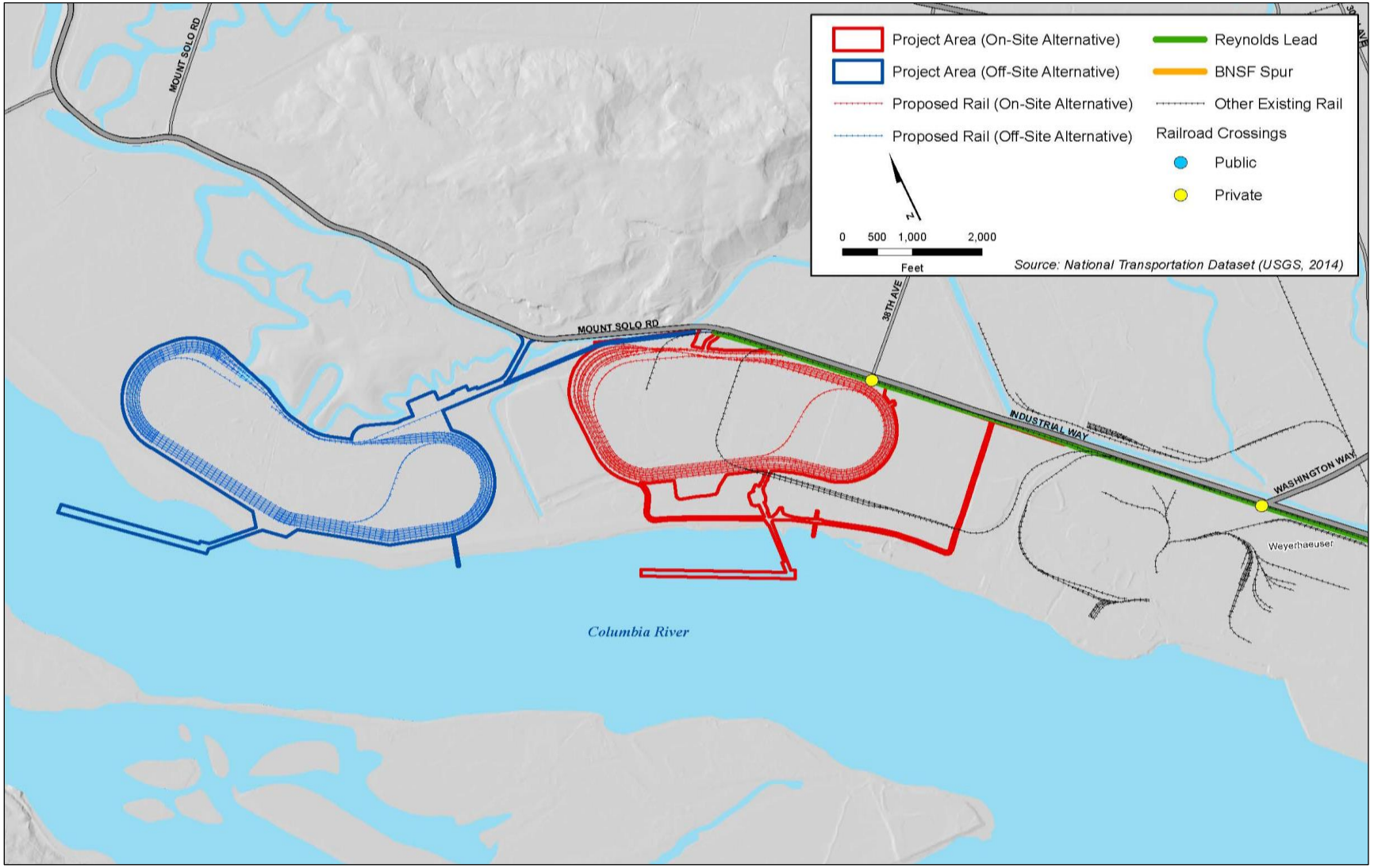


**Figure 4b. BNSF