MILLENNIUM BULK TERMINALS—LONGVIEW SEPA ENVIRONMENTAL IMPACT STATEMENT

SEPA 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
TCS	Traffic Control Systems
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 (Proposed Action) and No-Action Alternative. For the purposes of this assessment, rail transportation refers to the Proposed Action-related trains that would service the project area 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. Appendix A, *Coal Train Operating Plans,* provides a detailed analysis of the rail operations necessary to support the Proposed Action.

1.1 Project Description

Millennium Bulk Terminals—Longview, LLC (Applicant) proposes to construct and operate a coal export terminal in Cowlitz County, Washington, along the Columbia River (Figure 1). The coal export terminal would receive coal from the Powder River Basin in Montana and Wyoming and the Uinta Basin in Utah and Colorado via rail, then load and transport the coal by ocean-going ships via the Columbia River and Pacific Ocean to overseas markets in Asia. The coal export terminal would be capable of receiving, stockpiling, blending, and loading coal by conveyor onto ships for export. Construction of the coal export terminal would begin in 2018. For the purpose of this analysis, it is assumed the coal export terminal would operate at full capacity in 2028.

The following subsections present a summary of the Proposed Action and No-Action Alternative. For detailed information on these alternatives, see the Washington State Environmental Policy Act (SEPA) Alternatives Technical Report (ICF International 2016).

1.1.1 Proposed Action

The Proposed Action would develop a coal 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, 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, 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, both operated by Longview Switching Company (LVSW),[1] provide rail access to the Applicant's leased area from a point on the BNSF Railway Company (BNSF) main line (Longview Junction, Washington) located to the east in Kelso, Washington. Ships access the Applicant's leased area 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

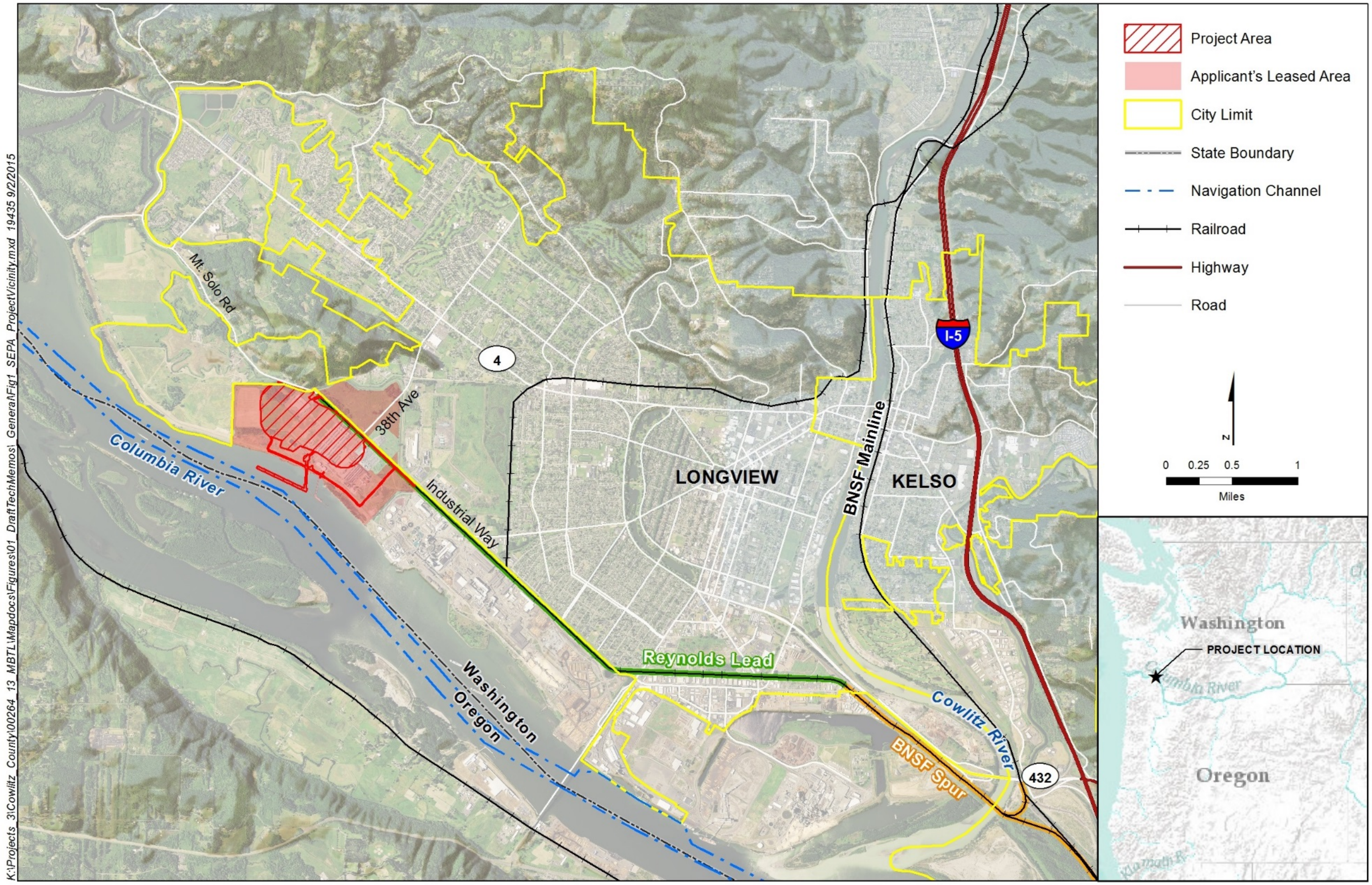
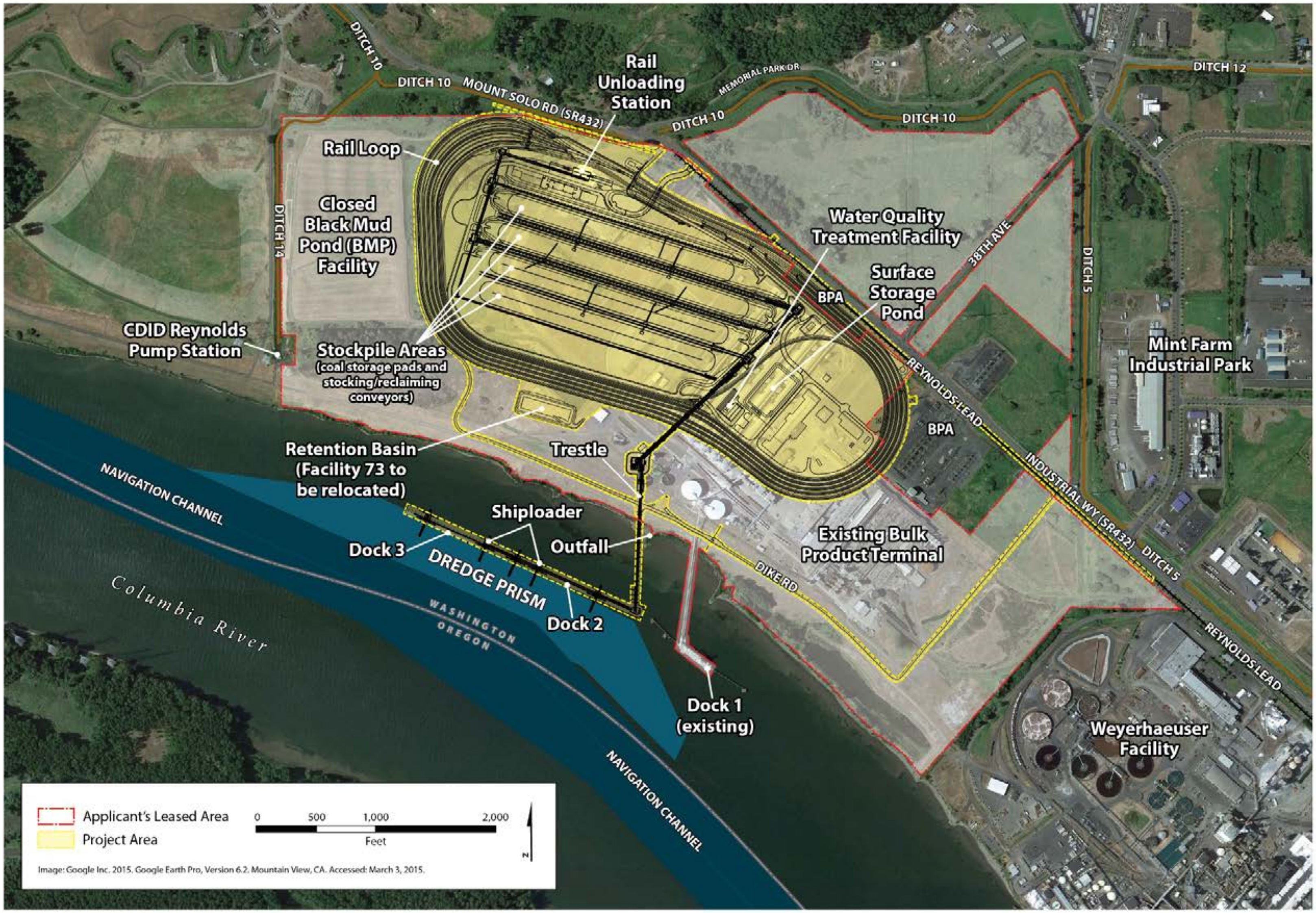


Figure 2. Proposed Action



Under the Proposed Action, BNSF or Union Pacific Railroad (UP) trains would transport coal in rail cars from the BNSF main line at Longview Junction, Washington, 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.

Once construction is complete, the Proposed Action would have an annual throughput capacity of up to 44 million metric tons.[2] The coal 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. Terminal operations would occur 24 hours per day, 7 days per week. The coal export terminal would be designed for a minimum 30-year period of operation.

1.1.2 No-Action Alternative

Under the No-Action Alternative, the proposed export terminal would not be constructed. Current operations of the bulk product terminal, which include the storage and transport of alumina and up to 150,000 metric tons per year of coal. Importing of alumina would continue and increase in the project area using Dock 1. The Applicant could expand the existing bulk product terminal onto the 190-acre project area, developing storage and shipment facilities to bulk product terminal operations. Coal and alumina would continue to be stored, transferred, and shipped. Additional bulk product transfers activities involving products such as calcine pet coke, coal tar pitch, cement, fly ash, and sand or gravel could also be pursued, and new or revised permits could be required. These operations would involve storage and upland transfer of bulk products, which would use existing or new buildings. Construction of new buildings could involve demolition and replacement of existing buildings and new or modified permits. Any new construction would be limited to uses allowed under existing Cowlitz County development regulations and federal and state permits.

