Section 4.3 Transportation

Construction and operation of the Facility will result in additional motor vehicle, rail, and ship traffic. Activities include construction traffic (workers, equipment, and deliveries) on area roadways and operational traffic (employees, visitors, and deliveries of equipment supplies).

4.3.1 Existing Conditions

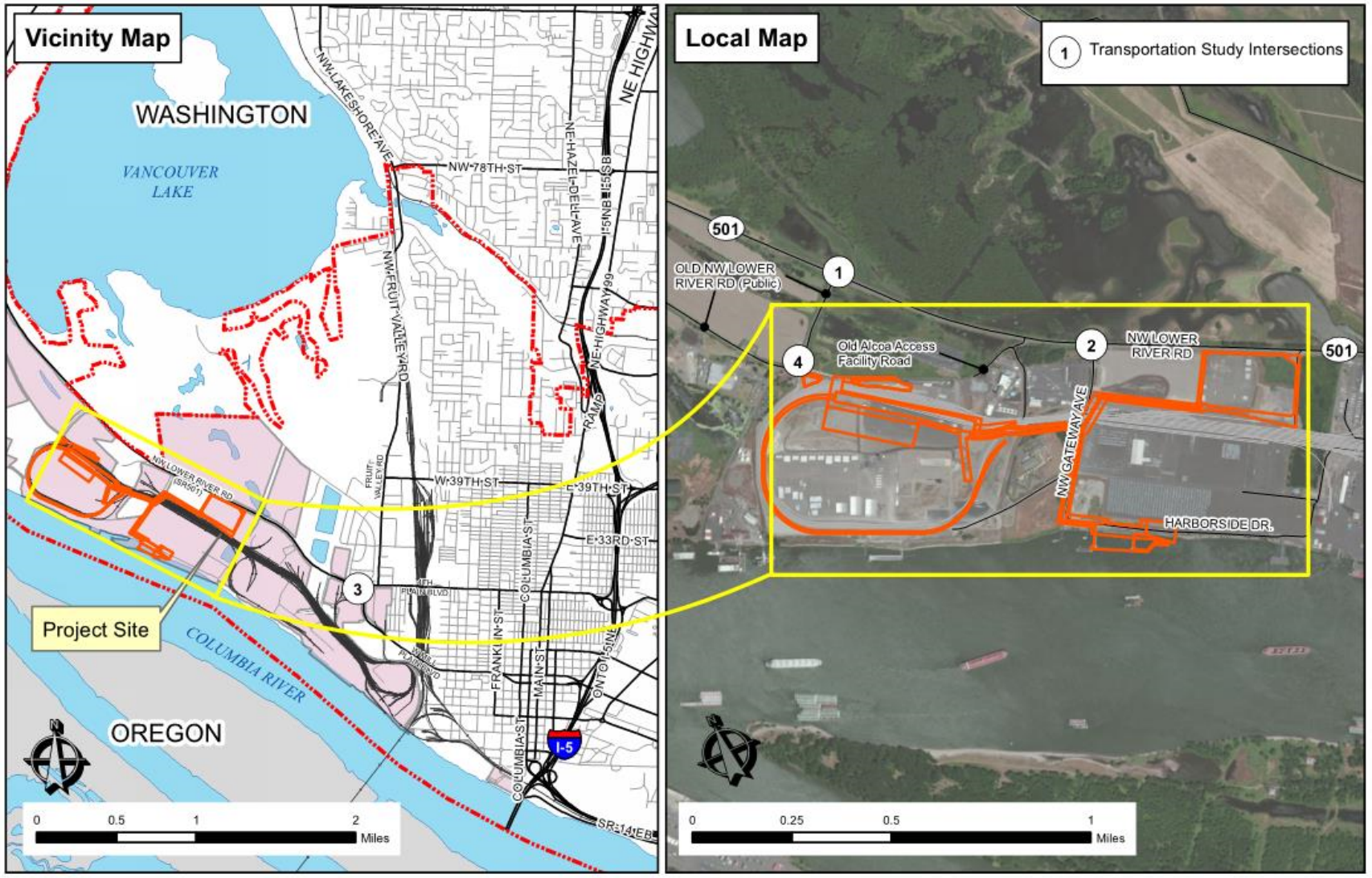
4.3.1.1 Regional and Site Area Transportation Facilities

The Facility will be located within the Port, on the northern shore of the Columbia River, and will be accessible through roadway, rail, and river transportation networks.