Spur and Reynolds Lead**

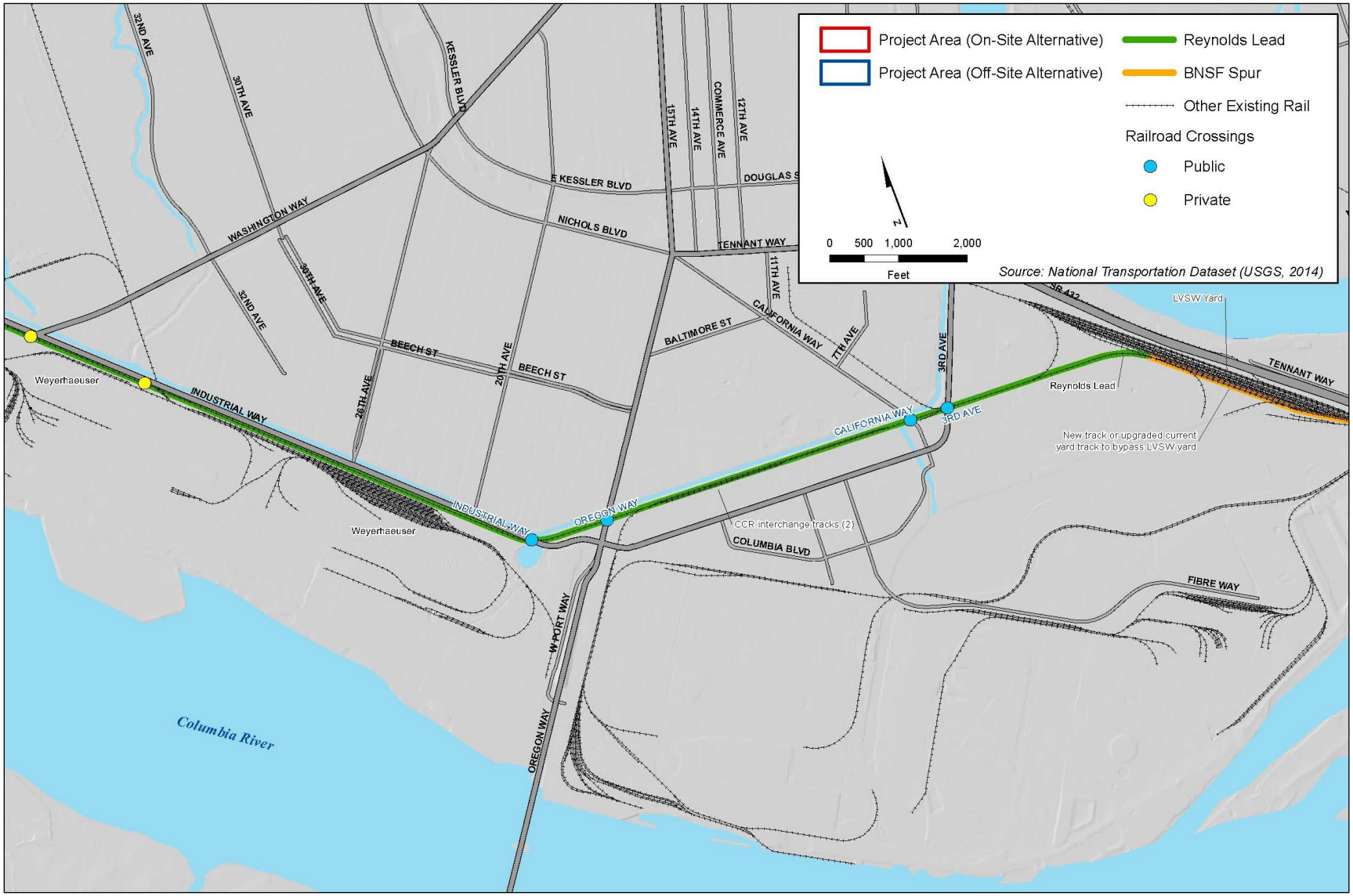
