Washington State

2010-2030
Freight Rail Plan

December 2009

Washington State
Department of Transportation

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Washington State 2010-2030 Freight Rail Plan

Prepared by

Washington State Department of Transportation State Rail and Marine Office

December 2009

Washington State Department of Transportation

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Washington State requires a robust rail system that will provide effective and efficient transportation critical to maintaining our economy, environment and quality of life. Our vision for the future is to enhance our economic vitality and mobility while safeguarding the environment, by continually improving our transportation system.

The *Washington State 2010-2030 Freight Rail Plan* is an update of the *Washington State Freight Rail Plan 1998 Update*. This plan will provide guidance for rail initiatives and investments in Washington State that will:

- Support Washington's economic competitiveness and economic viability.
- Preserve the ability of Washington's freight rail system to efficiently serve the needs of its customers.
- Facilitate freight system capacity increases to improve mobility and reduce congestion.
- Take advantage of freight rail's modal energy efficiency to reduce the negative environmental impact of freight movement in Washington.

The Washington State Freight Rail Plan complies with the Federal Railroad Administration (FRA) requirements that the state establishes, updates, and revises a rail plan in order to receive federal assistance. The Freight Rail Plan also fulfills state requirements, under the Revised Code of Washington (RCW) 47.76.220 and RCW 47.06.080, that the Washington State Department of Transportation (WSDOT) prepare and periodically revise a state rail plan that identifies, evaluates, and encourages essential rail services.

This plan is a product of broad participation from rail industries, ports, shippers, local entities, tribes, transportation communities, interest groups, and the general public. It develops the vision, goals, and strategies to provide reliable, accessible, cost-effective, energy efficient and environmentally friendly freight rail services. It presents a compilation of statewide freight rail needs. Currently a National Rail Policy is being developed by the FRA and is anticipated to be released in 2010. Washington's plan will be updated and revised as necessary to maintain consistency with the National Rail Plan.

The Washington State Freight Rail Plan is intended to serve as a blueprint for investment in our rail system and to prepare us to capture the emerging opportunities from economic recovery that is on the horizon. With effective and responsible improvements to our rail system we will serve the economic development, transportation, social and environmental goals of Washington State and its citizens.

Paula J. Hammond, P.E.
Secretary of Transportation

Washington State
Department of Transportation

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Washington State
Department of Transportation

Executive Summary

Introduction

Washington State's (state) economy needs a vibrant, competitive rail network. This network must provide a reliable, accessible, and cost-effective freight service to shippers and customers across the state. At the same time, the freight rail system must co-exist with a high-quality, fast, frequent and reliable passenger rail service between major cities across the state that is competitive with automobile and air travel times. This plan focuses on the freight side of this equation. It must be recognized that both systems are interconnected and must be planned accordingly to meet both freight and passenger needs as an integrated rail network.

The future of the state freight rail system is envisioned by the State Freight Rail Plan Advisory Committee to meet the following six goals:

- **Economic Competitiveness and Viability:** Support the state's economic competitiveness and economic viability through strategic freight partnerships.
- **Preservation**: Preserve the ability of the state's freight rail system to efficiently serve the needs of its customers as well as preserve the potential of the system in the future.
- **Capacity**: Coordinate the freight rail system capacity increases to improve mobility, reduce congestion, and meet the growing needs of the state's freight rail users, when economically justified.
- **Energy Efficiency and Environmental**: Take advantage of freight rail's modal energy efficiency to reduce the negative environmental impacts of freight movement in the state.
- **Safety and Security**: Address the safety and security of the freight rail system and make enhancements, where appropriate.
- **Livability**: Encourage livable communities and family-wage jobs through the freight rail system and its improvements.

The *Washington State 2010-2030 Freight Rail Plan* is an update of the *Washington State Freight Rail Plan 1998 Update*. This update complies with Federal Railroad Administration (FRA) requirements that the state establishes, updates, and revises a rail plan in order to receive federal assistance. The freight rail plan also fulfills state requirements, under Revised Code of Washington (RCW) 47.76.220 and RCW 47.06.080, that the Washington State Department of Transportation (WSDOT) prepare and periodically revise a state rail plan that identifies, evaluates, and encourages essential rail services. This plan and its recommendations are

intended to be a living document that will be updated and revised as future conditions require. Currently a National Rail Policy is being developed by the FRA and is anticipated to be released in 2010. Washington's plan will be updated if a revision is required to maintain consistency with the National Rail Plan.

This plan will provide guidance for rail initiatives and investments in the state. Results from this plan will be included in the *Statewide Multimodal Transportation Plan*. WSDOT intends this next update to meet state and federal transportation planning requirements, thus maintaining the state's eligibility to receive federal surface transportation funding.

The freight rail plan also reflects strategies to:

- Increase the effectiveness of the rail program.
- Broaden understanding of rail issues for all stakeholders.
- Provide a framework to implement rail initiatives in the state.
- Support WSDOT in federal funding opportunities, such as Transportation Investment Generating Economic Recovery and American Recovery and Reinvestment Act of 2009 (ARRA).
- Implement the rail benefit/cost analysis required by the legislature.
- Fulfill new federal requirements for state rail plans.

2030 Vision for Freight Rail in Washington State

The Washington State freight rail system is:

- ***Reliable.***
- ***Cost effective.***
- ***Energy efficient.***
- ***Environmentally-friendly transportation mode for domestic and international cargo deliveries.***

As a critical part of Washington's multimodal transportation system, the rail system leverages intermodal connections:

- ***To provide a seamless system for cargo deliveries to customers.***
- ***To improve the mobility of people and goods.***
- ***To support Washington's economy by creating and sustaining family-wage jobs and livable communities.***

Freight rail has increasing importance that fosters economic growth and livable communities for the state and its citizens. The rail system is a critical part of the multimodal transportation system that supports national and international trade flows through the state and provides critical gateway opportunities for other cargo to move through the state. It is a vital system that supports state ports and the regional economies bringing

state goods to national and international markets. Freight rail in the state can be considered as a fundamental utility supporting the retail and wholesale distribution system.

Rail System in Washington State

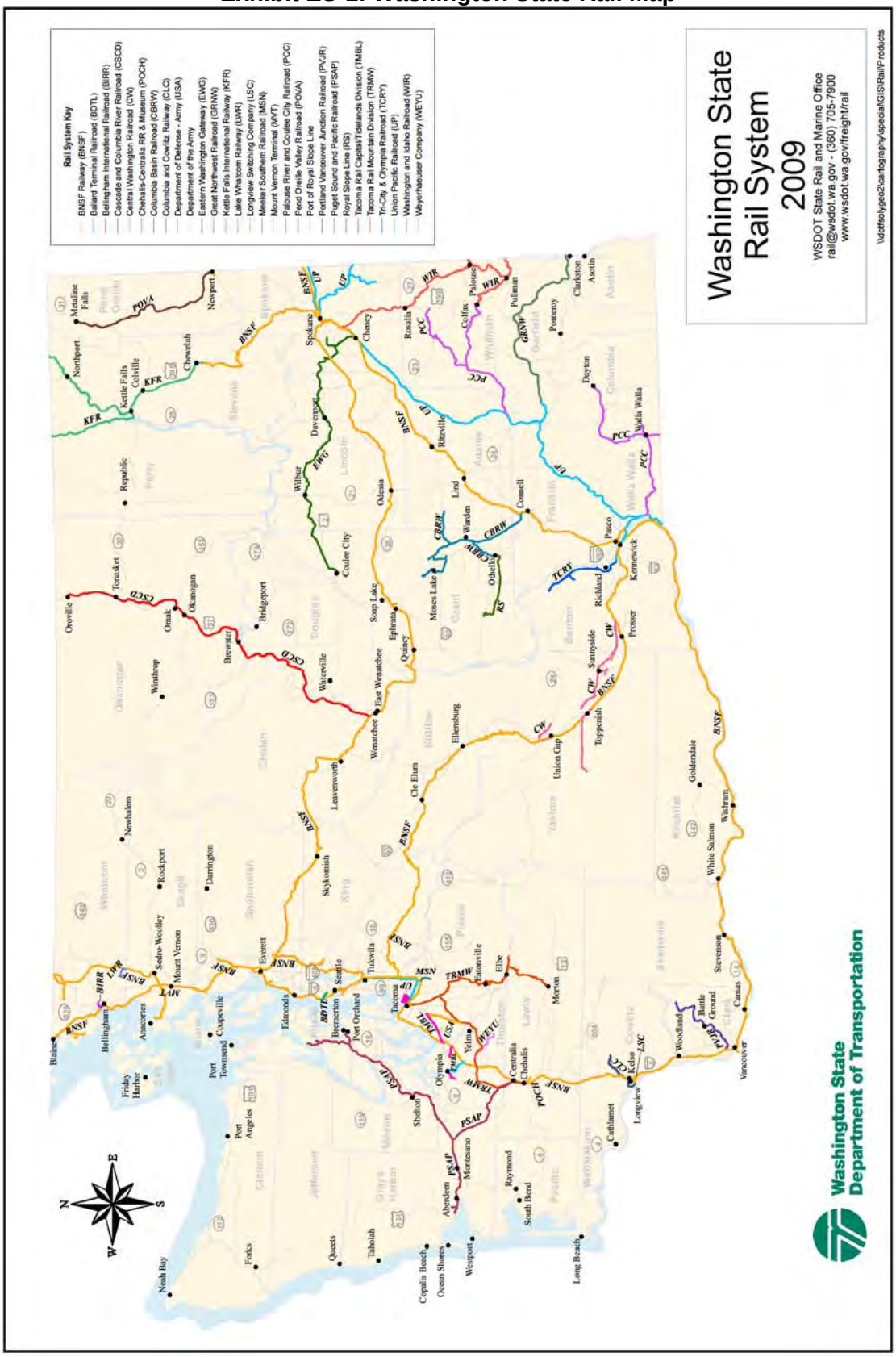
The state's rail network has evolved over the last century to serve a wide range of passenger and freight markets and has extended across many parts of the state. Thirty-two of the state's 39 counties are served by one of the state's freight railroads (Exhibit ES-1). The rail network in the state has three distinct types of rail services: intercity passenger, commuter, and freight.

The Class I railroad system primarily serves the inland transportation component of the supply chain for large volumes of import and export cargo moving through state ports. This Class I railroad system is supported locally by the short-line network consisting of many small railroads, many of which evolved from abandonments of the Class I railroads.

The state's mainline railroad system is comprised of two Class I railroads: the BNSF Railway (BNSF) and the Union Pacific Railroad (UP). Both operators have invested in improvements and upgrades to their rail systems, including new locomotives, new traffic control systems, and rolling stock substantial infrastructure improvements. The Class I railroads are supported by one Class II and 19 active Class III short-line railroads. This brings the total number of active freight railroads in the state to 22.

There are three major rail corridors in the state. First, the north-south corridor is the I-5 rail corridor running from Portland, Oregon (OR) to Vancouver, British Columbia (B.C.). There are two east-west corridors: the Columbia River Gorge—running from Vancouver, Washington (WA) to the east—and Stevens Pass running from Everett to Spokane. These three corridors carry the majority of the current freight rail volumes and are supported by other less dense mainline routes as well as the short lines that feed into the mainlines, such as Stampede Pass running from Auburn to Pasco.

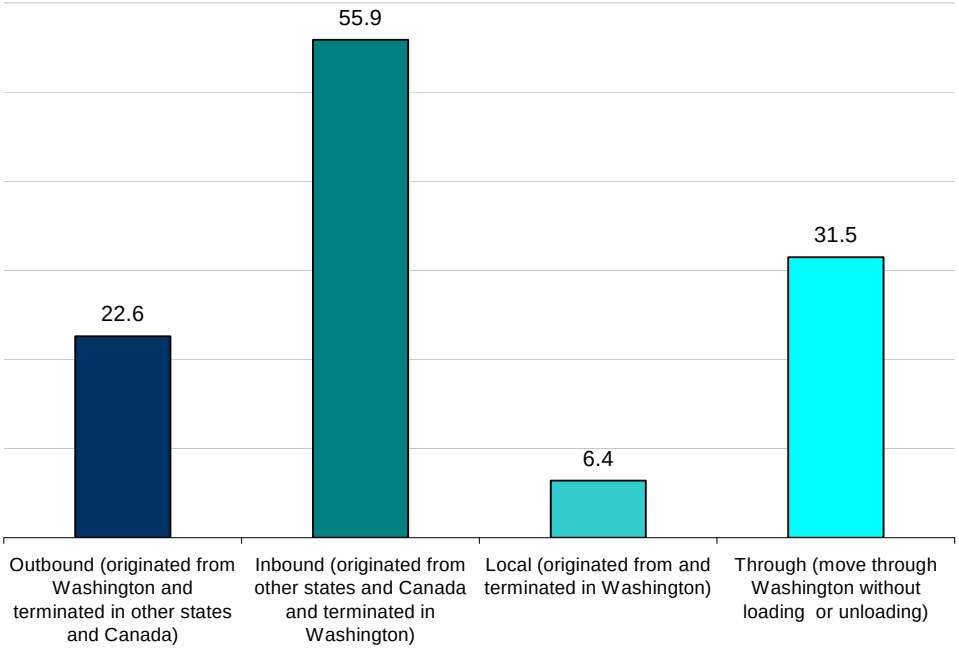
Exhibit ES-1: Washington State Rail Map



Economic Impact

Freight rail transportation is a fast growing service. In 2007 the state rail system carried 116 million tons of freight, compared with 64 million tons in 1991, for an annual growth rate of 3.8 percent. Among the 116 million tons of rail freight, 56 million tons arrived in the state from 44 other states and Canada, while almost 23 million tons were shipped from the state ports and industries to 46 other states and Canada. Over 6 million tons of local rail freight moved within state borders and Almost 32 million tons of rail freight moved through the state without loading and unloading (Exhibit ES-2).