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.

[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.

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).
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.
ICC 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 (197-11 WAC, RCW 43.21C)	Requires state and local agencies in Washington State 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]
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.

Regulation, Statute, Guideline	Description
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 19.11)	Provides for the implementation of SEPA in Cowlitz County.

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; SEPA = Washington State Environmental Policy Act; CCC = Cowlitz County Code

1.3 Study Area

The study area for direct impacts on rail transportation is the project area for the Proposed Action. The study area for indirect impacts on rail transportation includes the rail routes expected to be used by Proposed Action-related trains between the project area and the Powder River Basin and Uinta Basin.

Indirect impacts focuses on the Reynolds Lead and BNSF Spur and the BNSF main line in Cowlitz County. A qualitative assessment along the BNSF main line in Washington State and to and from the Powder River Basin and Uinta Basin is also presented.

Chapter 2
Existing Conditions

This chapter describes the methods for identifying existing conditions and determining impacts, and the existing conditions in the study area 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 Proposed Action and No-Action Alternative on rail transportation.

2.1.1 Data Sources

The following sources of information were used to define the existing conditions relevant to rail transportation and identify the potential impacts of the Proposed Action and No-Action Alternative on rail transportation in the study areas.

2.1.1.1 Rail Segment Capacity

Estimates of rail segment capacity for the Reynolds Lead and BNSF Spur were based on the methods developed for the Association of American Railroads (Cambridge Systematics 2007). The *Washington State Rail Plan* (Washington State Department of Transportation 2014a) was used to estimate rail segment capacity on BNSF main line routes in Washington State.

2.1.1.2 Existing, Projected, and No-Action Alternative Rail Traffic

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. Existing and projected rail traffic for routes within Washington State was based on the *Washington State Rail Plan* (Washington State Department of Transportation 2014a). The Applicant provided estimates of rail traffic under the No-Action Alternative (approximately 2 additional trains per day in 2028).

2.1.1.3 Rail Operations

The following information sources were used for Proposed Action-related rail operations.

- **Volumes.** Proposed Action-related rail traffic to the project area 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. The types and number of baseline train traffic beyond Longview Junction on main line routes were developed from the *Washington State Rail Plan* (Washington State Department of Transportation 2014a) using linear extrapolation of 2010 and 2035 projected train traffic to 2015 and 2028.

- **Routes.** Representative coal mines were selected to identify rail routes outside of Washington State. Routes to and from the project area within Washington State were based on existing BNSF and UP operational practices and Washington State Department of Transportation (WSDOT) documents including the *Washington State Rail Plan* (Washington State Department of Transportation 2014a) and *Washington State Freight Mobility Plan* (Washington State Department of Transportation 2014b).
- **Train parameters.** Train parameters including the number of rail cars per unit train (125 rail cars for each train) and locomotives were based on information provided by the Applicant, input from BNSF, and existing BNSF coal train operations (BNSF Railway Company 2016).
- **Reynolds Lead, BNSF Spur, and project area operations**. Operations of the Reynolds Lead, BNSF Spur, and the project area was based on information provided by LVSW and the Applicant.

2.1.2 Impact Analysis

The following methods and assumptions were used to evaluate the potential impacts of the Proposed Action and No-Action Alternative on rail transportation.

No rail construction outside of the project area is proposed by the Applicant. However, LVSW plans to upgrade the Reynolds Lead and part of the BNSF Spur as a separate action should it be warranted by increased rail traffic resulting from existing and future customers. Upgrades to the track would include adding ballast, replacing ties, and upgrading rail. These improvements would provide for safer operations and increased speed over the BNSF Spur and Reynolds Lead. LVSW would also install signals and upgrade the traffic control system to Centralized Traffic Control (CTC) and add an electric remotely operated switch from the BNSF Spur to the Reynolds Lead. The signaling would add capacity to the line, allowing trains to be spaced closer together and the electronic switch would eliminate the need for loaded and empty trains to stop while a train crew member operates the switch (Wolter pers. comm.). Construction of these improvements would take approximately 6 months. Because these improvements are not certain, the impact analysis analyzes infrastructure with and without these planned improvements.

For the purposes of this analysis, potential operations impacts are based on the Applicant's planned throughput capacity (up to 44 million metric tons per year).

- **Train speed and travel time from Longview Junction to project area.** The operating plan (Appendix A, *Coal Train Operating Plans*) assumes that the maximum speed over the Reynolds Lead could increase from 10 miles per hour (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 Proposed Action-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 the train speeds at various points on the route were used to estimate the time that 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).

- **Proposed Action-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,[3] length, and capacity are based on a typical aluminum rotary coal gondola. The parameters of Proposed Action-related trains that would service the project area are summarized in Table 2. For purposes of this analysis, all Proposed Action-related trains are assumed to have the characteristics shown in Table 2.

  According to the Applicant, rail operations would support coal export terminal throughput of 40 million metric tons per year. The Proposed Action 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) from rail car capacity that can be achieved through industry process and technological improvements by 2028.

Table 2. Proposed Action-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. Proposed Action-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, type of traffic control system, and types of trains moving over the segment. The assumptions for the contribution of each of these factors and the basis for assumptions are described in Section 2.1.3, *Rail Segment Capacity.*

[3] Weight of the empty railcar.

- **Longview Junction to project area.** The track segment from Longview Junction to the project area is currently not signaled. Permission to occupy this track is controlled by the LVSW yardmaster. Along with upgrading the track to enable 25 mph speeds, LVSW plans to upgrade the signal system to CTC, which would increase the capacity of this portion of the route from approximately 16 to 30 trains per day.
- **Beyond Longview Junction.** Beyond Longview Junction, the number of main tracks and traffic control systems were developed from the *Washington State Rail Plan* (Washington State Department of Transportation 2014a).

- **Routes.** The BNSF route for loaded Proposed Action-related trains from the Powder River Basin would run through Montana and Sandpoint, Idaho to Spokane and Pasco, Washington, and is expected to travel along the Columbia River Gorge to Vancouver, Washington, then north to Longview. Empty trains are expected to travel north from Longview Junction to Auburn and over Stampede Pass to Pasco. The UP route for Proposed Action-related trains originating in the Uinta Basin or Powder River Basin would run through Oregon to the North Portland Junction. From there, Proposed Action-related UP trains would cross into Washington at Vancouver and run over the BNSF Seattle Subdivision to the project area. This same track would be used by Proposed Action-related BNSF trains going to the project area. Alternative routes and additional information on Proposed Action-related train routes is provided in Section 2.1.4, *Train Routes*.
- **Baseline rail traffic.** The types and number of trains from Longview Junction to the project area for existing year and 2028 were developed from meetings with LVSW and the Port of Longview. The types and number of baseline train traffic beyond Longview Junction were developed from the *Washington State Rail Plan* (Washington State Department of Transportation 2014a) using linear extrapolation of 2010 and 2035 train traffic projected to 2015 and 2028.
- **Rail traffic.** The Applicant estimates that, at full capacity, operation of the Proposed Action would move up to 44 million metric ton of coal per year, requiring the receipt and return of 8 Proposed Action-related trains per day, or 16 daily trains. Train parameters are outlined in Table 2.

2.1.3 Rail Segment Capacity

Capacity estimates for BNSF and UP rail segments were obtained from the *Washington State Rail Plan* (Washington State Department of Transportation 2014a, Technical Note 4a). As described in Technical Note 4a of the *Washington State Rail Plan*, this approach involves estimating maximum practical capacity in number of trains per day, determined by signal type, number of tracks, and geometric limitations. Practical capacity provides a reasonable figure for real-world train capacity rather than operational capacity, which only considers the number of trains per day that could run over a route.

Capacities for each of the LVSW rail segments were estimated using the methods developed for the Association of American Railroads (Cambridge Systematics 2007:4–5). This is the same method used in the *Washington State Rail Plan*. Capacity estimates provided throughout this report are practical capacities as presented in or consistent with the capacity estimates presented in the *Washington State Rail Plan.*

2.1.3.1 Main Tracks and Sidings

Most of the route segments in this analysis have one main track with multiple sidings for trains to meet or pass, but there are several segments with two or three main tracks.

2.1.3.2 Traffic Control Systems

Traffic control systems help maintain a safe distance between trains passing or meeting on the same track. There are three basic types of systems.

- **Automatic Block Signals (ABS).** ABS is an electronic signal system that can control when a train can advance into the next block. A block is a section of track with signals at each end. Only 1 train can occupy a block at one time at normal speed. Trains may enter a block occupied by another train in the same direction, but must be prepared to stop within half the range of vision. The signals provide information to the train crew about some speed restrictions and they provide information about the occupancy of the blocks ahead.
- **Traffic Warrant Control (TWC).** Under this basic 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. It is the least costly system and is generally used on the low-density track where capacity is generally not an issue. Track warrant authority may be used in combination with ABS or on track that has no block signals.
- **Centralized Traffic Control (CTC) and Traffic Control Systems (TCS)**. 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. The dispatcher controls traffic by controlling the signals. If the signal is at stop, the approaching train is not authorized to proceed. If the signal is not at stop, the train is authorized to continue to the next controlled signal.

In 2008, Congress passed the Rail Safety Improvement Act of 2008, which requires all passenger railroads and Class I freight railroads to install Positive Train Control (PTC) on all lines that carry passengers or toxic-by-inhalation commodities.[4] PTC automatically stops a train if the engineer does not respond properly to a signal indication. PTC is designed to reduce the number of train accidents caused by human error. While future generations of PTC may help railroads increase capacity on individual corridors, the PTC technology currently being installed on U.S. railroads is not expected to have a meaningful impact on corridor capacity (Association of American Railroads 2014).

Table 3 summarizes estimated capacity based on the number of main tracks and traffic control systems.

[4] Toxic-by-inhalation commodities are gases or liquids such as chlorine or anhydrous ammonia that are especially hazardous when released into the atmosphere.