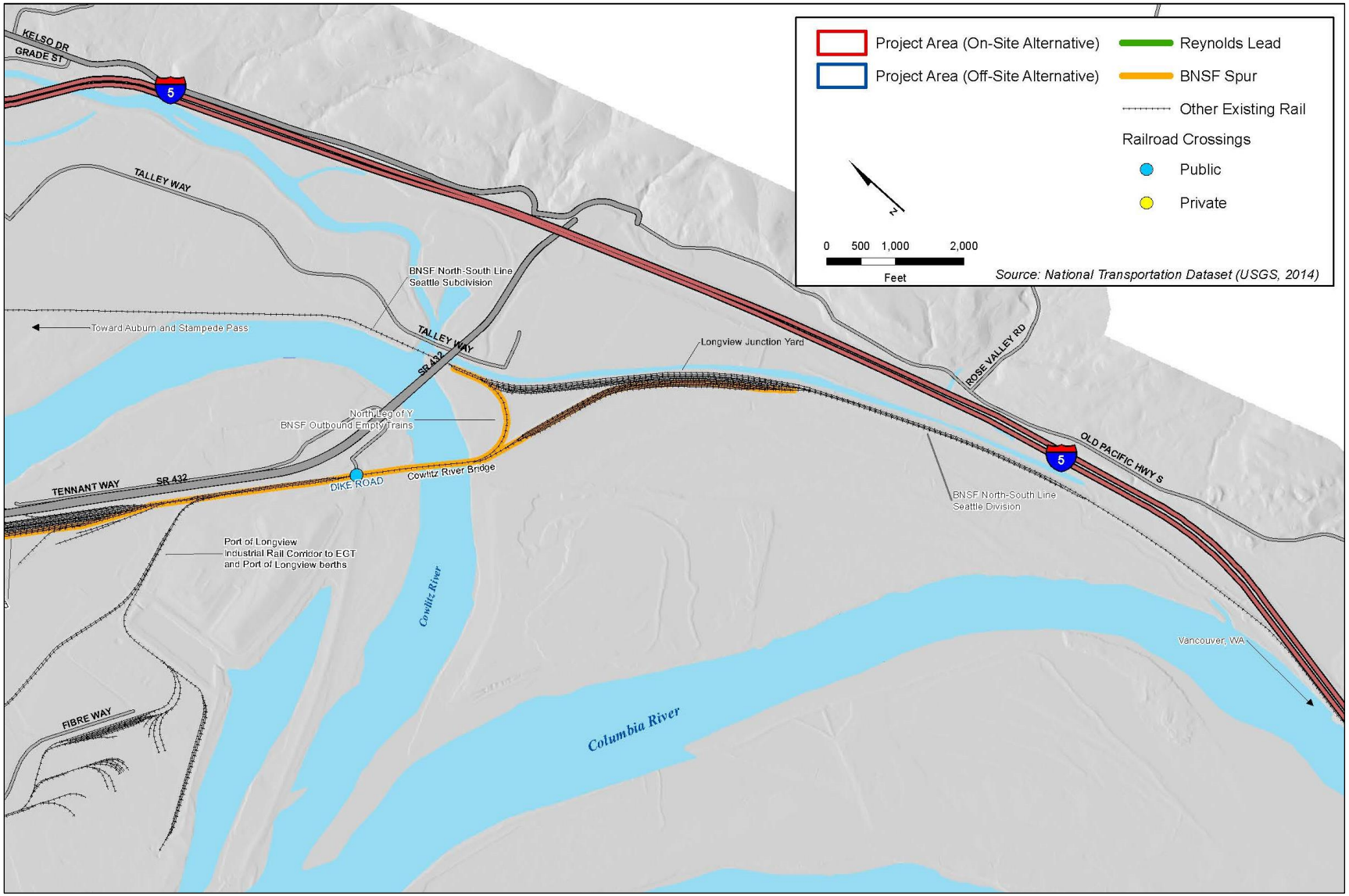