Exhibit ES-2: Washington State Rail Freight Directional Flows – 2007
(Million Tons)



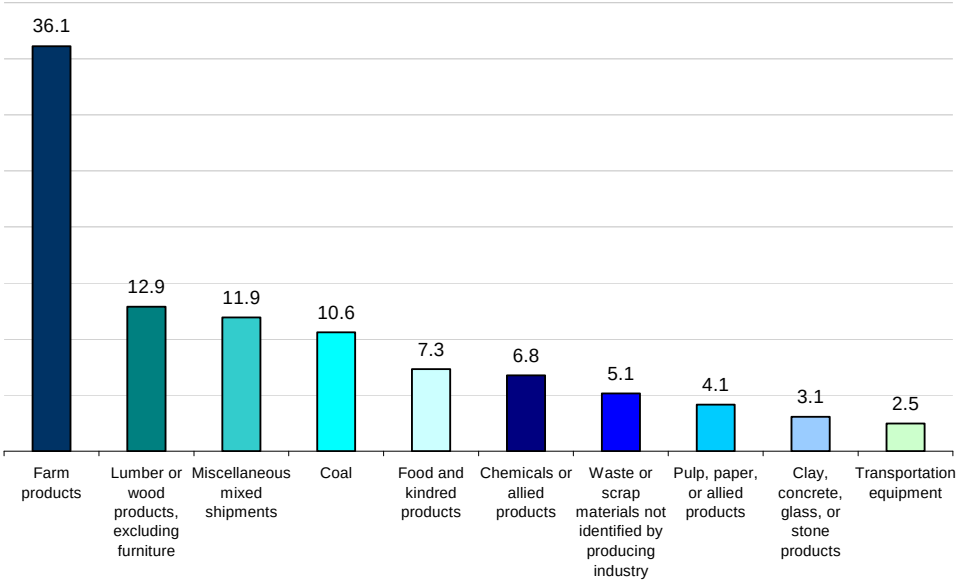
Source: WSDOT State Rail and Marine Office – 2007 Surface Transportation Board (STB) Waybill Sample Data Analysis

The economic vitality of the state requires a robust rail system capable of providing its businesses, ports, and farms with competitive access to North American and overseas international markets. The state is well known for its agricultural products, such as apples, wheat, fruit, and potatoes. Freight rail plays an important role to underpin the state's agriculture sector. Lumber and wood product producers, manufacturers, waste management, and mining also rely on rail transportation to move heavy, bulky products to markets in a cost-effective manner.

Farm products (36.1 million tons) were the top commodity by weight moved on the state's rail system, followed by lumber and wood

(12.9 million tons), miscellaneous mixed shipments (11.9 million tons), and coal (10.6 million tons) (Exhibit ES-3). In 2007, 86 percent of the freight moved on state rail lines was from the top ten commodities.

Exhibit ES-3: Top 10 Commodities Shipped by Rail
Washington State 2007 (Million Tons)



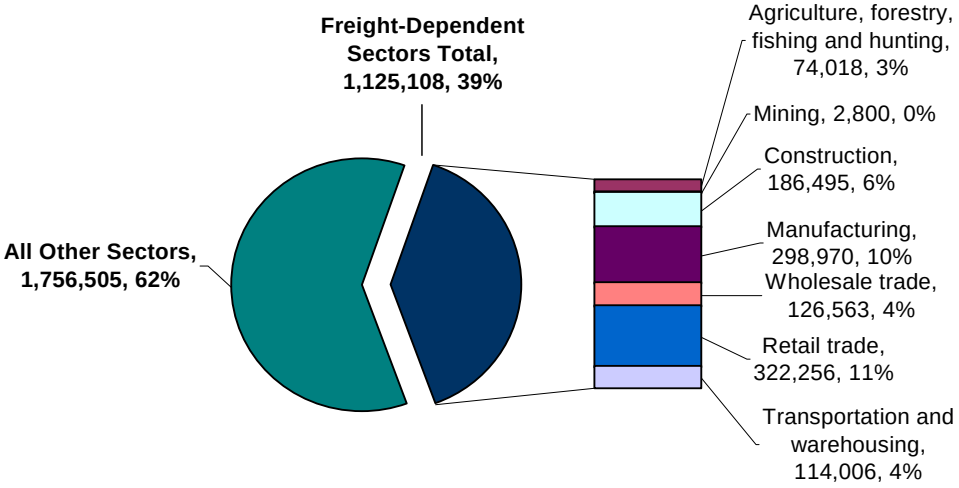
Source: WSDOT State Rail and Marine Office – 2007 STB Waybill Sample Data Analysis

Rail freight transportation has significant economic impacts. In 2007 total rail freight revenue, including rail only and rail intermodal, amounted to $1.2 billion.[1] Freight rail employed 4,207 people in the state and contributed $533 million directly to the state's Gross Domestic Product (GDP).

A large part of the state's economy depends on freight for its competitiveness and growth. The state's freight rail system, as an integrated part, also supports freight-dependent sectors of the economy. Freight-dependent sectors, in general, include agriculture, mining, construction, manufacturing, wholesale, retail, transportation, and warehousing. In 2008 freight-dependent sectors accounted for 33 percent of the state's GDP, 71 percent of business income, and 39 percent of state's employment (Exhibit ES-4).

[1] Rail intermodal refers to double-stack container trains that move as a unit train and has one or more modes to move a shipment from origin to destination.

Exhibit ES-4: Freight-Dependent Sectors Employment
Washington State 2008 First Quarter
Freight-Dependent Sectors: 1.125 Million Jobs
All Sectors: 2.881 Million Jobs



Source: Washington State Employment Security Department 2008, compiled by WSDOT State Rail and Marine Office

Societal Impact

Transportation is one of the largest greenhouse gases (GHG) sources in the state. Transportation GHG sources includes light- and heavy-duty (on-road) vehicles, aircraft, rail engines, and marine engines. Carbon dioxide (CO_2) accounts for about 98 percent of transportation GHG emissions from fuel use. Most of the remaining GHG emissions from the transportation sector are due to nitrogen oxide (NOx) emissions from gasoline engines. Rail is a more environmentally-friendly transportation mode (Exhibit ES-5). Increasing the use of rail transportation can contribute to a reduction in GHG.

Exhibit ES-5: Greenhouse Gas Emissions by Mode
(grams/ton-mile)

	Road	Rail	Air
Carbon Dioxide (CO_2)	235.33	40.00	1,469.33
Nitrogen Oxide (NOx)	1.99	0.74	6.31
Particulate Matter (PM_{10})	0.47	0.05	0.80
Carbon Monoxide (CO)	1.21	0.42	6.26
Sulfur Dioxide (SO_2)	0.30	0.12	2.27

Source: Environmental Science Technology, 2007, 41, 7138-7144

Publicly- and privately-owned railroads are implementing cleaner fuels and working to achieve increased fuel efficiency by retrofitting existing

engines and purchasing newer cleaner engine technologies on new equipment, as well as continuing to make operational efficiency improvements.[2]

Increasing the use of rail for both the movement of freight and passengers can help the state make progress towards its GHG emissions reduction goals. On a national level, freight demand is projected to almost double in the next 35 years. Without improvements in freight rail capacity, this increase in demand would need to be accommodated by trucks using the roadway network.

In the case of moving freight from trucks to trains, a net decrease in GHG emission reductions is tied to a permanent change in mode split: freight volumes are forecast to grow, and if trucks shift one commodity to rail simply to haul another commodity on the road, there will not be a net decrease in GHG emissions.

Rail Infrastructure Needs and Investment Program

Currently, the Class I railroads are meeting the existing long-haul traffic demands, but are experiencing capacity limitations during peak volumes on some of their routes. It must be noted that the majority of the state's passenger rail services run on rail owned by these Class I railroads. Thus, infrastructure improvements and operational changes will be needed to accommodate projected growth in freight and passenger traffic, and to support a competitive rail freight environment.

An assessment of the freight needs was completed as part of this plan. The assessment is based on data provided directly by the state's freight railroads, ports, public agencies, and other key stakeholders. In total, this needs assessment identifies 109 short- and long-term capital improvement projects and other initiatives. The total cost for the requested projects, where cost estimates are available, is $2.0 billion. Other issues that need to be considered in the development of this plan are: proposed rail abandonments and at-risk lines, port access, intermodal connectors, and emerging issues that face freight rail in this state. The state needs to develop a comprehensive system to prioritize these projects, using a cost benefit approach, to obtain the maximum benefit for the public's investment into any private infrastructure that is clearly measurable.

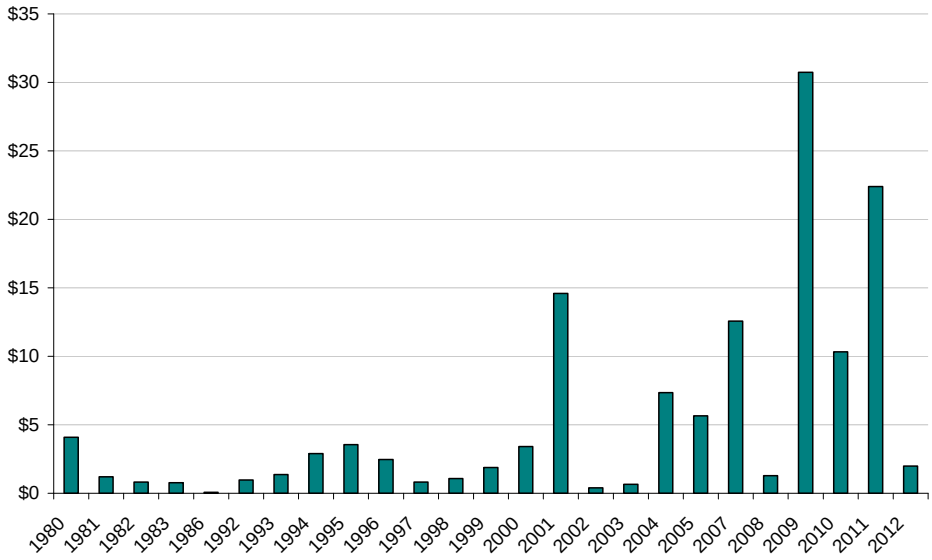
Preservation of At-Risk Railroads

The state has one of the best rail preservation and development programs in the country. The state has invested $99 million in its rail freight

[2] www.maritimeairforum.org/news/NW_Ports_Clean%C2%ADAirStrategy_Draft.pdf.

infrastructure since 1980. An additional $35 million in investment is anticipated from 2010 to 2012 (see Exhibit ES-6).

Exhibit ES-6: Washington Rail Investments (in Millions)



Source: WSDOT State Rail and Marine Office

These investments include the Freight Rail Assistance Program ($6 million 2007-2011), and Freight Rail Investment Bank Program (Rail Bank) loans. The Rail Bank has made $7.5 million in funding available from 2007-2011, with a maximum loan of $250,000. All of these investments have been in regional and small railroads, in recognition of the fact that these railroads are a vital component of the state's transportation system and economic well-being.

Port Access

Port access to rail is very important to the vitality of local, state, and national economies. As economic development agencies, ports are a fundamental part of the state's infrastructure. State ports face substantial competition from other ports and shipping routes. The majority of the cargo that comes through state ports is discretionary cargo (i.e., containers, autos, grain, dry bulks, and break-bulk cargoes) that can shift to other gateways, if shipping through these other ports becomes more efficient or cost effective than using state ports. To be competitive, ports must have good rail access[3] and connect effectively to the rest of the system. As an added benefit, rail is a community-friendly mode, as it is a safe, energy-efficient way to move goods along major corridors.

[3] Good rail access means that trains can get in and out of a rail facility without delay to the facility, the train, or other rail operations on a rail line.

The state has 75 ports, not all with water access, as shown in Exhibit ES-7. The state has 11 deep-draft ports, a tremendous asset for the state's economy.[4] This is an asset because these ports can berth most of the cargo ships on the ocean due to the ability to handle ships that draw up to 40 feet of draft. Seven of these ports are on the Puget Sound. The largest ports, the Ports of Seattle and Tacoma, together comprise the third largest container load center in the nation—behind the complexes at Los Angeles/Long Beach and New York/New Jersey. One deep-draft port, the Port of Grays Harbor, is located on the coast; and three are located on the Columbia River. Together, these ports comprise a seamless network that sends state goods to a global market, and imports goods from other countries, bound for state stores.

Vital to the continued success of state ports is capitalizing on our inherent competitive advantage—a shorter ocean trade route to the Asia/Pacific Rim through the state's gateways. However, if these critical gateways, which handle a majority of the state's freight rail tonnage, lead to a system that is slow and unreliable, they will be noncompetitive and the flow of trade may shift. This could result in added costs to shippers.

Thus, state ports are only a part of the freight rail picture. Each part of the system needs to contribute to the success of the whole. Investment of public dollars needs to follow a prioritized plan that will deliver the maximum system benefit.

The Columbia/Snake River Inland Waterway system stretches 365 miles inland from the Pacific Ocean. The three deep-draft ports along this system—Longview, Kalama, and Vancouver—are major shipping centers for the state. Upstream, the Ports of Klickitat, Pasco, Kennewick, and Benton are served by barge along the Columbia River. The Ports of Garfield, Whitman County, Walla Walla, and Clarkston are served by barge along the Snake River.

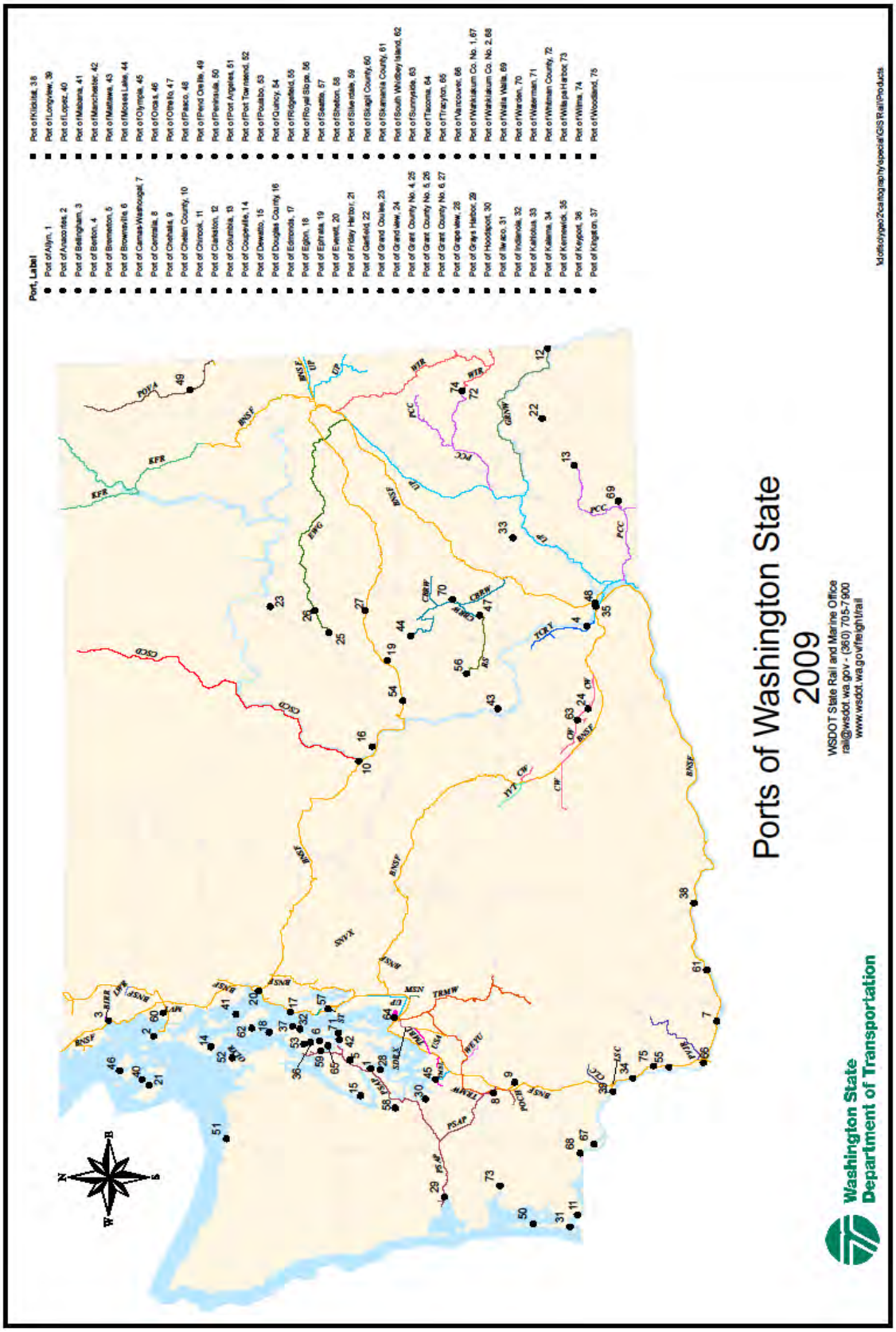
Although there are many ways to classify ports in the state, this plan has selected four classifications for ports that are rail served:

- **Intermodal (Container) Ports[5] –** Seattle and Tacoma.