Table 3. Average Capacities of Typical Rail Freight Corridors (trains per day)

Number of Tracks	Type of Control	Practical Maximum if Multiple Train Types use Corridor[a]
1	N/S or TWC	16
1	ABS	18
2	N/S or TWC	28
1	CTC or TCS	30
2	ABS	53
2	CTC or TCS	75
3	CTC or TCS	133
4	CTC or TCS	173
5	CTC or TCS	248
6	CTC or TCS	360

Notes:

[a] For example, a mix of merchandise, intermodal, and passenger trains.

Source: Cambridge Systematics 2007: 4–7

N/S = No Signal; TWC = Track Warrant Control; ABS = Automatic Block Signaling; CTC = Centralized Traffic Control; TCS = Traffic Control System

2.1.3.3 Train Types and Operations

Different train types such as passenger, intermodal, automotive, coal unit, and general manifest trains operate at different speeds. Trains operating at different speeds require a larger separation than trains of the same type operating on the same segment. For the purpose of this analysis, multiple train types were assumed. Capacity on a single-track segment can also be increased by running trains in only one direction over that segment. Two single-track routes can be combined to function essentially as double track. This strategy, known is directional running is described in Section 2.1.4, *Train Routes*.

2.1.4 Train Routes

The routes from the selected representative mines to the project area were assumed to be the same as current BNSF and UP routes and as documented in WSDOT publications, including the *Washington State Rail Plan* (Washington State Department of Transportation 2014a) and *Washington State Freight Mobility Plan* (Washington State Department of Transportation 2014b).

In 2012, BNSF changed its train operations protocol to enhance use of existing capacity using directional running. This strategy routes all westbound loaded unit trains[5] (including coal) from Pasco via the Columbia River Gorge to Vancouver, where it continues on the BNSF north-south main line to its final destination. Empty unit bulk trains from north of Vancouver, including Cowlitz County, return to Pasco and to points east via Stampede Pass.

[5] A unit train is a train in which all cars carry the same commodity and are shipped from the same origin to the same destination. Unlike unit trains, manifest trains are composed of rail cars with different commodities originating in different locations and delivered to different locations.

However, each railroad company has alternative routes. As volume increases on any one-line segment, each railroad company may revise its operations to distribute traffic over existing infrastructure. Railroad companies may also expand their infrastructure, which occurs on an ongoing basis based on demand. Figure 3 displays the routes used for this analysis.

Loaded and empty BNSF trains would travel on the same route from the Powder River Basin to Pasco, Washington.[6] West of Pasco, westbound loaded trains would be expected to move to the project area on the Columbia River Gorge route through Vancouver to Longview Junction, Washington. Empty trains would be expected to move from Longview Junction on the BNSF Stampede Pass route through Auburn and Yakima to Pasco, Washington.

The UP route is largely outside of Washington State. Proposed Action-related trains would move from the Uinta Basin and Powder River Basin through Pocatello, Idaho; Boise, Idaho; and Hinkle, Oregon. From Hinkle, the route parallels the Columbia River on the Oregon side to Portland, Oregon. Between Portland, Oregon, and Longview Junction, Washington, UP operates over the same track that carries BNSF trains. Empty UP Proposed Action-related trains would return to the Uinta Basin or Powder River Basin via the same route.

Between Longview Junction and the project area, both BNSF and UP Proposed Action-related trains would move over the LVSW rail line (Reynolds Lead and BNSF Spur).

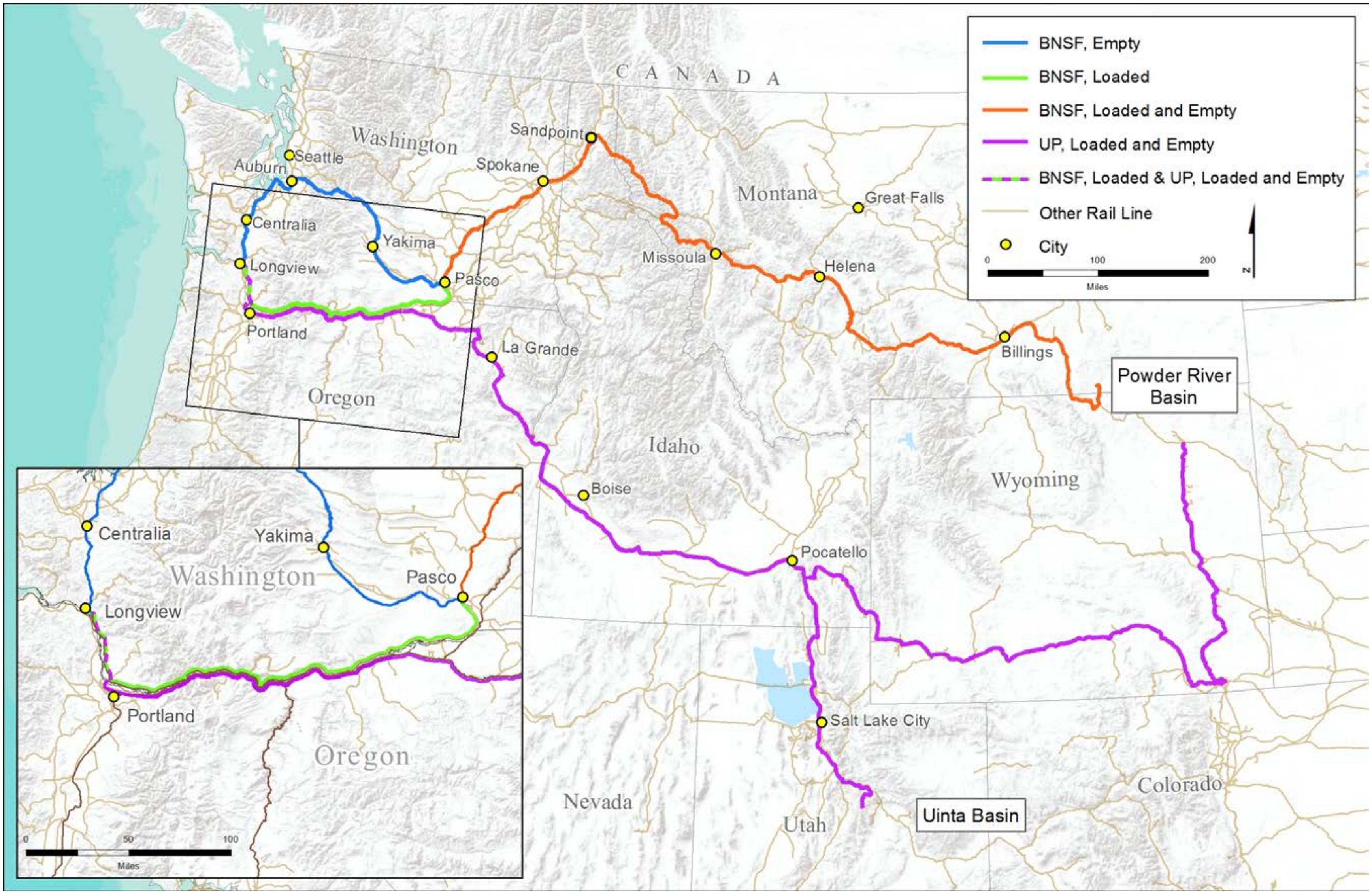
2.1.4.1 Train Origins

Two types of coal could be exported from the coal export terminal.

- Subbituminous coal (approximately 8,800 to 9,200 British thermal units [Btu] per pound), originating in the Powder River Basin in Montana or Wyoming.
- Bituminous coal (approximately 11,700 Btu per pound), originating in the Uinta Basin in Utah or Colorado.

[6] In late 2014, the BNSF constructed and began operation of a respray facility along their main line in Pasco, Washington. Before coal trains continue their route west along the Columbia River Gorge, BNSF resprays the coal rail cars with a surfactant to ensure coal dust release is further mitigated.

Figure 3. BNSF and Union Pacific Routes to and from Longview, Washington



For purposes of this analysis, an example mine was used from each of these origin areas (Table 4) to estimate rail miles and routes. Rail routes would be similar for other mines from these regions to the coal export terminal. Given market economics, most of the coal that would be exported would be expected to come from Powder River Basin mines in Montana and Wyoming and would move via the BNSF routes.

Table 4. Representative Mine Origins Selected for Analysis

Coal Supply Region	Representative Mine	Rail Station	Railroad
Powder River Basin	Spring Creek Mine	Spring Creek Mine, Montana	BNSF
Utah	Skyline Mine	Skyline, Utah	UP

Notes:
BNSF = BNSF Railway Company; UP = Union Pacific Railroad

2.2 Existing Conditions

The existing environmental conditions related to rail transportation in the study area are described below.

As described in Section 1.1.1, *Proposed Action,* the project area is located on 190 acres primarily within a 540-acre existing industrial site near Longview, Washington. 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 rail network approximately 6 miles away in Longview Junction. The track and rail infrastructure leading to the project area are described as follows.

- The BNSF Spur consists of a track through Longview Junction yard, across the Cowlitz River Bridge,[7] and through the LVSW yard. Figure 1 illustrates the BNSF Spur.
- The Reynolds Lead consists of a track from the LVSW yard to the project area. The Reynolds Lead covers the majority of the distance between the project area and the BNSF main line. Figure 1 illustrates the Reynolds Lead.

The route 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).[8] 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 project area under current conditions would be approximately 49 minutes.

[7] The Cowlitz Bridge is a manually operated drawbridge controlled by LVSW. The bridge only opens once every 4 or 5 years to allow passage of river-dredging vessels.
[8] 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.

2.2.1 BNSF Spur and Reynolds Lead

Table 5 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 over a road crossing for those trains. Finally, the table includes a weighted average of baseline trains per day passing each road crossing. The train counts include both loaded and empty trains.[9] For purposes of describing baseline traffic, the LVSW rail line is divided into two parts, the BNSF Spur and the Reynolds Lead, as shown in Figure 4.

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 Proposed Action-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.

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 about 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. Capacity through this area currently is about 16 trains per day, which supports the current volume.

[9] 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 (2014:8-9), which shows 450 loaded cars per day.

Table 5. 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.