**Figure 4c. BNSF Spur and Reynolds Lead**



#### 2.2.1.1 BNSF Spur

The BNSF Spur runs from the BNSF Seattle Subdivision mainline switch, across the Cowlitz River Bridge, to the LVSW yard. Baseline traffic on the BNSF Spur is approximately 7 trains (or switch movements) per day. The Port Industrial Rail Corridor connects with the BNSF Spur just east of the LVSW yard. Trains to or from the EGT, LLC and other Port of Longview facilities leave or enter the BNSF Spur at the Industrial Rail Corridor switch. Other trains originate or terminate in the LVSW yard. Dike Road is the only at-grade road crossing on the BNSF Spur. All 7 trains per day (on average) on the BNSF Spur cross Dike Road.

The switch from the BNSF Spur to the Port Industrial Rail Corridor is a remotely controlled switch operated by the BNSF dispatcher. The speed limit through this area is 10 mph because of speed restrictions on the bridge. There is one main track, and traffic control is TWC. The capacity of the BNSF Spur is approximately 24 trains per day, which supports the current volume.

#### 2.2.1.2 Reynolds Lead

The Reynolds Lead runs from the west end of the LVSW yard to the project area. There is one main track with TWC traffic control. The current speed limit is 10 mph. Capacity is approximately 24 trains per day. Baseline traffic is just more than 2 trains per day, on average. Trains operating on the Reynolds Lead include an LVSW local crew that places and pulls cars at industrial facilities located along the Reynolds Lead 3 days per week and a local crew that delivers and picks up cars that are interchanged to and from the CLC at two sidings just west of California Way. CLC also operates on the Reynolds Lead between the Weyerhaeuser plant near Industrial Way and these sidings to deliver and pick up interchange cars to or from the LVSW rail line.

The Reynolds Lead ends at the project area of the On-Site Alternative. There are four public at-grade road crossings on the Reynolds Lead between the LVSW yard and the project area (Figure 4). Not all of the trains cross each of these roads. The LVSW local crew switching industries on the Reynolds Lead crosses all four roads twice. The LVSW crew that interchanges cars to the CLC on the sidings crosses 3rd Avenue and California Way twice. The CLC crew interchanging cars to the LVSW rail line crosses twice over Oregon Way and Industrial Way on the way to the sidings.

# Chapter 3
# Impacts

This chapter describes the pontential impacts on rail transportation that would result from construction and operation of the On-Site Alternative or the Off-Site Alternative, and the conditions under the No-Action Alternative.

## 3.1 On-Site Alternative

This section describes the potential impacts that could occur in the study area as a result of construction and operation of the On-Site Alternative.

### 3.1.1 Construction: Direct Impacts

The Reynolds Lead would be modified in the project area to accommodate unit train access to and from the export terminal. Because the project area is at the terminus of the Reynolds Lead, this construction would not affect existing rail traffic on the Reynolds Lead. Under the rail delivery scenario, trains transporting construction materials would travel to and from the project area. The unloading and maneuvering of project-related trains during construction in the project area would not affect the operations of existing rail traffic on the Reynolds Lead.

### 3.1.2 Construction: Indirect Impacts

Construction of the On-Site Alternative would result in the following indirect impact if construction materials are delivered by rail.

**Add Temporary Rail Traffic for Transport of Construction Materials**

The Applicant has stated that 2.1 million yards of suitable material would be needed for construction. This material would be transported to the project area by truck or rail. The Applicant estimates approximately two-thirds of the volume (1.4 million yards) would move during the first year of construction. The Applicant has further stated moving the suitable material by rail would require an estimated 350 loaded trains of 100 cars each, equivalent to 700 trains (loaded and empty) over the construction period. During the first year of construction, when two–thirds of the volume would be transported, this would amount to approximately 467 trains or an average of 1.3 trains per day.

The baseline rail traffic from Longview Junction to the LVSW yard (BNSF Spur) is approximately 7 trains per day. Baseline trains consist of approximately 4 grain trains per day (2 loaded and 2 empty) to/from the EGT grain terminal at the Port of Longview, 2 to 3 manifest trains per day from the BNSF main line to the LVSW yard, and an occasional unit train of clay, soda ash, or other trains destined to or from the Port of Longview. From the LVSW yard to the project area (Reynolds Lead), the baseline volume is approximately 2 trains per day. Therefore, baseline rail traffic and project-related construction trains would not exceed capacity of the Reynolds Lead and BNSF Spur.

