BURNS McDONNELL

NORTHWEST SEAPORT ALLIANCE (NWSA)

NWSA RAIL ASSESSMENTS

FINAL REPORT

PROJECT NO. 170528

NOVEMBER 14, 2024

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Executive Summary

Executive Summary

Northwest Seaport Alliance (NWSA) aims to develop a harbor-wide freight rail program that allows the NWSA and its homeports--the Port of Seattle and Port of Tacoma--to be proactive with their long-range multimodal rail planning and in providing input to the Washington State Rail Plan. A key objective of the Port-wide Rail Assessment Study is to identify NWSA's strengths, weaknesses opportunities, and threats (SWOT) with respect to the development of its freight rail system and its ability to capture emerging opportunities while sustaining current rail operations and retaining existing business. This report documents current rail operational issues and system bottlenecks and identifies project options to address operational efficiency and capacity issues in addressing the needs of tenants and realizing the overall growth potential of NWSA assets.

SWOT Analysis

The key requirements for a competitive rail system for NWSA and its homeports include:

Competitive access to both BNSF and UP for shippers – competition is likely to provide better rate options and service quality for shipping lines and shippers.

NWSA's North and South harbors are served by both Burlington Northern Santa Fe (BNSF) and Union Pacific (UP). Tacoma Rail provides switching services for these Class 1 railroads in the South Harbor and both BNSF and UP provide switching for their own operations in the North Harbor. Near-dock rail yards (the Seattle International Gateway for BNSF and Argo Yard for UP) provide relatively efficient options for handling on-dock and off-dock North Harbor traffic.

BNSF has three intermodal yards in the Puget Sound area:

• Seattle International Gateway (SIG) offers a near-dock alternative for trucking containers to/from the North Harbor terminals and is located just east of the North Harbor.

• South Seattle Intermodal (SSI) Facility is a 48-acre facility handling domestic intermodal traffic.

• In 2022 BNSF entered into an agreement to lease a 16-acre parcel to develop and operate a domestic intermodal facility at Lot M in the Tacoma Harbor.

Argo Yard is UP's main intermodal yard in the Puget Sound area and is located at the northern terminus of the UP regional network close to the North Harbor. From Argo Yard, the UP extends south on single track to the Tacoma area. South of Tacoma, UP operates through trackage rights on BNSF Seattle Subdivision track to Vancouver, WA. UP also handles domestic intermodal traffic at the Tacoma South Intermodal Yard (TACSIM) in the Tacoma Harbor.

Efficient Train Operations for the Railways – Low operating costs provide an incentive for the railways to price NWSA traffic competitively with POLA/POLB routing. The primary strategies for railways to reduce costs are reducing switching activities and increasing train lengths. NWSA is considering future infrastructure investments to accommodate 10,000' trains for both intermodal and manifest shipments.

Available data suggests that both BNSF and UP can currently handle long intermodal trains to/from NWSA when it meets their operational requirements.

BNSF's South Harbor trains are assembled by Tacoma Rail and interchanged with BNSF for dispatch onto the BNSF network. BNSF North Harbor on-dock and near-dock traffic is combined at the Seattle International Gateway (SIG). Current intermodal train lengths average 8,000'. BNSF does not mix international and domestic intermodal traffic on the same train.

With the current infrastructure in the PNW region, BNSF has sufficient track capacity to handle trains of 10,000' or longer. Approximately 50% of sidings on the BNSF Stevens Pass routes serving NWSA are 10,000 ft or longer, and BNSF can handle trains of 10,000' or longer in areas where the sidings are too short to accommodate the intermodal train by giving priority to the intermodal trains and having other trains divert to sidings to let them pass. BNSF may lengthen the sidings on these routes to accommodate longer trains when operational requirements justify the investment.

Based on analysis of a one-week sample of UP traffic data on the BNSF Seattle subdivision between Tacoma and Portland from September 2 to September 8, 2024, approximately 10 (77%) of UP's trains serving the Puget Sound region were over 9,000' in length, and only 3 (23%) were under or around 8,000 ft. The longest intermodal train recorded on the Seattle subdivision from September 2 to September 8 was UP's I-G4SE train from Global 4 Joliet, IL to Seattle on September 3, which totalled 15,000 ft in length. It appears that UP combines its international and domestic traffic to boost train lengths.

Reliable and timely rail service for terminal operators – is required to ensure efficient terminal operations and service quality for shipping lines and shippers.

Both BNSF and UP provide frequent service for NWSA traffic, with the largest portion consisting of traffic between NWSA and Chicago-area intermodal terminals.

According to their published schedule, BNSF originates a total of 27 eastbound international intermodal trains per week, twelve (12) from the North Harbor and 15 from the South Harbor. In addition to the international service, BNSF provides approximately 21 trains per week for domestic traffic from their South Seattle Intermodal Terminal. Based on these schedules, BNSF operates a total of 54 international intermodal trains per week (in both directions) and 42 domestic intermodal trains per week for a total of 96 trains per week.

UP's published intermodal schedules indicate a total of 49 intermodal trains originating in the Puget Sound Region per week. This would imply a total of 98 trains in both directions. The sample data referenced above shows 54 UP intermodal trains per week in both directions on the BNSF Seattle Subdivision from September 2 to September 8, 2024.

North and South Harbor Rail Traffic and Capacity Requirements

Estimates of North Harbor on-dock and off-dock rail traffic based on NWSA TEU statistics are shown below. On-dock rail is handled at the two North Harbor terminals with on-dock rail infrastructure (T5 and T18). Off-dock rail traffic is trucked from all of the North Harbor terminals (T5, T18 and T30) to the BNSF and UP near-dock terminals (Seattle International Gateway and Argo Yard respectively).

NWSA North Harbor On-Dock and Off-Dock Rail Traffic and Estimated Trains per Day 2019 - 2023					
On-Dock	**2019**	**2020**	**2021**	**2022**	**2023**
On-dock TEUs	2,307,385	1,976,716	2,542,982	1,709,650	1,528,415
On-Dock Avg Daily Train ft excl Locomotives	6,322	5,416	6,967	4,684	4,187
On-dock Trains per day (based on 8,000 ft. train)	0.8	0.7	0.9	0.6	0.5

Off-Dock	2019	2020	2021	2022	2023
Off-dock TEUs	5,371,734	4,414,526	4,063,682	3,500,940	2,214,034
Off-Dock Avg Daily Train ft excl Locomotives	14,717	12,095	11,133	9,592	6,066
Off-dock Trains per day (based on 8,000 ft. train)	1.9	1.6	1.4	1.2	0.8
Total	**2019**	**2020**	**2021**	**2022**	**2023**
North Harbor Total TEUs	7,679,119	6,391,241	6,606,665	5,210,590	3,742,448
North Harbor Total Avg Daily Train ft excl Locomotives	21,039	17,510	18,100	14,276	10,253
North Harbor Total Trains per day (8,000 ft. train)	2.7	2.3	2.3	1.8	1.3
North Harbor on-Dock %	30%	31%	38%	33%	41%

In 2019, NWSA decided to proceed with redevelopment of T5 to increase its capacity from approximately 650,000 TEUs to 1.7 million TEUs, including wharf and upland improvements. It was forecast that this would increase T5's weekly train traffic from nine (9) on-dock trains and two (2) off-dock trains per week to as much as twenty-four (24) on-dock and twelve (12) off-dock trains per week. Phase 1 of the T5 redevelopment project was completed in 2021 and Phase 2 was completed in March 2024.

NWSA's statistics indicate that on-dock daily train feet (4,187) accounted for 41% of total daily train feet (10,253) in the North Harbor in 2023, and traffic was sufficient to generate approximately one (1) 8,000' train every two days. This is less than the traffic handled prior to the redevelopment of T5 (up to 2 trains per day in each direction), and significantly less than the forecasts developed for the T5 redevelopment project. This suggests that expansion of rail capacity and 10,000' track in the North Harbor is not an urgent requirement at the time of writing this report.

Estimates of South Harbor rail traffic are shown below. All South Harbor international traffic is handled on-dock.

NWSA South Harbor On-Dock Rail Traffic and Estimated Trains per Day 2019 - 2023					
	2019	2020	2021	2022	2023
On-dock TEUs	12,780,651	10,208,753	11,496,131	9,681,920	11,437,856
On-Dock Avg Daily Train ft excl Locomotives	35,015	27,969	31,496	26,526	31,337
On-dock Trains per day (based on 8,000 ft. train)	4.5	3.6	4.1	3.4	4.0

Analysis of existing rail operations in the South Harbor suggests a need for infrastructure improvements in the South Harbor to facilitate arrival/departure of longer trains and more efficient switching.

Project Needs

Analysis of existing operations at the South Harbor suggest three rail track realignment and extension options with the preliminary concept layouts as shown in the Appendices.

LOC#1 – Illustrates with a red line a continuous approximate 9,483 TF train consist using existing track infrastructure (no new track construction proposed). The red line overlays the existing A/D track adjacent to Alexandra Boulevard toward the west end of the existing railyard and will require certain switches and crossover rail movements to be blocked for extended periods of time.

LOC#2 – Begin the red line representing an approximate 10,000 TF train consist using existing track infrastructure of AD track, west of Alexandra Boulevard, then proposed new track extending through Alexandra Boulevard over Wapato Creek parallel to Highway 509 and 509 track ending before the existing leg of the Wye track. The proposed

new track would be considered a 509 track siding that creates a 2nd at-grade crossing at Alexadra Boulevard. The existing AD track will require a curve realignment, shown as a blue line, to permit the installation of a new switch to allow movement to either the existing north end of AD track or to the 509 siding track. The red line blocks two tracks and a crossover from operations when occupied by a train consist as well as Alexandra Boulevard. The existing 509 track will require a minor realignment near Alexandra Boulevard to install a new switch at the west end of the proposed 509 track siding.

LOC#3 – Proposed new siding track at the entrance to the port that parallels with the UPRR Railway resulting in a second at-grade crossing at 54th Ave E and a second overhead crossing at Frank Alber Rd E.

Inland Ports

Historically, the Port of Portland competed directly with NWSA for containerized cargo and was well positioned for regional exports due to barge services (including container-on-barge) on the Columbia-Snake River system which provides a more economical alternative to rail transportation as far inland as Lewiston, Idaho (ID). Container traffic at Portland' Terminal 6 (T6) has declined significantly because the Port of Portland is located on the Columbia River, approximately 165 km (103.5 miles) from the ocean, and draft limitations on the Columbia River make it difficult for fully loaded large oceangoing vessels to reach Portland. The channel was dredged to 43 feet in 2010.

Traffic was also affected by labor disputes. The Port of Portland leased their container terminal T6 to the Philippine terminal ICTSI operator in 2010. Continuing friction between ICTSI and the ILWU resulted in the loss of container business by 2016, and in 2017 the Port of Portland and ICTSI agreed to terminate the lease. ICTSI sued the ILWU for illegal activities, and eventually settled for compensation of $20 million.

Port of Portland container traffic peaked at 340,000 TEUs in 2003. Container operations essentially ceased from 2016 through 2019 before recovering to 58,000 TEUs in 2020. Total traffic in 2023 was 116,000 TEUs.

The Port of Portland announced that they would cease container operations on October 1, 2024 due to ongoing financial losses. However, they have reconsidered following the offer of $25 million in State funding to be included in next year's (2025) budget.

NWSA is the most obvious alternative for exporters of containerized cargo that used to be shipped through the Port of Portland. However, the loss of the direct barge option has resulted in increased reliance on trucking to transport these commodities to port, which is significantly more expensive. One potential option to mitigate these increased costs is development of inland ports which can load commodities into containers inland and transport them to port by rail.

Our review of previous and existing inland ports in the PNW highlights the significant risks involved in their development:

• It is very difficult to obtain long-term guarantees to ensure that rail service and rates will be maintained at levels which will foster long-term commercial success for these facilities.

• Location is an important determinant of commercial success. Inland ports must be sufficiently far from the port so that rail service can be competitive with trucking.

It appears that NWSA has already captured a significant portion of export cargo which was previously shipped through the Port of Portland. Under an agreement with the Port of Portland, BNSF handled intermodal traffic between T6 and NWSA port terminals from January 2018 through June 2019 to provide options for customers

previously shipping through the Port of Portland.[1] According to the Oregon Department of Transportation, approximately 81% of exported agricultural products from Mid-Willamette Valley in Oregon are loaded onto ships in Seattle and Tacoma, Washington.[2]

From this perspective, the incremental volume which could be obtained through direct investment in inland port facilities may be relatively small, since most of the additional cargo is already being delivered to NWSA terminals by truck (primarily) or rail. Given the financial risks, it may be preferable for NWSA to explore other methods to work with the railways and cargo owners to incentivize additional export traffic moving via the NWSA facilities.

[11] "Port of Portland, BNSF Railway Extend Agreement at Terminal 6" Port of Portland July 17, 2018 https://www.portofportland.com/Newsroom/Port-of-Portland%2c-BNSF-Railway-Extend-Agreement-at-Terminal-6

[2] "New Intermodal Facility Connects Oregon with Supply Chain Solutions" Union Pacific December 29, 2022 https://www.up.com/aboutup/community/inside_track/oregon intermodal-facility-it-221229.htm

Background and Objectives

Northwest Seaport Alliance (NWSA) aims to develop a harbor-wide freight rail program that allows the NWSA and its homeports--the Port of Seattle and Port of Tacoma--to be proactive with their long-range multimodal rail planning and in providing input to the state Rail Plan. The harbor-wide rail planning and development program will require coordination between various internal and external partners and involve financial and funding strategies. This effort will require a baseline characterization of current port and rail operations, a gauge on the performance of supporting infrastructure, and an evaluation of future development options and needs given existing and forecast market conditions and industrial trends.

A key objective of the Port-wide Rail Assessment Study is to identify NWSA's strengths, weaknesses opportunities, and threats (SWOT) with respect to the development of its freight rail system and its ability to capture emerging opportunities while sustaining current rail operations and retaining existing business. This report documents current rail *operational issues* and *system bottlenecks* and identifies *project options* to address operational efficiency and capacity issues in addressing the needs of tenants and realizing the overall growth potential of NWSA assets.