Roadway Transportation

The existing roadway system in the area of the project is shown on Figure 4.3-1. The roadways that are within the vicinity of the project include:

- **Interstate 5** – The main interstate highway on the West Coast, I-5 generally runs parallel to the Pacific Ocean and U.S. Highway 101 from Mexico to Canada. I-5 serves some of the country's largest cities, including Seattle, Portland, Sacramento, Los Angeles, and San Diego. This significant interstate freeway generally provides four travel lanes, but expands to six lanes in the region of the Fourth Plain Boulevard exit. Other exits in the vicinity of the project site, from south to north, include SR 14, Mill Plain Boulevard, East 39th Street/ SR 500, and Main Street.
- **SR 501 (NW Lower River Road and Mill Plain Boulevard)** – This highway is co-managed by WSDOT and the City and is a major truck route with a 50-mph speed limit at the project site. West of I-5, the road leads out of the downtown Vancouver area along Mill Plain Boulevard and then along Lower River Road west of the Fourth Plain Boulevard/Mill Plain Boulevard intersection. As Mill Plain Boulevard, the highway has five lanes of travel and urban design features including a landscaped median, bicycle lanes, and sidewalks. West of the Fourth Plain Boulevard intersection, the highway becomes more rural in nature, slimming down to two travel lanes with left-turn lanes provided at major intersections. The highway generally has wide paved shoulders and fog line striping for bicycle travel and there is a multi-use path at intermittent locations along the south side of the road.
- **Fourth Plain Boulevard –** This is a principal arterial and state route with a 35-mph speed limit (City of Vancouver 2012) and primary access route for car and truck traffic from I-5 to the Port and the project site. West Mill Plain and West Fourth Plain boulevards connect to I-5 approximately 2.5 miles east of the site. Fourth Plain Boulevard extends west from I-5 through the northern section of downtown Vancouver, and merges into SR 501 (NW Lower River Road). Fourth Plain Boulevard is generally composed of two lanes and a turning lane. The bordering properties are both residential and commercial.
- **Old NW Lower River Road (public)** – This two-lane local access road extends south from NW Lower River Road (SR 501) and then west to provide access to local industrial businesses before it circles back to SR 501 to the northwest. The road provides access to the west end of the Port's Terminal 5, Tidewater Barge Lines, Tidewater Terminal Company, Hickey Marine, the West Van Material Recovery Center, and Old NW Lower River Road (private).



BergerABAM

Figure 4.3-1. Existing Roadway Transportation System (Revised)

2,640 feet. After this point, the channel maintains a depth of 43 feet and a width of 600 feet for 106.55 miles to the Ports of Vancouver and Portland. The river above the rail bridge is maintained at a depth suitable for barge traffic.

The number of deep draft vessels entering the Columbia River system has declined markedly over the past two decades. There were an average of 2,100 vessel transits[23] between 1995 and 2000; consisting of 1,930 cargo and passenger vessels (92 percent of total vessel entries) and 170 tanker vessels (8 percent of total vessel entries). Approximately 60 percent of these transits occurred at Oregon ports and 40 percent at Washington ports. During 2011 and 2012, there were an average of 1,414 vessel entries; consisting of consisting of 1,326 cargo and passenger vessels (94 percent of total vessel entries) and 88 tanker vessels (6 percent of total vessel entries). Approximately 51 percent of these transits occurred at Oregon ports and 49 percent at Washington ports.

The number of transits declined from 2,100 (average 1995 to 2000) to 1,414 (average 2011 and 2012), which represented a decrease of 687 vessel entries. This included a decrease of 604 cargo and passenger vessels and 83 tanker vessels. The number of vessel entries decreased by 33 percent. This primarily occurred as a result of increased average vessel size. The average load per vessel increased from 16,658 tons (average load of vessels from 1995 to 2000) to 27,826 tons (average load of vessels for 2011 and 2012), which represents an increase of 67 percent. These changes reflect the increased loads that can be moved on the Lower Columbia River as a result of the channel deepening from 40 feet to 43 feet which was completed in November 2010.

With the proposed project, ship and barge loading will occur at existing berths 13 and 14 on the Columbia River south of the current Subaru facility.