## 3.1.3 Operations: Direct Impacts

Operations of the On-Site Alternative would not result in any direct impacts on rail traffic. During operations, 8 loaded trains would travel to the project area daily, and 8 empty trains would travel from the project area daily. These trains would maneuver along the rail loop in the project area and would not affect rail traffic operations on the Reynolds Lead.

## 3.1.4 Operations: Indirect Impacts

Operation of the On-Site Alternative would result in the following indirect impact.

**Add Rail Traffic on the BNSF Spur and Reynolds Lead**

Operation of the On-Site Alternative would require moving loaded project-related trains from the Longview Junction to the project area and moving empty trains from the project area to Longview Junction. The Applicant has projected shipping tonnage for three phases of operation: Start Up, Stage 1, and Stage 2. Projected average coal volumes per year and per month and the corresponding number of loaded trains per month and per day are shown in Table 4. At full capacity, the export terminal would receive an average of 8 loaded trains and return an average of 8 empty and 8 loaded project-related trains per day in 2028.

**Table 4. Loaded Train and Volume Forecast**

| | Start Up | Stage 1 | Stage 2 |
|---|---|---|---|
| Throughput (metric tons/year) | 10,000,000 | 25,000,000 | 44,000,000 |
| Average train loaded trains/day | 2 | 5 | 8 |

The baseline volume in 2028 is estimated to be an average of 7 trains per day on the BNSF Spur and 4 trains per day on the Reynolds Lead (2 existing trains and 2 trains with the No-Action Alternative). Project-related trains would add 16 trains per day (8 loaded and 8 empty) on each of these segments for a total of 23 trains on the BNSF Spur and 20 trains on the Reynolds Lead. The Reynolds Lead and BNSF Spur have the capacity to handle baseline and project-related rail traffic.

As described previously, LVSW has indicated it would expand system capacity as needed to meet additional future volume increases. LVSW would likely upgrade the traffic control technology on both the BNSF Spur and the Reynolds Lead from TWC to CTC. However, this improvement is not currently funded or authorized. In addition to converting to the CTC system, LVSW indicated it would upgrade the track on the Reynolds Lead and BNSF Spur by adding ballast, replacing ties, and upgrading the rails. These improvements would provide safer operation and increase maximum speed from 10 mph to 25 mph on the Reynolds Lead. The speed limit on the BNSF Spur is limited by the Cowlitz River Bridge, and so would remain at 10 mph. LVSW would also install a remotely operated electric switch connecting the BNSF Spur to the Reynolds Lead to allow continuous movement and more consistent operation. The electronic switch would eliminate the need for project-related trains to stop while a train crew member operates the switch. While LVSW has developed upgrade plans, it has not begun work or applied for permits. LVSW would start the permit and project funding processes once future volume increases become reasonably certain.

Table 5 provides additional information on anticipated operations over the Reynolds Lead and BNSF Spur, including the expected average time for project-related trains to cross each of the road crossings with the existing track infrastructure and with the planned infrastructure improvements.

# 3.2 Off-Site Alternative

This section describes the potential impacts that would occur in the study area as a result of construction and operation of the Off-Site Alternative.

## 3.2.1 Construction: Direct Impacts

Construction of the Off-Site Alternative would result in the following direct impact on rail transportation.

**Extend the Reynolds Lead**

The Off-Site Alternative would require construction of about 2,500 feet of additional track in the project area of the Off-Site Alternative to extend the Reynolds Lead to accommodate unit train access to and from the project area. Because the project area is at the terminus of the Reynolds Lead, this construction would not affect existing rail traffic on the Reynolds Lead. Under the rail delivery scenario, trains transporting construction materials would travel to and from the project area. The unloading and maneuvering of these trains during construction in the project area would not affect the operations of existing rail traffic on the Reynolds Lead.

## 3.2.2 Construction: Indirect Impacts

Construction of the Off-Site Alternative would result in the same indirect impacts as described for the On-Site Alternative.

## 3.2.3 Operations: Direct Impacts

During operations, 8 loaded trains would travel to the project area daily, and 8 empty trains would travel outbound from the project area daily. These trains would maneuver along the rail loop in the project area. Rail traffic operations in the project area would not affect rail traffic on the Reynolds Lead because rail operations would be limited to the project area.