Figure 1 - NWSA North and South Harbor Location Map

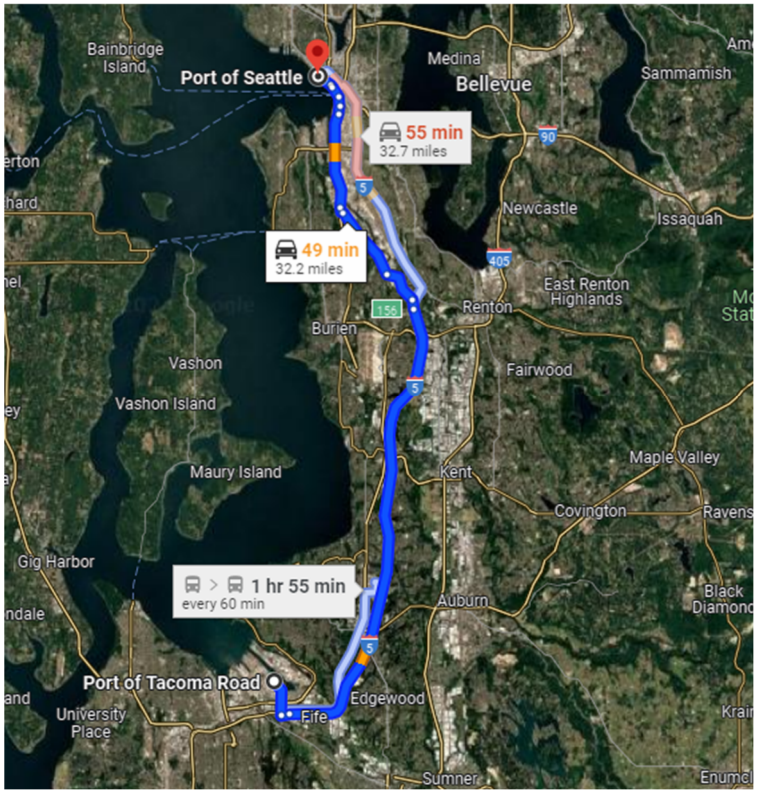


Figure 1 shows the relative locations of NWSA North Harbor/Port of Seattle and South Harbor/Port of Tacoma and 33 miles connection via I-5 highway and RD-509.

Approach

This report was prepared by the Burns & McDonnell team and Davies Transportation Consultant Inc. (DTCI).

This report and its assessments are based on the following:

1. Review of relevant and publicly available documents and reports, including the websites of NWSA and its home ports, BNSF, UP, Tacoma Rail, and local and regional agencies.
2. Analysis the NWSA provided cargo and rail volume data and BNSF and UP timetables, including sample data tracked by a third party, the Railfan Group, along with reasonable assumptions made to access the trains volume and potential train lengths of both BNSF and UP, and for both the North and South Harbor.
3. Virtual interviews conducted with the NWSA staff, BNSF's PNW operations staff.
4. Synthesis of the information and findings to establish a baseline of current NWSA, BNSF, UP and Tacoma rail infrastructure and operations, including the operations of existing and planned inland ports, for use in detailing current operations and identifying future growth opportunities.
5. SWOT assessment highlighting opportunities and challenges along with the identification of potential development projects for client consideration.

Overview: NWSA Rail Infrastructure, Operations and Traffic Volume

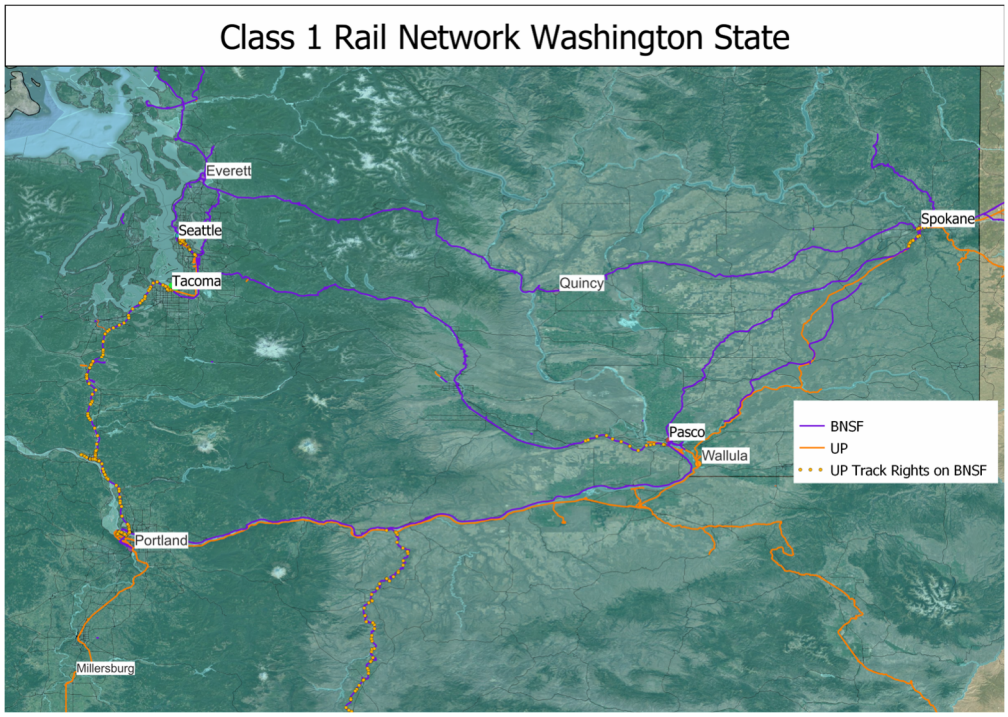
NWSA's North and South harbors are served by Burlington Northern Santa Fe (BNSF) and Union Pacific (UP), the nation's two (2) western Class 1 railroads.

Tacoma Rail provides switching services for these Class 1 railroads in the South Harbor and both BNSF and UP provide switching for their own operations in the North Harbor.

Regional Class 1 Rail Network

The network of Class 1 railroads connecting to/from NWSA's homeports, and other ports in the Northwest Pacific (PNW) region, with key urban economic areas and inland ports to the east is shown in Figure 2 below.

Figure 2 - State of Washington (WA) Class 1 Railway Accesses



BNSF Connectivity

The BNSF mainline runs north/south from California, through Seattle and terminates at Vancouver, BC. From California, the BNSF connects with the Midwest and Southern regions of the US. From Seattle, three (3) main East-West routes converge at Spokane, WA, and then to the Midwest. The three (3) BNSF eastbound routes from the Seattle area are:

- **Seattle-Vancouver, WA-Pasco-Spokane** (Columbia River route via the Seattle Subdivision),
- **Seattle-Auburn-Kennewick-Spokane** (Stampede Pass route via the Stampede Subdivision), and
- **Seattle-Everett-Spokane** (Stevens Pass route via the Scenic Subdivision).

Depending on rail traffic volumes, BNSF's expedited service normally travels the Stevens Pass route, while bulk cargo moves on the Columbia River route. BNSF has confirmed that NWSA international container traffic is typically routed via the Scenic Subdivision (northern route). The Stampede Pass route reopened in 1996 but sees only light traffic, owing to a tunnel at the pass being too small for the transit of full, double-stack container trains.

UP Connectivity

In the north, the UP mainline terminates at Argo Yard (see Figure 3 below) in the southeast portion of the Duwamish industrial area. Operated by UP, this near-dock yard comprises multiple storage and loading tracks with a total track length of 16,600'. From Argo Yard, the UP railway extends south on **single track** to Tacoma. South of Tacoma, UP operates through trackage rights on BNSF to Vancouver, WA. To the south of the Columbia River, UP can continue south or turn east on its own trackage in the Portland area. The south main connects with markets through California and the rest of the south-central US. Running east from Portland, the UP serves the central plains and connects with major Midwestern markets.

In the North Harbor, trackage rights allow for UP operations over BNSF owned track connecting to the Port's Terminal 5 (T5) and Terminal 18 (T18). Prior to the redevelopment of T5, UP provided shipping service to T5 over the BNSF track, with the switching and spotting of trains between the terminal and Argo Yard performed by BNSF. BNSF confirms that UP currently switches their own traffic in the North Harbor (T5 and T18).

Argo Yard is the only near-dock railyard to support UP operation. The yard handles a variety of cargo types, including both international and domestic containers, automobile transfers and breakbulk/project cargo. These diverse cargo types make Argo Yard a critical hub in the Pacific Northwest. On average, eight (8) scheduled trains pass through the yard each day, including a mix of UP and BNSF trains, supporting the efficient handling of intermodal traffic.

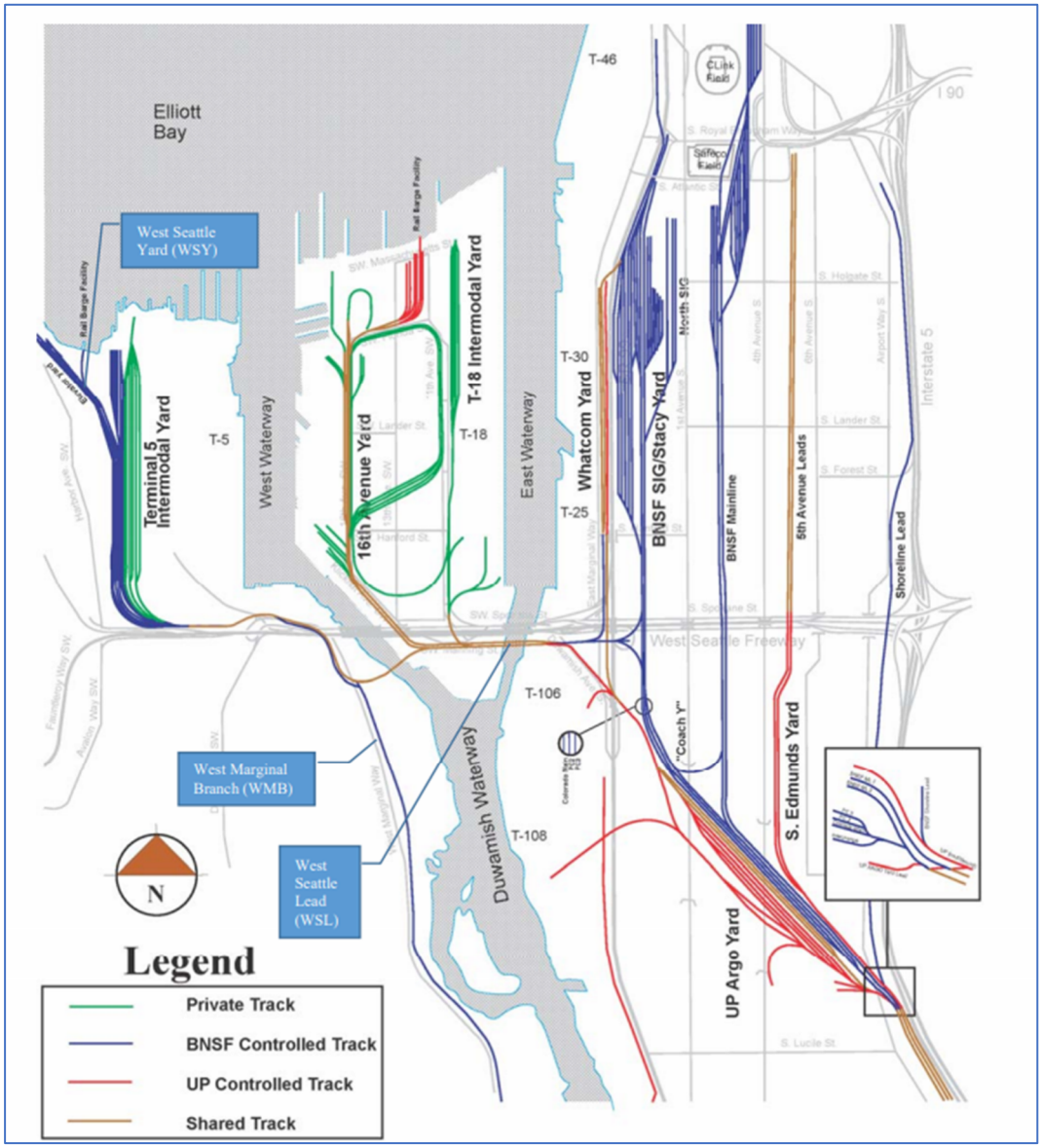
NWSA Harbors Rail Infrastructure and Accesses

North Harbor

The North Harbor rail network is depicted in Figure 3. T5 and T18 have on-dock rail infrastructure and are both served directly by BNSF and UP. Terminal 30 containers are transferred by truck to/from the near-dock intermodal yards (Seattle International Gateway (SIG) for BNSF and Argo Yard for UP) for rail loading/unloading. Figure 3 shows track and railyards of T5 and T18 in 2016 (the private track shown in green is now owned by NWSA). In 2021 NWSA executed an "Industry Track Agreement" (ITA) with BNSF for Terminal 5 which allows use of the BNSF-owned rail yard tracks located within the Terminal 5 railyard and assigns maintenance and operational responsibilities of the track to NWSA. In 2022 NWSA signed a separate "Intermodal Yard Rail Use and License Agreement" (IY Agreement) with SSA Terminal for the long-term use of the Terminal 5 intermodal yard (IY). The IY agreement transferred maintenance and repair work under the ITA to SSA, with NWSA's retaining the cost and expense.[3]

[3] NWSA Memo on Terminal 5 Phase II SSAT Lease – 3rd Amendment, Terminal 5 IY Rail Use and License Agreement, and Terminal 18 Ninth Amendment July 27, 2022 https://vecportal.blob.core.windows.net/nwseaportalliance/Documents/a44e95f221ac48f40cef4540ba67177a/Amended%209A.Memo.pdf