Berths 13 and 14 were permitted by the U.S. Army Corps of Engineers in 1993 "to provide berthing for up to (2) ocean-going vessels for short and/or long-term moorage." See Permit No. 93-25 (Department of the Army Permit). The permit anticipated and expressly authorized use of these berths by both governmental and commercial (cargo-handling) vessels.~~were developed to serve as a layberth facility in the 1990s – primarily for U.S. government vessels staged to respond to requirements to deploy U.S. forces from West Coast locations. Since construction, the facility has supported U.S. governmental and commercial vessels. Aside from longer-term layberths for government vessels, commercial vessel use has been for minor maintenance and cleaning while waiting to load cargo at Columbia River ports.~~

Air Transportation

The nearest international airport is Portland International Airport (PDX), which is about 25 minutes away by automobile via SR 501 and I-5, then to SR 14 east to I-205, south across the I-205 Bridge, and along Airport Way to the airport. PDX has scheduled commercial passenger and freight service.

The City owns and operates Pearson Airfield for general aviation purposes (City of Vancouver 2012). This historic airport is located approximately 3 miles east of the project site. The project site is not located within the regulated airport approach services per VMC 20.570-1.

[23] A transit is a single trip on the river. One ship-call requires two transits.

Public Transit

Public transit does not serve the site. C-TRAN (the area's public transit provider) Route #25 is the transit route closest to the site. It travels on West Mill Plain and Fruit Valley Road, approximately 1.5 miles east of the site. The Port is currently developing a multi-modal path that would provide access from the proposed Facility site to the existing terminus of this transit route.

Parking

No parking is located within the areas proposed for construction on the project site.

4.3.2 Proposed Transportation Project Elements

The Facility will employ road, pedestrian, rail and marine vessel modes of transportation to access and serve the various areas of the Facility. Road access will be provided to all upland Facility areas. Rail access will be provided to Area 200 – Unloading, through the addition of new rail infrastructure. Marine vessel access will be provided to Area 400 – Marine Terminal through upgrades to the existing berths 13 and 14.

4.3.2.1 Transportation Elements by Project Area

Area 200 – Unloading and Office

The proposed project requires an office building and two support buildings, proposed for location in Area 200. These facilities will be located on the north side of the Terminal 5 loop adjacent to Old Alcoa Facility Access Road. Access driveways to NW Old Lower River Road will be constructed for two parking lots – one with 20 stalls and another with 78 stalls. Bicycle parking will be considered for incorporation into the site design. No improvements are anticipated to NW Old Lower River Road. The Applicant will construct, operate and maintain Facility driveways in compliance with City and Port standards; the City will maintain ownership and operation of NW Old Lower River Road.

The rail car unloading building will be located on the north side of the Terminal 5 loop. The building will be approximately 1,850 feet long by 91 feet wide, and will enclose the unloading equipment and tank cars during the unloading process. Pedestrian bridges will allow workers to pass over the unit trains during operations. Additional pedestrian bridges will allow access to the administrative and support buildings over the existing Terminal 5 rail loops. The Applicant will construct and maintain the pedestrian bridges. The bridges will be designed in accordance with applicable building codes and industry and standards for egress.

Rail lines on both sides of the proposed building will prevent direct vehicular access to the building due to the likely presence of trains. However, a surface level crossing will allow access for maintenance vehicles. The Port will construct and maintain this surface level crossing as part of the WVFA project.

Area 300 – Storage

The storage area is approximately 20.84 acres on Parcel 1A, approximately 1,600 feet north of the Columbia River, and located adjacent to NW Lower River Road. Access to this storage area will be from an existing Port owned and maintained shared driveway from NW Lower River Road located at the northwest corner of the site. This driveway currently provides access to Farwest Steel. As proposed, this driveway will be extended along the fenced entrance to the site, and five parking spaces will be provided for maintenance vehicles. Modifications to NW Lower

River Road and the existing driveway are not proposed. The Applicant ~~would~~ will construct the extension of the driveway for access to the Facility storage area.

Frontage improvements along the border of the tank farm area and NW Lower River Road are not anticipated. NW Lower River Road is improved with a 12-foot-wide separated shared-use path.

Area 400 – Marine Terminal

Area 400 includes ship or barge loading and support uses on approximately ~~4.97~~7.63 acres at existing berths 13 and 14 on the Columbia River south of the current Subaru facility. This area will be accessed via Port-owned and maintained roadways, including Gateway Avenue. Workers will use an existing paved area at the berths for parking and deliveries. The parking will be restriped as necessary.