[4] A deep draft Port is a port that can receive a ship with a laden draught of 40 feet or less. A very deep draft port is one that can handle a laden draught of 45 feet or less, which are most container ships and other large ships including military ships. http://www.globalsecurity.org/military/systems/ship/container-types.htm/.

[5] Intermodal ports are those ports that move containers from ship to rail, producing unit trains of containers to be transported to the inland destinations.

Exhibit ES-7: Ports of Washington State



- **Agricultural and Bulk Ports –** Clarkston, Garfield, Grays Harbor, Longview, Kalama, Seattle, Tacoma, Vancouver (WA), Walla Walla, and Whitman County.
- **Rail-Dependent Break-Bulk and Industrial Ports –** Anacortes, Everett, Garfield, Grays Harbor, Kalama, Longview, Olympia, Seattle, Tacoma, and Vancouver (WA).
- **Rail-Serviced Industrial Ports –** Benton, Bremerton, Chelan, Clarkston, Columbia, Ephrata, Garfield, Kennewick, Mattawa, Moses Lake, Othello, Pasco, Quincy, Ridgefield, Royal Slope, Shelton, Sunnyside, and Whitman County 3 & 4.

Each of these categories has different access needs and challenges, although efficient and timely rail service is mandatory to all these ports. Port access issues are more closely related to location than to type of port.

Nearly all of the state's deepwater ports are located adjacent to the Interstate 5 (I-5) corridor, or are on short-line railroads that branch off the I-5 corridor. As a result, rail connectivity issues for the ports and capacity issues on the I-5 rail corridor are necessarily tied. Along the corridor there are five main areas where mainline capacity needs and connectivity issues intersect, including: Vancouver (WA), Kalama to Longview, Centralia, Tacoma, and Seattle. Each of these is examined in more detail in Chapter 5 of the plan.

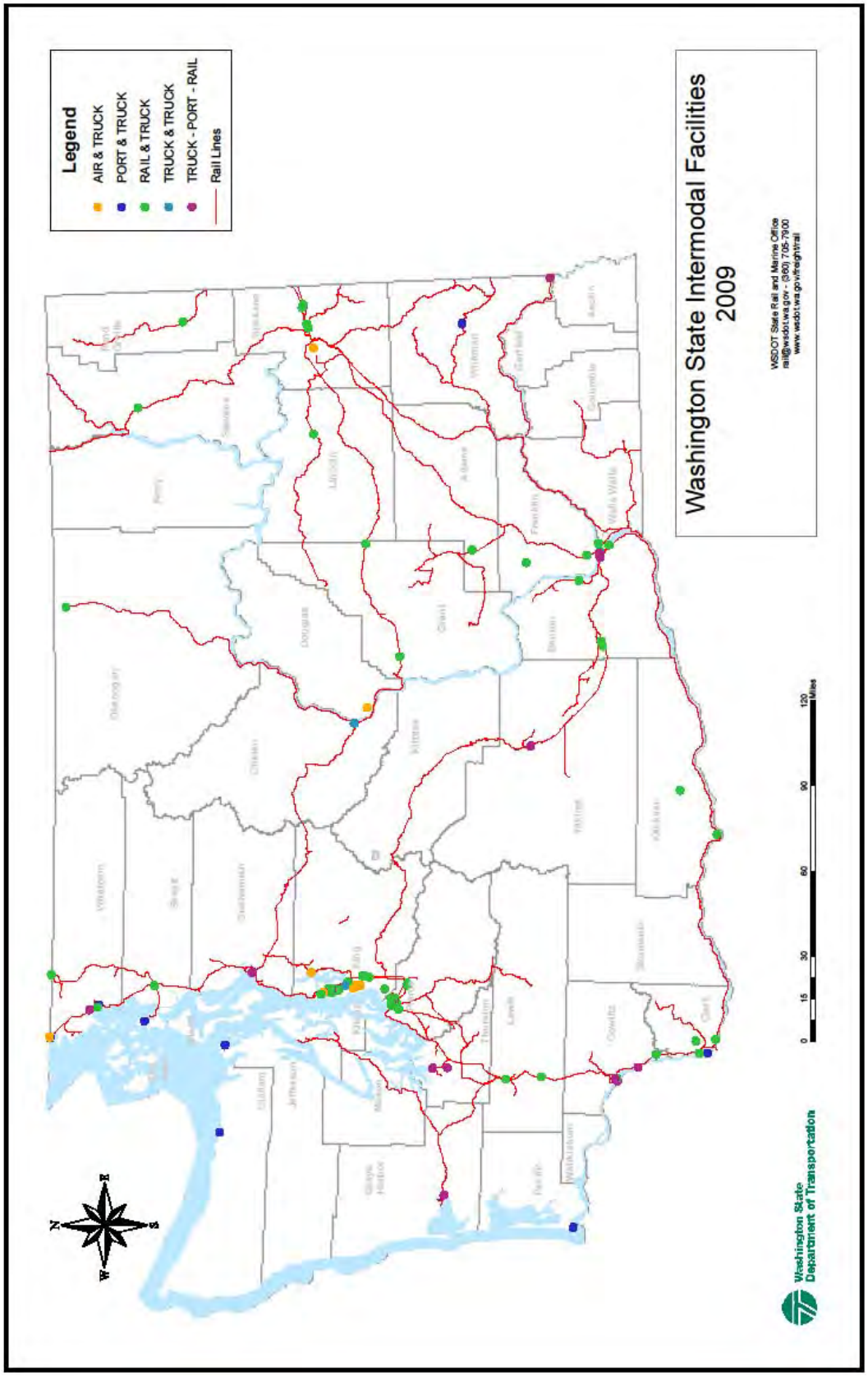
Intermodal Connectors

Intermodal connectors are a location where two modes meet and the cargo moves from one mode to another.[6] In most cases this is moving a piece of cargo from a truck to a train or vice versa. Two examples are inland ports and on-dock intermodal yards. Exhibit ES-8 shows major intermodal facilities located in the state by type of connector.

Rail access is a significant element of port competitiveness. By providing an inland port service, a seaport can (in theory) make intermodal rail service available to a broader range of customers. There must be efficient rail service to both the seaport and the inland port for the model to work. If priced competitively, the inland port service can offer cost savings to container shippers and thereby increase the port's competitiveness.

[6] The intermodal connectors shown are those identified by the USDOT BTS Intermodal Facility database.

Exhibit ES-8: Intermodal Freight Connectors in Washington State



In addition to rail served inland ports, the two most prominent alternatives that involve rail transportation are on-dock intermodal and near-dock intermodal. Examples of these intermodal yards can be seen at the Ports of Seattle and Tacoma. There are other types of intermodal connectors, such as rail-to-barge, truck-to-grain elevators, rail-to-bus, as well as airports. In most cases airports are not supported by rail, although for freight there is the truck-to-plane intermodal connector.

Freight System Issues and Needs

Capacity/Bottlenecks

The benefits that the state can obtain from a robust rail system are threatened because the system is nearing capacity. Service quality is strained and rail rates are going up for many state businesses.

The pressure on the rail system will increase in the next decades, as a result of increased population and demand, economic globalization, and continued containerization. The total freight tonnage rail system is expected to increase by about two to three percent annually over the next 20 years. To accommodate this growth, many more rail lines within the state will be operating at or above their practical capacity.

Growth in rail traffic and rail congestion issues are also affecting state communities by increasing delays for automobile and truck drivers at rail-highway crossings. Increased noise, congestion, and safety problems exist at these crossings. Dealing with these problems in an uncoordinated fashion on a case-by-case basis is often frustrating for both the communities and the railroads.

Competition

State ports are facing competition not only from the southern California ports, but also increased competition from western Canadian ports, including Prince Rupert. There is also the concern that once the Panama Canal is expanded for the larger container ships that the cargo may go ‘all water’ to the East Coast through the canal instead of by rail from the West Coast. At this point, there are many studies predicting potential outcomes of the larger canal, but there is not a consensus on the effect it will have on the state. This plan includes strategies to favorably position the state in the changing competitive marketplace.

Emerging Issues

North-South High Capacity Corridor

The fluidity of the I-5 rail corridor is mandatory for the economic health of the state. This corridor can be classified as extending from Portland, OR to Vancouver, B.C. A north-south corridor, supporting the east-west movements of the majority of the cargo moving through the state, is required to keep the rail network flowing. The BNSF I-5 corridor carries both freight and passenger rail traffic. As the projections of cargo and passenger volumes are met, it will be especially important that attention is kept on the health of this north-south corridor.

It is important to note that the mainline in the I-5 corridor, from Vancouver (WA) to Vancouver, B.C., is owned by BNSF. Amtrak has rights to operate passenger service on this mainline. UP has rights to run on this rail line from Vancouver (WA) to Tacoma. From Tacoma to Seattle, both Class I railroads have their own rail lines and operate separately on their respective rail.

Currently, BNSF has no public plans, other than those announced to support intercity passenger train volumes, to increase capacity over the route. From a freight perspective, BNSF believes sufficient capacity exists for the foreseeable future. Indeed, BNSF's planning staff sees nothing in this corridor as "freight driven" with the current volumes at this time. Increased volumes may require capacity improvements.

In the future, it will be very important to monitor the capacity versus demand of this corridor and prepare capacity improvements to meet the growth projections. This will require coordination between all stakeholders and partners to ensure that capacity is available for this corridor and its communities to meet their respective needs. This may require a true public-private partnership including regional agencies (such as metropolitan planning organizations), Sound Transit, Amtrak, rail freight customers, ports, local communities, as well as other stakeholders. Public funding could include safety improvements, such as grade separations.[7] Private railroad funding could include improvements, such as longer sidings or additional mainline tracks. BNSF has stated that the funding of these longer sidings and additional mainline tracks should not be the exclusive responsibility of the private railroads, when the need is driven by passenger rail service or the need to preserve freight rail service due to increasing passenger rail service.

[7] A grade separation is when an at-grade road that crosses a rail line is separated from the rail line by elevating the road as an overpass over the rail line or the rail line on a trestle.

East-West High-Capacity Freight Rail Corridor

For the state to stay competitive, a strong coalition of stakeholders must build an integrated plan to develop the necessary capacity to retain the state's rail freight market share. A high-capacity rail corridor should be maintained and improved upon from the Puget Sound to Chicago, Illinois. A national cohesive effort needs to be developed by both the public and private partners in order to achieve the economic growth that is required to keep the state competitive.

A compelling business case for proposed improvements to this corridor should be developed. This corridor will require infrastructure and operational improvements as well as improved cooperation between BNSF and the UP. An agreement on priorities needs to occur and a funding program developed. It is important to the state's economy to have healthy railroads competing for business in the state. This competitive positioning influences the Class I railroads' investment within the state. BNSF and UP capital investment decisions and strategies are based upon Return on Investment. Capacity must be available to attract more volume and new customers. To encourage the Class I railroads to invest in this state, it is critical that public investment dollars are available for projects with public benefit.

To hold the Class I railroad's attention to the state, the state's economy must be growing, the ports efficient, and the stakeholders must understand how important the rail system is both to the economy and ports. There must be consensus on the priority of projects and the funding mechanism to get the improvements built. Thus, there needs to be a prioritization of the freight rail projects that have a clear economic benefit to the state. This priority list needs the support of all stakeholders in order for the high priority projects to get done.

Dedicated High-Speed Passenger Rail Track

On August 24, 2009, WSDOT submitted their High-Speed Intercity Passenger Rail Program application to the FRA. This is the first step to the development of a dedicated high-speed passenger rail track along the I-5 corridor from Portland, OR to Vancouver, B.C. This will allow the separation of lower speed freight trains from the higher speed passenger trains and allow for increased service levels for both freight and passengers.

WSDOT applied for nearly $435 million in ARRA funding in this first round under Track 1 projects. The primary focus of Track 1 projects is to help speed economic recovery through construction of "ready-to-go" intercity passenger rail projects. WSDOT has a total of 20 capital rail projects that qualify for Track 1 consideration. When completed, these

projects will add an additional daily Amtrak *Cascades* round trip between Seattle and Portland, improve on-time reliability, reduce rail congestion, and provide enhanced service without affecting freight capacity.

Without the necessary improvements on the I-5 rail corridor, the available capacity on the segment will be exceeded by about 2018, at even the lowest freight recovery scenario. Consequently, it should be expected that BNSF will not allow growth in passenger operations without a clearly defined set of capacity improvements. These improvements would protect freight performance regardless of how the economy recovers over the next few years.

Impacts of Dam Breaching or Loss of the Columbia-Snake Inland Waterway System

The current Columbia-Snake Inland Waterway System is very efficient for moving cargo. This system provides shippers with an alternative to shipping by rail, supplies price competition to the railroads, and imposes sufficient capacity to absorb substantial fluctuations in grain shipments, especially during peak export months and years.

Due to the fear that numbers of Chinook salmon and steelhead in the Snake River would continue to decline, the possibility of breaching (removing) the four Snake River dams was examined in a report issued by the US Army Corp of Engineers in 2002.[8] The discussion on removing the dams continues to this day.