Figure 3 - NWSA North Harbor Rail Network



South Harbor

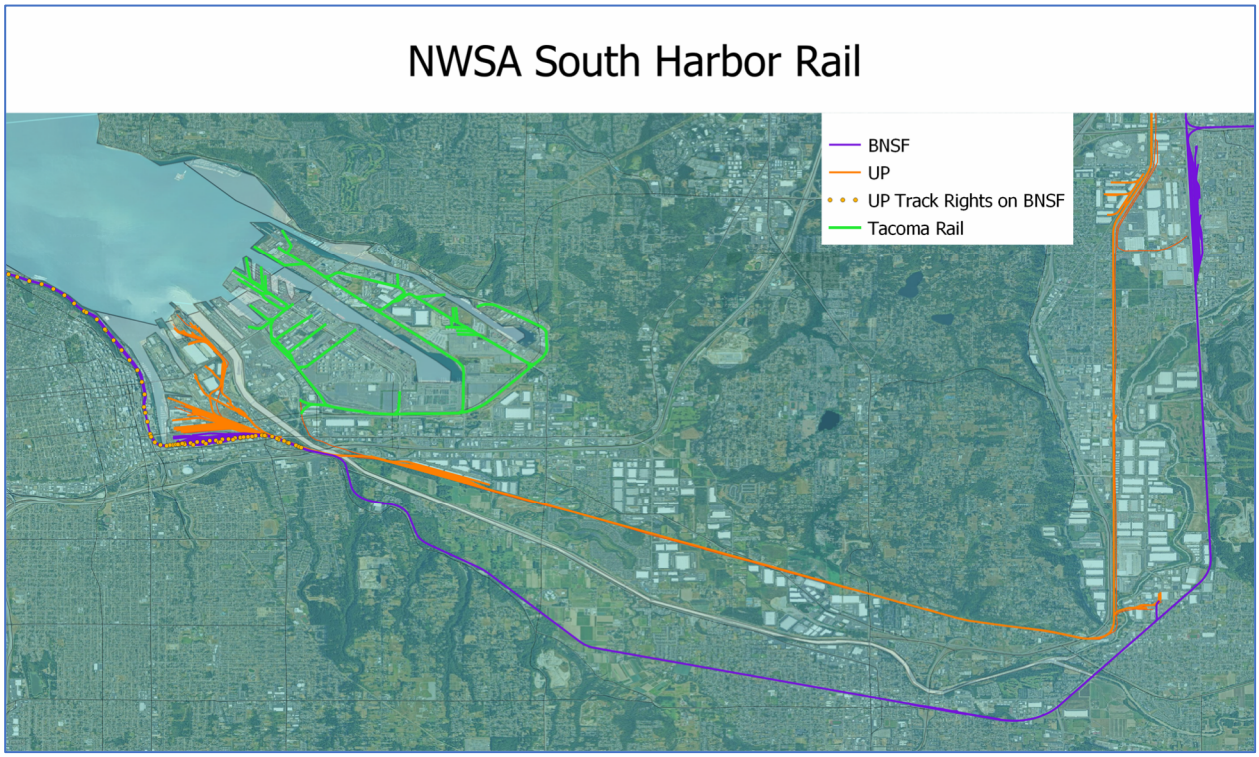
Figure 4 shows the location of the South Harbor rail infrastructure and accesses. Each of the container terminals in the South Harbor (Husky Terminal, Pierce County Terminal, and Washington United Terminal) have an on-dock facility served by both BNSF and UP with access to the harbor-wide rail network. Switching for both BNSF and UP traffic is done by Tacoma Rail.

Tacoma Rail (reporting marks TMBL, TRMW) is a Class III short-line railroad, publicly owned by the city of Tacoma and operated as a public utility. It is one of three (3) operating divisions of Tacoma Public Utilities, but unlike other city services, the railroad is self-supporting and generates revenue for the city of Tacoma and state of Washington.

Tacoma Rail provides freight switching services, serving the Port of Tacoma and industrial/commercial customers in Tacoma, south Pierce County and parts of Thurston County. It owns and operates 16 diesel locomotives, has more than 100 employees and about 140 miles (230 km) of track, many of which are former Milwaukee Road and

BNSF Railway lines around western Washington. Tacoma Rail's Tidelands Division serves the area around the Port of Tacoma, interchanging with both the BNSF Railway and the UP Railroad.

Figure 4 - NWSA South Harbor Rail Network



NWSA RAIL TRAFFIC VOLUME

Table 1 presents the NWSA gateway on-dock and off-dock railyards container lifts from 2019 to 2024. The 2024 data represent year to date (YTD) traffic through July 2024.

Table 1 – NWSA Rail Lifts (2019-2024 YTD July)

NWSA Rail Volume (Lifts)	2019	2020	2021	2022	2023	2024	Grand Total
SEATTLE	276,725	230,315	238,078	187,769	134,863	95,103	**1,162,853**
TACOMA	460,564	367,883	414,275	348,898	412,175	250,836	**2,254,631**
TOTAL	**737,289**	**598,198**	**652,353**	**536,667**	**547,038**	**345,939**	**3,417,484**

Source: NWSA, Reported to NWSA by third parties.

Based on the NWSA provided cargo volume (TEU for the period of 2019-2023), estimates for number of trains generated by the North and South harbors were calculated with the following assumptions:

- An average of 1.85 TEUs per lift,
- 8,000' trains, and
- Three (3) locomotives on each train with a locomotive length of 75'.

Table 2 - NWSA On-Dock and Off-Dock Rail Traffic & Estimated Number of Trains per Day

NWSA North Harbor On-Dock and Off-Dock Rail Traffic and Estimated Trains per Day 2019 - 2023					
On-Dock	**2019**	**2020**	**2021**	**2022**	**2023**
On-dock TEUs	2,307,385	1,976,716	2,542,982	1,709,650	1,528,415
On-Dock Avg Daily Train ft excl Locomotives	6,322	5,416	6,967	4,684	4,187
On-dock Trains per day (8,000 ft.)	0.8	0.7	0.9	0.6	0.5
Off-Dock	**2019**	**2020**	**2021**	**2022**	**2023**
Off-dock TEUs	5,371,734	4,414,526	4,063,682	3,500,940	2,214,034
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Total	**2019**	**2020**	**2021**	**2022**	**2023**
North Harbor Total TEUs	7,679,119	6,391,241	6,606,665	5,210,590	3,742,448
North Harbor Total Avg Daily Train ft excl Locomotives	21,039	17,510	18,100	14,276	10,253
North Harbor Total Trains per day (8,000 ft.)	2.7	2.3	2.3	1.8	1.3
North Harbor on-Dock %	30%	31%	38%	33%	41%

Note that T5 was not in operation from 2019 to 2021 as it was undergoing redevelopment. As shown in Table 2, the estimates suggest that in 2023 the North Harbor had sufficient traffic to generate one and a third (1.3) 8,000' trains per day. Of this traffic, approximately 40% was handled on-dock and 60% off-dock.

Estimates of South Harbor rail traffic are shown in Table 3 below. All South Harbor international traffic is handled on-dock. The South Harbor had sufficient traffic to generate 3.6 to 4.5 8,000' trains per day. Note that South Harbor traffic is combined between BNSF and UP, so the traffic attributable to each railway is less than the total shown.

Table 3 - NWSA South Harbor On-Dock Rail Traffic & Estimated Number of Trains per Day

NWSA South Harbor On-Dock Rail Traffic and Estimated Trains per Day 2019 - 2023					
	2019	**2020**	**2021**	**2022**	**2023**
On-dock TEUs	12,780,651	10,208,753	11,496,131	9,681,920	11,437,856
On-Dock Avg Daily Train ft excl Locomotives	35,015	27,969	31,496	26,526	31,337
On-dock Trains per day (8,000 ft.)	4.5	3.6	4.1	3.4	4.0

BNSF Infrastructure and Operations

BNSF Intermodal Infrastructure

BNSF has three intermodal yards in the Puget Sound area:

- Seattle International Gateway (SIG) is located just east of the North Harbor. According to NWSA, it has a total of 9,800' of track and offers a near-dock alternative for trucking containers to/from the North Harbor terminals,
- South Seattle Intermodal (SSI) Facility is a 48-acre facility handling domestic intermodal traffic,
- In 2022 BNSF entered into an agreement to lease a 16-acre parcel to develop and operate a domestic intermodal facility at Lot M in the Tacoma Harbor. UP has operated a similar facility in the Tacoma Harbor since 2010.

BNSF Intermodal Schedule

BNSF does not mix international and domestic intermodal traffic on the same train. South Harbor trains are assembled by Tacoma Rail and interchanged with BNSF for dispatch onto the BNSF network. North Harbor on-dock and near-dock traffic is combined at the Seattle International Gateway (SIG). Current intermodal train lengths average 8,000'.[4]

The Table 4 below shows the BNSF schedule for eastbound international intermodal traffic.[5]

Table 4 - BNSF International Intermodal Schedule

BNSF International Intermodal Schedule									
Origin Station	Destination Station	Trains per Day							
		Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Trains per Week
SEATTLE PIER 18, WA	LOGISTICS PARK CHIC, IL	1	1	1	1	1	1	1	7
SEATTLE PIER 18, WA	ST PAUL, MN			1					1
SEATTLE, WA (SIG)	CICERO, IL			1					1
SEATTLE, WA (SIG)	LOGISTICS PARK CHIC, IL	1							1
SEATTLE, WA (SIG)	MEMPHIS, TN	1							1
SEATTLE, WA (SIG)	ST PAUL, MN	1							1
TACOMA BLAIR, WA	CICERO, IL						1		1
TACOMA BLAIR, WA	LOGISTICS PARK CHIC, IL	1	1	1	1	1	1	1	7
TACOMA BLAIR, WA	ST PAUL, MN	1	1	1	1	1	1	1	7
		6	3	5	3	3	4	3	27

[4] Source: Interview with BNSF September 29, 2024.
[5] Source: BNSF Customer website.

According to the schedule, BNSF originates a total of 27 eastbound international intermodal trains per week, twelve (12) from the North Harbor and 15 from the South Harbor. The major routes include:

- One (1) train per day from the North Harbor (T18 and T5) to Logistics Park, Chicago,
- One (1) train per day from the South Harbor (Tacoma Blair, Tacoma EXP, and Tacoma PCT) to Logistics Park, Chicago,
- One (1) train per day from the South Harbor (Tacoma Blair, Tacoma EXP, and Tacoma PCT) to St. Paul MN.

In addition to the international service, BNSF provides approximately 21 trains per week for domestic traffic from their South Seattle Intermodal Terminal to Alliance, TX; Cicero, IL; St Paul, MN; and Monterrey Ferromex.[6]

Based on these schedules, BNSF operates a total of 54 international intermodal trains per week (in both directions) and 42 domestic intermodal trains per week for ***a total of 96 trains per week.***

BNSF Traffic on the Seattle Subdivision

A volunteer organization, the Railfan Group, monitors rail traffic on the BNSF Seattle Subdivision between Tacoma and Portland at Chehalis.[7] A sample of rail traffic from this source on the Seattle Subdivision during September 2 through September 8, 2024 is shown in Table 4. Traffic using this route includes all UP's Seattle and Tacoma traffic combined (carried under running rights on the BNSF track) and the portion of BNSF intermodal traffic not routed via the Scenic Subdivision. Table 5 below shows BNSF intermodal traffic on the Seattle Subdivision from September 2 to September 8, 2024.

Table 5 - BNSF Intermodal Trains (Seattle Subdivision, Sept. 2-8, 2024)

BNSF Intermodal Trains Seattle Subdivision September 2 to 8, 2024											
Direction	Train Symbol	Type	Train Description	02-Sep	03-Sep	04-Sep	05-Sep	06-Sep	07-Sep	08-Sep	Total
Northbound	S-LPCTAC	International	Logistics Park, Elwood, IL to Tacoma, WA	1			1	1			3
Southbound	Q-ALTPTL	Quality Intermodal	Alliance, TX to Willbridge Yard-Portland, OR (Via Seattle)	1	1					1	3
Southbound	S-SEFFTM	International	Terminal 5 - West Seattle, WA to Ft. Madison, IA						1		1
Southbound	S-SEPLPC	International	Seattle, WA (Terminal 18) to Logistics Park, Elwood, IL							1	1
Southbound	S-TACDEN	International	Tacoma, WA to Denver, CO (Rennicks yard)	1							1
Southbound	S-TACLPC	International	Tacoma, WA to Logistics Park, Elwood, IL		1						1
Southbound	S-TCBLPC	International	Port of Tacoma Blair Terminal to Logistics Park, Ellwood, IL					1			1
Southbound	S-TCBSTP	International	Port of Tacoma Blair Terminal, WA to St Paul, MN			1					1
Southbound	S-TCELPC	International	Port of Tacoma Evergreen Terminal, WA to Logistics Park, Elwood, IL							1	1
Southbound	S-TCESTP	International	Port of Tacoma Evergreen Terminal, WA to St. Paul, MN		1						1
									Weekly Total		14

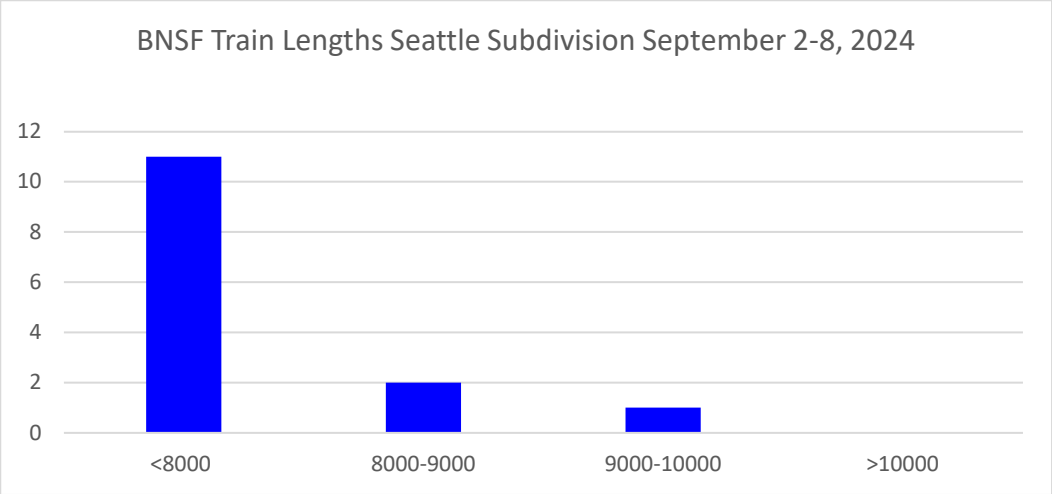
Based on our review of the BNSF's international and domestic schedules, they operate 96 intermodal trains per week to and from Seattle and Tacoma. The 14 trains recorded for the Seattle subdivision account for 15% of the BNSF overall scheduled trains, which implies that ***85% of BNSF's intermodal traffic is routed on the northern route via Stevens Pass, so that the train lengths recorded on the Seattle Subdivision may not be representative of the larger portion of BNSF' intermodal traffic in the Puget Sound area.***

The longest BNSF train recorded on the Seattle subdivision from September 2 to September 8 was the S-LPCTAC train from Intermodal Logistics Park, Elwood, IL, to Tacoma, WA on September 2, with ***a length of approximately 9,700'***. The other two (2) BNSF trains on this route during this time were approximately 8,300' in length. The distribution of train lengths (estimated) for all BNSF trains recorded during the week is shown in Figure 5 below.