Some modifications to the existing berths will be required to improve safety and to strengthen structures to meet current seismic design criteria and mooring loads. Modifications will be made to the Berth 13 trestle and platform, access catwalks, and mooring structures. ~~, such as catwalks and a mooring system and the addition of the p~~Piping, cranes, support structures, and other equipment necessary to load the vessels (see section 2.3.5.1) will be added. In the waterfront design community, it is generally recognized that the International Building Code (IBC) does not sufficiently address the unique design characteristics of waterfront structures like berths 13 and 14 that are not intended for public access and use. For this reason, the project will adopt the applicable provisions of the Oil Companies International Marine Forum (OCIMF) Mooring Equipment Guidelines, 3rd edition, and will supplement mooring and berthing design, seismic design, and structural load combinations requirements with applicable industry standards~~by the applicable provisions of Chapter 31F of the California Building Code, Marine Oil Terminals Engineering and Maintenance Standards (MOTEMS)~~.

The Applicant will construct these modifications, and will exclusively maintain and operate the berths for the duration of the lease with the Port. However, the Port will continue to be responsible for maintenance of berth bathymetry, and will conduct maintenance dredging in accordance with its existing and future dredging permits.

The improvements will be constructed to state building code, and other safety and spill control related standards and requirements discussed in sections 2.10, 4.1.2, and 4.1.4.

Area 600 – West Boiler

A boiler building of approximately 6,600 square feet will be located adjacent to Old NW Lower River Road, just northwest of the administrative and support buildings area. An access driveway from Old NW Lower River Road will be added by the Applicant to provide access and parking for approximately five spaces. The driveway will be constructed to meet city code. The Applicant will maintain this access driveway.

Rail Infrastructure

The project will require the construction of two additional rail loops consisting of approximately 18,000 linear feet of new track located on approximately 5.45 acres at Terminal 5. The additional lines, which will begin and end near the Gateway Avenue overcrossing, will form two complete loops inside the existing rail loops. Figure 2.3.4, illustrates the location of the new loops. The Applicant will work with the Port to construct these loops; the Applicant will maintain these two

loops for the life of the Facility. The design and implementation of these loops fall within the criteria established and evaluated as part of the WVFA project (see section 4.2).

As described in section 2.3, the Port will construct an additional rail loop as part of the WVFA project that will transfer in the future to exclusive use of the Applicant (based on the lease term for transfer). Once transferred to the Applicant, the Applicant will control operation and maintenance of the loop. At the end of the Facility's lifetime, operation and maintenance of the loop will transfer back to the Port.

All rail facilities will be constructed to meet BNSF's standard criteria for rail facilities (BNSF, 2011), and the AREMA 2013 Manual for Railway Engineering.

4.3.2.2 Estimated Future Traffic Volumes

The analysis of baseline traffic conditions estimates operating conditions for the year 2020, when the Facility is expected to operate at full capacity and at full employment. Also, a baseline future forecast for the year 2025 was prepared, per the City's traffic impact analysis requirements, to identify how the transportation system in the study area will operate 5 years after completion of the proposed development.

This baseline analysis includes the growth in general traffic in the region and the vehicle trips generated by in-process developments in the vicinity of the site, but does not include traffic from the proposed development. The analysis also accounts for planned transportation improvement projects not associated with the proposed development

A 1.5-percent linear annual growth rate was applied to existing year 2013 peak hour traffic volumes over a 7-year period to develop year 2020 baseline traffic volumes for the weekday AM and PM peak hours. This growth rate was applied to major traffic movements at the study intersections along SR 501, but not at minor connections related to Port properties such as Gateway Avenue and Old Lower River Road. Year 2020 baseline traffic volumes were further increased by a 1.5 percent linear annual growth rate to develop year 2025 baseline traffic volumes. Consistent with the 2020 analysis, the growth rate was applied to major traffic movements at study intersections along SR 501. No additional in-process developments or planned roadway improvements were identified at the study intersections for the 2025 horizon year.

One in-process development was identified and included in the 2020 baseline traffic volumes – the Terminal 5 bulk potash handling facility. That facility, which has undergone the required approval processes, is to be located west/southwest of the proposed site. The vehicle trips generated by this in-process development were assigned to the study intersections based on the trip generation and assignment contained in the transportation impact analysis completed for that project by Parametrix (Parametrix, 2011).

4.3.2.3 Estimated Future Level of Service

Tables 4.3-3 and 4.3-4 illustrates the build out year 2020 and year 2025 baseline traffic conditions for the respective weekday AM and PM peak hour periods. These results reflect the assumed annual traffic growth pattern and in-process development trips. The study intersections are forecast to continue to operate acceptably under these scenarios during the weekday AM and PM peak hours.