In addition to the effect that dam breaching would have on the system, transportation impacts would also be shifted to the road and rail systems in the region. The mainline rail system, short-line rail system, and state and county road systems could all be expected to bear an increased share of the freight now shipped by barge. This could cause some capacity constraints to be reached.

Statewide Information and Data Needs

Currently, there is not enough rail and freight data collected for statewide rail planning and rail operations. The U.S. Department of Transportation (USDOT) expects that the state rail plan from each state will provide detailed insight into the concerns facing state transportation systems and set forth state visions of how rail transportation can address those issues. One of the elements that USDOT views as necessary includes multimodal transportation, especially ways in which modes can be leveraged to serve transportation customers more effectively and efficiently.

[8] www.efw.bpa.gov/IntegratedFWP/DamBreachingFacts.pdf.

States are in a unique position to provide information on local rail bottlenecks and resultant road and rail traffic congestion. The lack of this information can negatively affect the larger transportation network. Resolution of such issues can improve transportation flows and positively affect the movement of goods and people far beyond state borders.

States can also provide information on projects that they are planning to develop, which may have repercussions beyond state borders, and hence should be considered in the National Rail Plan.[9]

States need greater information management capacity to assess statewide demand, analyze utilization data, and develop and maintain asset inventories and rail system physical and condition inventories.

The Partners

In this state there are numerous partners or players in the rail freight system: first and foremost is the owner of the asset—the railroads—as well as the customers served; second, the ports who are logistics and transportation partners in moving the cargo from ship-to-rail or barge-to-rail; and finally, the regulators and partial funders of the system—the state and federal governments are partners in this system. Other stakeholders included local communities, planning organizations, and tribes. The State Freight Rail Plan Advisory Committee represented these stakeholders in the development of this plan and some are encouraging that the committee stays intact.

Investment Prioritization and Project Evaluation

Freight rail has many benefits. With its cost effectiveness, fuel efficiency, safety records, and lower environmental impacts, freight rail is a viable option that can be included in policy aimed at solving economic, social, and environmental problems with integrated solutions.

Although predominantly privately owned, the freight rail system provides many public benefits that warrant taxpayer participation in improvements at both federal and state levels. The common public benefits associated with freight rail include stimulating the state's economy, supporting local communities and businesses with jobs and revenues, reducing congestion, improving public safety, offering a transportation choice for shippers, reducing environmental pollution, and saving energy.

For rail-related investment, private benefits have typically accrued to rail carriers, shippers, rail property owners, and other non-governmental

[9] See page 1-4 in Chapter 1 for more detail on the National Rail Plan.

groups. Public benefits are broadly assigned to government agencies that represent taxpayers.

Priorities and Criteria

WSDOT developed a benefit/cost methodology and uses it to evaluate state projects against six legislative priorities:

- Economic, safety, or environmental advantages of freight movement by rail compared to alternative modes.
- Self-sustaining economic development that creates family-wage jobs.
- Preservation of transportation corridors that would otherwise be lost.
- Increased access to efficient and cost-effective transport to market for the state's agricultural and industrial products.
- Better integration and cooperation within the regional, national, and international systems of freight distribution.
- Mitigation of impacts of increased rail traffic on communities.

Financing the Needs

The need for expansion to meet future demand can only be achieved through involvement of both the public and private sectors. The state, as well as private rail owners, has invested vigorously in the rail systems in the recent years. Although federal transportation funding in the United States has remained at 1 percent over the last 20 years, more federal investment in the state's freight rail system is needed.

There should be a national freight policy and a dedicated consistent funding stream for freight rail transportation. There has been movement at the federal level in this area, with efforts by the FRA, to develop the National Rail Plan, which should then provide input into a National Freight Policy.

State Role

This plan describes the state's role and investment policies for freight rail that should be used as a guideline for the state's future freight infrastructure investments. Funding the necessary investments in the freight rail system should be shared among those that receive benefits from the system in proportion to those benefits received.

A consistent investment program that maintains and improves the state freight rail system is critical. This will create an outline for the state's funding that meets the public benefit criteria. These should include improvements that divert truck traffic from overburdened highways, including many of the vertical clearance limitations. Priority should be

made on investments that leverage weight carrying abilities of rail to increase efficiencies, as well as increasing safety at rail-highway crossings.

Conclusion

This plan will address the goals and strategies of improving freight rail service within the state. The plan will be updated on a regular basis to respond to the changing economic climate. The completion of the National Rail Plan at the federal level may require a revision to this plan to meet any new requirements directed to the states. In addition, any future studies will be incorporated into appendices as new information becomes available.

The greatest obstacle to implementation of this plan is the lack of a dedicated reoccurring funding source at both the state and federal levels. With 90% of the $2.0 billion in rail needs identified in this plan unfunded, the state will have to pursue federal funding, as well as boost state spending, and establish public-private partnerships to close the gap between available resources and freight rail needs.

The second largest obstacle will be determining the priority of the projects and which projects should be implemented first to gain the maximum benefit to the system as a whole.

Washington State
Department of Transportation

Chapter 1: Plan Purpose and Authority

Purpose of the State Freight Rail Plan

The *Washington State 2010-2030 Freight Rail Plan* is an update of the *Washington State Freight Rail Plan 1998 Update*. These plans fulfill the Federal Railroad Administration's (FRA) requirements that a state must establish, update, and revise a rail plan in order to receive federal funds. This plan also reflects strategies to:

- Increase the effectiveness of the rail program.
- Broaden understanding of rail issues for all stakeholders.
- Provide a framework to implement rail initiatives in Washington State (state).
- Support the Washington State Department of Transportation (WSDOT) in federal funding opportunities, such as the Transportation Investment Generating Economic Recovery/American Recovery and Reinvestment Act grants.
- Implement the rail benefit/cost analysis required by the legislature.
- Fulfill new federal requirements for state rail plans.

Washington State Department of Transportation

WSDOT is the steward of the state's interstate, highway, and ferry systems. WSDOT directly manages the planning, design, project delivery, and operations for over 18,000 lane miles of state highway and more than 3,600 bridges, as well as operates the largest ferry fleet in the United States. In addition to building, maintaining, and operating the state highway system and state ferry system, WSDOT works in partnership with others to maintain and improve local roads, railroads, airports, and multimodal facilities and programs that offer alternatives to driving alone. WSDOT also own 323 miles of rail and operates 297 miles of these rail lines.

WSDOT's State Rail and Marine Office

WSDOT's State Rail and Marine Office is responsible for managing and directing the state's freight and passenger rail capital and operating programs. It enacts the direction of the legislature as it impacts rail and marine initiatives and manages rail system improvements that support economic development, move people and goods, relieve road and airport congestion, and reduce greenhouse gas emissions. The State Rail and Marine Office works with railroads, ports, communities, and other

organizations to improve the state's rail system. This office is also responsible for rail project identification and assessment, strategic rail transportation planning, development of state rail and marine data, and state rail grant program administration.

State and Federal Legislative and Planning Requirements

WSDOT's rail planning efforts are implemented within the context of specific state and federal legislation and related planning requirements that are summarized below.

State Requirements

There are four requirements for a rail plan in state law. The two primary statutes are: the Revised Code of Washington (RCW) 47.76.220 that requires WSDOT to create a state rail plan and RCW 47.06.080 that requires WSDOT to create a freight rail plan. This plan satisfies both statutory requirements. Highlights of these and other pertinent statutes follow.

RCW 47.76.220 (state rail plan - contents) requires WSDOT to prepare and periodically update a state rail plan that identifies, evaluates, and encourages essential rail services. The plan must identify and evaluate mainline capacity issues, port and congestion issues, and address at-risk or abandoned lines. It must establish priorities to determine which rail lines should receive state support. Priorities should include anticipated benefits to the state and local economy, anticipated line impact to roads and highway improvements, financial viability of state-funded lines, and line impact on energy use and air pollution. It must identify, describe, and map the state rail system; identify and evaluate rail commodity flows and traffic types; identify rail banked or preserved lines or corridors; and identify and describe other issues affecting the state's rail traffic.

RCW 47.06.080 requires WSDOT to include a state freight rail plan as one of the state-interest components of the statewide multimodal transportation plan. This plan must fulfill the statewide freight rail planning requirements of the federal government, identify freight rail mainline issues, identify light-density freight rail lines threatened with abandonment, establish criteria for determining the importance of preserving the service or line, and recommend funding priorities. It must also identify existing intercity rail rights of way that should be preserved for future transportation use.

RCW 47.04.280 (Transportation System Policy Goals) states that all public investments in transportation, including transportation planning,

should support achievement of these five policy goals: preservation, safety, mobility, environment, and stewardship.

RCW 47.06.040 (statewide multimodal transportation plan) requires WSDOT to coordinate development of the *Washington State 2010-2030 Freight Rail Plan* with other transportation plans to ensure consistency with each other and with the state transportation policy plan.

Government-to-Government Tribal Consultation

WSDOT maintains government-to-government relations with 35 federally recognized tribal governments. The following policies and documents guide WSDOT:

- The **1989 Centennial Accord Between the Federally-Recognized Indian Tribes in Washington State and the State of Washington** was executed between the federally-recognized Indian tribes of Washington signatory to this Accord and the state of Washington through its Governor. The Accord provides a framework for a government-to-government relationship and implementation procedures to assure execution of that relationship.
- The **1999 Government-to-Government Implementation Guidelines** provide a consistent approach for state agencies and tribes to follow.
- The **2005 Governor's Executive Order 05-05, Archaeological and Cultural Resources** orders all state agencies to review capital construction projects and land acquisitions, which do not undergo Section 106 review under the National Historic Preservation Act of 1966, with the Department of Archaeology and Historical Preservation and affected tribes to determine potential impacts to cultural resources.
- The **2009 Washington State Secretary of Transportation Executive Order 1025.01, Tribal Consultation** reaffirms the commitment of WSDOT to provide consistent and equitable standards for working with the various tribes across the state. WSDOT recognizes that each federally recognized tribe is a distinctly sovereign nation. WSDOT's goal is to create durable intergovernmental relationships that promote coordinated transportation partnerships in service to all citizens. More information on specific consultation procedures is available in the *WSDOT Centennial Accord Plan*.

Federal Statutory Requirements

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) amends Title 49 of the United States Code to prevent railroad fatalities, injuries, and hazardous material releases, to authorize the Federal Railroad

Safety Administration, and for other purposes. It is known as Public Law 110-432 (PL 110-432) and was approved as House Resolution 2096.[1]

PL 110-432, Division B, Title 3, Section 303, Chapter 227 attempts to put rail on an equal footing with planning for other transportation modes by requiring state rail planning as the basis for federal and state rail investments within the state. State rail plans are comprehensive documents intended to lay out the state's vision, objectives, service goals, capital investment plans, and project funding priorities for all passenger and freight rail services. They are submitted to the U.S. Department of Transportation (USDOT) Secretary for review and approval and updated at least every five years for re-approval.

PL 110-432 requires designation of the state authority to prepare, maintain, coordinate, and administer the rail plan, and designation of the authority to approve the rail plan. The authority to prepare, maintain, coordinate, and administer the rail plan is the WSDOT State Rail and Marine Office. The authority to approve the rail plan is the WSDOT Secretary of Transportation.

See Appendix 1-A for the detailed state and federal requirements referenced in this plan.

Development of the State Freight Rail Plan

Federal Planning – the National Rail Plan

Under PRIIA Section 307, the USDOT is to develop a national rail plan that is consistent with approved state rail plans and national rail needs to promote an integrated, cohesive, efficient, and optimized national rail system for the movement of goods and people. The national rail plan will expand upon the vision of a national rail system, including identifying specific corridor goals and success measures. The plan will likely provide an opportunity to revise the high-speed rail designations, including a new category of approved corridors, i.e., those corridors for which a detailed corridor plan and institutional framework are in place to permit development of a successful corridor that meets the national rail goals.[2]

FRA and their stakeholders are discussing the following:

- What should be in America's national rail plan?

[1] HR 2096, pp 100-104, http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_bills&docid=f:h2095enr.txt.pdf.
[2] www.fra.dot.gov/downloads/rrdev/hsrstrategicplan.pdf.

- What is the best process to bridge from a preliminary national rail plan to the long-range national rail plan?
- What should be the interface between state and national plans?

The FRA preliminary plan sets forth a proposed approach for developing the long-range national rail plan, including goals and objectives for greater inclusion of rail in the national transportation system. The preliminary plan does not offer specific recommendations, but instead describes itself as the "springboard" for future discussions.

Relationship with Other Plans

The *Washington State 2010-2030 Freight Rail Plan* is related to statewide, regional, and tribal transportation plans that include multimodal components and are designed to meet federal and state requirements.

Washington State Freight Rail Plan 1998 Update

The *Washington State Freight Rail Plan 1998 Update* is the previous update. It was prepared by the WSDOT freight rail program to meet state and federal requirements to identify, evaluate, and encourage essential rail services.

Passenger Rail Plans

The *Long-Range Plan for Amtrak Cascades* (2006) and the *Amtrak Cascades Mid-Range Plan* (2008) are passenger rail planning counterparts of the *Washington State 2010-2030 Freight Rail Plan*.[3] They were developed by the WSDOT State Rail and Marine Office to meet federal and state requirements for passenger rail development. The long-range plan is the state's blueprint for the development of intercity passenger service—it identifies the needed improvements to the state's intercity rail system for the next 20 years. The mid-range plan identifies and develops options that outline the steps needed to achieve incremental Amtrak *Cascades* services in meeting demands of the next eight years.

Statewide Transportation Plans

The *Washington State 2010-2030 Freight Rail Plan* recognizes that rail passenger and freight services are critical to the state's transportation system. Cost-effective investment of the state's resources must consider other modes, including highways, aviation, and water. The preferred mode of transportation and investment is dependent on the type of traffic as well as the origin and destination of the cargo.

[3] www.wsdot.wa.gov/Freight/publications/PassengerRailReports.htm.

The *Washington State 2010-2030 Freight Rail Plan* is coordinated with these other transportation planning efforts.

