

Part 4 in Our Series:
**Trade and
Transportation**

EXPANDED COMMODITY EXPORTS WILL CREATE JOBS, INCREASE INVESTMENT

BRIEFLY

Growth in trade of all kinds—intermodal, break bulk, liquid bulk, dry bulk—in the coming decades will increase demands on the state's privately owned and operated freight rail system. The addition of new bulk terminals for coal and other commodities in Longview and Cherry Point will add to this demand, but not constitute the majority of it.

Washington's trade economy will benefit from expanded bulk commodity exports both directly, through jobs at the terminals, and indirectly, through new investments in the state's rail network on which that trade economy relies.

Washington's economy is highly dependent on international commerce, with much of that dependence centered around the movement of products coming from or heading to other states. But the composition of trade is very different on the import and the export side of the ledger.

Imports to the state consist heavily of manufactured goods arriving in shipping containers, mostly at the ports of Seattle and Tacoma. About 70 percent of the boxes that arrive at these ports go directly to other states, mostly by intermodal trains. This activity is very visible, as double-stack cars trundle across the Central Puget Sound region on their way east.

The export picture through the ports is quite different. Some of those containers that arrive in Seattle go back out with merchandise exports to Asia. But waterborne exports through Washington are far more likely to consist of bulk commodities, such as grain, fertilizers and coal. The U.S. sells highly sophisticated products on world markets, but its natural resource base and high agricultural productivity allow it to export commodities badly needed in less well-endowed parts of the world. And Washington state is a major point of export for many of those commodities.

Shipping Commodities is Different

Unlike merchandise exports, which arrive at ports on trains that have been assembled along the journey, bulk commodities travel in "unit trains" that are never disassembled. The trains start out in one place, say a grain elevator or a coal mine, and travel, intact, to the shipping terminal. At the terminal the commodities are offloaded for storage or direct transfer to bulk cargo ships. This is a far simpler process that requires less infrastructure and equipment.

Because bulk terminals require a lot of land to handle trains, but not a lot of other infrastructure, they can be located in more remote areas where land and facilities are less expensive and where docks can be built out in the deep water. Washington's largest center for bulk commodity exports is the Port of Kalama on the Columbia River.

One of the obvious features of unit trains carrying bulk commodities is that they are quite heavy. As such, unit trains destined for Washington and Oregon ports use the rail lines along the Columbia River, avoiding the energy expenditure required to drag those cars over the Cascade Mountains. (As will be discussed below, the returning empty cars have other options.) Not surprisingly, these trains travel slower than trains with mer-

chandise or passengers, and need sidings to pull onto to allow faster trains to pass.

Rail Demand from Expanded Coal Exports

Growing demand for coal in Asia has led to two proposals to build new bulk export facilities in Washington:

Millennium Bulk Terminals. This company in Longview, along the Columbia River, currently operates an importing terminal for alumina that is sent to smelters elsewhere in Washington. An abandoned smelter is on the site, and demolition and clean up of the former smelter is part of the plan to construct a terminal to handle coal exports. At full build out and operation, this terminal would handle about 44 million metric tons of coal per year.

Gateway Pacific Terminal. This would be a new multi-commodity facility in Whatcom County near the existing oil refineries at Cherry Point, with the capability and flexibility to handle a variety of cargoes through its operational life. These commodities would include coal, grain, potash, wood pellets and others. Capacity will be added as demand dictates.

Both of these terminals would rely on rail links to the coal mines of Wyoming. Trains from Wyoming could travel on BNSF lines through Northern Idaho, Spokane and Pasco, and take the BNSF Columbia River route to the west side of the Cascades. Coal and other commodities could also reach Millennium Bulk Terminals via Union Pacific lines. Ultimately routing decisions will depend on market demands that cannot be fully foreseen at the present time.

At full build out and operation around 2018, the Millennium terminal would accommodate about eight unit trainloads of coal per day. The Gateway Terminal in Whatcom County will initially accommodate about five trainloads per day, expanding to as many as nine trainloads per day at full build out. Thus, if both terminals are built, at full build out, about 17 new unit trains per day would travel westbound

from Wyoming, through Eastern Washington and along the Columbia River.

As noted, fully loaded bulk rail cars are very heavy and it is more economical to take a longer route than to go over the mountains. So while the Columbia River route is the obvious route for the Millennium terminal in Longview, it may also be the route chosen for the Gateway terminal in Whatcom County, even if it is longer than alternative routes.