Table 4.3-7. Forecast Year 2025 Total Traffic Conditions Summary

Intersection	Peak Hour	LOS	V/C	Standard	Meets Standard?
Old Lower River Rd/Lower River Rd (SR 501)	AM	B	0.10	LOS "D"	Yes
	PM	A	0.13		Yes
Gateway Ave/Lower River Rd (SR 501)	AM	A	0.08	LOS "D"	Yes
	PM	A	0.07		Yes
Fourth Plain Blvd/Mill Plain Blvd (SR 501)	AM	B	0.75	LOS "D"	Yes
	PM	B	0.38		Yes
Old Lower River Rd/Old Alcoa Facility Access Rd	AM	B	NA	LOS "E" & V/C ≤ 0.95	Yes
	PM	A	NA		Yes

Vehicle Queuing Analyses

Vehicle queuing analyses were prepared for the study intersections as shown in Appendix J. Based on the analysis, forecast queues can be accommodated within the available storage area at the identified study intersections during the AM and PM peak periods.

Concurrency Corridor Trip Assignment

The transportation impact analysis included an evaluation of the number of trips assigned to the two corridors affected by the development: Mill Plain Boulevard (Fourth Plain Boulevard to I-5) and Fourth Plain Boulevard (Mill Plain Boulevard to I-5)**.** Under the City's "Transportation Concurrency Management: Administrative Manual," both corridors are classified as Category 1 corridors. Between periodic measurements of corridor LOS, Category 1 transportation concurrency corridors are presumed to operate within acceptable LOS and are not evaluated with each development application. However, the City tracks trips distributed to each corridor from approved developments. Where there is a dramatic increase in approved trips in a Category 1 corridor LOS measurement, the City may review the corridor's designation as a Category 1 corridor. As shown by Table 4.3.8, the project will not result in a significant increase in the total number of weekday PM peak hour trips entering the City's concurrency corridors. Assigned trips were recorded by counting trips only once along each section.

Table 4.3-8. Concurrency Corridor Weekday PM Peak Hour Trip Assignment

Corridor	Corridor Limits	PM Peak Hour Trips to Corridor
Mill Plain Boulevard	Fourth Plain to I-5	20
	I-5 to Andresen	0
	Andresen to I-205	0
	I-205 to 136th Avenue	0
	136th Avenue to 164th Avenue	0
	164th Avenue to 192nd Avenue	0
St. Johns/Fort Vancouver Way	Mill Plain to 63rd Street	0
Fourth Plain Boulevard	Mill Plain to I-5	26
	I-5 to Andresen	0

Corridor	Corridor Limits	PM Peak Hour Trips to Corridor
	Andresen to I-205	0
	I-205 to 162nd Avenue	0
Andresen Road	Mill Plain to SR 500	0
	SR 500 to 78th Street	0
112th Avenue	Mill Plain to 28th Street	0
	28th St. to 51st Street	0
164th/162nd Avenue	SR 14 to SE 1st Street	0
	SE 1st Street to Fourth Plain	0
Burton Road/28th Street	18th Street to 112th Avenue	0
	112th Avenue to 138th Avenue	0
	138th Avenue to 162nd Avenue	0
18th Street	112th Avenue to 138th Avenue	0
	138th Avenue to 164th Avenue	0
136th/137th Avenue	Mill Plain to 28th Street	0
	28th Street to Fourth Plain	0
192nd Avenue	SR 14 to NE 18th Street	0

4.3.3.2 Rail

At startup, the operations of the Facility will accommodate ~~up~~ approxiamtely~~to~~ 2 train arrivals per day and 661 train arrivals per year; at full capacity, operations will accommodate an average of 4 train arrivals per day and 1,713 train arrivals per year.

~~Counting the return trips of empty trains, Facility operations will result in up to 12 trains per day and 3,426 trains per year on the section of the BNSF rail lines that serve the Port (Monty Edberg, Port of Vancouver, Personal Communications, August 12, 2013).~~ Most trains will arrive from the east on the BNSF Pasco to Vancouver line, entering Washington near Spokane. Control of the trains arriving at the Facility will be handed off from BNSF to the Applicant. After unloading is complete, e~~E~~mpty trains will be returned to BNSF control upon leaving the facility, and BNSF will route them to their future use. BNSF states that rail traffic is highly variable and that the railroad can serve the proposed use (F.E. "Skip" Kalb, Jr., Director of Strategic Development, BNSF, July 8, 2013).

The Port is completing the WVFA project, a multi-phase project that will increase rail capacity at the Port and construct new rail access into it. The new access is expected to reduce delays in rail traffic by as much as 40 percent (see Section 4.2). In addition, the City is completing a number of improvements associated with the street and rail system in downtown Vancouver; these changes will close two at-grade rail crossings permanently~~,~~ thus improving the efficiency of train operations in the area. WVFA operations are anticipated to accomodate up to 10 trains per day (resulting in 10 trains inbound and 10 trains outbound on average) on the section of the BNSF rail lines that serve the Port (Monty Edberg, Port of Vancouver, Personal Communications, August 12, 2013).