- The *2007-2026 Washington Transportation Plan* (WTP) is the statewide multimodal transportation plan that meets state and federal planning requirements to guide investments in the entire transportation system. It includes investment strategies for state-owned facilities as well as descriptions of the state's interest in aviation, marine ports and navigation, freight rail, intercity passenger rail, bicycle and pedestrian walkways, and public transportation. WSDOT will update this plan after the federal transportation planning requirements are passed, at which time this plan will be renamed the *Statewide Multimodal Transportation Plan*. The *Washington State 2010-2030 Freight Rail Plan* is consistent with the 2007-2026 WTP.
- The Washington State Transportation Commission (WSTC) is preparing a *Washington Transportation Plan 2011-2030 Update* that meets state requirements for a statewide transportation plan that is consistent with the state's growth management goals and transportation system policy goals, reflects the priorities of government, addresses regional needs, and recommends policies to the Governor and legislature. This plan is due December 2010, and is updated every four years.
- The *2009-2015 WSDOT Strategic Plan*, *Business Directions*, identifies WSDOT's strategic direction for the 2009-2011 biennium and beyond. WSDOT has diverse responsibilities and many lines of business, and not everything WSDOT does is represented here. Instead, the plan focuses on what is believed to be the highest priorities for state citizens, now and into the future.

- For other transportation "modal" plans developed by WSDOT, please go to www.wsdot.wa.gov/planning/ModalPlans.htm.

Metropolitan Transportation Plans

A Metropolitan Planning Organization (MPO) is an organization of elected officials in urbanized regions with 50,000 or more population. MPOs are required by federal regulations to create metropolitan transportation plans and a list of proposed transportation improvements called a Metropolitan Transportation Improvement Program.

Regional Transportation Plans

Regional Transportation Planning Organizations (RTPO) are formed through a voluntary association of local governments within a county or contiguous counties. RTPOs create a regional transportation plan and a list of proposed transportation improvements called a Regional Transportation Improvement Program. RTPO members include WSDOT,

cities, towns, counties, tribes, ports, transportation service providers, private employers, and others.

If an MPO is within the boundary of an RTPO, then the RTPO is the lead agency for the MPO.

Federal Lands Highway Program Transportation Plans

The Office of Federal Lands Highway (FLH) works with numerous agencies. Approximately 30 percent of the land in the U.S. is under jurisdiction of the federal government. The federal land management agencies (FLMAs) are: the Bureau of Indian Affairs, U.S. Forest Service, National Parks Service, Fish and Wildlife Service, Bureau of Land Management, Military Surface Deployment and Distribution Command, U.S. Army, U.S. Army Corps of Engineers, Department of Defense, Tennessee Valley Authority, and the Bureau of Reclamation. The FLH also works closely with many state and territorial partners.

The Federal Lands Highway Program (FLHP) is subdivided into five core areas, namely, the Forest Highway Program, Park Roads and Parkways Program, Public Lands Highway Discretionary Program, Indian Reservations Roads Program, and the Refuge Roads Program. The FLHP is administered through partnerships and interagency agreements between the Federal Highway Administrations' FLH, FLMAs, and tribal customers. The FLHP also supports other important FLMA partners by providing funding (about $6 million per year total) for integrated transportation planning, bridge inspections, and other technical assistance activities.

State Freight Rail Plan Methodology

The strategy adopted by WSDOT to develop the *Washington State 2010-2030 Freight Rail Plan* is fact-based and data-driven. WSDOT strengthened its data collection and analytical capacity and developed improved databases and forecast models to better describe and articulate the needs of the freight rail system. Economic impact assessment, benefit/cost analysis, and cross modal comparison link investments to their effects on the economy and society. With this plan, policymakers and other users can address socioeconomic policy issues and integrate transportation solutions when considering funding freight rail projects.

Key References

The following are key references used in developing this plan:

- The *2009 AASHTO State Rail Planning Guidebook*, developed by the American Association of State Highway and Transportation Officials

(AASHTO), is designed to help states produce PRIIA-compliant state rail plans customized to the unique circumstances of each state. This plan was developed using this guidebook.

- The *Statewide Rail Capacity and System Needs Study* (2006)[4] is a key reference prepared by the WSTC. This comprehensive study was developed to address the key question asked by the legislature, "Should the state continue to participate in the freight and passenger rail system, and if so, how can it most effectively achieve public benefits?" The conclusion: the state should continue to participate in the freight and passenger rail systems, although each investment must be extensively evaluated for its cost and benefits to the state. **Because its components are similar to the *Washington State 2010-2030 Freight Rail Plan's* state and federal requirements, the study is referenced throughout this plan.**
- The *2009 Marine Cargo Forecast Technical Report*[5] is another key reference prepared by the Washington Public Ports Association and WSDOT. Its purpose is to assess the expected flow of waterborne cargo through Washington's port system and evaluate the distribution of cargo throughout the state's transportation network, including waterways, rail lines, roads, and pipelines.
- In order to keep stakeholders and citizens aware and involved in the plan development process, WSDOT provided this Web page: www.wsdot.wa.gov/Freight/Rail/WashingtonStateFreightRailPlan.htm.
- The WSDOT Web site, www.wsdot.wa.gov, provides public access to transportation-related information. It is a key communication tool used to meet state and WSDOT goals to be a high performance organization that is credible and accountable to the Governor, legislature, taxpayers, and transportation delivery partners across the state.[6]

Key Stakeholders

This plan was developed by WSDOT State Rail and Marine Office staff. The staff augmented their knowledge with the help of public involvement and assistance, primarily from the State Freight Rail Plan Advisory Committee (Advisory Committee).

The Advisory Committee consisted of self-selected, volunteer stakeholders from around the state. In May 2009, members of railroads,

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[4] *Statewide Rail Capacity and System Needs Study* (2006) by the WSTC, www.wstc.wa.gov/Rail/default.htm.
[5] *2009 Marine Cargo Forecast Executive Summary*, www.wsdot.wa.gov/NR/rdonlyres/270BB86A-FC7B-48F3-8546-8CB3A435A2B8/0/MCF2009ExecutiveSummary32309doc.pdf.
[6] WSDOT Accountability & Performance Information, www.wsdot.wa.gov/Accountability.

ports, shippers, industries, metropolitan planning organizations, regional transportation planning organizations, state and federal agencies, cities, counties, tribes, and other interest groups were invited to participate on the Advisory Committee. The role of this committee was to:

- Help develop the vision and goals of the state freight rail plan.
- Provide assistance to update information for the freight rail system, capacity, and needs.
- Help identify and assess port access and rail abandonment issues.
- Help assess and evaluate beneficial impacts of rail infrastructure improvements on society.
- Help WSDOT understand concerns of local communities and organizations.
- Share information.

Public Involvement Process

Public involvement and outreach was essential to the development of the *Washington State 2010-2030 Freight Rail Plan*. Public involvement and outreach included Advisory Committee meetings, a workshop, communication, Web interfaces (e-updates, Web pages, Web linkages), presentations, internal and external stakeholder meetings, press releases, and an open house.

See Appendix 1-B for more information about the public involvement, public participation, and documentation of these planning processes.

Environmental Review

Environmental documentation will be project-specific and comply with the State Environmental Policy Act (SEPA) and/or National Environmental Policy Act (NEPA), depending on the existing and anticipated source of project funding. The level of environmental documentation will be determined based on the potential environmental effects of the proposed projects.

Plan Organization

Chapter 1 introduces the *Washington State 2010-2030 Freight Rail Plan*, its state and federal statutory requirements, and its relationships with other plans. It discusses the purpose of the plan, describes the WSDOT State Rail and Marine Office, legislative, and planning requirements for the plan. The plan purpose and the methodology WSDOT adopted to develop the plan including public involvement is also described.

Chapter 2 discusses the overview of the rail system and macroeconomic environment. The vision statement, goals, and goal strategies are introduced in this chapter.

Chapter 3 defines the current freight rail systems in the state. It provides maps, a physical inventory of railroads and facilities, railroad profiles, descriptions of strategic intermodal sites, and addresses the need for a condition inventory of railroads and facilities.

Chapter 4 describes how the state's freight rail system supports the state's economy. It assesses commodity flows and industrial use of freight rail capacity. This includes the ancillary freight benefits that can be passed on to shippers and carriers as a result of passenger rail infrastructure development. It also describes the macroeconomic context of the state's freight rail system development. Components include economic vitality; mobility and congestion; environment, energy, and climate change; and safety and security.

Chapter 5 addresses the changing rail systems. It provides rail system maps and a database of recently abandoned rail lines. It identifies port access issues as well as intermodal connectors. It identifies and describes state, regional, local, and private rail projects.

Chapter 6 discusses the current state role, the players, and partnerships involved in state rail investments. It describes the current needs including data management and information capacities, statewide coordination, funding capacities, and strategic planning efforts.

Chapter 7 describes investment prioritization and project evaluation, including the decision-making process, a discussion on priority methods and criteria, and the benefit/cost methodology used to analyze freight rail projects.

Chapter 8 discusses the projects and current funding sources in the state, federal, local, and private arenas; the strategies of how funding should be acquired; and the vision of future funding options. Discussions include the public interest in private freight rail development and related federal and state legislation, financing, and funding strategies.

Chapter 9 concludes the plan with a discussion of next steps.

Washington State
Department of Transportation

Chapter 2: State Rail Vision

Introduction

Railroads carry a significant share of Washington State's (state) freight and make contributions to the state economy. The state freight rail system is part of the larger freight transportation network, providing businesses, ports, and farms with competitive access to North American and international markets.

Currently in Washington State, 53 percent of goods by weight are moved by truck, 18 percent by rail, 17 percent by pipeline, 10 percent by water, and 2 percent by air and other modes.[1] The trucking system is the railroad's biggest customer. Transportation modes do not operate in isolation, but generally operate together to provide an integrated system of movement. Little in the way of goods or people gets to their destination without the use of several modes of transportation. Consequently, the modal interchanges—in the case of freight, ports, transloading facilities, and distribution centers—are critical nodes in the system. These modal interchanges can function smoothly or create bottlenecks in the system. Chapters 3 and 5 discuss bottlenecks in more detail.

In addition to contributing to the state's economic vitality, rail transportation and investment could significantly alter the current transportation modes and practices of the way cargo has been historically moved. Rail can be used to relieve congestion in some urban areas, as well as provide redundancy within the transportation system. Rail is an energy-efficient and cleaner transportation alternative to many other modes.

The state's freight rail system is largely operated by the private sector. Because it is essential to the state economy and society, the Washington State Department of Transportation (WSDOT) has a public role to play under state and federal statutory requirements that guide public freight rail investments and development. Funding and delivery of freight mobility projects at the state level is primarily focused on two agencies: WSDOT and the Freight Mobility Strategic Investment Board (FMSIB).

[1] WSDOT State Rail and Marine Office – Analysis based on Federal Highways Administration (FHWA) Freight Analysis Framework (FAF) data and Surface Transportation Board (STB) Waybill Data.

The *Washington State 2010-2030 Freight Rail Plan* articulates the existing and future role of freight rail within a state multimodal transportation system. The plan establishes a vision and goals for statewide freight rail systems development, examines current and needed freight rail assets, and provides a clear path to implement rail improvements.

The state's multimodal transportation system is comprised of a mix of modes that are owned and operated by public and private entities. The transportation network includes: rail lines, highways, ferries, local roads, public transit systems, bicycle and pedestrian facilities, ports, waterways, airports, pipelines, and intermodal terminals. This integrated system supports the movement of people and goods within the state, facilitating economic vitality to business and residents. The state's freight network serves three functions:

1. It supports regional economies by bringing state goods to national and international markets as well as domestic products to the state.
2. It is also a fundamental local utility supporting the retail and wholesale distribution system.[2]
3. It serves as a global gateway to support national and international trade flows through the state, providing a competitive advantage for such sectors as logistics and trade, manufacturing, agribusiness, and timber/wood products sectors.

Freight mobility is critical to the state's economy. In 2007[3] the state's freight systems supported over one million jobs in state freight-dependent industry sectors, which produced $434 billion in Gross Business Income. This is 71 percent of the state's Total Gross Business Income of $627 billion.[4]

The rail industry is one of the most capital intensive businesses in the nation. Most available capital is used by the railroads to maintain their infrastructure and equipment with very little left for capacity improvements. To improve the margins, the Class I railroads[5] have increased their efficiencies by using a "hook and haul" operating method. Hook and haul refers to the model of having other entities (ports or short lines) prepare the train for long distance runs of 500 miles or more. Hook and haul operations with short lines provide continuation of service and often improve service levels to the industrial customers the short lines serve. Efforts to improve Class I railroad efficiencies include the

[2] Washington Transportation Plan (WTP) Freight Report, 2006.
[3] 2007 data is the most current year available.
[4] Gross Business Income is a measure of total revenues reported to the state.
[5] The classes of railroads are classified by revenue produced per year. Refer to Appendix 9 for definitions of Class I, Class II, and Class III railroads.

consolidation of shipments. It is understood that resulting cost efficiencies and savings are to be passed on to shippers.

Changes that improve Class I railroad efficiencies may hurt agricultural growers and other small shippers. This is in addition to the challenges these smaller customers have in gaining access to empty rail cars in a timely basis.

As private sector system owners, the Class I railroads have a need to achieve their own objectives. The lack of congruency in the two sets of goals raises conflicts between Class I railroads and the state. This is a dilemma for the state as it looks to a cleaner, more efficient hauler of goods. The challenge for the state is to develop a working relationship with Class I railroads that promotes the use of rail, while requiring private investment for private benefit. This includes determining what and when public benefit is achieved and investing public monies when this benefit is earned. A new approach needs to be crafted as rail dynamics shift. All stakeholders should work together as partners with the Class I railroads to develop strategies that meet the goals of the state and the needs of the railroads.

Another area of concern is the short-line system, which has largely been developed by the spin-off/sale of smaller unprofitable branch lines. These feeders or spurs are vital to the state's agriculture and small business owners. Many of the short lines are constantly struggling to perform and survive. This is a place where the state has focused its support in the past. This public support helps the smaller shippers in the rural areas continue to access the national rail systems via the short-line network.

Macroeconomic Environment

The state faces both challenges and opportunities resulting from the fundamental changes in the economy and society within a macroeconomic policy environment. Freight rail development, similar to passenger rail development,[6] was once viewed by the state as simply a means to move people and goods. Now such development is increasingly viewed and used as an integrated macroeconomic solution to achieve multiple ends.

Driving forces in the state's macroeconomic environment are trends in economic vitality, living-wage employment, transportation system efficiency, environmental sustainability, and safety and security. Challenges include economic globalization, population growth, capacity

[6] *Amtrak Cascades Mid-Range Plan*, (2008), www.wsdot.wa.gov/freight/publications/amtrakcascades.htm.

increases on rail corridors, higher fossil fuel prices, and global climate changes.

The state, including WSDOT, is increasing the monitoring, analytical, and policy efforts to increase efficiency, relieve congestion, and develop robust and resilient transportation systems.

The Washington State Legislature, in 2007, passed SSB 5412, which states that all public investments in transportation should support achievement of five transportation policy goals listed in the Revised Code of Washington (RCW) 47.04.280. Public investments in transportation should support achievement of these policy goals. This plan was developed around these five goals.