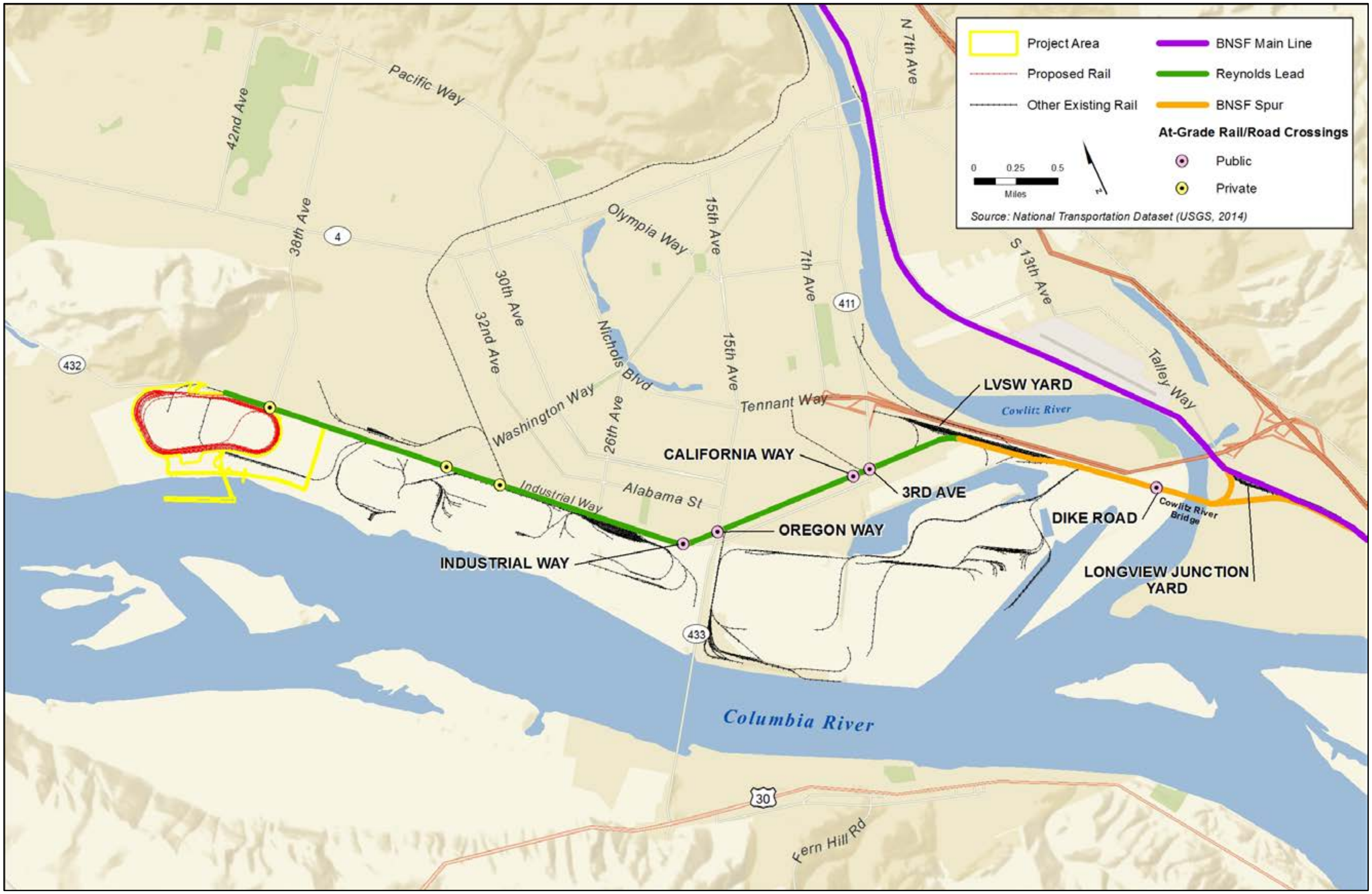
[f] Manifest movements between Longview Junction yard and LVSW yard across bridge are generally cuts of cars moving as a yard transfer (Wolter pers. comm.). Occasionally LVSW yardmaster will direct BNSF or UP road crew to bring a manifest train off BNSF main line into the LVSW yard instead of switching 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 4. BNSF Spur and Reynolds Lead



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, and capacity is approximately 16 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. 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.

2.2.2 Existing Rail Traffic on the BNSF Infrastructure in Washington State beyond Longview Junction

Within Washington State, Proposed Action-related trains would travel mostly on BNSF track. Table 6 summarizes infrastructure and traffic data for each major segment of the BNSF route in Washington State. These major segments and the rail traffic they support are described below. Figure 5 illustrates 2015 rail traffic and capacity along the major rail segments using the *Washington State Rail Plan* (Washington State Department of Transportation 2014a).[10]

- **Idaho/Washington State Line–Spokane.** This segment covers 18.6 miles and is part of BNSF's Kootenai River Subdivision. It is a double track with CTC. Capacity is approximately 76 trains per day and volume is approximately 70 trains per day. All BNSF trains between the eastern part of BNSF's system and points in Washington State move over this corridor. Train traffic includes intermodal, grain, coal and general manifest trains. Amtrak's Empire Builder passenger service between Chicago, Illinois; Seattle, Washington; and Portland, Oregon also uses this segment.
- **Spokane–Pasco.** This corridor covers 145.5 miles and is part of BNSF's Lakeside Subdivision. This line is mostly single track with CTC. Capacity is approximately 37 trains per day and volume is approximately 39 trains per day. Train traffic on this segment includes intermodal, grain, coal and general manifest trains. The Portland section of Amtrak's Empire Builder passenger service uses this segment. BNSF is currently making upgrades to this segment, including adding a second main line in some areas.

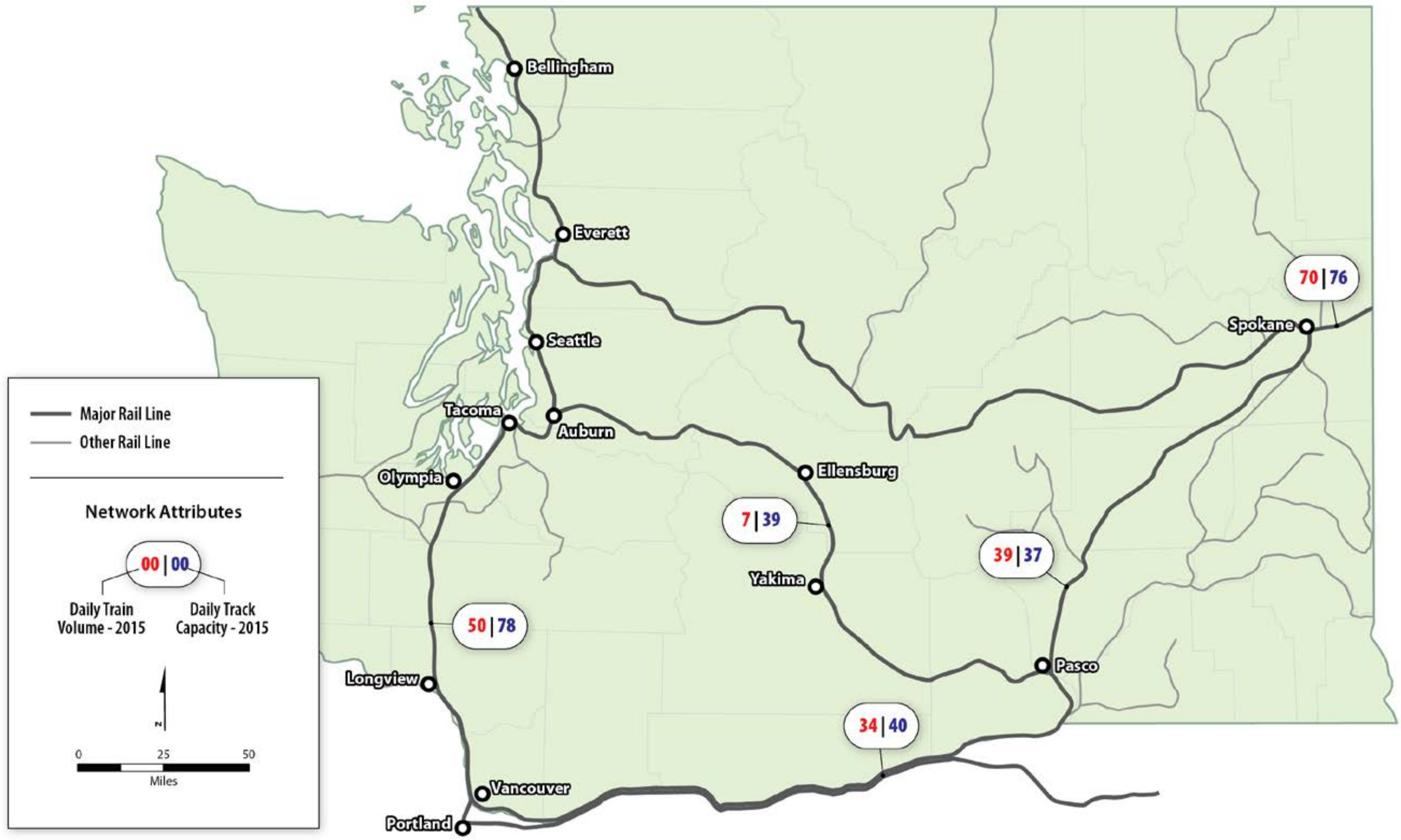
[10] Rail traffic estimates provided in the *Washington State Rail Plan* do not include the rail traffic for proposed coal or crude oil projects in Washington State.

Table 6. Route Infrastructure and Rail Traffic

Route Segment		Railroad	Subdivision	Current Traffic Control System[a]	Current Main Tracks[a]	Current Passenger Train Route	Future Passenger Train Route	Estimated Current Capacity (Trains/day)[b]	Miles[c]	Estimated Baseline (2015) Trains Per Day[d]	Projected 2035 Trains per Day[e]
ID/WA Line	Spokane, WA	BNSF	Spokane	CTC	2	Yes	Yes	76	18.6	70	125
Spokane, WA	Pasco, WA	BNSF	Lakeside	CTC	1	Yes	Yes	37	145.5	39	66
Pasco, WA	Vancouver, WA	BNSF	Fallbridge	CTC	1	Yes	Yes	40	221.4	34	56
Vancouver, WA	Longview Jct., WA	BNSF	Seattle	CTC	2	Yes	Yes	78	34.8	50	85
Longview Jct., WA	LVSW Yard, WA	BNSF	LVSW	TWC	1	No	No	16	2.1	7	N/A
LVSW Yard, WA	Project Area, WA	BNSF	LVSW	TWC	1	No	No	16	5.0	2	N/A
Longview Jct., WA	Auburn, WA	BNSF	Seattle	CTC	2	Yes	Yes	78	118.6	50	85
Auburn, WA	Yakima, WA	BNSF	Stampede	TWC	1	No	No	39	139.6	7	13
Yakima, WA	Pasco, WA	BNSF	Yakima Valley	TWC	1	No	No	39	89.4	7	13

[a] Source: Washington State Department of Transportation 2014b.
[b] Source: Washington State Department of Transportation 2014b. LVSW rai line segments were estimated from Table 5.
[c] Source: Estimated based on GIS measurements.
[d] Source: Washington State Department of Transportation 2014b; Wolter pers. comm.; Port of Longview pers. comm.
[e] Source: Washington State Department of Transportation 2014a.
LVSW = Longview Switching Company; CTC = Centralized Traffic Control; TWC = Traffic Warrant Control; N/A = No projection is available.