4.3.3.3 Ship

The Facility is designed to accommodate ships from 46,000 to 160,000 Deadweight Tonnage[24]. The Facility will also be able to accommodate articulated tug barges (ATBs) of up to 27,500 DWT, but use of the ATBs is not expected to be frequent. The majority of the ships anticipated to use the facility will be 46,000 DWT as ships of this size are readily available and the largest component of the fleet. If larger vessels are used, the number of ship calls will be reduced as individual vessels will carry larger volumes. Table 4.3-8i identifies typical ATB and tanker vessel dimensions that are expected to dock at the terminal.

The operations of the Facility will accommodate up to 365 ship calls per year at full operations. This results in additional ship traffic of 730 transits to and from the Facility berth per year. Information from the Columbia River Pilots indicates that the total number of inbound vessels on the Columbia River (1 transit) varied from as low as 1,404 vessels in 2009 to 2,086 vessels in 2000. 2012 data indicated a total of 1,474 vessels. In addition, Table 4.3.8i summarizes historical vessel calls (each call includes 2 transits) to the Port from 2000 to 2012.

At maximum capacity, the Facility could increase this number by 365 vessels per year, a lower volume than the recent peak year of 2000 for overall river traffic; no impacts to river traffic are anticipated. ~~Current~~ In the context of this historical transit data, current and historical practices to handle vessel traffic in the Lower Columbia River reach ~~would~~ will continue to be sufficient to manage ~~all vessel traffic~~the additional transits due to Facility operations.

[24] Deadweight Tonnage represents the number of metric tons (1 metric ton equaling 2,240 pounds) that a vessel can transport of cargo, stores, and bunker fuel.

Table 4.3-8i: Dimensions of ATBs and Tanker Vessels Anticipated to Dock at the TSVEDT

VESSEL CLASS	27.5 MDWT	46 MDWT	75 MDWT	115 MDWT	125 MDWT	142 MDWT	160 MDWT
TYPE	ATB	OIL TANKER	OIL TANKER	OIL TANKER	OIL TANKER	OIL TANKER	OIL TANKER
LENGTH OVERALL (LOA) [ft]	587.4	601.1	748.0	816.8	869.0	894.7	899.0
LENGTH BETWEEN PERPENDICULARS (LBP) [ft]	583.1	570.9	718.5	784.1	825.0	847.0	866.1
BEAM [ft]	74.0	105.6	105.64	143.7	136	151.6	157.5
MOULDED DEPTH [ft]	40.0	61.7	65.0	68.9	71.5	86.3	77.8
BALLAST CONDITION *(for upriver transit)*							
FREEBOARD [ft]		42.7	44.5	48.4	50.0	54.3	49.8
DRAFT [ft]		19.0	20.5	20.5	21.5	32.0	28.0
DISPLACEMENT (MT)		23,900	35,325	50,472	47,850	76,300	78,671
LOADED CONDITION *(for downriver transit)*							
FREEBOARD [ft]	9.8	20.7	22.0	25.9	28.5	43.3	34.8
DRAFT [ft]	30.2	41.0	43.0	43.0	43.0	43.0	43.0
DEADWEIGHT [MT]	27,181	46,172	64,100	94,200	86,821	90,700	103,000
DISPLACEMENT [MT]	32,885	56,368	77,996	112,872	111,299	122,469	125,751
CARGO CAPACITY @ MAX DRAFT INCL. FWA (BBL)		319,925	449,772	667,777	614,337	642,428	731,513

Table 4.3-8ii: 2000-2012 Summary of Vessel Calls at the Port of Vancouver

VESSELS CALLS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
VANC LANDING/TERMINAL 1	2	1		3	0	0	0						
TERMINALS 2, 3, & 4	159	227	183										
BERTH 1				24	14	29	26	26	19	13	5	2	
BERTH 2				26	36	39	29	29	26	23	16	24	19
BERTH 3				1	4	14	23	23	25	25	39	83	33
BERTH 4				5	6	48	12	15	22	11	11	2	1
BERTH 5	43	76	153	152	151	122	126	111	102	91	96	79	73
BERTH 7				29	33	44	52	53	52	37	38	41	42
BERTH 8				40	48	40	47	44	47	30	28	27	32
BERTH 9				9	18	27	39	43	17	29	14	31	14
BERTH 10				25	38	66	42	68	61	37	42	54	64
BERTH 13				4	8	14	20	33	15	1	1	2	1
BERTH 14				10	8	2							0
ELEVATOR	148	171	146	122	138	82	110	123	117	107	115	111	72
TOTAL VESSEL CALLS	352	475	482	450	502	527	526	568	503	404	405	456	351