1. **Preservation:** To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services.
2. **Safety:** To provide for and improve the safety and security of transportation customers and the transportation system.
3. **Mobility:** To improve the predictable movement of goods and people throughout the state.
4. **Environment:** To enhance the state's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment.
5. **Stewardship:** To continuously improve the quality, effectiveness, and efficiency of the transportation system.

Changes in Transportation

Transportation has encountered many changes and pressures in the last decade. Some of these pressures are listed below.

Mobility and Congestion

The transportation system is increasingly stressed, manifesting itself in capacity and congestion problems at key regional gateways, intermodal transfer facilities,[7] and along critical transportation corridors. Population growth adds to the pressure on this already constrained infrastructure. It is increasingly difficult to balance freight mobility needs with environmental, social, and financial concerns. Rapidly rising infrastructure maintenance costs across all modes raises awareness that neither the public nor private sectors—acting independently—have the necessary resources to fully address rising transportation demands. Individually or collectively, these issues erode the efficiency and productivity of the region's transportation system. This leads to economic

[7] Intermodal transfer facilities are locations where freight is transferred between freight modes.

implications that reverberate locally, regionally, nationally, and internationally.[8]

Moving Washington[9] is WSDOT's program to realize a vision of congestion relief in the next decade. In the program are strategies to add capacity strategically, operate systems more efficiently, and provide more choices to help manage demand. The program's primary objective is to improve, which is one of the state legislature's five transportation priorities, along with preserving our transportation infrastructure, making the system safe for all, ensuring environmental sustainability, and practicing sound stewardship.

Moving Washington is also a 2-, 6-, and 10-year plan that focuses on the most troublesome corridors in Washington.

Over the next ten years we will:

- Improve travel times by 10 percent.
- Reduce collisions by 25 percent.
- Improve trip reliability by 10 percent.
- Provide choices for commuters in our major corridors.

Freight rail transportation is consistent with *Moving Washington*'s congestion relief strategies, if it can reduce long-haul truck traffic on the state highways.[10]

Environment, Energy, and Climate Change

In the state, transportation accounts for nearly half (47 percent) of the total greenhouse gas (GHG) emissions, including emissions from cars, trucks, trains, planes, and ships (Exhibit 2-1). The large amount of hydroelectric generation in the state leads to lower contribution of the electric sector to total emissions, compared with the national average.[11] WSDOT is developing effective, measurable, and balanced emission reduction strategies for all transportation modes, including rail, to protect public health and the environment.[12]

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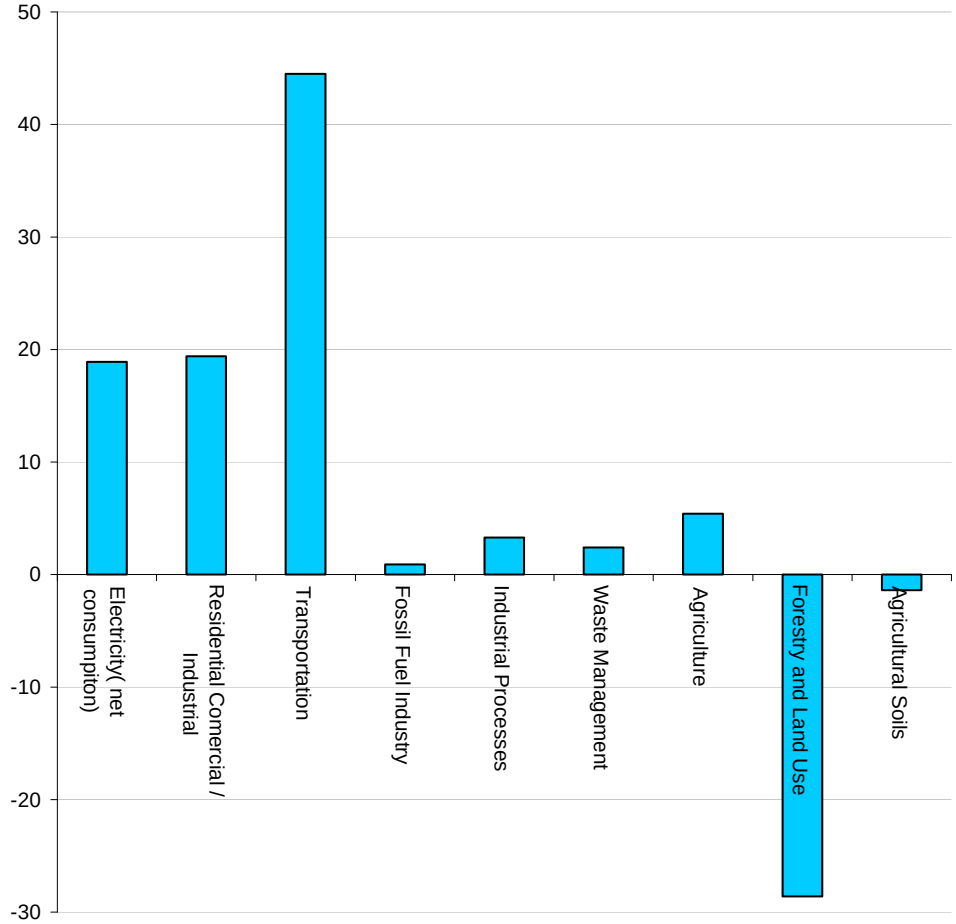
[8] *West Coast Corridor Coalition Trade and Transportation Study, Executive Summary*, www.camsys.com, April 2008.
[9] *Moving Washington* – A program to fight congestion, www.wsdot.wa.gov/movingwashington/.
[10] WSDOT, *Moving Washington with Rail Transportation*, folio, www.wsdot.wa.gov/movingwashington.
[11] Washington State GHG Inventory and Reference Case Projection, Center for Climate Strategies, Spring 2007. In 2005, Washington had a much larger fraction (47%) of the GHG emissions from transportation activities as compared to the US (28%).
[12] WSDOT Climate Change, www.wsdot.wa.gov/environment/climatechange/.

Exhibit 2-1: Washington 2005 GHG Emissions
(Millions Metric Tons CO_2)[13]



Source: Washington Department of Ecology

Transportation is one of the largest GHG source sectors in the state. The transportation sector includes light- and heavy-duty (on-road) vehicles, aircraft, railroad locomotive engines, and marine engines. Carbon dioxide (CO_2) accounts for about 98 percent of transportation GHG emissions from fuel use. Most of the remaining GHG emissions from the transportation sector are due to nitrogen oxide (NOx) emissions from gasoline engines. Rail emits fewer greenhouse gases than other transportation modes (Exhibit 2-2). Increasing the use of rail transportation may lead to a reduction in GHG from the transportation sector.

[13] Forestry and Land Use and Agricultural Soils are negative due to the fact that these two categories are effective in reducing GHG.

Exhibit 2-2: Greenhouse Gas Emissions by Mode
(grams/ton-mile)

	Road	Rail	Air
Carbon Dioxide (CO_2)	235.33	40.00	1,469.33
Nitrogen Oxide (NOx)	1.99	0.74	6.31
Particulate Matter (PM_{10})	0.47	0.05	0.80
Carbon Monoxide (CO)	1.21	0.42	6.26
Sulfur Dioxide (SO_2)	0.30	0.12	2.27

Source: Environmental Science Technology, 2007, 41, 7138-7144

Congress has proposed a bill that, if enacted, may create clean energy jobs, achieve energy independence, reduce global warming pollution, and transition to a clean energy economy.[14] For rail transportation, this means that more publicly- and privately-owned railroads will switch to cleaner fuels and increased fuel efficiency, retrofit existing engines, ensure that the best available engine technologies are purchased for new equipment, and continue to make operational efficiency improvements.[15]

Climate change is redefining transportation planning throughout the world with calls for additional data and measurement criteria and eventually recommending new policies.

In 2009 several bills were signed into state law related to transportation and climate change. E2SSB 5560 (Agency Climate Leadership) resulted in several state laws.

RCW 70.235.050 requires all state agencies to meet statewide GHG emission limits and report GHG emissions to the Department of Ecology.

RCW 43.21M.040 requires that agencies "shall consider" an integrated climate change response strategy when designing, planning, and funding infrastructure projects.

RCW 43.21M.010 directs the Departments of Ecology, Agriculture, Commerce, Fish and Wildlife, Natural Resources, and Transportation to develop an integrated climate change response strategy for state, local, and private businesses to prepare for, address, and adapt to the impacts of climate change.

[14] American Clean Energy and Security Act of 2009, www.opencongress.org/bill/111-h2454/show/.
[15] www.maritimeairforum.org/news/NW_Ports_Clean%C2%ADAirStrategy_Draft.pdf.

Governor Gregoire's Executive Order 09-05[16] directs the Department of Ecology to participate in the Western Climate Initiative and assist in developing a regional greenhouse gas emission reduction program. Under this executive order WSDOT is required to:

- Consult with state agencies, local governments, business, and environmental representatives to evaluate potential changes to the vehicle miles traveled benchmarks established in RCW 47.01.440.
- Report recommendations to the Governor by December 31, 2010.

Livable Communities

The use of rail for both freight and passenger transportation can increase a community's vitality and livability.

Livability is defined in many ways but the term typically describes a compact, mixed-use community or neighborhood that makes efficient use of existing public infrastructure, supports transportation choices, and provides affordable residential areas near shopping, work, and schools. Increased access to passenger rail supports the concept of livable communities. In addition, separating rail from vehicles and non-motorized transportation modes can increase a community's livability by increasing driver and pedestrian safety.

In the state's communities, as the rail system nears capacity due to economic growth, service quality can be strained. Rail rates are increasing for many businesses. Thus, the pressures on the rail system and its corridors are escalating.[17] Rail investments are generating jobs, as other family-wage jobs are lost to overseas operations and businesses reduce their workforce to survive.[18] Integrating rail and land use planning and policies that are consistent with the state's vision is a must, if livability in the form of sustainable communities is to be achieved. Building strong public-private partnerships that develop sound funding strategies will enable the enhancement of the existing rail infrastructures and corridors. These actions will allow for the maintenance and preservation of additional right of ways.

[16] 2009 Legislation and Governor's Climate Change Executive Order Summary www.wsdot.wa.gov/environment/climatechange/.
[17] Washington State Transportation Commission, December 2006, *Statewide Rail Capacity and System Needs Study: Final Report*, www.wstc.wa.gov/Rail/RailFinalReport.pdf.
[18] WSDOT, December 2008, folio, *Moving Washington with Rail Transportation*.

Vision of Rail Transportation in Washington State

Developing a long-term vision for rail transportation in the state takes many voices. These voices include many stakeholders, including Indian tribes; public entities—federal, state, and local agencies, ports and metropolitan/regional transportation planning organizations (MPOs/RTPOs)—; and private entities, such as rail industry representatives, shippers, various interest groups, and residents and businesses. The State Freight Rail Plan Advisory Committee (Advisory Committee) includes many of these stakeholders, who provided invaluable assistance and input into the planning process.

The vision statement development process began with knowledge gathered from the *Washington State Freight Rail Plan 1998 Update*, the *Statewide Rail Capacity and Systems Needs Study* (2006), and other resources. The WSDOT State Rail and Marine Office held a workshop with the Advisory Committee and other key stakeholders to create a vision statement and goals matrix. Workshop input was summarized and synthesized into draft documents that were further reviewed and refined. Key stakeholders also provided focused assistance in refining the vision and goals documents.

2030 Vision of Rail

The Washington State freight rail system is:

- ***Reliable.***
- ***Cost effective.***
- ***Energy efficient.***
- ***Environmentally-friendly transportation mode for domestic and international cargo deliveries.***

As a critical part of Washington's multimodal transportation system, the rail system leverages intermodal connections:

- ***To provide a seamless system for cargo deliveries to customers.***
- ***To improve the mobility of people and goods.***
- ***To support Washington's economy by creating and sustaining family-wage jobs and livable communities.***

The state is committed to work in partnership with all publicly- and privately-owned railroads in order to ensure a viable and positive future for freight rail in the state.

Goals, Objectives, Strategies, and Actions

WSDOT goals for freight rail service in the state are presented below with their respective objectives, strategies, and actions. These are aligned, as

appropriate, with the goals and strategies in existing state transportation plans and programs, such as the *2007-2026 Washington Transportation Plan*. Chapter 1 discusses the relationship of this plan with other plans.

These goals, objectives, strategies, and actions were developed in collaboration with many stakeholders, including the Advisory Committee and rail industry representatives, ports, government planners, and other interest groups. The responsibility for implementing these proposed strategies may lie with the public sector, the private sector, the private railroads, or jointly.

The Detailed Goal Matrix developed by the Advisory Committee at their workshops can be found in Appendix 2. The matrix reflects the relationships between the goals, objectives, strategies, and actions.

Economic Competitiveness and Viability

Goal: Support Washington's economic competitiveness and economic viability through strategic freight rail partnerships.

Objectives

- Identify the statewide industry needs for rail transportation.
- Increase integration of freight rail planning at all levels of government.
- Provide access to national markets for state products and cargo entering into the United States (U.S.) or being exported through state ports.
- Increase coordination with private sector partners.
- Identify barriers to the efficient use of freight rail in the state.
- Strategically prioritize the removal of these barriers.
- Improve public-private partnerships at the local, regional, corridor, national, and international levels, enabling a larger investment in freight rail infrastructure than any partner can make by themselves.
- Improve rail system/project assessment and evaluation processes that support state goals and assist the decision-making process.
- Understand the railroad system benefits and investments in transportation.

Strategies

- Increase understanding of the competitive positions of the state's shippers and ports using the state's freight rail system.
- Increase coordination of corridor-level freight rail planning within the state.
- Support multistate freight rail corridor strategic planning partnerships.
- Support and enhance economic partnerships between the state and the rest of the nation and its trading partners.

- Lead and coordinate with the state's ports, shippers, and industry on a continuing basis to identify infrastructure, regulatory, and administrative barriers to their efficient use of the freight rail system.
- Expand the state role to manage, coordinate, and facilitate strategic freight rail infrastructure improvements and investments that are in the public interest.
- Develop the criteria for corridor level freight rail transportation to integrate into the National Rail Plan.

Actions

- Carry out needs analysis to support emerging and existing industries to ensure the freight rail system supports the state's ports and rail-dependent industries.
- Work with the state's MPOs, RTPOs, and tribes to integrate freight rail into future regional transportation plans.
- Work with public and private sector partners in states along any appropriate national corridor to eliminate bottlenecks and improve capacity and velocity inside and outside of this state.
- Establish a process to work and communicate with the ports and industry representatives to coordinate activities at the regional, state, and national level on needed projects, programs, and policy decisions.
- On an ongoing basis and at designated intervals, update planning information with representatives from ports, shippers, railroads, and industry to identify constraints.
- Develop an action plan to address those issues where WSDOT has authority.
- Increase the state ability to develop and manage freight rail system information, research capacity, and data capacity that improves oversight and encourages funding for priority freight rail development.
- Increase public awareness of freight rail as a vital mode of transportation within the supply chain.
- Lead the planning effort to integrate investment decisions with the multiple partners.