## 3.2.4 Operations: Indirect Impacts

Operation of the Off-Site Alternative would result in the same indirect impacts on rail traffic as described for the On-Site Alternative.

**Table 5. BNSF Spur and Reynolds Lead Operations Detail—Incoming and Outgoing Project-Related Trains[a]**

| | West end of Cowlitz River Bridge, crossing of Dike Road | Port of Longview Central Corridor Switch | Reynolds Lead Switch | Reynolds Lead Crossing of 3rd Avenue | Reynolds Lead Crossing of California Way (Loaded/Empty) | CCR Interchange Sidings (Loaded/Empty) | Reynolds Lead Crossing of Oregon Way | Reynolds Lead Crossing of Industrial Way | Project Area Clear of Reynolds Lead |
|---|---|---|---|---|---|---|---|---|---|
| Segment miles | 1.50 | 0.38 | 0.84 | 0.56 | 0.11 | 0.07 | 0.80 | 0.22 | 2.90 |
| Estimated mph with planned track improvements | 10 | 10 | 10 | 15 | 15/20 | 18/20 | 20 | 20 | 5 |
| Cumulative miles from BNSF main line switch at Longview Junction | 1.50 | 1.88 | 2.72 | 3.28 | 3.39 | 3.46 | 4.26 | 4.48 | 7.38 |
| Estimated passing time with planned track improvements (minutes)[b] | 8 | 8 | 8 | 5 | 5/4 | 4 | 4 | 4 | 16 |
| Estimated mph with current track infrastructure[c] | 10 | 10 | 5 | 8 | 8/10 | 8/10 | 10 | 10 | 5 |
| Estimated passing time with current track infrastructure (minutes)[c] | 8 | 8 | 16 | 10 | 10/8 | 10/8 | 8 | 8 | 16 |

Notes:

[a] Estimated coal train length, 125 cars, 3 GE AC; 4400 locomotives = 6,844 feet.

[b] Track improvements include upgrading Reynolds Lead to speed limit of 25 mph, new bypass track around LVSW yard, and electronic switches onto Reynolds Lead. Train operation is estimated based on existing operations (Wolter, LVSW pers. comm.) and is consistent with Parsons Brinkerhoff 2014: Appendix B, page 20.

[c] Train operation with current infrastructure is estimate based on existing operations and LVSW.

mph = miles per hour; LVSW = Longview Switching Company

# 3.3 No-Action Alternative

Under the No-Action Alternative, the Corps would not issue a Department of the Army permit authorizing construction and operation of the proposed export terminal. As a result, impacts resulting from constructing and operating the export terminal would not occur. In addition, not constructing the export terminal would likely lead to expansion of the adjacent bulk product business onto the On-Site Alternative project area. A limited-scale future expansion scenario proposed by the Applicant was evaluated. Under this scenario, approximately 2 trains per day would use the Reynolds Lead and BNSF Spur. The existing infrastructure on the Reynolds Lead and BNSF Spur would have sufficient capacity for 2 additional trains.

# Chapter 4
# Required Permits

No permits related to rail transportation would be required for the construction or operation of the On-Site Alternative or the Off-Site Alternative.

# Chapter 5
# References

## 5.1 Written References

Federal Railroad Administration. 2012. FRA Road Crossing Database. Available: http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/downloaddbf.aspx.

Parsons Brinckerhoff. 2014. *SR 432 Rail Realignment & Highway Improvements Project, Final Goods Movement Survey Results*. Prepared for Cowlitz-Wahkiakum Council of Governments. January. Portland, OR.

URS Corporation. 2014. *Millennium Coal Export Terminal Longview, Washington, Rail Transportation Resource Report*. September. Seattle, WA.

## 5.2 Personal Communications

Gaines, Kristen. Millennium Bulk Terminal—Longview, LLC. December 19, 2014—Email to Hellerworx regarding projections of rail operations.

Port of Longview. December 3, 2014—Meeting regarding estimated trains per day.

Wolter, David. Longview Switching Company. December 3, 2014—Meeting regarding coal train configurations on the BNSF, current and projected operations on LVSW.