Figure 5. Washington Rail Network Daily Track Utilization (2015)



- **Pasco–Vancouver.** This segment covers 221.4 miles and is BNSF's Fallbridge Subdivision, also known as the Columbia River Gorge route. It is mostly single track with CTC. Capacity is approximately 40 trains per day and volume is approximately 34 trains per day. Train traffic on this segment includes intermodal, grain, coal and manifest. The Portland section of Amtrak's Empire Builder passenger service also uses this route. BNSF uses directional operations on this segment, which increases capacity by running westbound loaded unit trains on this segment and eastbound empty unit trains via Stampede Pass.

- **Vancouver–Longview Junction.** This segment covers 34.8 miles of BNSF's Seattle Subdivision. It is double track with CTC. About 21 miles of this segment is in Cowlitz County. Capacity is approximately 78 trains per day and volume is approximately 50 trains per day. This line also carries all UP trains between Portland, Oregon and Tacoma. Traffic includes intermodal, grain, coal and other unit trains along with manifest trains. This section of the BNSF line is also a key route for passenger trains. Amtrak's Coast Starlight trains to and from California and Amtrak Cascades trains between Eugene, Oregon and Seattle use this segment.

  Scheduled to be completed by 2017, WSDOT is constructing 3.7 miles of a third main track on the BNSF Seattle Subdivision main line between Longview Junction and Kelso. The purpose of the third main track is to enable 2 trains to pass while a train is simultaneously moving into or out of the Longview Junction yard (Washington State Department of Transportation 2014c). This would reduce the potential for delays to passenger and freight trains running through the area.

- **Longview Junction–Auburn.** This segment includes 118.6 miles of BNSF's Seattle Subdivision. About 18 miles of this segment are in Cowlitz County. There are two main tracks and traffic control is CTC. Current capacity is approximately 78 trains per day and volume is about 50 trains per day. Traffic on this line includes intermodal, empty coal, and grain trains returning to the east and manifest trains. This segment is also a key section for passenger trains. Amtrak's Coast Starlight trains to/from California and Amtrak Cascades trains use this route as do Sound Transit Sounder commuter trains on the section between Tacoma and Auburn.

- **Auburn–Yakima.** This segment is known as BNSF's Stampede Pass route. The Auburn–Yakima segment covers 139.6 miles and make up BNSF's Stampede Subdivision. The track structure is mostly single track and traffic control is mostly TWC with some segments of CTC. Current capacity is approximately 39 trains per day and volume is approximately 7 trains per day. Traffic volume consists largely of empty coal and grain trains. BNSF uses directional operations on this segment, which increases capacity by running eastbound unit trains on this segment and westbound loaded unit trains via the Columbia River Gorge.

- **Yakima–Pasco.** This segment covers 89.4 miles. It makes up BNSF's Yakima Valley Subdivision. The track structure is mostly single track and traffic control is mostly TWC with some segments of CTC. Current capacity is approximately 39 trains per day and volume is approximately 7 trains per day. Traffic volume consists largely of empty coal and grain trains returning to the east and some manifest trains.

West of Pasco, BNSF uses directional running, which increases capacity by running trains in different directions on different routes. From Pasco, westbound rail traffic moves via BNSF's Fallbridge Subdivision to Vancouver. This route services the Portland, Oregon section of Amtrak's Empire Builder passenger train and unit trains carrying grain, crude oil, and other commodities and general manifest trains. These trains then move north on the Seattle Subdivision. The Seattle

Subdivision handles many Amtrak passenger trains and commuter trains per day in addition to intermodal, grain, and general manifest BNSF and UP trains.

2.2.3 Existing Rail Traffic on the BNSF and UP Infrastructure Outside of Washington State

From Wyoming or Montana Powder River Basin mines, Proposed Action-related trains operating on BNSF rail lines would move west to Huntley, Montana. From Huntley, Montana to Sandpoint, Idaho, BNSF typically operates coal and other trains over Montana Rail Link tracks. This route is mostly single track with CTC traffic control; however, some sections have two main tracks. From Sandpoint, Idaho, trains would move back to BNSF tracks and cross into Washington moving toward Spokane. Capacity is approximately 30 to 75 trains per day, depending upon the specific location and track characteristics, and volume is 25 to 28 trains per day (Federal Railroad Administration 2012).

From Utah and Colorado Uinta Basin mines or Wyoming Powder River Basin mines, Proposed Action-related trains would transit through Pocatello and Boise, Idaho; then along the Oregon side of the Columbia River to the North Portland Junction. There, UP trains would operate on BNSF tracks, crossing the Columbia River to Vancouver and heading north on the BNSF Seattle Subdivision to Longview Junction. This segment has mostly one main track with CTC or ABS. Capacity is approximately 18 to 75 trains per day, depending on the specific location and track characteristics, and volume is 8 to 16 trains per day.

Chapter 3
Impacts and Mitigation

This chapter describes the impacts on rail transportation that would result from construction and operation of Proposed Action and under the No-Action Alternative.

3.1 Impacts

This section describes the impacts on rail transportation that could result from the Proposed Action or No-Action Alternative.

3.1.1 Proposed Action

This section describes the potential impacts that could occur in the study area as a result of construction and operation of the Proposed Action.

At full operation, Proposed Action-related trains would add 8 loaded and 8 empty Proposed Action-related trains per day (16 total trains per day) to the rail lines between the Powder River Basin or the Uinta Basin and the project area.

3.1.1.1 Construction: Direct Impacts

The Reynolds Lead would be modified within the project area to accommodate unit train access to and from the coal 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 scenario, trains transporting construction materials would travel to and from the project area. The unloading and maneuvering of these trains during construction within the project area would not affect the operations of existing rail traffic on the Reynolds Lead.

3.1.1.2 Construction: Indirect Impacts

Construction of the Proposed Action would result in the following indirect impact.

Add Temporary Rail Traffic for Transport of Construction Materials

The Applicant has stated that 2.1 million yards of rock 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 that moving the rock 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 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, the baseline volume is approximately 2 trains per day. The current capacity over these segments is approximately 16 trains per day. Transport of rock for construction would not be expected to disrupt current rail traffic.

This construction rail traffic would use BNSF main line routes in Washington State in 2018. Due to the low number of trains per day compared to existing rail traffic volumes and the daily variability of rail traffic volumes, Proposed Action-related construction trains would have a low impact on rail capacity and operations on BNSF main line routes.

3.1.1.3 Operations: Direct Impacts

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. Rail traffic operations within the project area would not affect rail traffic on the Reynolds Lead because rail operations would be limited to the project area.

3.1.1.4 Operations: Indirect Impacts

Operation of the Proposed Action would result in the following indirect impacts. Capital investments by BNSF or UP to increase capacity in Washington State would be made based on the general level of traffic and not specifically related to the projected volume. The timing of any capital investments to increase capacity or operating changes designed to eliminate congestion by rerouting traffic to less-congested routes would depend on the individual railroad priority for capital needs on their systems and the general level of traffic on the lines between their respective origins and the coal export terminal. Capital improvements and/or changes in operations would occur, as warranted by growth in traffic and would likely be implemented over time. This is the typical process used by rail carriers to adjust network capacity to meet changing traffic volumes.

Add Rail Traffic on the BNSF Spur and Reynolds Lead

Operation of the Proposed Action would require moving loaded Proposed Action-related trains from the Longview Junction yard to the project area and the reverse (moving empty trains from the project area to Longview Junction). This movement would add train traffic to existing rail lines. Each Proposed Action-related train is assumed to move empty back to the representative mine, which is typical of unit train coal service. Figure 4 shows the routes. The step-by-step work activities are described in Appendix A, *Coal Train Operating Plans.*

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 7. At full capacity, the coal export terminal would receive an average of 8 loaded trains and return an average of 8 empty Proposed Action-related trains per day (16 trains would operate on the incoming/outgoing rail line).

Table 7. 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 projected 2028 capacity assumes no railroad investments would be made to increase capacity and no substantial changes in existing operation would occur. Between Longview Junction and the project area there are two route segments: Longview Junction to the LVSW yard (BNSF Spur) and LVSW yard to the project area (Reynolds Lead).

Both of these segments have one main track and TWC. Capacity is approximately 16 trains per day and baseline volume is 7 trains per day on the BNSF Spur and 4 trains per day on the Reynolds Lead. At full terminal operations, Proposed Action-related trains would add 16 trains per day (8 loaded and 8 empty) on each of these segments for a total of 23 on the BNSF Spur and 20 on the Reynolds Lead. Without improvements to increase capacity, neither of these segments would have the capacity to handle all of the projected Proposed Action-related trains and the growth in baseline traffic. Without improvements, LVSW would not be able to accommodate the full growth of the Proposed Action. However, LVSW has indicated it would expand capacity to meet projected volume for the Proposed Action or any other action, and this would be consistent with typical U.S. railroad policy to do so.

As discussed in Sections 2.1.2, *Impact Analysis,* and 2.2, *Existing* Conditions, LVSW has indicated that it would upgrade the traffic control technology on both the BNSF Spur and the Reynolds Lead from TWC to CTC. The upgrade in traffic control technology would increase capacity on both segments from 16 trains per day to approximately 30 trains per day. This improvement would provide sufficient capacity to handle both the Proposed Action-related trains and the projected growth in baseline traffic.