Preservation

Goal: Appropriately preserve the ability of Washington's freight rail system to efficiently serve the needs of its customers and to ensure it is available to meet all likely future needs.

Objectives

- Preserve the functionality of the existing rail network.
- Provide access to mainline rail for small customers.
- Create sustainable funding sources for rail preservation and maintenance of low density lines.

- Support long-term economic vitality and diversity.
- Enhance the stewardship of the state-owned abandoned railroad corridor, returning it to active service as soon as feasible.
- Preserve the use of at-risk lines for future rail service.
- Preserve the use of at-risk lines for other public use of corridors (i.e. rails to trails).

Strategies

- Assist all classes of railroads' efforts to maintain and preserve the functionality of tracks, bridges, and rail yards.
- Assist short-line railroads in preserving efficient access to the Class I railroads, ensuring system viability and continuity.
- Ensure long-term preservation of existing industrial land, freight rail corridors, and rights of way for future use.

Actions

- Work with the Class I railroads and other partners to identify at-risk system components that can benefit from public support.
- Support the efforts of Class I railroads to compete for state and federal funding for major capacity preservation projects, when appropriate.
- Provide financial assistance to short-line railroads to maintain and preserve essential rail lines and prevent abandonment, when appropriate.
- Develop plans for at-risk rail corridor maintenance and preservation, including funding strategies.
- Integrate freight rail system development, land use planning and policies, public-private partnerships, and funding strategies consistent with the state vision and policy goals to protect and grow freight mobility.
- Work with ports and railroads to project the functionality and viability of existing connections between port terminals, intermodal rail yards, and mainline tracks.
- Work with short-line and mainline railroads to allow compatible interim use of rail corridor right of way (i.e. rail to trails) within statutory limits, until such time that the right of way is returned to active rail use.
- Acquire rail corridors scheduled for abandonment that have the potential to be reactivated in the future, when appropriate.

Capacity

Goal: Facilitate freight rail system capacity increases to improve mobility, connectivity, reduce congestion, and meet the growing needs of Washington's freight rail users, when economically justified.

Objectives

- Improve freight and passenger mobility.
- Improve connectivity to national and global economies.
- Understand future freight rail volume projections.
- Reduce railroad congestion, eliminating port access bottlenecks, and increasing reliability.
- Improve connectivity to other states and other countries, especially with the areas which Washington State has a competitive advantage.
- Make operational process improvements.
- Improve the overall safety of rail and roads.
- Increase public support for strategic public investment in the freight rail system.
- Increase state funding and implementation of priority projects.

Strategies

- Continue efforts to regularly evaluate freight rail capacity needs.
- Create additional capacity, improve connectivity, and improve operational efficiency by making or supporting targeted infrastructure investments.
- Pursue grade separation of roads and rails, where appropriate.
- Support the implementation of passenger rail projects where investments improve freight rail mobility.
- Use and update existing project assessment tools to include performance measures and benefit/cost analysis to prioritize projects.
- Promote public awareness of and support for freight rail investments that provide economic, mobility, safety, and environmental benefits.
- Support efforts to develop viable federal funding sources for freight rail projects with strategic public benefits.
- Support efforts to enhance state funding sources for freight rail projects with public benefits.

Actions

- Continue working with partners with an interest in freight rail capacity to determine future needs. Assess capacity and use the results to support prioritized investment in freight rail capacity improvements.
- Invest in infrastructure development projects that enable cost-effective, smooth, and efficient transport of freight through multimodal corridors and hubs (i.e. lines, ports, industrial areas).

- Identify and prioritize projects that improve mainline capacity, eliminate bottlenecks, and improve mainline access for ports and other freight rail traffic generators.
- Support the efforts of the state's freight rail providers to solicit state or federal funds for projects that provide needed new capacity, where strategically appropriate.
- Identify grade separation projects that should be included in national, tribal, state, regional, and local transportation plans.
- Work with passenger rail agencies and support funding of projects that support freight movement.
- Use and update the current freight rail project evaluation methodology to prioritize projects.
- Seek public input and develop public support for priority projects.
- Lead efforts to position the state's freight rail system for future federal funding with railroads, ports, shippers, and industry.
- Advocate for the East-West Rail Corridor to be designated by the Federal Government as a Corridor of National Significance.
- Coordinate with multistate stakeholders to obtain federal funding for priority projects along multistate corridors (Northern Tier).[19]
- Work with MPOs and RTPOs to facilitate inclusion of appropriate freight rail projects in metropolitan and regional transportation plans.
- Review programs such as the Freight Action Strategy corridor program and determine WSDOT's role in facilitating public-private partnerships in funding freight rail projects in the state.
- Develop a statewide freight rail advisory body to promote freight rail development.

Energy Efficiency and Environmental

Goal: Take advantage of freight rail's modal energy efficiency to reduce the negative environmental impacts from increased freight movement in Washington while maintaining economic viability.

Objectives

- Improve community health and the environment.
- Create a sustainable transportation system

Strategies

- Identify and implement freight rail projects that decrease targeted emissions, where economically viable.

[19] The Northern Tier refers to the rail corridor that runs through the eight neighboring states from the Pacific Northwest to Chicago. These neighboring states are Washington, Oregon, Idaho, Montana, North Dakota, Minnesota, Wisconsin, and Illinois.

- Encourage rail partners to invest in technologies to reduce their fuel consumption and related air emissions.

Actions

- Develop performance measurements and track achievements.
- Develop an analysis to determine the feasibility and factors that will enable minimizing GHG through modal change from truck to rail.
- Implement rail projects that reduce congested highway traffic, when economically feasible.
- Encourage increased use of locomotive anti-idling devices, electric support equipment, and reduction of wheel/track friction to decrease fuel consumption and air emissions.
- Encourage use of environmentally-friendly switching locomotives in port areas and other rail yards close to residential areas.
- Examine the use of locomotives powered by natural gas.
- Assess the effects of climate change where weather and climate events can impact rail infrastructure and operation.

Safety and Security

Goal: Address the safety and security of the freight rail system and make appropriate enhancements.

Objectives

- Reduce the number of rail-highway, rail-pedestrian, rail-rail, and trespassing incidents.
- Meet federal requirements.
- Improve pedestrian safety and reduce liability.
- Improve emergency recovery and prevention.
- Improve the security of the state rail system in its ability to deter or respond to attacks on rail facilities or domestic targets, while ensuring mobility for all users.
- Reduce the negative impacts from natural disasters.

Strategies

- Continue to identify new focus areas for enhancing rail transportation safety.
- Support the Class I railroads' efforts to meet the federal mandate to install positive train control systems on Class I railroads.
- Continue the Operation Lifesaver partnership to educate the public about rail safety.
- Enhance emergency management, operations, and strategies to be coordinated with Washington Emergency Management.
- Address improvements in rail system security and homeland security.

Actions

- Continue to support safety improvements of rail-highway crossings, signal systems, rail lines, and rail facilities.
- Expand education outreach to new and existing stakeholder groups.
- Continue coordination and support of positive train control systems development.
- Work with railroads and other partners to reduce pedestrian trespassing through educational efforts.
- Work with partners to address rail safety before, during, and after emergencies.
- Review best practices, consult with area experts, work with partners, and develop a list of temporary rail-highway grade crossing closures and alternative routes in the event of emergencies.
- Support railroads, Amtrak, local law enforcement agencies, and others to identify and implement rail security measures based on guidance from existing federal law (PL 110-432), by identifying partnerships and other funding sources to enhance rail system security.

Livable Communities

Goal: Encourage livable communities and family-wage jobs through freight rail system improvements.

Objectives

- Sustain communities through reduced congestion, preserved and expanded infrastructure, economic growth, and optimized safety, security.
- Reduce environmental impacts.

Strategies

- Continue to support local community development improvements that include freight rail options.

Actions

- Support strategic partnerships along the state's rail corridors that improve the quality of life for state residents.

Conclusion

The *Washington State 2010-2030 Freight Rail Plan* lays the foundation for an improved and sustainable freight rail system in the state. The plan does this by identifying a vision for the state's freight rail service and establishing goals, objectives, strategies, and actions to achieve that vision. This vision was accomplished by working with various stakeholders, including the rail industry, shippers, rail advocates, ports,

tribes, governments, elected officials, and many other concerned groups and individuals. This collaboration created a vision that reflects the needs of the community and ultimately to have a responsive, efficient, and sustainable rail transportation network.

Dedicated investment by all partners will be required to reach these goals and accomplish all of the rail improvements identified in this plan.

Washington State
Department of Transportation

Chapter 3: Rail System and Freight Rail Services in Washington State

Efficient transportation systems are critical to the economic vitality of the nation. Washington State (state), in particular, relies on multimodal and intermodal transportation for economic development and job creation. As the vital conduit for goods and people, transportation systems influence the long-term competitiveness, viability, and sustainability of economy and quality of life. At the same time, the state encompasses unique environmental richness and biological diversity, resulting in steadily increasing concerns about the impacts of development on vulnerable habitats and ecosystems. A rail system—with advantages from its potential for mass movement of people and goods, higher efficiency on energy use, and relatively lighter environmental emissions—could play an increasing role in development of a highly efficient and environmentally-friendly transportation system. Policies and decisions in transportation investment are embracing rail as a viable component and option to meet the challenges in transportation planning, design, construction, operation, maintenance, and regulation.

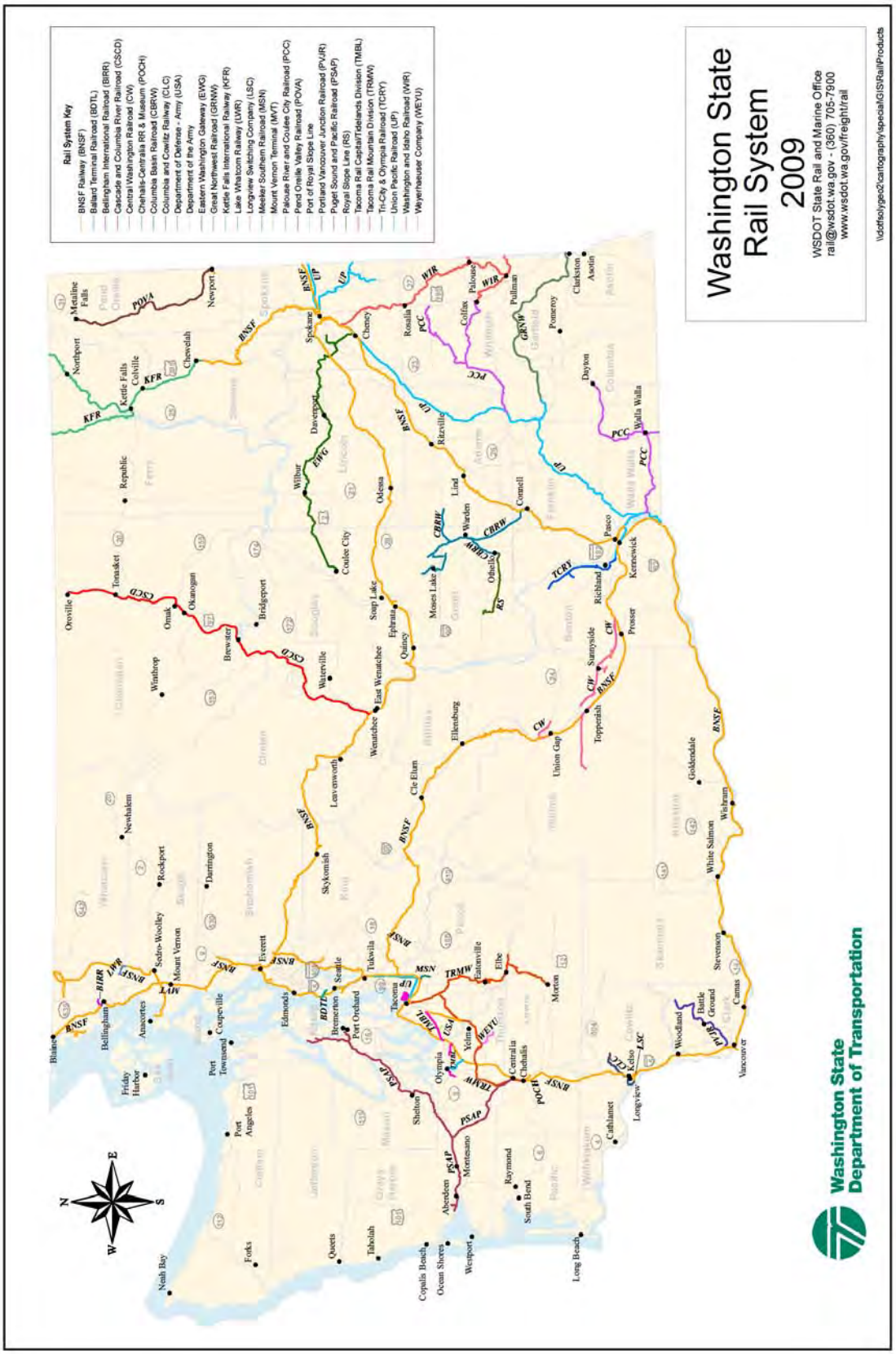
Overview of Washington State Rail System Services

From 1828 to present, the rail system in the United States (U.S.) has expanded and contracted to meet the needs of a growing nation, influenced by public and private interests. Mileage peaked in the 1920s at approximately 380,000 miles of track. Since then the rail network has been modernized and downsized to a core network that is less than half of its peak size. Appendix 3-B contains a brief history of national and state rail development.

The state's rail network has evolved over the last century to serve a wide range of passenger and freight markets and has extended across many parts of the state. Thirty-two of the state's 39 counties are served by one of the state's freight railroads. The rail network in the state has three distinct types of rail services: intercity passenger, commuter, and freight. There are two mainline freight railroads—the BNSF Railway Company (BNSF) and the Union Pacific Railroad (UP)—and 19 active short-line railroads operating in the state.

Exhibit 3-1 depicts the railroad network in the state.