[6] BNSF domestic intermodal schedules are available on the BNSS customer website.
[7] The data is posted daily as the ChehalisOSTrainSheet; a sample can be viewed at http://www.jwwoodart.com/uploads/2/9/7/7/29779259/9-18-21.pdf.

Based on this sample data analysis, only 3 (21%) out of 14 BNSF Seattle Subdivision trains were over 8,000' length, and the majority (79%) of trains (11 of 14) were under or around 8000' length trains. Figure 5 – BNSF Estimated Train Lengths Seattle Subdivision September 2-8, 2024.

Figure 5 - BNSF Train Lengths on Seattle Subdivision



BNSF Mainline Constrains

The ability of railroads to run long trains depends, in part, on the availability of sidings or multiple track sections which enable trains to pass one another. The benchmark for this study is 10,000' trains. This section analyzes siding lengths on the BNSF as an indicator of their ability to run 10,000' or longer trains.

The largest portion of BNSF international intermodal traffic travels on the Scenic and Columbia River subdivisions between Seattle and Spokane via the Stevens Pass, and the remainder on the Seattle, Fallbridge and Lakeside subdivisions via Vancouver, WA and Pasco. BNSF is unable to use the Stampede Pass route for intermodal traffic because the tunnel will not accommodate double-stack rail cars.

Table 6 below summarizes data on siding lengths on the Scenic and Columbia River subdivisions, circa 2011. Of the ten (10) sidings on the Scenic Subdivision between Everett and Wenatchee, five (5) are 10,000' or longer. Of the tweel (12) subdivisions on the Columbia River Subdivision, five (5) are 10,000' or longer.

Table 6 - BNSF Siding Lengths, Northern Route

BSNF Siding Lengths Everett to Latah Jct (Spokane)		
Siding Length (ft)	Scenic Subdivision Everett to Wenatchee	Columbia River Subdivision Wenatchee to Latah Jct
6,000 - 7,000	0	0
7,000 - 8,000	1	1
8,000 - 9,000	1	3
9,000 - 10,000	3	3
10,000 - 11,000	1	2
11,000 - 1,2000	3	3
> 12,000	1	0
Total Sidings	10	12

Source: BNSF Northwest Division Timetable No. 5 August 31, 2011

With the current infrastructure in the PNW region, BNSF has sufficient track capacity to handle trains of 10,000' or longer using each or combined of their 10,000's tracks (about 50% of BNSF available siding tracks). BNSF can still handle trains of 10,000' or longer in areas where the sidings are too short to accommodate the intermodal train by giving priority to the intermodal trains and having other trains divert to sidings to let them pass. The degree of operational inefficiency of this method depends on the speed and volume of traffic on the line. BNSF may lengthen the sidings on these routes to accommodate longer trains when operational requirements justify the investment.

UP Infrastructure and Operations

UP Intermodal Infrastructure

Argo Yard is UP's only intermodal yard in the Puget Sound area and is located at the northern terminus of UP regional network. ***From Argo Yard, the UP extends south on single track to the Tacoma area.*** South of Tacoma, UP operates through trackage rights on BNSF track to Vancouver, WA. South of the Columbia River, the UP can continue further south or turn east on its own trackage. The south main connects with markets through California and the rest of the south-central US. Running east from Portland, the UP serves the central plains and connects with major Midwestern markets. (see Figure 1 for network connection map).

UP Intermodal Schedules

The UP schedule for intermodal traffic originating in the Puget Sound region for the week of September 22 to September 28, 2024 is shown in Table 7 below.

Table 7 - UP Intermodal Schedules September 22 to September 28, 2024

UP Intermodal Schedule September 22 - September 28, 2024												
Destination Metro	Origin Ramp	Destination Ramp	International/Domestic	Drop Off Time	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Total
Chicago	Seattle (Harbor Island)	Chicago (Global 4)	International	09:00	1	1	1	1	1	1	1	7
Chicago	Seattle (Seattle)	Chicago (Global 4)	International	17:00	1	1	1	1	1	1	1	7
Chicago	Seattle (TACSIM)	Chicago (Calumet)	Domestic	15:00	1	1	1	1	1	1	1	7
Chicago	Seattle (TACSIM)	Chicago (Chicago 59th Street)	Domestic	15:00	1	1	1	1	1	1	1	7
Chicago	Seattle (TACSIM)	Chicago (Global 2)	Domestic	15:00	1	1	1	1	1	1	1	7
Dallas	Seattle (TACSIM)	Dallas (Mesquite)	Domestic	15:00	1	1	1	1	1	1	1	7
Los Angeles	Seattle (TACSIM)	Los Angeles (LATC)	Domestic	15:00	1	1	1	1	1	1	1	7
Kansas City	Seattle (Harbor Island)	Kansas City (Kansas City)	International	09:00	1	1	1	1	1	1	1	7
Kansas City	Seattle (Seattle)	Kansas City (Kansas City)	Domestic & International	17:00	1	1	1	1	1	1	1	7
Memphis	Seattle (Harbor Island)	Memphis (Marion)	International	07:00		1	1	1	1	1		5
Memphis	Seattle (Harbor Island)	Memphis (Marion)	International	09:00	1						1	2
Memphis	Seattle (Seattle)	Memphis (Marion)	Domestic & International	17:00	1	1	1	1	1	1	1	7
Omaha	Seattle (Harbor Island)	Omaha (Council Bluffs)	International	09:00	1	1	1	1	1	1	1	7
Omaha	Seattle (Seattle)	Omaha (Council Bluffs)	Domestic & International	17:00	1	1	1	1	1	1	1	7
St. Louis	Seattle (Harbor Island)	St. Louis (Dupo)	International	09:00	1	1	1	1	1	1	1	7
St. Louis	Seattle (Seattle)	St. Louis (Dupo)	Domestic & International	17:00	1	1	1	1	1	1	1	7
Twin Cities	Seattle (Harbor Island)	Twin Cities (TCIT)	International	09:00	1	1	1	1	1	1	1	7
Twin Cities	Seattle (Seattle)	Twin Cities (TCIT)	Domestic & International	19:00	1	1	1	1	1	1	1	7
Twin Cities	Seattle (Tacoma Export)	Twin Cities (TCIT)	International	15:00	1	1	1	1	1	1	1	7
Grand Total					18	18	18	18	18	18	18	126

Except for domestic traffic originating in the TACSIM yard in the South Harbor, it appears that UP combines its international and domestic traffic in a single train. The Table 8 below shows estimated UP trains originating in the Puget Sound area taking this into account. It assumes that traffic destined for Kansas City is combined with Chicago traffic, and that the traffic destined for Chicago intermodal ramps and Dallas from the TACSIM ramp are combined in a single train.

Table 8 - UP Intermodal Scheduled Trains September 22 to September 28 2024

UP Intermodal Scheduled Trains September 22 - September 28, 2024												
Destination Metro	Origin Ramp	Destination Ramp	International/Domestic	Cut-off Time	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Total
Chicago	Seattle (Seattle)	Chicago (Global 4)	International	17:00	1	1	1	1	1	1	1	7
Memphis	Seattle (Seattle)	Memphis (Marion)	Domestic & International	17:00	1	1	1	1	1	1	1	7
Omaha	Seattle (Seattle)	Omaha (Council Bluffs)	Domestic & International	17:00	1	1	1	1	1	1	1	7
St. Louis	Seattle (Seattle)	St. Louis (Dupo)	Domestic & International	17:00	1	1	1	1	1	1	1	7
Twin Cities	Seattle (Seattle)	Twin Cities (TCIT)	Domestic & International	19:00	1	1	1	1	1	1	1	7
Chicago	Seattle (TACSIM)	Chicago (Calumet)	Domestic	15:00	1	1	1	1	1	1	1	7
Los Angeles	Seattle (TACSIM)	Los Angeles (LATC)	Domestic	15:00	1	1	1	1	1	1	1	7
			Total		7	7	7	7	7	7	7	49

Note that all the mixed trains originate in Seattle, which suggests that they are handled at Argo Yard.

As noted previously, the Railfan Group monitors rail traffic on the BNSF Seattle Subdivision between Tacoma and Portland at Chehalis. Traffic using this route includes all of UP's Seattle and Tacoma traffic (carried under running rights on the BNSF track) and the portion of BNSF intermodal traffic not routed via the Scenic Subdivision.

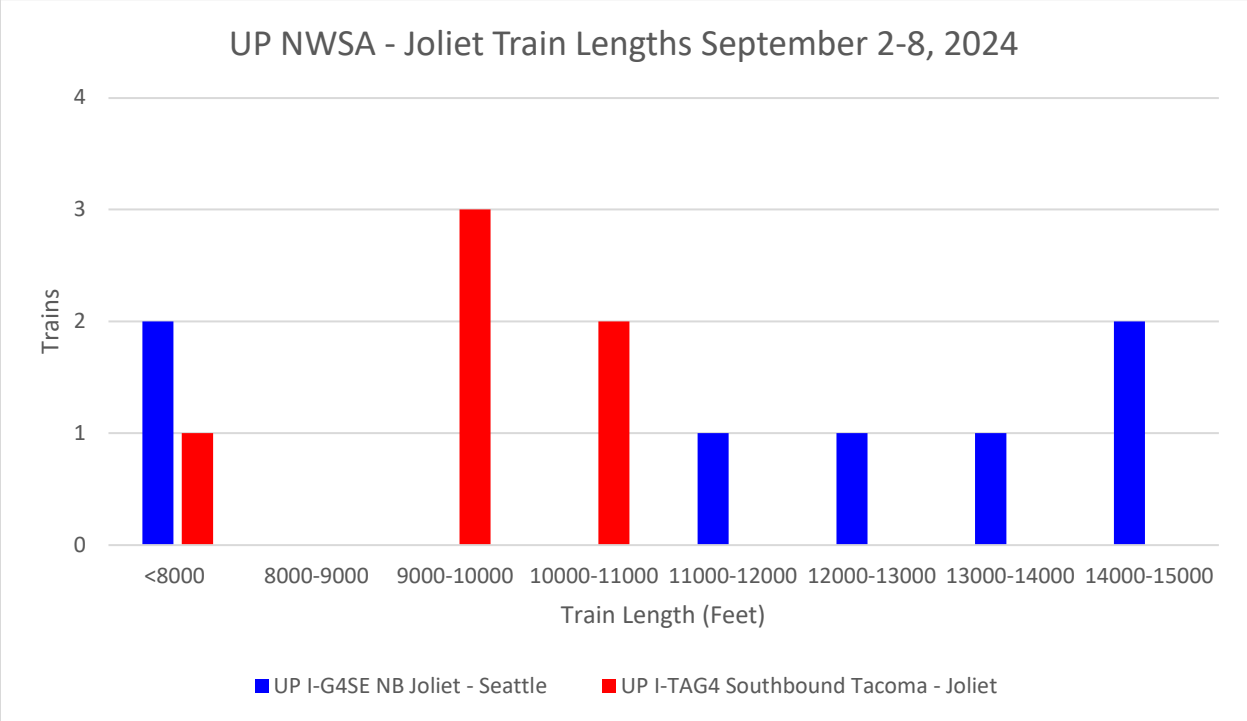
Table 9 - UP Intermodal Traffic on BNSF Seattle Subdivision September 2-8, 2024

UP Intermodal Traffic on BNSF Seattle Subdivision September 2 -8, 2024											
Dir.	Train Sym	Train Description	02-Sep	03-Sep	04-Sep	05-Sep	06-Sep	07-Sep	08-Sep	Total
Northbound	I-G4SE	Intermodal, Global 4 Joliet, IL to Seattle, WA	2	1	2	1	2	1	2	11
Northbound	I-NPSE	Intermodal, North Platte, NE to Seattle, WA			1		1			2
Northbound	Z-LCTM	Priority Intermodal, LATC Los Angeles, CA to (TACSIM) Tacoma, WA	1	1	1		2	1	1	7
Southbound	I-SEBR	Intermodal, Seattle, WA to Brooklyn Yard Portland, OR	1	1	1	1	2		1	7
Southbound	I-TAG4	Intermodal, Port of Tacoma Pier 7, WA to Global 4 Joliet, IL		1	1	2	4	1	2	11
Southbound	I-TAHK	Intermodal, Port of Tacoma Pier 7, WA to Hinkle yard, Hinkle, OR				1	1			2
		Total	7	7	7	6	14	4	9	54