In addition to CTC, LVSW indicated it would upgrade the track on both segments. Upgrades would include, additional ballast, replacing ties, and upgrading rail. These improvements would provide for a safer operation and allow for an increase in maximum speed from 10 mph to 25 mph on the Reynolds Lead. LVSW would also install a remotely operated electric switch from the BNSF Spur to the Reynolds Lead to allow for continuous movement and more consistent operation. The speed limit on the BNSF Spur is largely governed by the speed limit across the Cowlitz River Bridge, which would remain at 10 mph. The electronic switch would eliminate the need for loaded and empty trains to stop while a train crew member operates the switch.

While LVSW has planned for the capital investment, it has not begun work or applied for permits. LVSW would start the permit process and would make these investments once it was reasonably certain that the projected volume would materialize. This approach is consistent with typical railroad capital investment policy. Table 8 provides additional information on anticipated operations over the Reynolds Lead and BNSF Spur, including the expected average time for the Proposed Action-related trains to cross each of the road crossings with the existing track infrastructure and with the planned infrastructure improvements. Table 9 provides information on route capacity for mainline services from Longview Junction to the Powder River Basin.

Table 8. BNSF Spur and Reynolds Lead Operations Detail—Incoming and Outgoing Proposed Action-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)[a,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)[a,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 pers. comm.

mph = miles per hour; LVSW = Longview Switching Company

Table 9. Infrastructure Capacity and Projected Rail Traffic, Including Proposed Action-Related Trains (trains per day)

Route Segment		Railroad	Subdivision	Current Traffic Control System[a]	Current Main Tracks[a]	Projected 2028 Capacity (trains/day)[b]	Miles[c]	Estimated Baseline 2015 (trains/day)[b,d]	Projected Baseline Trains 2028 (trains/day)[b,d,e]	2028 with Proposed Action (trains/day)	Projected 2028 Capacity Surplus (Deficit)[f]
ID/WA Line	Spokane, WA	BNSF	Spokane	CTC	2	76	18.6	70	106	122	(46)
Spokane, WA	Pasco, WA	BNSF	Lakeside	CTC	1	38	145.5	39	56	72	(34)
Pasco, WA	Vancouver, WA	BNSF	Fallbridge	CTC	1	41	221.4	34	48	56	(15)
Vancouver, WA	Longview Jct., WA	BNSF	Seattle	CTC	2	80	34.8	50	73	81	(1)
Longview Jct., WA	LVSW Yard, WA	BNSF	LVSW	TWC	1	16	2.1	7	7	23	(7)
LVSW Yard, WA	Project Area, WA	BNSF	LVSW	TWC	1	16	5.0	2	4	20	(4)
Longview Jct., WA	Auburn, WA	BNSF	Seattle	CTC	2	80	118.6	50	73	81	(1)
Auburn, WA	Yakima, WA	BNSF	Stampede	TWC	1	39	139.6	7	11	19	20
Yakima, WA	Pasco, WA	BNSF	Yakima Valley	TWC	1	39	89.4	7	11	19	20

Notes:

[a] Source: Washington State Department of Transportation 2014a, Technical Note 2 2-13

[b] Source: Washington State Department of Transportation 2014ba Technical Note 4a: 4-6 except LVSW rail line segments

[c] Source: Estimated based on GIS measurements.

[d] Source: Washington State Department of Transportation 2014ba Wolter pers. comm.; Port of Longview pers. comm.

[e] Source: Washington State Department of Transportation 2014a: 42; Parsons Brinckerhoff 2014: 9

[f] Projected capacity surplus/deficit without infrastructure improvements or changes in operations.

CTC = Centralized Traffic Control; TWC = Traffic Warrant Control

Add Rail Traffic on the BNSF Main Line To and From Longview Junction, Washington within Cowlitz County

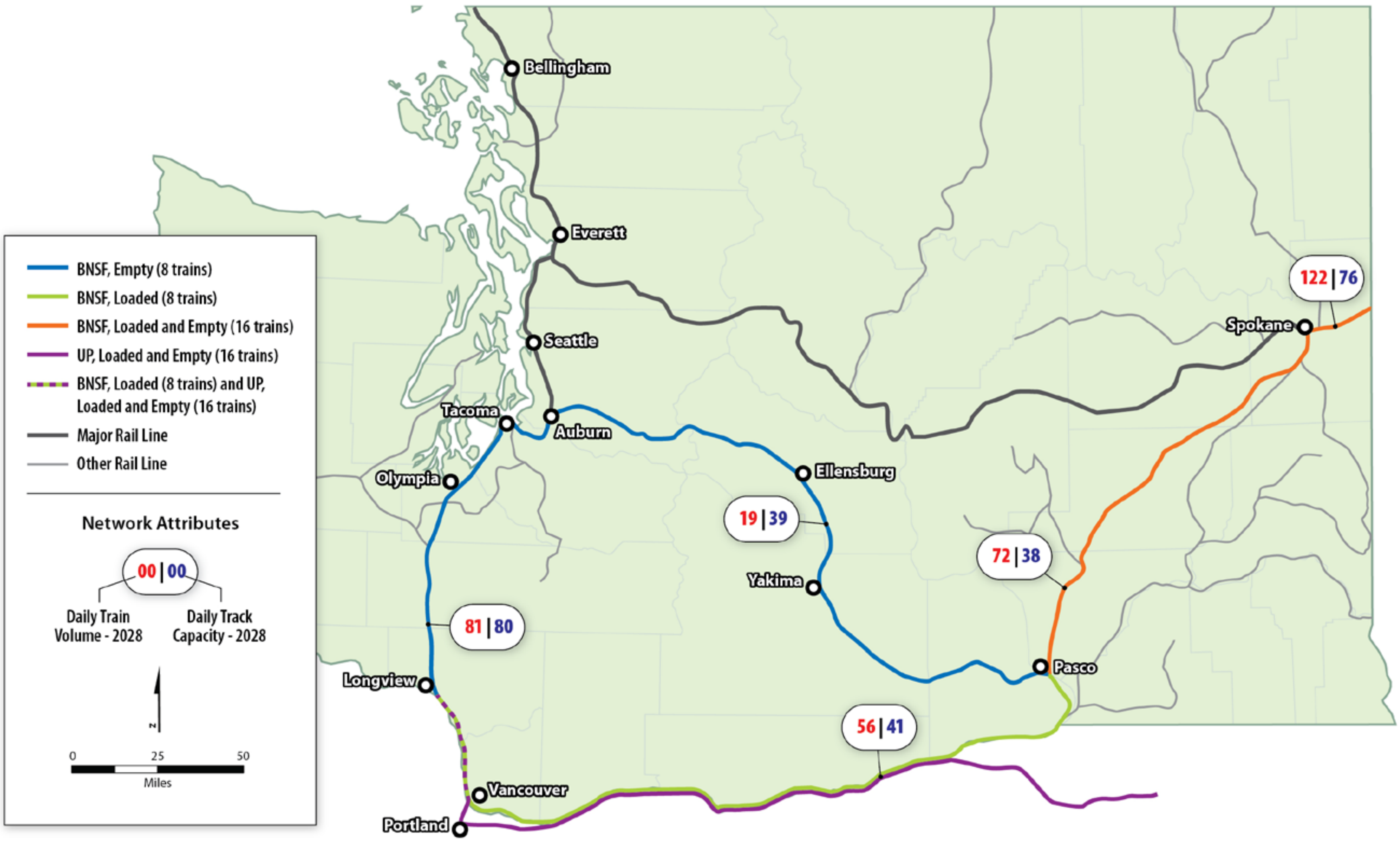
As shown in Table 9, this segment is part of the BNSF Seattle Subdivision and has two main tracks with CTC. As shown in Figure 6, projected 2028 capacity without improvements or operating changes is approximately 80 trains per day. Projected 2028 volume with Proposed Action-related trains is 81 trains per day; therefore, projected volume would about match the capacity. If BNSF handles most of the volume and continues to use its directional running strategy, 8 loaded Proposed Action-related trains per day would use the segment from Vancouver, Washington to Longview Junction, Washington, and 8 empty Proposed Action-related trains per day would use the segment from Longview Junction, Washington to Auburn, Washington. If UP captures most of the volume, then all 16 Proposed Action-related trains (8 loaded and 8 empty) would use the segment from Vancouver, Washington to Longview, Washington, increasing volume beyond current capacity. Impacts of exceeding the capacity would include congestion and delays to both passenger and freight trains. It is unlikely that this volume increase would happen without BNSF making the necessary investments or operating changes to accommodate the growth.

Add Rail Traffic to Existing BNSF Rail Infrastructure in Washington State beyond Cowlitz County

The Proposed Action would add rail traffic to the BNSF main lines in Washington State, affecting capacity on all segments, as summarized in Table 9. The projected rail traffic assumes that directional running continues on the Columbia River Gorge route (primarily westbound trains) and Stampede Pass route (primarily eastbound trains)(Washington State Department of Transportation 2014a). The projected increase in rail traffic relative to capacity are described for segments in Washington State and beyond Cowlitz County below.

- **Idaho/Washington State Line–Spokane**. All Proposed Action-related trains to and from the Powder River Basin on BNSF would move over this segment. This segment has two main tracks with CTC. Projected 2028 capacity without improvements is 76 trains per day. The projected rail traffic in 2028 with Proposed Action-related trains would be 122 trains per day. Without improvements or operating changes, the projected volume on this segment would exceed the existing capacity of 76 trains per day. Proposed Action-related trains would contribute to congestion or delays on this segment, or the inability of BNSF to handle all of the volume. The capacity concerns for this segment extend beyond Washington State to Sandpoint, Idaho. This potential constraint is identified in the *Washington State Rail Plan* (Washington State Department of Transportation 2014ba Technical Note 4:4–8) as a key potential chokepoint.