The return trip, with empty cars, is another matter, however. BNSF has two additional east-west rail lines to choose from—Stevens Pass and Stampede Pass—that could accommodate empty hopper cars, freeing up capacity on the Columbia River.

Meeting Growing Demand for Rail Service in Washington

Exports of bulk commodities have been a growing part of Washington's trade picture and will continue to grow in the future, helping balance the nation's trade accounts and providing jobs and economic activity in the state. This export growth will add to the demand for rail service, but that new demand must be put in the context of overall growth in demand for rail service.

The 2011 Pacific Northwest Marine Cargo Forecast anticipates that all categories of shipments through Northwest ports will grow in the coming 20 years. The forecast provides "moderate" and "high" growth projections for the major categories of traded products. (These "forecasts" are more planning assumptions than true forecasts and do not explicitly incorporate the Millennium or Gateway projects) Containerized trade is projected to grow between 4.1 percent and 6.1 percent per year over 20 years, with the high growth scenario indicating a tripling of container traffic through the Northwest. Grain shipments are projected to grow between 0.7 and 2.2 percent per year. Shipments of dry bulk commodities, including potash, coal and metal ores, are expected to grow between 6.8 and 9.3 percent per year.

Most of this cargo arrives in or departs from the Northwest by rail, and projected cargo growth would put a strain on the capacity of the rail lines in the state. This growth would affect some main line segments more and sooner than others, as discussed below. But Washington and the Northwest are not alone in this. A study of rail capacity and demand by the American Association of Railroads (AAR) found that by 2035 traffic on the main lines across the country will grow at least 50 percent everywhere, and will double in most areas, including Washington.

Fortunately, the rail system is not static and has ample room for capacity expansion. The AAR study determined that all the main lines in the country have room for expansion to accommodate growth coming from expanded trade and domestic economic activity. Similarly, the Marine Cargo Forecast found that the slow lines and choke points in Washington and Oregon can be remedied to provide capacity for anticipated growth. This is accomplished through a continual process of incremental improvements that expand the ability of a mainline to fit more trains on the tracks per day. These improvements fall into two main categories:

First, tracks can be improved. In areas with single-track lines, additional sidings can be built that allow more opportunities for trains to meet and pass, shortening the time that trains sit idle waiting for track access. In some areas sidings can be linked to form double-tracks. Most of the mainline in Washington is single track and ample opportunities exist to add sidings and improve throughput.

Second, operations can be changed. In a practice called “fleeting,” a railroad will hold all trains heading one direction on a track and send them at once, ensuring that no train needs to stop. Then all the trains heading the other way can do the same thing. This works well with unit trains that do not have as much time sensitivity as merchandise trains. As noted, with empty unit trains, BNSF has the option of sending them back east across either Stevens Pass or Stampede Pass,

both of which have ample capacity, even under high growth scenarios.

Anticipated Growth in Washington's Rail Network

The Marine Cargo Forecast analyzes growth in rail demand and capacity from 2010 to 2030 along segments of rail line in the state:

Spokane to Pasco. This line across Eastern Washington currently has a capacity of 60 trains per day and operates at fewer than 50 trains per day. Planned improvements will push capacity to 80 trains per day by 2015 and to 85 per day in 2022. The Spokane to Pasco segment will reach capacity only in the high growth scenario and only by 2030.

Lower Columbia. The segment from Pasco to Vancouver has a single track with sidings and currently operates at its capacity of 40 trains per day. The moderate growth forecast anticipates growth to 55 to 60 trains per day by 2030. Planned improvements to the line will expand its capacity to 50 trains per day in 2014 and to 60 trains per day by 2016. The high growth scenario would push demand to 65 to 70 trains per day by 2025, and if that scenario plays out, additional capacity could be added.

Vancouver to Tacoma. This line currently operates at capacity. The segment can accommodate about 60 trains per day with the primary constraint at the single track tunnels at Point Defiance in Tacoma. Two planned projects, the Point Defiance Bypass and CTC high speed crossovers, will alleviate this problem, expanding capacity to 80 trains per day by 2016 and 120 trains per day by 2021. This will be ample capacity for even the high growth scenario.