Based on this sample data, UP's primary intermodal traffic consists of 11 southbound trains from the Port of Tacoma to Global 4 in Joliet, IL, and 11 northbound trains per week from Global 4, IL to Seattle as shown in Table 9. These routings suggest that ***UP combines traffic from the North and South Harbors in a single train.***

Also, from the same sample data, it shows that the longest intermodal train recorded on the Seattle subdivision from September 2 to September 8 was UP's I-G4SE train from Intermodal, Global 4 Joliet, IL to Seattle on September 3, which **totalled 15,000' in length**. Estimated train lengths for northbound Joliet-Seattle and southbound Tacoma – Joliet trains for the week are shown in Figure 6 below:

Figure 6 - Joliet Estimated Train Lengths on the Seattle Subdivision September 2-8, 2024

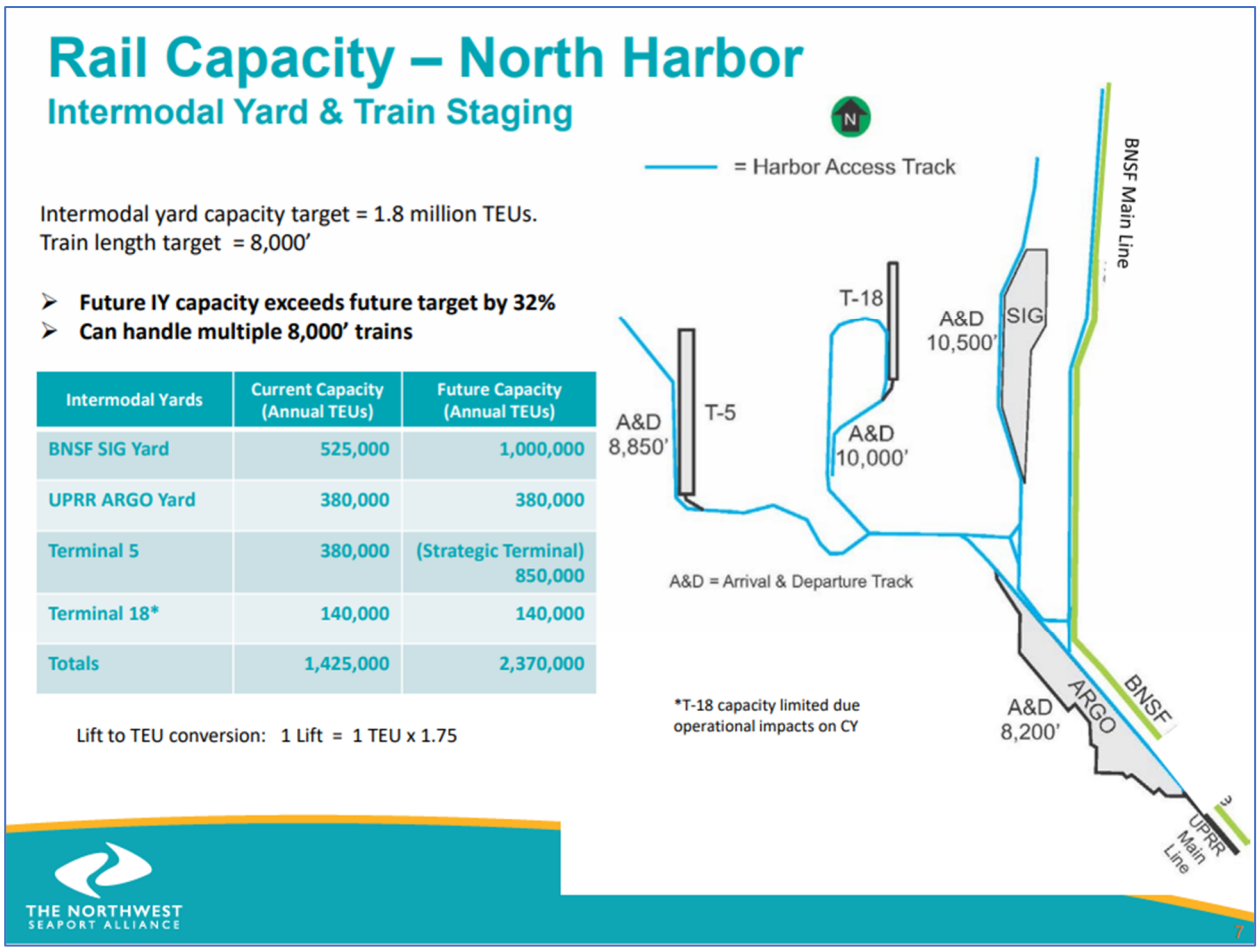


Based on this sample data analysis for UP trains, a majority of UP's Seattle Subdivision trains (about 10, or 77% out of total 13 trains) were over 9,000' plus in length, and only 3 (or 23%) of trains were under or around 8000' length trains. Most of these appear to be on the TACSIM – Los Angeles and South Harbor – Portland routes. Previous Study Review and Findings

Improvement Projects for North Harbor

In 2016, NWSA staff presented concepts for rail capacity improvements for both the North and South harbors to enable NWSA to handle six (6) million TEUs by 2026.[8] Concepts for the North Harbor are shown in Figures 7 and 8 below. Existing capacity at the North Harbor was estimated at 1.4 million TEUs, as shown in Figure 7 below:

Figure 7 - North Harbor Rail Capacity 2016



It was concluded that the ***capacity target of 2.4 million TEUs could be reached with relatively minor improvements.***

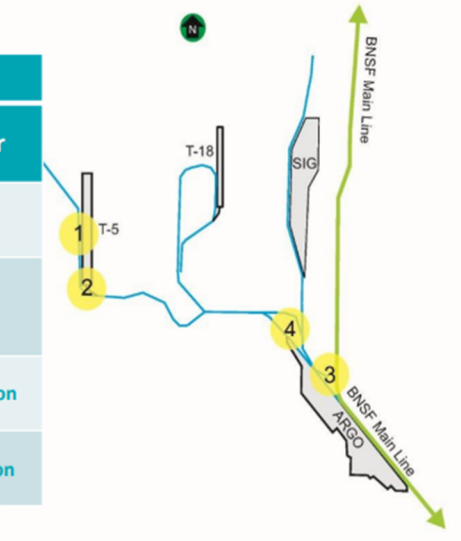
[8] Ten Year Road and Rail Study for a Six Million TEU Gateway Eric Hanson & Christine Wolf, NWSA Planning 7/10/2017

Figure 8 - North Harbor Rail Projects

Rail Capacity – North Harbor

Minor recommended capacity improvements

Project Name	Project Lead	Estimated Project Cost		
		Total	POS / NWSA	Other
1. 8,000' storage track	NWSA	$7 million	$7 million	$0
2. Additional switch	NWSA	$1 million	$1 million	$0
3.* 900' track extension	Railroads	$1 million	TBD	$2 million
4.* Double track ARGO to Harbor Island	Railroads	$7 Million	TBD	$7 million



* Projects #3 and #4 require joint use UPRR / BNSF track agreements

In 2019, NWSA decided to proceed with redevelopment of T5 to increase its capacity from approximately 650,000 TEUs to 1.7 million TEUs, including wharf and upland improvements.[9] As shown in Figure 9, Moffatt & Nichols estimated this would increase weekly train traffic generated from T5 from nine (9) on-dock trains and two (2) off-dock trains per week to 24 on-dock and 12 off-dock trains per week (based on Alternative 3).

Figure 9 - Peak Weekly Terminal 5 Train Volume

Table 8: Peak Weekly Terminal 5 Train Volume

Mode	No. of Trains per Week (each way)		
	Alternative 1	Alternative 2	Alternative 3
On Dock Rail	9	18	24
Near Dock Rail	5	9	12
Total Trains	**14**	**27**	**36**

They forecasted the following distribution of traffic by mode as shown in Figure 10 below:

[9] Transportation Technical Report for Final EIS Terminal 5 Improvement Project Prepared for Port of Seattle by Heffron Transportation October 6, 2016 p. 4.

Figure 10 - Terminal 5 Traffic Forecast by Mode

Table 7: Rail Container Distribution

Mode	Percentage Share of Terminal Throughput
On Dock Rail	50%
Near Dock Rail	25%
Total Rail Share	**75%**
Truck Share	**25%**

Prior to redevelopment of T5, on-dock rail included use of the existing six (6) track T5 inter-modal rail transshipment facility and use of the adjacent existing five (5) track inter-modal storage yard. Near-dock rail was loaded to truck chassis and then drayed to either the SIG Yard (BNSF) or Argo Yard (UP) for loading and incorporation into mixed-use trains.[10]

The rail forecast was based on a forecast of two (2) 18,000 TEU vessel calls per week and two (2) 8,000 TEU vessel calls per week.[11] However, currently it appears that the only shipping line calling at T5 is MSC. In 2021, MSC added the Seattle call to its Chinook Transpacific services[12] (see Figure 11 for Ports rotation) and makes two calls per week – the first eastbound on a rotation including Vancouver – Seattle - Portland, and the second westbound on the return Portland – Seattle – Vancouver.

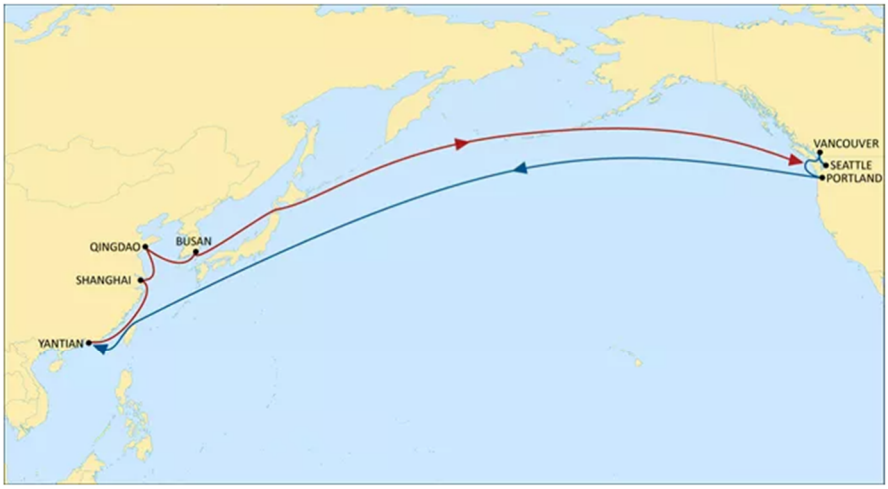
The Chinook Transpacific service also provides connections from the Seattle Railroad to inland locations of US Midwest (Chicago, Cleveland, Columbus, Cincinnati, Detroit and Louisville) to provide a faster and more convenient transportation experience for export goods from Northern China to the Northwest United States and Great Lake region.

[10] Terminal 5 Railway Infrastructure and Train Volume Analysis T5 FEIS Moffat & Nichol April 22, 2016 p. 14..

[11] Terminal 5 Railway Infrastructure and Train Volume Analysis T5 FEIS Moffat & Nichol April 22, 2016.

[12] "Chinook Service - New Rotation" MSC December 15, 2021 https://www.msc.com/en/newsroom/customer-advisories/2021/december/chinook-service--new-rotation

Figure 11 - MSC Chinook Transpacific US West Coast (EB and WB)



	Seattle	Vancouver	Portland
Yantian	16	17	20
Shanghai	13	14	17
Qingdao	11	12	15

As shown in Table 1, NWSA's statistics on overall rail lifts in the North Harbor indicate that on-dock rail lifts (4,187) accounted for 41% of total rail traffic (10,253) in 2023, and traffic was sufficient to generate approximately one (1) 8,000' train every two days. This is less than the traffic handled prior to the redevelopment of T5 (up to 2 trains per day in each direction),[13] and significantly less than was forecast in the *Terminal 5 Railway Infrastructure and Train Volume Analysis.* ***This suggests that expansion of rail capacity and 10,000' track in the North Harbor is not an urgent requirement.***

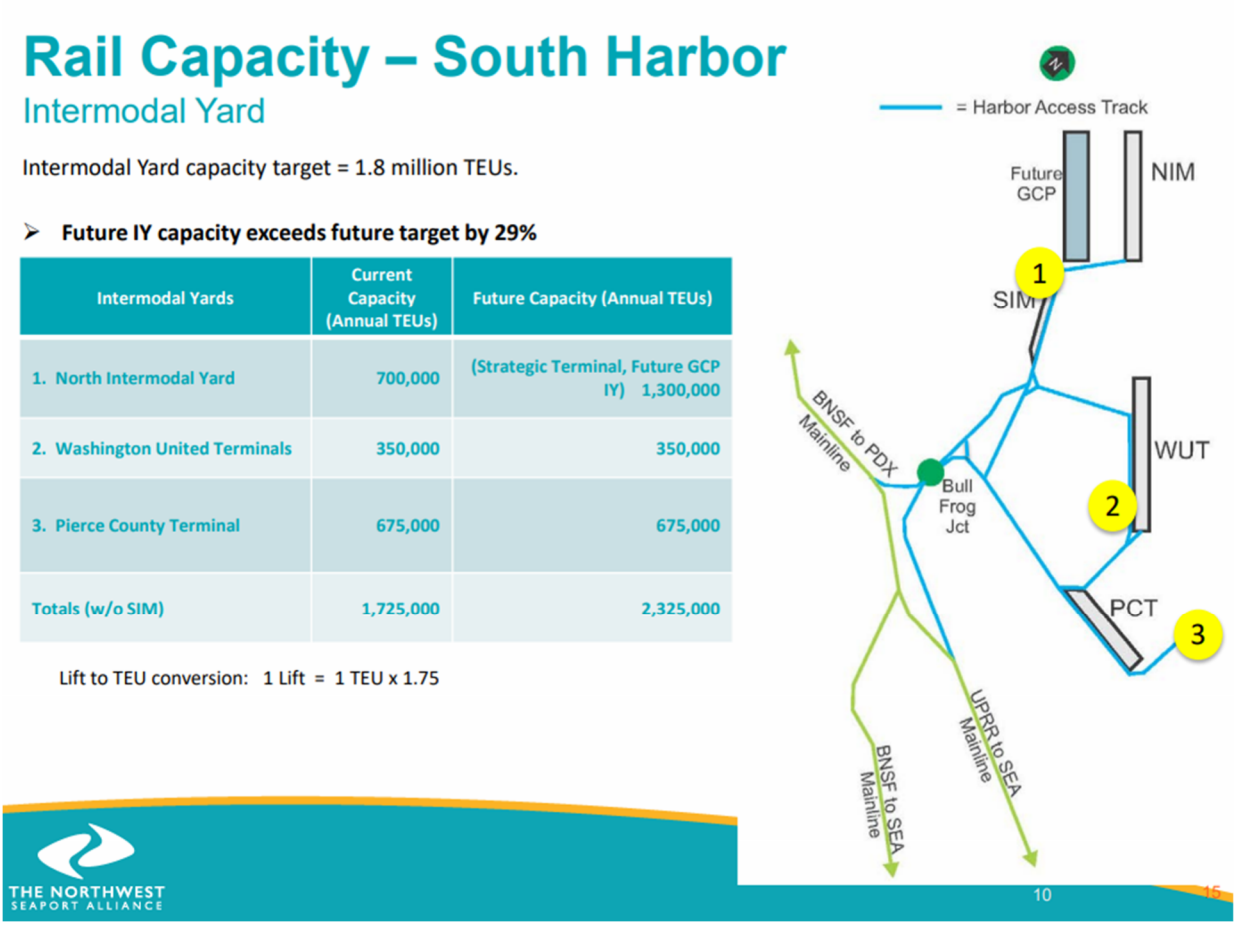
Improvement Opportunities for South Harbor

Concepts for improvements of rail capacity in the South Harbor, which were presented by NWSA staff in 2016, are shown below in the Figure 12.[14]

At that time the South Harbor rail capacity was estimated at 1.725 million TEUs. It was forecast that capacity would have to be increased to 2.325 million TEUs to handle target traffic levels by 2026.