Figure 6. Projected Washington Rail Network Daily Track Utilization, 2028 Baseline Conditions with Proposed Action-Related Trains



- **Spokane–Pasco**. All Proposed Action-related trains to and from the Powder River Basin on BNSF would move over this segment under current BNSF operations. At Spokane, BNSF's Stevens Pass route to Seattle, Washington via Wenatchee, Washington splits off. All BNSF trains moving from Spokane to the west via the Columbia River Gorge route or Stampede Pass route move over this segment from Spokane to Pasco. This segment has one main track and CTC. Projected 2028 capacity without improvements or operating changes is 38 trains per day. Projected 2028 volume with Proposed Action-related trains is 72 trains per day. Without improvements or operating changes, this segment would also exceed capacity and Proposed Action-related trains would contribute congestion or delays on this segment, or an inability of BNSF to handle all of the volume. This potential constraint is identified in the *Washington State Rail Plan* (Washington State Department of Transportation 2014a, Technical Note 4:4–8) as a key potential chokepoint.
- **Pasco–Vancouver**. Loaded Proposed Action-related trains on BNSF from the Powder River Basin to the coal export terminal would move over this segment. The segment has one main track with CTC. Projected volume with Proposed Action-related trains is 56 trains per day. Without improvements or operating changes, the projected traffic on this segment would exceed the existing capacity of 41 trains per day. Proposed Action-related trains would contribute to congestion or delays on this segment, or the inability to handle all of the volume. This potential constraint is identified in the *Washington State Rail Plan* (Washington State Department of Transportation 2014a, Technical Note 4:4–8) as a significant capacity concern.
- **Vancouver–Longview Junction and Longview Junction–Auburn (outside Cowlitz County)**. This is the same segment described for Cowlitz County. This segment has two main tracks with CTC. Projected 2028 capacity without improvements or operating changes is approximately 80 trains per day. Projected 2028 volume with Proposed Action-related BNSF trains to and from the Powder River Basin is 81 trains per day; therefore, the projected volume on this segment with Proposed Action-related trains would exceed capacity (80 trains per day).

  If all 16 Proposed Action-related trains use the segment between Vancouver and Longview Junction (UP trains), the 2028 volume on this segment would be 89 trains daily and would exceed capacity without improvements (80 trains daily). It is expected that BNSF and UP would make the necessary investments or operating changes to accommodate the growth in rail traffic, but it is unknown when these actions would be taken.
- **Auburn–Yakima and Yakima–Pasco.** Empty trains returning to the Powder River Basin on BNSF would move over these segments. The projected rail traffic in 2028 would be 11 trains per day. Projected 2028 capacity is 39 trains per day, and therefore, these segments would not have capacity issues in 2028.

Add Rail Traffic to Existing BNSF and UP Rail Infrastructure Outside Washington State

Operation of the Proposed Action would add 8 loaded and 8 empty Proposed Action-related trains per day (16 trains) to existing rail traffic beyond Washington State (Figure 3). The rail infrastructure is described in Section 2.2, *Existing Conditions.* The current rail traffic on the BNSF rail lines is approximately 25 to 28 trains per day and the capacity is approximately 30 to 75 trains per day. The addition of 16 Proposed Action-related trains per day could result in rail traffic on some segments exceeding capacity if no capacity expansions were made. The current rail traffic on the UP route is approximately 8 to 16 trains per day and a capacity of 18 to 75 trains per day. Proposed Action-related trains could also result in rail traffic exceeding capacity on some parts of the UP route if no capacity expansions or operating changes were implemented.

3.1.2 No-Action Alternative

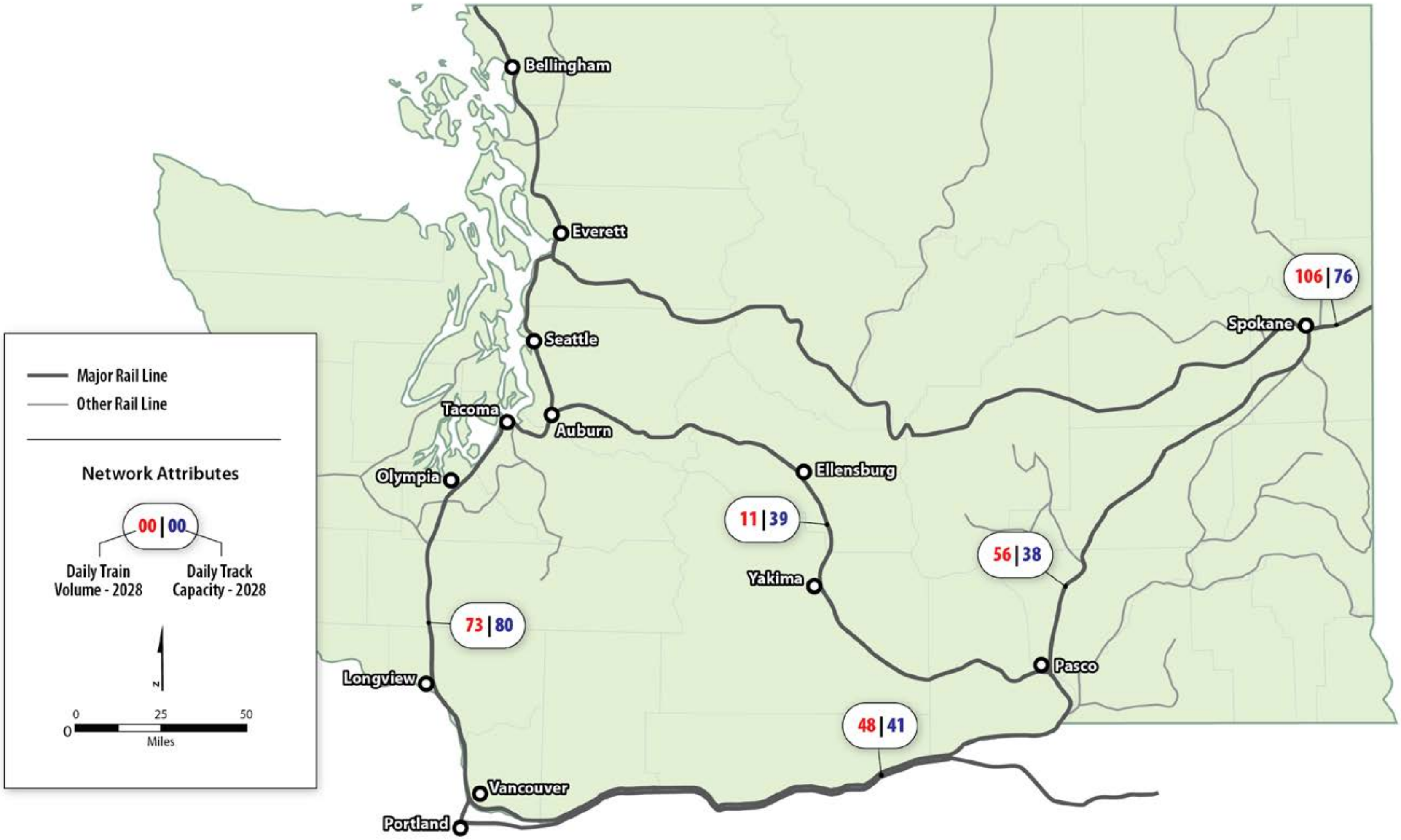
Under the No-Action Alternative, the Applicant would not construct the coal export terminal. The Applicant would continue with current and future increased operations in the project area. The project area could be developed for other industrial uses including an expanded bulk product terminal or other industrial uses. The Applicant has indicated that, over the long term, it would expand the existing bulk product terminal and develop new facilities to handle more products such as calcine petroleum coke, coal tar pitch, and cement.

The Applicant's planned growth under the No-Action Alternative would require approximately two additional trains per day on the Reynolds Lead, BNSF Spur, and BNSF main line in Cowlitz County regardless of whether the coal export terminal is constructed. The existing infrastructure on the Reynolds Lead, BNSF Spur, and BNSF main line would provide sufficient capacity to handle the projected growth in baseline traffic and investments to increase capacity would not be necessary. Some BNSF main line segments would exceed capacity in 2028 if BNSF does not make capital investments or operating changes to expand capacity. Projected 2028 baseline traffic volumes are included in Table 9 and illustrated in Figure 7.

3.2 Mitigation

Based on the findings in this technical report, the co-lead agencies (Cowlitz County and Washington State Department of Ecology) developed potential Applicant mitigation measures. The SEPA Draft Environmental Impact Statement presents these mitigation measures.

Figure 7. Projected Washington Rail Network Daily Track Utilization, 2028 Baseline Conditions (without Proposed Action-Related Trains)



Chapter 4
Required Permits

No permits related to rail transportation would be required for the construction or operation of the Proposed Action.

Chapter 5
References

5.1 Written References

Association of American Railroads. 2014. *Positive Train Control.* July.

BNSF Railway. 2016. What Can I Ship? Available: http://www.bnsf.com/customers/what-can-i-ship/coal/#%23subtabs-2. Accessed: March 3, 2016.

Cambridge Systematics, Inc. 2007. *National Freight Infrastructure Capacity and Investment Study,* Prepared for Association of American Railroads. September. Cambridge, MA.

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

ICF International. 2016. *Millennium Bulk Terminals—Longview, SEPA Environmental Impact Statement, SEPA Alternatives Technical Report*. April. Seattle, WA. Prepared for Cowlitz County, Kelso, WA, in cooperation with Washington State Department of Ecology, Southwest Region.

Parsons Brinckerhoff. 2014. *SR432 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.

Washington State Department of Transportation. 2014a. *Washington State Rail Plan, Integrated Freight and Passenger Rail 2013–2035*. March. Olympia, WA. Prepared by Cambridge Systematics. Oakland, CA.

Washington State Department of Transportation 2014b. *Washington State Freight Mobility Plan*. October. Olympia, WA.

Washington State Department of Transportation 2014c. *Kelso Martin's Bluff Improvement Projects – Tasks 5 and 6. Environmental Assessment.* August 27. Prepared for U.S. Department of Transportation, Federal Railroad Administration.

5.2 Personal Communications

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.

Appendix A
Coal Train Operating Plans

Appendix A
Coal Train Operating Plans

Table A-1. BNSF Coal Train Operating Plan

Activity	Event	City	State	Miles[a]	Running Time or Dwell Time[b]		MPH[c]	Work Activities[d]	Comments
Loaded trains from WA state line to Longview Jct.	Depart	ID/WA Line	WA						
	Arrive	Spokane	WA	18.3	1:00	1.00	18		
	Arrive	Pasco	WA	142.8	8:00	8.00	18		BNSF current project to double track
	Arrive	Vancouver	WA	226.2	12:00	13.00	18	Crew change	
	Arrive	Longview Jct	WA	35.2	2:00	2.00	18		Possible construction of 3rd main track through Longview/Kalama
Loaded movement within port	Depart	Longview Jct	WA	Dwell	0:00		-	BNSF dispatcher requests permission from LVSW yardmaster to access LVSW track through to MBTL. LVSW yardmaster lines switches and signals through to MBTL then provides authority to BNSF dispatcher. BNSF dispatcher lines switches and signals off BNSF main into Longview Jct yard. Trains proceeds via south leg of Y across Cowlitz River bride. Train does not stop until MBTL switch unless LVSW or MBTL cannot take	BNSF plans to upgrade LVSW route from west side of Cowlitz River bridge to MBTL with CTC and remote control switches which would increase speed to 25 MPH. Speed over Cowlitz River bridge would remain at 10 MPH. Average speed of 12 MPH is Hellerworx estimate.