Source: Port of Vancouver, 2013

4.3.3.4 Parking

The project will provide parking for employees, visitors, deliveries, and maintenance for all project elements as indicated in section 2.23. All parking areas will be paved and stormwater will be collected and treated in accordance with City and other applicable regulatory requirements as described in section 2.11. The total of approximately 119 parking spaces that will be provided exceeds the minimum number of spaces required by VMC 20.945 and no impacts or unmet parking needs are anticipated to result from the project.

4.3.3.5 Construction

Construction is expected to require about one year. Because construction increases the numbers of workers and deliveries in the area of the proposed project temporarily, construction activity can increase traffic and cause occasional delays. Approximately 125 construction workers could be working at a single time in the various areas that are part of the project site. In addition, approximately 83 daily round trip truck deliveries are estimated over the construction period. The 125 construction workers were assumed to arrive during the a.m. peak period and depart during the p.m. peak period. The 83 roundtrip truck deliveries were distributed across the 10-hour daily construction schedule; as such, an estimated 16 total truck deliveries were assumed during both the a.m. and p.m. peak periods (8 in, 8 out), respectively. Based on trip distribution pattern estimates, all construction worker traffic will use the Old Lower River Road entrance from Lower River Road (SR 501). Truck deliveries will be made on a daily basis and are assumed to be spread out evenly over the 10-hour construction period. This resulted in an estimate of 16 truck trips during the a.m. and p.m. peak hours, with an assumed 50% in/50% out distribution (8 in, 8 out). Tesoro Savage also estimates that 11 percent of trucks will use Old Lower River Road entrance from Lower River Road (SR 501), 3 percent will use Gateway Avenue, and 86 percent will use the private access drive east of Farwest Steel.

The typical access route for construction workers and deliveries will be from I-5 to Mill Plain Boulevard and the Mill Plain Extension and then to NW Lower River Road and Old NW Lower River Road. Because this route is accustomed to Port traffic, difficulties with the additional construction traffic along this route are not expected. The impact of construction site generated trips on intersection operations are shown in Table 4.3-9 for the a.m. and p.m. peak periods, respectively. As shown, the study intersections operate acceptably in both the a.m. and p.m. peak hours.

Table 4.3-9. Impact of Construction Traffic

Intersection	Peak Hour	LOS	V/C	Standard	Meets Standard?
Old Lower River Rd/Lower River Rd (SR 501)	AM	B	0.10	LOS "D"	Yes
	PM	B	0.32		Yes
Gateway Ave/Lower River Rd (SR 501)	AM	A	0.06	LOS "D"	Yes
	PM	B	0.35		Yes
Fourth Plain Blvd/Mill Plain Blvd (SR 501)	AM	B	0.70	LOS "D"	Yes
	PM	B	0.37		Yes
	AM	C	NA		Yes

Intersection	Peak Hour	LOS	V/C	Standard	Meets Standard?
Old Lower River Rd/Old Alcoa Facility Access Rd	PM	B	NA	LOS "E" & V/C ≤ 0.95	Yes

Construction workers and vehicles making deliveries can park adjacent to the construction areas. In the area of the tank farm, construction workers can park along the existing driveway and gravel roadway that extend along the southwest border. Construction workers and deliveries bound for the area of the rail car unloading building and administration building can park adjacent to NW Lower River Road and to the proposed permanent parking areas. Parking for the west boiler area can occur adjacent to the driveway and outside the rail loop, with overflow parking near the area of the administration building. Temporary construction parking for berths 13 and 14 can occur along the Port-owned access roads coming up to the berth areas.

The Port expects to commission a traffic study for Terminal 5 if construction of the BHP Billiton project and the Facility occur concurrently (Monty Edberg, Port of Vancouver, Personal Communications, August 13, 2013). The Applicant will participate in jointly implementing any traffic mitigation measures identified by such a study to ensure safe access conditions to the Terminal 5 location.

Transfer Pipeline Corridor – Crude oil will be transported between the rail car unloading building, the tank farm, and berths 13 and 14. The piping will be a combination of above and below-ground installation of either one or two 36-inch-diameter pipelines. Per the current alignments, construction of these pipelines is not expected to affect traffic significantly (see Figures 2.3-9). Some interior Port roadways could be blocked temporarily as the pipeline is constructed.