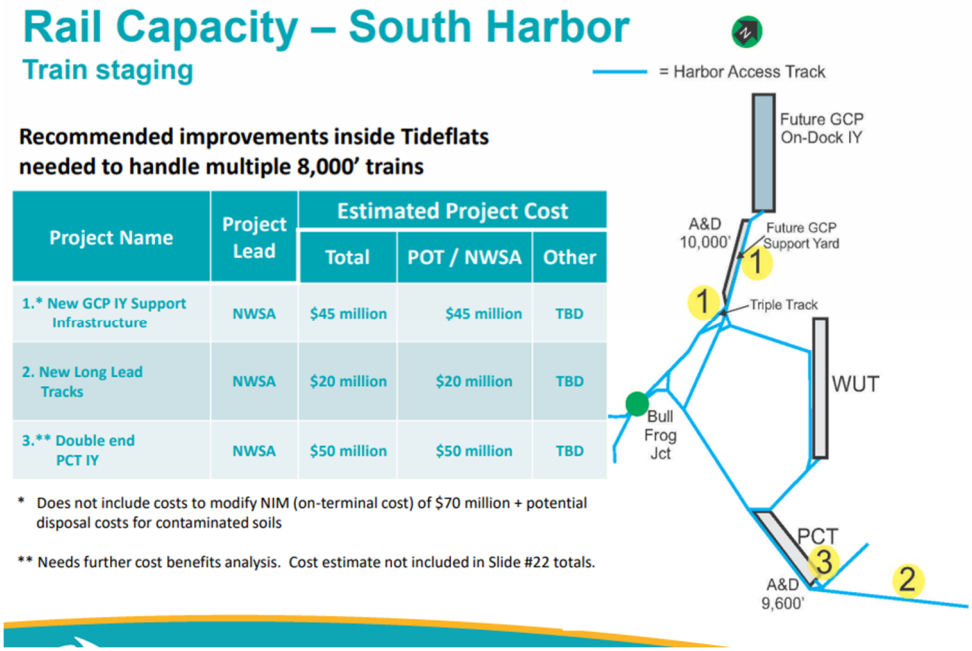
[13] Terminal 5 Railway Infrastructure and Train Volume Analysis p. 14.
[14] Source: Ten Year Road and Rail Study For a Six Million TEU Gateway Eric Hanson & Christine Wolf, NWSA Planning 7/10/2017

Figure 12 - South Harbor Rail Capacity 2016



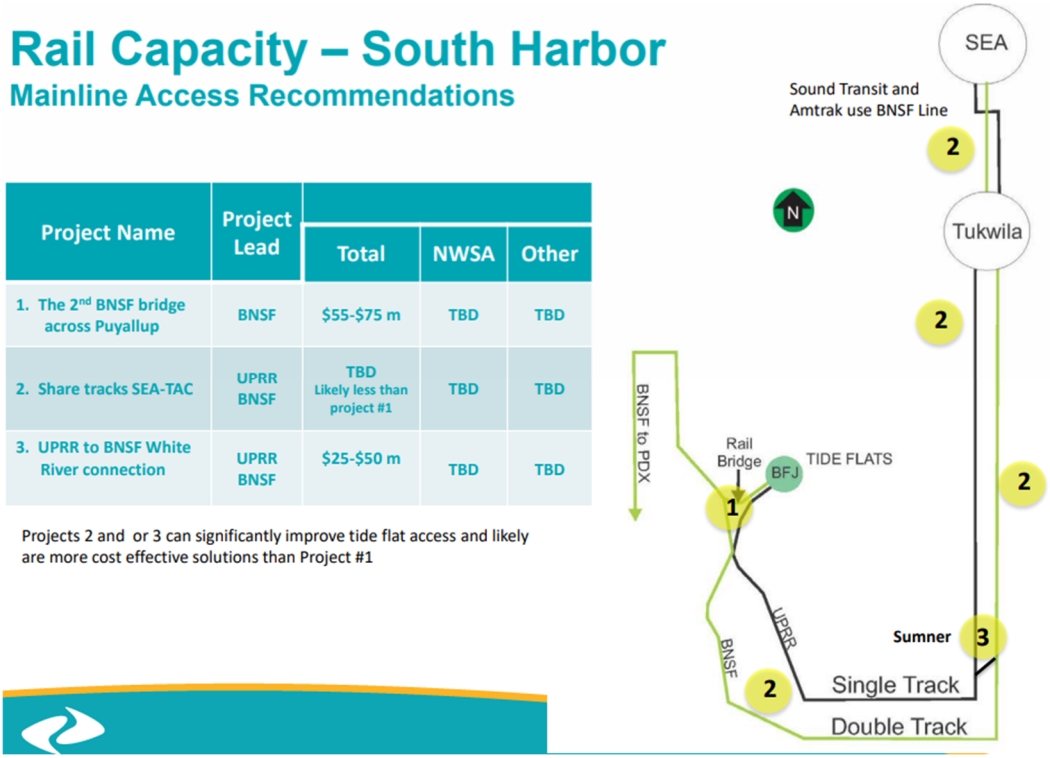
Recommendations to handle multiple 8,000' trains in the South Harbor included potential improvements to train staging in the Tideflats and mainline access. Potential projects which were recommended to improve train staging in the Tideflats are shown below in the Figure 13.

Figure 13 - North Harbor Rail Projects – Train Staging



Potential projects which were recommended to improve mainline access are shown in the figure below.

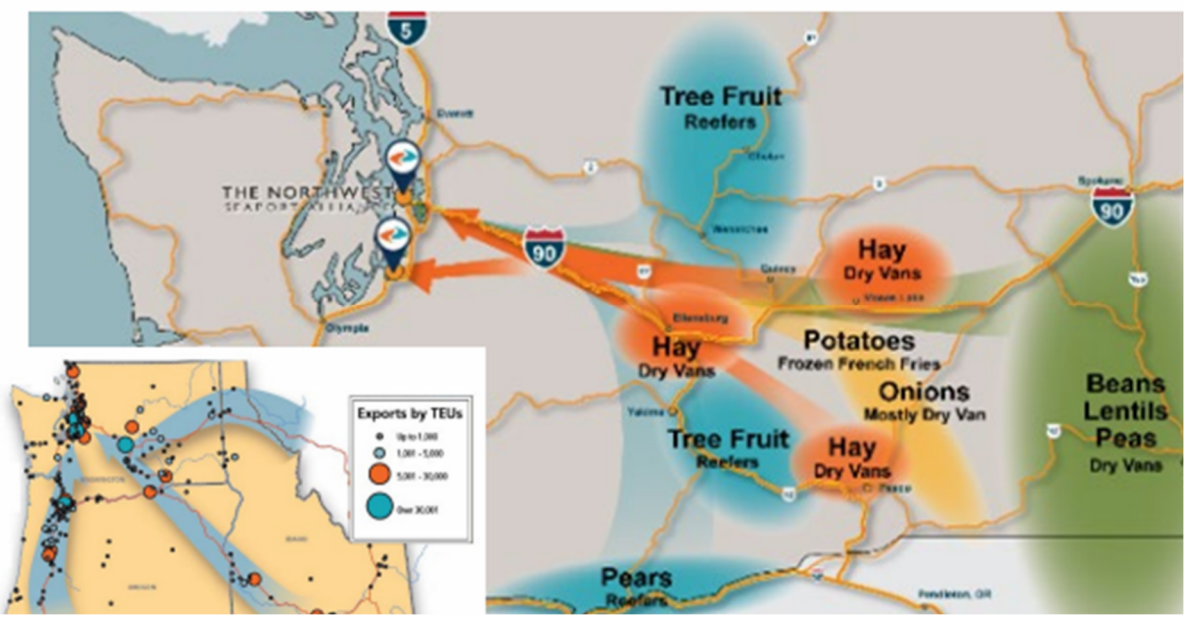
Figure 14 - North Harbor Rail Projects – Mainline Access



Port of Portland and Opportunity for NWSA

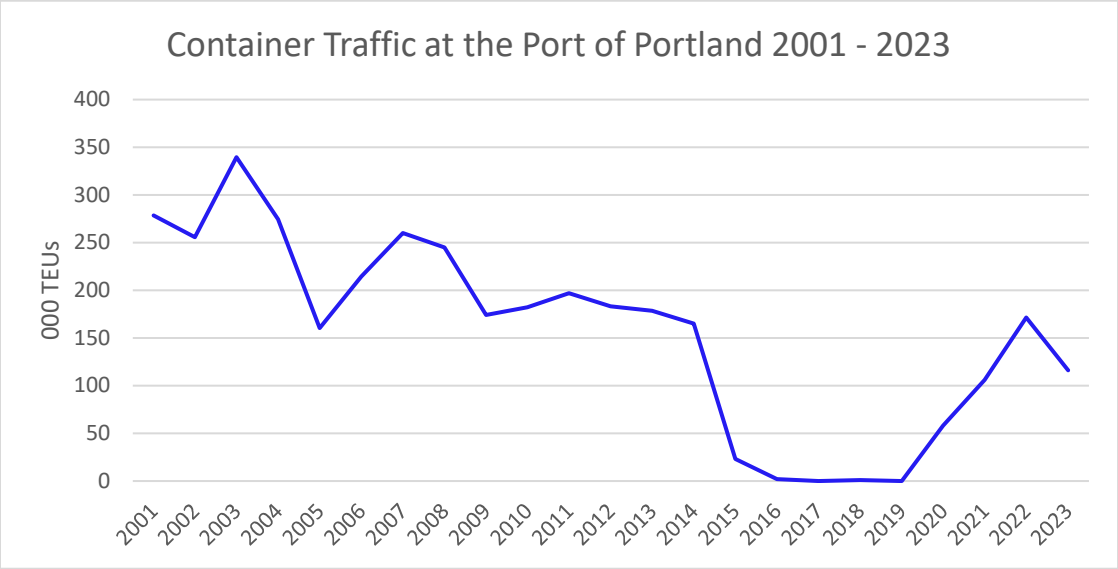
Figure 15 - NWSA Exporters

The Figure 15 below shows major sources of containerized export traffic through the Northwest Seaport Alliance terminals.



Historically, the Port of Portland competed directly with NWSA for containerized cargo and was well positioned for regional exports due to barge services (including container-on-barge) on the Columbia-Snake River system which provides a more economical alternative to rail transportation as far inland as Lewiston, Idaho (ID). For a number of reasons, container traffic at the Port of Portland has declined significantly as shown in Figure 16 below.