Activity	Event	City	State	Miles[a]	Running Time or Dwell Time[b]		MPH[c]	Work Activities[d]	Comments
								train. If LVSW or MBTL cannot take train - it will wait on BNSF main at signal until it can proceed to MBTL.	
	Arrive	MBTL Loop	WA	7.4	0:32	0.74	10	Train stops, conductor operates switch into MBTL, BNSF or UP crews handle unit train to MBTL. Proceed into MBTL track designated by MBTL yardmaster	6 miles Longview Jct. to MBTL switch. About 1.4 miles to pull entire train onto MBTL storage track.
	Secure Train	MBTL Loop	WA	Dwell	0:00		-	BNSF or UP crew secures train and either transported by automobile back to Vancouver, WA (BNSF) or Albina (UP) or board outbound train for return to Vancouver, WA or Albina	BNSF or UP crew may remain on duty to unload train or to move an empty train direct to dumper
Unloading	Prep for dumping	MBTL Loop	WA	Dwell	2:30		-	Mechanical inspection, train then waits on storage track until MBTL ready to unload.	Dwell time waiting to unload - Hellerworx estimate
	Begin Dumping	MBTL Loop	WA	0			1	MBTL crew positions train with first 2 cars positioned at dumper, indexer would move train through dumper stopping every 2 cars to dump,	
	Dumping Completed	MBTL Loop	WA	1	1:20		1	MBTL crew takes lead locomotives to end of loading loop, couple to empty train when unloading completed. From dumper, train proceeds into storage track awaiting outbound train crew	Unloading time estimate based on proposed rotary dumper specs of 8,267 ST/ hour and average train of 15,263 ST

Activity	Event	City	State	Miles[a]	Running Time or Dwell Time[b]		MPH[c]	Work Activities[d]	Comments
Empty Movement within Port	Empty train prep	MBTL Loop	WA	Dwell	3:00		-	Mechanical inspection, Bad Order (cars with defects) repaired in place or switched out of train to Bad Order track. Train waits for outbound train slot. BNSF crew taxi from Vancouver, WA or crew from inbound train boards outbound.	Mechanical inspection and switching out Bad Orders about 1 hour, balance of time waiting crew/train slot to depart, all Hellerworx estimates.
	Depart	MBTL Loop	WA	Dwell	0:00		-	Crew obtains authority from BNSF dispatcher to proceed on BNSF main line. BNSF dispatcher lines switches from Longview Jct - North leg of Y from Cowlitz River bridge. LVSW yard master lines switches and signals over LVSW to Longview Jct yard. Train stops at MBTL switch, conductor operates switch to line movement onto Reynolds Lead, transported by road to lead locomotive when switch closed.	
	Arrive	Longview Jct	WA	7.4	0:32	0.74	10	Train moves directly from MBTL over LVSW track and across Cowlitz River bridge over north leg of Y onto BNSF main line at Longview Jct. heading north toward Auburn	BNSF currently improving northbound leg of Y at Longview Jct to increase radius- current tight curve sometimes causes empties to derail. Train does not depart MBTL until authority to proceed on BNSF main line is obtained from BNSF dispatcher. It would not typically stop at any point on LVSW between MBTL and Longview Jct.

Activity	Event	City	State	Miles[a]	Running Time or Dwell Time[b]		MPH[c]	Work Activities[d]	Comments
	Depart	Longview Jct	WA	0	0:00			Train moves directly onto BNSF main line heading north toward Auburn	
Empty trains port to WA state line	Arrive	Auburn	WA	119.9	7:00	6.66	18		Crew change location and dwell times are Hellerworx estimates. Empty return route via Stampede Pass, Hellerworx estimate.
	Arrive	Yakima	WA	139	8:00	7.72	18		
	Arrive	Pasco	WA	89.5	5:00	4.97	18		
	Arrive	Spokane	WA	142.8	8:00	7.93	18		
	Arrive	ID/WA Line	WA	18.3	1:00	1.02	18		

Notes

[a] BNSF and UP Route miles from PC Rail 21 Coal/Bulk Familzed Reynolds Lead miles from meeting with David Wolter 12.03.14 and Hellerworx estimate from Google Earth

[b] Hellerworx estimate

[c] MPH for main line movements - Hellerworx estimate based on BNSF coal unit train performance 53 week average reported to AAR, less Hellerworx estimated dwell time enroute
MPH for port area movements from Noise Report Sept 2014 P20 and Hellerworx estimate
Meeting with LVSW David Wolter 12.03.14

[d] Work activities from BNSF, UP and LVSW work activity from Hellerworx experience and Meeting with LVSW David Wolter 12.03.14

Table A-2. UP Coal Train Operating Plan

Activity	Event	City	ST	Miles [a]	Running Time or Dwell Time [b]	MPH [c]	Work Activities[d]	Comments
Loaded trains from WA state line to Longview Jct	Depart	OR/WA Line	WA				UP trains, crew change Albina Yard (Portland), enter BNSF trackage at Albina Yard, proceed across Columbia River bridge to Vancouver, WA	
	Arrive	Vancouver	WA	0.7	0:30	1		
	Arrive	Longview Jct	WA	35.2	2:00	18	0	Possible construction of 3rd main track through Longview/Kalama
Loaded movement within port	Depart	Longview Jct	WA	Dwell	0:00	-	BNSF dispatcher requests permission from LVSW yardmaster to access LVSW track through to MBTL. LVSW yardmaster lines switches and signals through to MBTL then provides authority to BNSF dispatcher. BNSF dispatcher lines switches and signals off BNSF main into Longview Jct yard. Trains proceeds via south leg of Y across Cowlitz River bride. Train does not stop until MBTL switch unless LVSW or MBTL cannot take train. If LVSW or MBTL cannot take train - it will wait on BNSF main at signal until it can proceed to MBTL.	BNSF plans to upgrade LVSW route from west side of Cowlitz River bridge to MBTL with CTC and remote control switches which would increase speed to 25 MPH. Speed over Cowlitz River bridge would remain at 10 MPH. Average speed of 12 MPH is Hellerworx estimate based on
	Arrive	MBTL Loop	WA	7.4	0:32	10	Train stops, conductor operates switch into MBTL, BNSF or UP crews handle unit train to MBTL. Proceed into MBTL track designated by MBTL yardmaster	6 miles Longview Jct. to MBTL switch. About 1.4 miles to pull entire train onto MBTL storage track.

Activity	Event	City	ST	Miles [a]	Running Time or Dwell Time [b]	MPH [c]	Work Activities[d]	Comments
	Secure Train	MBTL Loop	WA	Dwell	0:00		BNSF or UP crew secures train and either transported by automobile back to Vancouver, WA (BNSF) or Albina (UP) or board outbound train for return to Vancouver, WA or Albina	BNSF or UP crew may remain on duty to unload train or to move an empty train direct to dumper
Unloading	Prep for dumping	MBTL Loop	WA	Dwell	2:30		Mechanical inspection, train then waits on storage track until MBTL ready to unload.	Dwell time waiting to unload - Hellerworx estimate
	Begin Dumping	MBTL Loop	WA	0	0:00		MBTL crew positions train with first 2 cars positioned at dumper, indexer would move train through dumper stopping every 2 cars to dump,	
	Dumping Complet ed	MBTL Loop	WA	1	1:20	1	MBTL crew takes lead locomotives to end of loading loop, couple to empty train when unloading completed. From dumper, train proceeds into storage track awaiting outbound train crew	Unloading time estimate based on proposed rotary dumper specs of 8,267 ST/ hour and average train of 15,263 ST
Empty Movement within Port	Empty train prep	MBTL Loop	WA	Dwell	3:00		Mechanical inspection, Bad Order (cars with defects) repaired in place or switched out of train to Bad Order track. Train waits for outbound train slot. UP crew taxi from Albina or crew from inbound train boards outbound.	Mechanical inspection and switching out Bad Orders about 1 hour, balance of time waiting crew/train slot to depart, all Hellerworx estimates.
	Depart	MBTL Loop	WA	Dwell	0:00		Crew obtains authority from BNSF dispatcher to proceed on BNSF main line. BNSF dispatcher lines switches form Longview Jct - South leg of Y from Cowlitz River bridge. LVSW yard master lines switches and signals over LVSW to Longview Jct yard	

Activity	Event	City	ST	Miles [a]	Running Time or Dwell Time [b]	MPH [c]	Work Activities[d]	Comments
	Arrive	Longview Jct	WA	7.4	0:32	10	Train moves directly from MBTL over LVSW track and across Cowlitz River bridge over south leg of Y onto BNSF main line at Longview Jct.	BNSF currently improving northbound leg of Y at Longview Jct to increase radius- current tight curve sometimes causes empties to derail. Train does not depart MBTL until authority to proceed on BNSF main line is obtained from BNSF dispatcher. It would not typically stop at any point on LVSW between MBTL and Longview Jct.
	Depart	Longview Jct	WA	0	0:00		Train moves directly onto BNSF main line heading south toward Vancouver, WA	
Empty trains port to WA state line	Arrive	Vancouver	WA	35.2	2:00	20		
	Arrive	OR/WA Line	WA	0.7	0:30	1	Train moves on BNSF trackage rights to Albina Yard then back on UP, crew change	

Notes

[a] BNSF and UP Route miles from PC Rail 21 Coal/Bulk Familzed. Reynolds Lead miles from meeting with David Wolter 12.03.14 and Hellerworx estimate from Google Earth

[b] Hellerworx estimate

[c] MPH for main line movements - Hellerworx estimate based on BNSF coal unit train performance 53 week average reported to AAR, less Hellerworx estimated dwell time enroute
MPH for port area movements from Noise Report Sept 2014 P20 and Hellerworx estimate
Meeting with LVSW David Wolter 12.03.14

[d] Work activities from BNSF, UP and LVSW work activity from Hellerworx experience and Meeting with LVSW David Wolter 12.03.14