Temporary traffic control and construction signage will be provided along the alignment so that any impacts are properly managed. A traffic management plan will be required from the Contractor so as to ensure any impacts are mitigated.

Marine Terminal – With respect to the berth modifications at Area 400, some of the work may be performed from the waterside. A small number of tugs or barges will be positioned to conduct this work for a temporary period of time. These construction-related vessels will not be positioned in the main Columbia River navigation channel and will therefore not create any impacts to other river users.

4.3.4 Movement/Circulation of People and Goods

The Facility is being proposed at a location that has been developed specifically for the circulation of bulk goods by train with the capability to transfer goods to marine vessel shipping. Through its development of the WVFA project and the various environmental and permit reviews conducted as described in section 4.2 above, the Port has addressed changes to how tenants will use its facilities for their activities (many of which include the transportation of goods), as well as the impacts to road and river transportation systems serving the Terminal 5 area. The Port has designed and implemented the WVFA project as a means to improve the capacity of its operations, thereby improving access to the movement of goods in general. Members of the public are generally not allowed access to the tenant controlled areas in vicinity of the site. Members of the public can access the Jail Work Center using Gateway Avenue.

Impacts to the current movement or circulation of the general public have been addressed through the traffic analysis above and in Appendix J. Impacts to the circulation of goods have been addressed through the analysis of impacts to road, rail, and vessel traffic systems, also addressed above.

Construction of the WVFA Gateway Avenue Grade Separation ("Gateway overpass") is addressing conflicts between rail activities and road transportation at Terminal 5, by building a bridge that separates vehicle traffic from train traffic below. The new bridge, expected complete in late 2013, will allow cars and trucks to travel over the Port's internal rail corridor while accessing two of the Port's five marine terminals, as well as the Jail Work Center.

The Applicant has carefully sited Facility elements to minimize disruption to the activities conducted by current tenants, and to accommodate future activities as directed by the Port. For example, the transfer pipeline corridor has been carefully routes to avoid conflicts with existing easements; portions of the transfer pipeline will also be located underground to avoid conflict with existing road and rail uses.

The public will not be allowed admittance to any construction or operation areas established as part of the Facility, unless in accordance with the Facility's construction or operations site safety plan and applicable federal security requirements (see Section 2.19).

The Facility will only receive crude oil by rail; crude oil will not be delivered to the Facility by truck. Small amounts of hazardous materials (greases, cleaners, diesel fuel for fire pumps, etc…), necessary for use during construction and operation, will be received by truck. These materials will be shipped by others in compliance with state and federal requirements for the safe transport of hazardous materials. As identified in sections 4.1.3.2 and 4.1.3.3, any wastes produced at the Facility that classify as hazardous will be collected, handled, stored and disposed of in accordance with applicable federal, state, and local regulations, including regulations relating to its transportation on surface roads.

4.3.5 Mitigation

Based on the results of the transportation impact analysis, the proposed Facility can be developed while maintaining acceptable levels of service and safety on the surrounding transportation system. The analysis developed the following findings:

- All study intersections currently operate acceptably during the weekday AM and PM peak hours and are projected to do so in 2020 and 2025 with site development.
- A review of historical crash data identified no safety-related mitigation needs at the study intersections.
- Intersection sight distance is adequate at all study intersections.
- The proposed development is estimated to generate 332 additional daily trips, 48 weekday AM peak hour trips (40 in, 8 out), and 46 weekday PM peak hour trips (10 in, 36 out). Concurrency corridors receiving trips from the proposed development are operating within the established standards.

The study concluded that specific mitigation was not necessary to address project impacts. However, the study developed the following recommendations to address existing safety or operational issues within the project vicinity:

- The Applicant should work with the Port and City to post a 25 MPH speed limit on Old Lower River Road south of SR 501, where no posted speed sign exists.
- The Applicant should work with the Port and WSDOT to post a YIELD sign to control the channelized northbound right-turn maneuver from Old Lower River Road onto SR 501.
- The Applicant should work with the Port and City to reconfigure traffic control devices at the Old Lower River Road/Old Alcoa Facility Access Road intersection.
- The Applicant should work with the Port to add texturing/coloring treatments to the striped crosswalk on the private access approach to Lower River Road (SR 501), between the Far West Steel property and the proposed Storage area. This treatment is intended to enhance the safety of bicyclists and pedestrians using this crosswalk as part of the adjacent multi-use path.