Tacoma to Seattle. This segment has a current capacity of 140 trains per day and will grow to 160 trains per day by 2019. The high growth scenario anticipates only about 125 trains per day by 2030, leaving operations well short of capacity.

Seattle to Everett. This line has a capacity of 80 trains per day and about 50

trains per day use the segment. The high growth scenario reaches 80 trains per day by 2025. No improvements are currently planned along the line, but opportunities exist for capacity enhancements should high demand emerge.

Everett to Blaine. This segment has a capacity of just 25 trains per day, and currently operates with about 18 trains per day. The addition of bulk unit trains heading to the Gateway Terminal will move beyond current capacity. Planned improvements, however, will increase capacity in time for build out. The high growth scenario for the line does show an increase to 40 trains per day by 2025, with planned capacity increases reaching 34 trains by that time. The forecast notes that the line does have additional opportunities to increase capacity should demand warrant such projects.

The limitation on expanding capacity of the state's freight rail system lies not with technical or geographic constraints, but with the prospect of gaining a return on investment in such capacity increases. Expanded service in bulk unit trains will help provide the certainty of revenue needed to justify investments that will keep trains moving smoothly for decades to come.

Impact of Coal Trains on Other Freight

Operation of the proposed coal and other bulk terminal facilities at Longview and Cherry Point will place new demands on the state's rail system. The question is whether and how that new demand will be met with capacity expansions that are either planned or possible.

A study by Professor Steven Globerman of Washington State University argues that the new bulk trains will enhance the overall rail system in Washington by providing a guaranteed revenue stream that railroads need to justify investments. Because the two bulk terminals represent very large fixed investments that depend on rail service for their operation, the railroads will be able to count on long term contracts and an uninterrupted revenue flow from that service.

As noted in an earlier brief, much of the rail traffic through Washington can vary quite a bit from year to year, and the steady stream of business from bulk carriers will lower the risk of investment in track.

Professor Globerman further argues that with the steady revenue from bulk unit trains and the concomitant investment by railroads, other users of the rail system will benefit. The capacity increases in the system justified by bulk unit trains will allow more reliable service for intermodal and merchandise trains.

Impact of Coal Trains on Automobile and Truck Traffic

While railroads are separated from the road network in many areas of the state, grade crossings are common, and concerns have been raised about the impact of increased rail traffic on the operation of the road network, especially in heavily urbanized areas.

The City of Seattle commissioned a study of the potential impacts of unit trains passing through Seattle on their way from the Columbia River route to the proposed Gateway Terminal in Whatcom County. The study concluded that daily gate down time on the Seattle waterfront and in the SODO area would increase by a total of 31 to 83 minutes per day in 2015, and 67 to 183 minutes by 2025, with the variation depending on train speeds.

These estimates overstate the gate-down-time impacts of bulk trains, however, because the study does not consider the operational changes that the railroad may use with bulk trains, such as returning them over Stevens Pass or fleeting them during nighttime hours. Additionally, several things must be kept in mind. First, unit trains are shorter than the multimodal trains that use these crossings today, so each closure will be shorter than experienced currently. Second, much of this traffic will occur during low demand periods, with only one or two crossings during peak traffic hours. Finally, unit trains will move smoothly and quickly through the crossings, un-

like multimodal and merchandise trains which frequently use the tracks at crossings during switching operations.

Regardless of whether the Gateway Terminal is built, rail traffic will increase through Seattle, due to expanded international trade in both containerized goods and grain. If the City of Seattle is concerned about traffic at rail crossings, it must take action no matter what happens in Whatcom County.

Conclusion

Growth in trade of all kinds—intermodal, break bulk, liquid bulk, dry bulk—in the coming decades will increase demands on the state’s privately owned and operated freight rail system. The addition of new bulk terminals for coal and other commodities in Longview and Cherry Point will add to this demand, but not constitute the majority of it.

To keep up with rising demand, railroads will need to invest in new track and signals and consider new operating procedures. Fortunately, there are no significant physical limitations to making the needed investments. Rather, railroads must be able to justify those investments financially. Expanded trade in bulk commodities, with its steady flow of business and revenue, will be a big part of that justification. The other, less predictable, services will be able to take advantage of the investments justified by expanded bulk unit train traffic.

In the end, Washington’s trade economy will benefit from expanded bulk commodity exports both directly, through jobs at the terminals, and indirectly, through new investments in the state’s rail network on which that trade economy relies.

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