Figure 16 - Container Traffic at the Port of Portland 2001 – 2023



Portland's traffic declined for the following reasons:

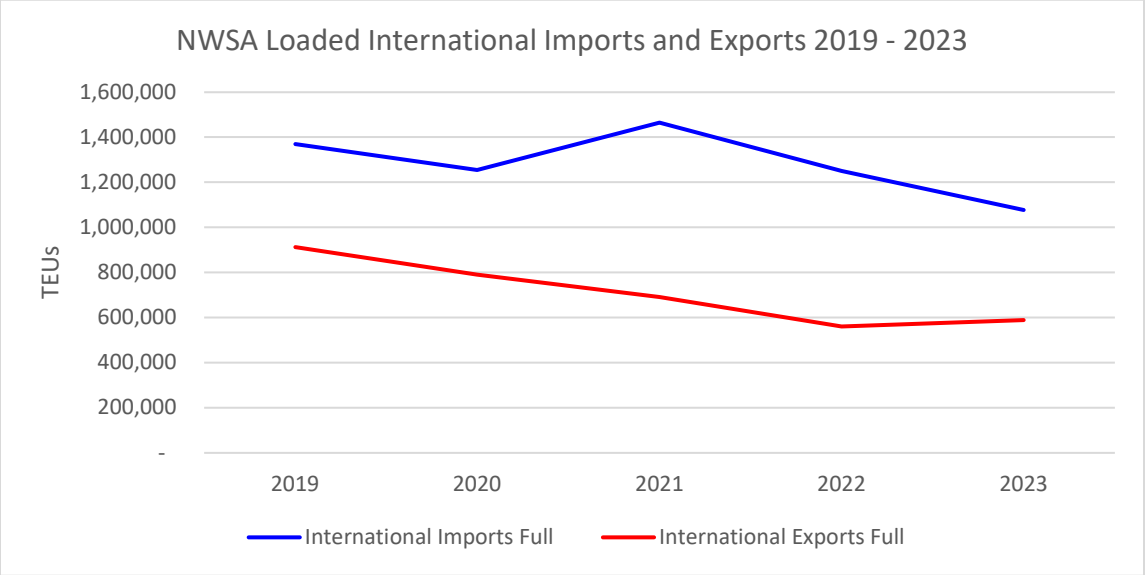
- The Port of Portland is located on the Columbia River, approximately 165 km (103.5 miles) from the ocean. Draft limitations on the Columbia River make it difficult for larger oceangoing vessels to reach Portland. The channel was dredged to 43 feet in 2010. Shipping lines prefer to serve ports that can accommodate fully loaded larger vessels.
- It appears that the Port of Portland does periodically host larger vessels. In April 2023 the MSC Katie, a 11,500 TEU vessel, visited Portland as part of the port rotation for MSC's Chinook Service which links China to Pacific Northwest Ports. Vessels call at Portland-Seattle (T5) and Vancouver for the eastbound leg and Vancouver-Seattle-Portland for the westbound leg. However, the average size of container ships docking at Portland is approximately 6,000 TEUs.[15]
- The Port of Portland leased their container terminal T6 to the Philippine terminal ICTSI operator in 2010. Continuing friction between ICTSI and the ILWU resulted in the loss of container business by 2016, and in 2017 the Port of Portland and ICTSI agreed to terminate the lease. ICTSI sued the ILWU for illegal activities, and eventually settled for compensation of $20 million.
- In 2018 and 2019 BNSF provided intermodal rail service for international containers between Portland's T6 and NWSA terminals under an agreement with the Port of Portland.
- Container service returned to T6 in 2020 with a new service by the South Korean carrier SM Line. Current services include MSC's weekly Chinook service (which also calls at T5 in NWSA's North Harbor) and SM Line's weekly China Pacific Express service.
- In April 2024 the Port of Portland announced that they would cease container operations on October 1, 2024 due to ongoing financial losses. In May 2024 Oregon Governor Tina Kotek announced a proposal of

[15] "Largest container ship on Columbia River docks at Port of Portland" KGW News https://www.youtube.com/watch?v=rH4caFZc6iI

$40 million in state investment in order to keep the container port open at the Port of Portland's Terminal 6. Of that $40 million, $35 million be sourced from the governor's 2025-2027 recommended budget, and $5 million to be requested from the legislative Emergency Board during its September meeting. Of the $35 million coming from the governor's 2025-2027 recommended budget, $20 million will be dedicated towards a capital program that supports ports with active container service; $15 million of the $35 million will be allocated to initial state funding for costs affiliated with the Lower Columbia River Channel Management Plan; and the $5 million being requested from the legislative Emergency Board will go toward T6 operations.16 The Port of Portland subsequently announced that they will maintain container operations at T6.

As demonstrated in Figure 17 below, loaded export traffic is likely to increase NWSA's total container volume only to the extent that the shipping lines are motivated to increase service through the availability of additional backhaul volume/revenue. Loaded import traffic already exceeds loaded export traffic by a substantial margin; therefore, the availability of empty containers for exports is not a problem (at least not locally). However, efforts to lower costs for regional exporters may enable NWSA to undertake their mandate to facilitate regional economic development and provide an incentive for federal, state and local grant funding to improve regional infrastructure.

Figure 17 - NWSA International Container Balance 2019 – 2023



Inland Port Opportunities

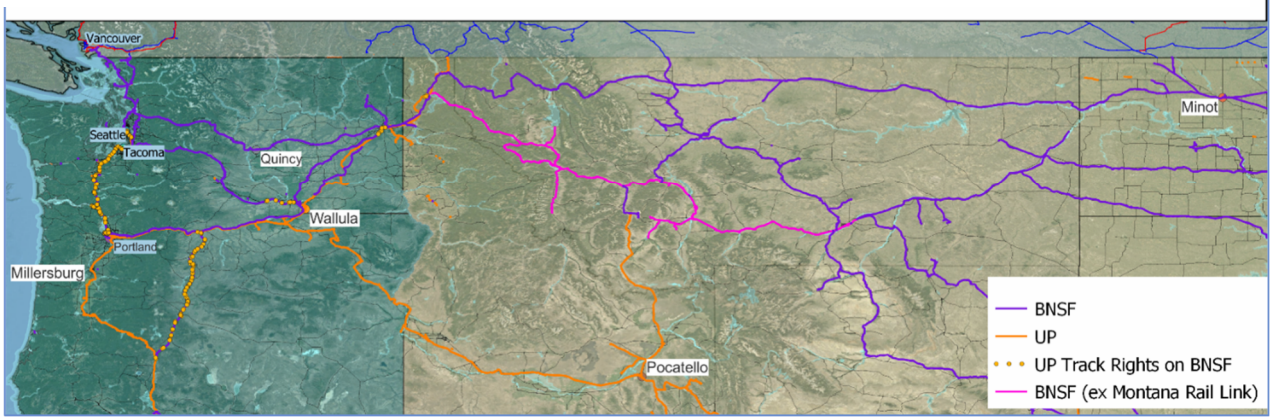
NWSA is the most obvious alternative for exporters of containerized cargo that used to be shipped through the Port of Portland. However, the loss of the direct barge option has resulted in increased reliance on trucking to transport these commodities to port, which is significantly more expensive. One potential option to mitigate these increased

[16] "Oregon Gov. Tina Kotek proposes $40M to preserve container shipping at Port of Portland's Terminal 6" KGW8 May 16, 2024 https://www.kgw.com/article/money/business/oregon-governor-tina-kotek-proposes-investment-container-shipping-terminal-6/283-07c2e061-c217-4fd4-b83c-5050b4646cb7

costs is development of inland ports which can load commodities into containers inland and transport them to port by rail.

This section of the report profiles previous and current Pacific Northwest Inland Ports and assesses potential benefits from direct involvement of NWSA in the development of additional facilities. The locations of previous and current Pacific Northwest Inland Ports with intermodal rail service are shown in Figure 18 below.

Figure 18 - PNW Inland Ports with Intermodal Services



Quincy, WA

In April 2010 Cold Train started a business using refrigerated intermodal shipping containers that allowed fresh produce to be directly loaded into a refrigerated container, delivered by truck to the intermodal terminal at the Port of Quincy, and loaded onto an eastbound train the same day. BNSF agreed to provide expedited container movement with a 72-hour eastbound transit time (the "Z Train" service).

The refrigerated intermodal rail service to/from Quincy, Washington proved to be very popular with both growers and retailers. By September 2013, Cold Train had over 400 refrigerated shipping containers in service and delivered refrigerated cargo from Quincy, Wash., and Portland, Ore., to terminals in the following 19 states: Illinois, Indiana, Michigan, Wisconsin, Ohio, Pennsylvania, New York, New Jersey, Connecticut, Massachusetts, Delaware, Maryland, Virginia, North Carolina, South Carolina, Louisiana, Mississippi, Georgia and Florida.17

Rising volume tied to domestic energy production in the nearby Bakken Shale, growing grain exports and building intermodal traffic created a major chokepoint for BNSF despite the addition of locomotives and train crews. BNSF's on-time delivery service for Cold Train fell from 92% in August 2013 to 3% in April 2014.

On April 24, 2014, BNSF informed Cold Train that it was cancelling the 72-hour service and substituting a new 125-hour service, effective the following business day. The Cold Chain service was shut down in `August 2014 and Cold Chain officials sued BNSF for $41 million.

Following shutdown of the Cold Train service, the Port of Quincy intermodal terminal is providing truck intermodal export services for shippers and exporters in Washington State. The terminal is providing is providing storage and

[17] "Cold Train Officials Sue BNSF for Ruining Its Intermodal Service" Food Logistics August 2015 https://www.foodlogistics.com/transportation/news/12062709/bnsf-cold-train-officials-sue-bnsf-for-ruining-its-intermodal-service

loading services for 40-foot export containers of frozen food products going by truck from central Washington to NWSA terminals.

In 2019 the Port of Quincy recently initiated Phase 1 of an infrastructure project to expand the intermodal terminal by adding more gravel surface to the east and north portions of the terminal for increased container storage.18

A Phase 2 of the project was planned, including improvements to the electrical and lighting systems within the intermodal terminal. The work will include installing three additional reefer power units/receptacles for the storage of an additional 30 refrigerated containers within the terminal, and the installation of three additional yard lights with LED floodlights in the vicinity of the proposed reefer power units/receptacles.

Wallula, WA

Railex LLC was a refrigerated rail service and third-party logistics provider that transported fruits, vegetables and other temperature sensitive cargo across the United States, in partnership with the Union Pacific Railroad and CSX. In 2006, Railex launched service between Wallula, Washington, and Rotterdam, New York, followed in 2008 by a Delano, California to NY lane. Railex ran unit trains of 55 large, "plate F" refrigerated cars and promised regularly scheduled departures and arrivals on a five-day service schedule. It claimed reduced carbon emissions when compared to conventional trucking. In June 2014, Railex opened a new facility in Jacksonville, Florida, with service from the west coast. In 2017, Union Pacific acquired Railex's cold storage facilities and terminals at Delano, California, Wallula, Washington, and Rotterdam, New York (but not its wine unit, Railex Wine Services LLC, now known as Northwest Wine Services). In May 2020, Union Pacific discontinued both services. Railex's system was based on palletized cargo, which was loaded and unloaded indoors in temperature-controlled docks that preserved a cold chain for the cargo. It also provided warehousing and could handle less-than-truckload (LTL) shipments.

In December 2022, Tiger Cool Express signed a lease-purchase agreement to acquire the former Union Pacific Cold Connect warehouse, some property and to build an adjacent intermodal ramp in Wallula, Washington.[19] However, Tiger Cool Express ceased operations due to financial problems in June 2023.[20]

Millersburg, Oregon

Mid-Willamette Valley Intermodal Center (MVIC) is a $35.5 million, 64-acre multimodal hub in Millersburg, Oregon, connecting rail, trucks and ocean carriers to the valley's natural resource-based economy. Trucks will bring in international intermodal containers for transload to rail cars before traveling north to Pacific Northwest marine terminals.[21]

Multiple stakeholders including the Oregon Department of Transportation, ConGlobal, Linn County Economic Development Group and Northwest Seaport Alliance, came together to transform the former International Paper Mill into a functional industrial complex, with Union Pacific partnering to bring in the freight rail component. The

[18] "Port of Quincy expanding intermodal terminal in Central Washington" Columbia Basin Herald Dec. 27, 2019 https://columbiabasinherald.com/news/2019/dec/25/port-of-quincy-to-expand-intermodal-facility/
[19] "Rail site expansion opens local import export access" Tri-Cities Journal of Business March 10, 2023 https://www.tricitiesbusinessnews.com/articles/4310
[20] "Tiger Cool Express ceases operations amid financial troubles" Freightwaves Friday, June 16, 2023 https://www.freightwaves.com/news/tiger-cool-express-ceases-operations-amid-financial-troubles
[21] "New Intermodal Facility Connects Oregon with Supply Chain Solutions" Union Pacific December 29, 2022 https://www.up.com/aboutup/community/inside_track/oregon-intermodal-facility-it-221229.htm

facility was officially opened in December 2022. The facility received $25 million in state funding under Oregon's Connect Oregon program, and $12 million from Linn County.[22]

According to the Oregon Department of Transportation, approximately 81% of exported agricultural products from Mid-Willamette Valley are loaded onto ships in Seattle and Tacoma, Washington. This facility will allow commodities to bypass Interstate 5 and the highway system to reach national and global markets via rail – reducing trucking traffic congestion near Portland, Seattle and Tacoma.

A news report in January 2024 indicated that the Mid-Willamette Valley Intermodal Center is not currently operating.[23] According to the article, construction on the Mid-Willamette Valley Intermodal Center took 10 months longer than anticipated and cost $10 million more than the funding initially approved. Linn County leaders attribute this to inflation and delays caused by COVID and used federal COVID relief dollars to pay the difference. To pay for maintenance, operations and fees on the land and buildings, Linn County leaders have used nearly $2 million from its annual economic development money from the state lottery. The commercial failure of the facility is attributed to its location (it is too close to the NWSA terminals for rail to be competitive with trucking), inability to secure the necessary agreements and schedules with rail operators, and a lack of containers needed to move agricultural goods.

Another project funded under Connect Oregon, the Treasure Valley Reload Center in Nyssa, was supposed to save onion growers $2 million per year in transportation costs to Midwest and East Coast cities. The project has gone $18 million over budget, fallen more than two years behind schedule and is still incomplete. State officials earlier this year stopped work on the site and are assessing if it is still viable.

Pocatello, Idaho

In 2021 Savage Services of Midvale, Utah announced the immediate construction of Idaho's first intermodal rail terminal in Pocatello. The facility is designed to load shipping containers onto Union Pacific trains bound for Northwest Seaport Alliance terminals in Seattle and Tacoma. According to the company's website, the facility has 210 railcar spots and 3-4200 ft. tracks. Equipment includes two reach stacker container handlers for loading and unloading containers to and from railcars. Participating ocean carriers are listed as the ONE Alliance, Hapag-Lloyd and Evergreen.

In February 2024 Savage announced they are expanding operations in Pocatello through acquisition of the nearby Idaho Rail Shop business and property. Located near the existing Savage intermodal railport, Idaho Rail Shop provides an ideal location for transloading materials, including dry- and liquid-bulk commodities and dimensional freight, between rail cars and trucks. Both the existing intermodal railport and new transload terminal connect to the Union Pacific Railroad.[24]

[22] "Millersburg intermodal center: Working on it" Hasso Hering October 26, 2023 https://hh-today.com/millersburg-reload-center-working-on-it/

[23] "Behind schedule, over budget, state-funded Oregon rail projects costing $70M sit idle" Oregon Capital Chronicle January 18, 2024 https://www.opb.org/article/2024/01/18/oregon-rail-projects-idle-willamette-valley-freight-to-rail/

[24] https://savageco.com/press-release/savage-adds-transload-and-railcar-repair-services-in-pocatello-with-acquisition-of-idaho-rail-shop/

Minot, ND

In 2010, an intermodal-type transfer facility opened in Minot, ND, with a primary focus on loading and unloading oil-related products, as well as large volumes of agricultural goods. North Dakota Port Services operated the transfer facility with a container yard. North Dakota Port Services ceased operations in 2017.

In 2022 a $2.4 million rail line was built with the help of a $2 million grant from the 2021 North Dakota Legislature. The track was built on Minot Area Chamber EDC land used for the previous facility. It removed intermodal operations from BNSF's mainline and onto dedicated tracks.

A North Dakota delegation traveled to Tacoma, Washington, in January 2024 to provide an update on the Logistics Park of North Dakota Intermodal Facility to The Northwest Seaport Alliance managing members. In 2023, the port was shipping two to three unit trains a month.[25]

Assessment of Inland Port Opportunities for Increasing NWSA Container Traffic

Our review of previous and existing inland ports in the PNW highlights the significant risks involved in their development.

- It is very difficult to obtain long-term guarantees to ensure that rail service and rates will be maintained at levels which will foster long-term commercial success for these facilities.
- Location is an important determinant of commercial success. The Millersburg example shows that inland ports must be sufficiently far from the port so that rail service can be competitive with trucking.

It appears that NWSA has already captured a significant portion of export cargo which was previously shipped through the Port of Portland. A 2016 study on the impact of the loss of container service at T6 in 2015 found that "The most common replacement for direct Portland service has been service through Tacoma and Seattle, WA. Shippers are using multiple strategies to get their goods to or from Tacoma/Seattle, but most seem to be using truck or rail in the same way they were using them in Portland."[26]

A more recent study on the potential economic impact of the loss of container service at T6 indicated that "Absent direct service to T6, all those containers would have to be handled at Seattle or Tacoma, and would be moved primarily by truck."[27]

From this perspective, the incremental volume which could be obtained through direct investment in inland port facilities may be relatively small, since most of the additional cargo is already being delivered to NWSA terminals by truck (primarily) or rail. Given the financial risks, it may be preferable for NWSA to explore other methods to work with the railways and cargo owners to incentivize additional export traffic moving via the NWSA facilities.

[25] "Port connects ND with world markets" Minot Daily News April 6, 2024 https://www.minotdailynews.com/news/local-news/2024/04/port-connects-nd-with-world-markets/

[26] Trade and Logistics Report: Research Analysis Study for the State of Oregon International Trade and Logistics Initiative led by Business Oregon, Oregon Department of Agriculture, Oregon Department of Transportation, and the Port of Portland, The Tioga Group, Inc. February 2016 p. 2.

[27] T6 Container Service Value and Growth Potential Report to the Port of Portland The Tioga Group, Inc. And Hacket Associates, LLC August 22, 2024 p. 10.

SWOT Analysis

The SWOT analysis for NWSA harbor-wide rail infrastructure and operation in this section is based on the consultants' understanding of current NWSA cargo volume and rail traffic and operations provided via document reviews and interviews with BNSF, UP and Tacoma Rail. Potential opportunities from cargo movements in the PNW region and economic development of inland ports projects, as discussed in the previous sections, are considered as well.

The SWOT assessment is organized to emphasize the three (3) most important factors impacting operational efficiency and that are required by both railway and cargo owners and businesses to bring additional cargo via the NWSA homeports. Each of these SWOT factors are summarized below:

Competitive Access to both BNSF and UP for Shipper

Competitive access to rail services to connect cargo owners' supply chains through the NWSA homeports facilities, meaning the opportunity for shipping lines and cargo owners to enjoy lower rates and higher service quality.

Strengths

- Strategic location with capability to access relatively balanced export-import cargo volume.
- The North and South Harbor terminals have access to both Class 1 railways (via Tacoma Rail in the South Harbor and directly in the North Harbor).

Weakness

- Lack of captive cargo market for the NWSA Gateway, competition with N-S and E-W traffic dilutes rail cargo volumes from NWSA ports terminals.

Opportunities

- National initiative to promote regional economic development through new agriculture and manufacturing businesses and supporting inland ports and logistics facilities to support these new regional economic opportunities.

Threats

- Potentially lower rates and/or better service from POLA/POLB and/or Canadian ports.

Efficient Train Operations for the Railways

Provides an incentive for the railways to price NWSA competitively with POLA/POLB routing. The primary strategies for railways to reduce costs are increasing train lengths and reducing switching activities.

Strengths

- Available data suggests that both BNSF and UP can handle long intermodal trains to/from NWSA when it meets their operational requirements.
- Near-dock rail yards (SIG for BNSF and Argo Yard for UP) provide relatively efficient options for handling North Harbor traffic.

Weakness

- Insufficient rail capacity and land availability to assemble longer trains on-dock on NWSA property.
- Short track lengths require more switching activity to handle long trains, and, therefore, increased rail cost and impacted A/D lead track capacity with additional (inefficient) switching.

- Division of traffic between the North and South harbors makes it more difficult to assemble sufficient traffic for daily extended-length intermodal trains for both railways.

Opportunities

- Infrastructure improvements in the South Harbor to facilitate arrival/departure of longer trains and more efficient switching.

Threats

- Surplus capacity and/or lower costs on BNSF and UP's routings from POLA/POLB may lead them to offer lower rates and/or more reliable service for Southern California traffic.

Reliable and Timely Rail Services for Terminal Operators

Strengths

- Frequent scheduled arrivals and departures (daily and weekly) for NWSA intermodal traffic.
- BNSF has two routes handling intermodal traffic to/from NWSA terminals which provides resilience in case of service disruptions.

Weakness

- It appears that actual service levels may be less than indicated in the schedules because NWSA traffic is not sufficient to generate long trains on a daily basis.
- Periodic service disruptions due to a shortage of rail equipment. BNSF cited this on an imbalance between eastbound and westbound international intermodal traffic.

Opportunities

- Not Identify

Threats

- Not Identify

Key Findings

1. With its current operations and anticipated traffic, North Habor does not require additional track or additional siding/support tracks to handle 10,000' trains.
2. Since Tacoma Rail provides switching services for these Class 1 railroads in the South Harbor for both BNSF and UP, and BNSF and UP provide switching for their own traffic operations in the North Harbor, the use of a single switching railway for the North Harbor for combined both BNSF and UP rail traffic similar to the Tacoma Rail model in the South Harbor, may provide opportunities for more efficient switching operations and combined volume as well as reduced rail movements between the North and South Harbors.
3. When South Harbor rail traffic increases to a level which requires multiple trains per day for both railways, it may be worthwhile to explore options to expand rail infrastructure to enable assembly of long trains (12,000 ft or longer) on Port property for direct dispatch onto the BNSF and UP networks.

   Rail infrastructure serving GCT Deltaport at Roberts Bank at the Port of Vancouver provides an example. The single rail line connecting Roberts Bank to the continental rail network is the Port Subdivision which is

owned and controlled by BC Rail, a Crown corporation owned by the Government of British Columbia. This arrangement provides easy access to Roebrts Bank terminals for both railways. The rail yard at Roberts Bank has multiple 12,000 ft tracks to facilitate the assembly of long trains which can be directly dispatched to the CN and CP networks. In contrast, the Port of Vancouver's Inner Harbor terminals (DP World's Centerm and GCT's Vanterm) generate smaller traffic volumes and are hindered by short track lengths in the waterfront area. To assemble longer trains, both CN and CP require additional switching to combine Inner Harbor traffic with domestic traffic from their domestic intermodal terminals (CP's Vancouver Intermodal Facility in Pitt Meadows and CN's Vancouver Intermodal Terminal in Surrey).

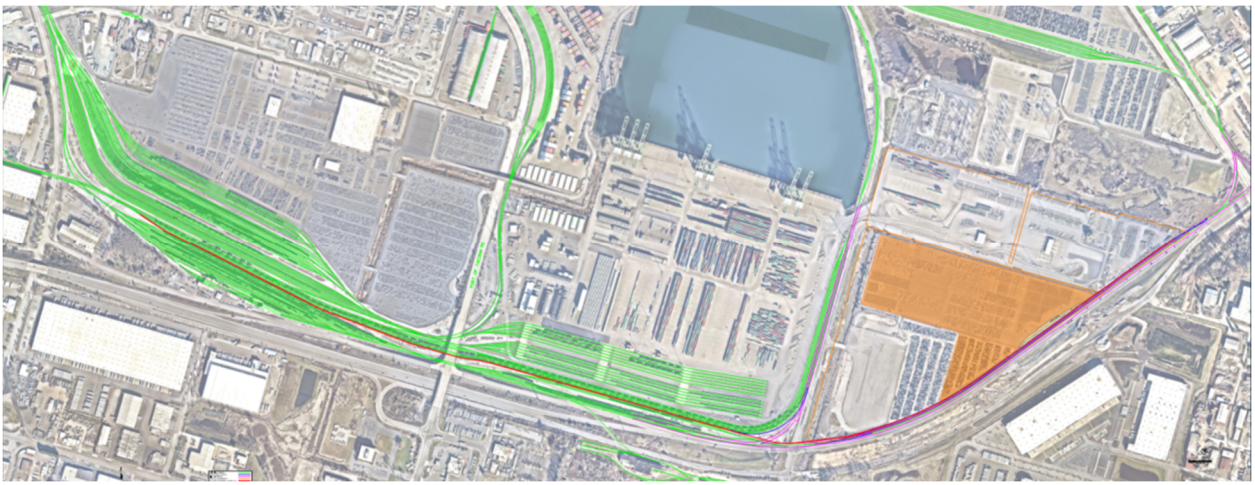
4. The existing arrangement with Tacoma Rail for South Harbor rail traffic provides similar benefits to BC Rail's role as a neutral provider of infrastructure for multiple railways. The challenge for implementation of a system similar to that at Roberts Bank is likely to be the availability of sufficient land to accommodate the additional rail infrastructure. Incentives (including penalty) to lower the rail cost of backhaul transport to secure additional exports via NWSA terminals. A more balanced movement of E-W trade would reduce transportation cost and attract additional import volume through the NWSA gateway.

Development Options

The 10,000's Track Development Options for the South Harbor

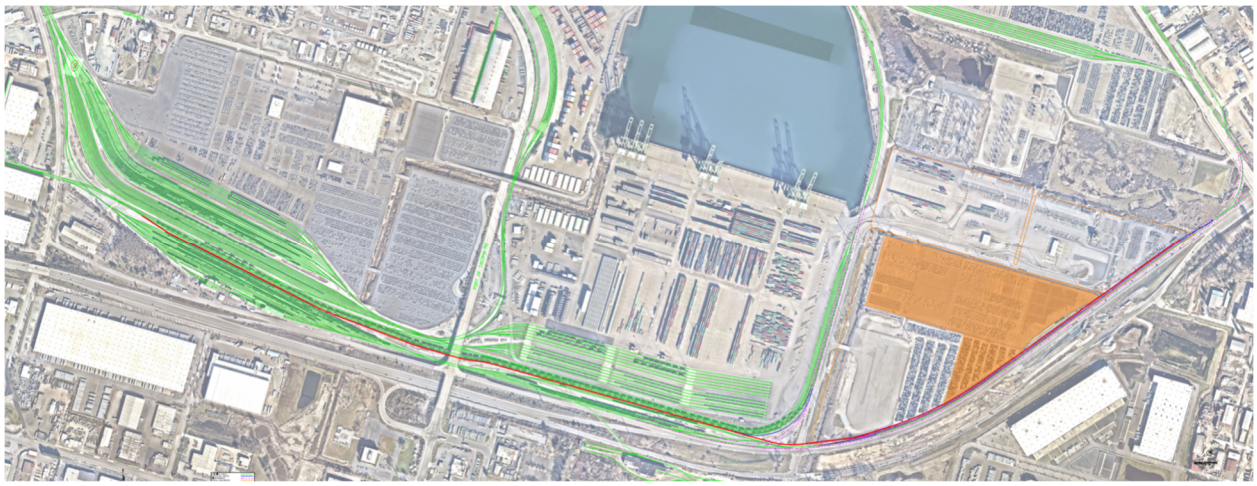
Below are the current roll plot plan sketches to illustrate three (3) high-level opportunities for an approximate 10,000' track clear length track segment within and just outside the Port of Tacoma for NWSA consideration. Please view the concept layout attached in the Appendices for better view of the proposed tracks.

OPTION 1:



1. 170853_NWSA_SHT 509_PLT ROLL_LOC01_2024 06 07.pdf
    a. RED LINE = EXISTING STORAGE (9,483 TF CLEAR)
    b. This is a best fit within the current rail infrastructure

OPTION 2:



2. 170853_NWSA_SHT 509_PLT ROLL_LOC02_2024 06 07.pdf
    a. RED LINE = FUTURE STORAGE (10,000 TF CLEAR)
    b. WEST END: the 10,000' does block out 2 tracks and a crossover
    c. EAST END: stops at the point of tangent to be conservative

OPTION 3:

3. 170853_NWSA_SHT 509_PLT ROLL_LOC03_2024 06 07.pdf
    a. BLUE LINE = PROPOSED TRACK (10,000 TF CLEAR)

For easy viewing, larger pdf files of these options are attached in the Appendix.

APPENDIX A – PROPOSED 10,000’ TRACK OPTIONS

APPENDIX B – EXISTING LAND USES

APPENDIX C –POTENTIAL SUPPORT YARD LOCATIONS


BURNS McDONNELL