Exhibit 3-1: Washington State Rail System



Rail transportation supports economic competitiveness and economic viability. In 2007 freight railroads operating in the state carried 116 million tons of freight over 3,647 operated route miles. It accounts for 19 percent of total freight in the state. Passenger rail services share rail lines with freight in the state. In 2008 intercity passenger rail, including the Amtrak *Cascades*, *Empire Builder*, and *Coast Starlight*, provided services to more than one million riders who leave, arrive, travel through, or travel within state. Since September 2000, Sound Transit's *Sounder* has provided commuter rail service in the Puget Sound area. In 2008 *Sounder's* ridership was 16.13 million.

Freight Service

The state freight rail system consists of mainlines, branch lines, industrial spurs and leads, and rail yards and terminals operated by a variety of public and private rail carriers (see Exhibit 3-1). The freight railroads operate over 3,647 miles of rail service in the state over 2,418 miles of rail lines.[1] Long-haul rail transportation is provided by two Class I railroads—BNSF and UP.[2] The BNSF owns and operates the most mileage in the state—1,604 in-state-operated miles, constituting 5 percent of the BNSF's total system mileage. The dominant position of BNSF in many of the state's rail markets has significant implications for the degree of leverage that the state, rail shippers, and communities have in influencing its business decisions.

Both of the Class I railroads are served by a number of smaller regional, short-line, and terminal railroads, which pick up and distribute rail cars to individual industrial and agricultural shippers and receivers. These railroads provide critical services, particularly in lower-density rail corridors and markets where the Class I railroads cannot operate cost-effectively. In most of cases, the short lines operate on branch lines that were previously owned and operated by the Class I railroads.

Freight Rail Volume and Flows

Freight rail transportation is a fast growing service. In 2007 the state rail system carried 116 million tons of freight, compared with 64 million tons

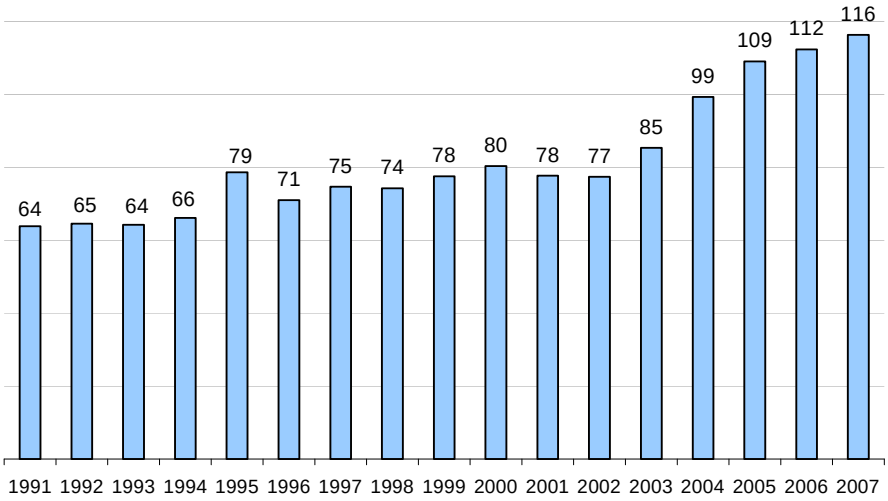
[1] Due to the fact that owner railroads lease operating rights over their lines to other railroads, operated miles are greater than owned miles. In a few areas, the U.S. Department of Transportation (USDOT) Surface Transportation Board (STB) has mandated provision of operating rights to ensure competition between railroads.

[2] The USDOT STB defines Class I railroads as having annual carrier operating revenues of $250 million or more. Class II railroads, often referred to as a regional railroad, have annual carrier operating revenues of less than $250 million but in excess of $20 million. Class III railroads, or short lines, have annual carrier operating revenues of $20 million or less. Switching or terminal railroads are railroads engaged primarily in switching and/or terminal services for other railroads.

in 1991, accounting for an average annual growth rate of 3.8 percent (Exhibit 3-2). However, the current economic recession has impacted freight transportation. Although current freight rail volumes are not available at the state level, other data indicates a sharp decline for 2008 and 2009. Therefore, the long-term growth rate is likely to be mild, in the range of 2 percent.

Exhibit 3-2: Washington State Rail Freight 1991 to 2007 (Million Tons)

Average Annual Growth Rate (1991 - 2007) = 3.8 %



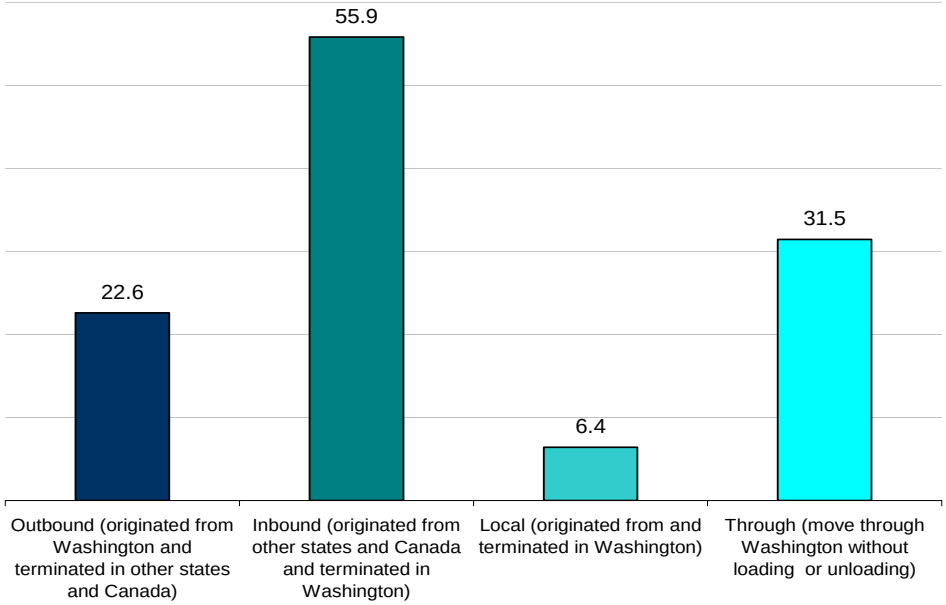
Source: Washington State Department of Transportation (WSDOT) State Rail and Marine Office and Association of American Railroads

Among the 116 million tons of rail freight, 56 million tons arrived in the state from 44 other states and Canada, while almost 23 million tons shipped from the state to 46 other states and Canada. Over 6 million tons of rail freight moved within the state's borders and almost 32 million tons of rail freight moved through the state without loading and unloading (Exhibit 3-3).

Of the 116 million tons of rail freight, 86 million tons, or 74 percent, is intermodal[3] traffic, while 30 million tons, or 26 percent, is rail only (single mode) traffic (Exhibit 3-4).

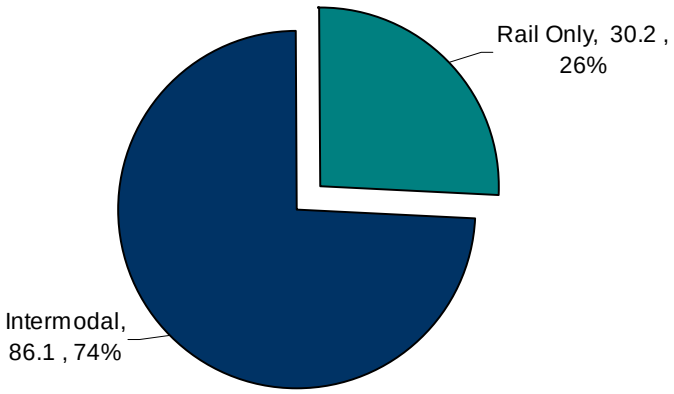
[3] Intermodal is using more than one transportation mode such as rail and truck. In this chapter the reference to intermodal is not limited to intermodal container traffic. It is all rail that also has another mode of transport used in the movement of the cargo.

Exhibit 3-3: Rail Freight Flows in Washington State – 2007
(Million Tons)



Source: WSDOT State Rail and Marine Office – 2007 STB Waybill Data Analysis

Exhibit 3-4: Freight Rail Intermodal Traffic – Washington State 2007
(Million Tons)



Source: WSDOT State Rail and Marine Office – 2007 STB Waybill Data Analysis

Washington State Freight Rail System Profiles

This section profiles the 22 active freight railroads operating in the state, along with one inactive railroad. This section also examines the mainline corridors where they operate and then the lower density corridors. The mainline corridors connect the state with the rest of the North American rail network, while the lower density corridors offer collection/distribution services and access to key industries. Finally, the principal terminals and yards impacting state rail traffic are described.

Railroad Classification

The state is served by two Class I freight railroads, BNSF and UP. These two railroads provide the primary connections between the state's ports, farmers, and industries and the rest of North America. This is done over a series of ten major rail corridors within the state; seven cross the state east-to-west, while the other three parallel Interstate 5 (I-5) on the western side of the state. The BNSF operates seven of these corridors, while the UP operates the remaining three corridors. These corridors are profiled in the BNSF and UP sections, respectively.

There is one Class II (regional) railroad operating in the state. The Montana Rail Link offers limited service in the state and only reaches Spokane over trackage rights on BNSF track from Idaho.

The 19 active Class III (short-line and terminal/switching) railroads in the state provide important collector/distributor services for the larger railroads and local rail services for state shippers. Their range varies from lines that operate over 100 miles in the state to switching railroads that connect ports to line-haul railroads inside a yard. Exhibit 3-5 is a list of the state's railroads and their mileage and class.

Track Mileage Inventory

Exhibit 3-5 also summarizes railroad mileage, including miles operated (owned track and trackage rights) and miles of road[4] owned in the state. BNSF[5] owns the most mileage in the state, but the 1,505 in-state miles represents only five percent of BNSF's total system mileage. In total, freight railroads operate over 3,647 miles and own 2,418 miles of trackage in the state.

[4] "Miles of road" is a linear measure of distance that does not consider the number of tracks.
[5] BNSF Railway Co. Annual Report to the Utilities and Transportation Commission (UTC), 2008.

Exhibit 3-5: Washington Freight Railroads, Mileage, and Class[6]

Name	Reporting Mark	Mileage in Washington State		Class
		Operated[a]	Owned	
Ballard Terminal Railroad	BDTL	3	0	III
BNSF Railway	BNSF[b]	1,604	1,505	I
Cascade & Columbia River Railroad	CSCD	135	135	III
Central Washington Railroad Company	CWA	83	0	III
Columbia & Cowlitz Railway	CLC	8.5	8.5	III
Columbia Basin Railroad	CBRW[c]	124	0	III
Eastern Washington Gateway RR	EWG	108	0	III
Great Northwest Railroad	GRNW	58	58	III
Kettle Falls International Railway	KFR	142	58	III
Longview Switching Company	LSC	17	0	III
Meeker Southern Railroad	MSN	5	5	III
Montana Rail Link	MRL	16	0	II
Mount Vernon Terminal Railroad	MVT	2	2	III
Palouse River & Coulee City Railroad	PCC	169	0	III
Pend Oreille Valley Railroad	POVA	61	61	III
Puget Sound & Pacific Railroad	PSAP[d]	178	109	III
Royal Slope Railroad (Inactive)	RS	26	26	III
Tacoma Municipal Belt Line	TMBL	72	36	III
Tacoma Rail Mountain Division	TRMW	134	134	III
Tri-City & Olympia Railroad	TCRY	56	0	III
Union Pacific Railroad	UP	558	280	I
Washington & Idaho Railway Inc.	WIR	87		III
Western Rail Switching	WRS			III
Total		**3,647**	**2,418**	

[a] Miles operated includes all owned track plus trackage rights.
[b] Per BNSF's report to the STB, December 31, 2008.
[c] Includes Portland Vancouver Junction Railroad's 33 miles of trackage rights.
[d] Includes U.S. Navy's Shelton-Bangor line.

Source: *Railroad Service in Washington*, Association of American Railroads, 2007. This information was then updated using BNSF timetables, UP timetables and charts, Amtrak charts, and STB filings for short-line railroads.

[6] Excludes standard gauge track operated as a light rail system.

Freight Rail Service Corridors

The state currently has ten major rail corridors and 12 low-density corridors. These corridors are defined and operated by BNSF and UP. Exhibit 3-6 lists all the corridors. Appendix 3-B has a description of each rail service corridor. While these rail corridors are defined by private railroads, the state has an interest in defining rail corridors in terms of public benefits. The Freight Mobility Strategic Investment Board is authorized to define strategic rail corridors and update them periodically. Some short-line routes are critical to the economic viability of local communities and certain industries. The state needs to develop criteria to define rail corridors in terms of their impacts on the state's economic and societal needs, as discussed in Chapter 5.

Exhibit 3-6: Rail Service Corridors in Washington State

Railroads	Major Corridors	Low-Density Corridors
BNSF	Seattle-Spokane	Tukwila-Snohomish
	Seattle-Portland, Oregon (OR)	Woodinville-Redmond
	Portland, OR-Pasco	Burlington-Sumas
	Auburn-Pasco	Sumas-Lynden
	Pasco-Spokane	Burlington-Anacortes
	Spokane-Sandpoint, Idaho (ID)	Intalco-Cherry Point
	Everett-Vancouver, British Columbia (B.C.)	Marysville-Arlington
		Lakeview-Roy
		Spokane-Chewelah
UP	Hinkle, OR-Spokane	Spokane-Plummer, ID; Manito-Fairfield
	Spokane-Eastport, ID	Ayer Junction-Riparia
	Tacoma-Seattle	Wallula-Kennewick

Source: *Statewide Rail Capacity and System Needs Study* (2006)

Railroad Profiles

Appendix 3-B also contains more information about the freight rail carriers in the state including descriptions, maps, revenue, and history.

Class I Railroads

BNSF Railway

BNSF, one of the four largest U.S. railroads, owns and operates track over seven major corridors and nine low-density corridors in the state. BNSF

operates almost 44 percent of the state's total system route miles.[7] Primary commodities include coal, agricultural products, intermodal (containers/ trailers), forest products, chemicals, metals, and minerals. According to BNSF's annual report, 2008 revenue totaled $17.5 billion.[8] In the state BNSF reported total interstate operating revenue of $1,040,184 and total gross intrastate operating revenue of $97,876,862, according to their 2008 Annual Report to the UTC.

Union Pacific Railroad

The UP is the largest railroad in North America. Primary commodities moving through the state include chemicals, coal, food and food products, forest products, grain and grain products, intermodal, metals and minerals, and automobiles and parts. The UP reported 2008 revenue as $18 billion.

Class II and Class III Railroads

Ballard Terminal Railroad

The Ballard Terminal Railroad (BDTL[9]) is a Class III railroad in Seattle. The BDTL reported total interstate operating revenue of $6,148 and $70,012 for total gross intrastate operating revenue in their 2008 Annual Report to the UTC.

Cascade and Columbia River Railroad

The Cascade and Columbia River Railroad (CSCD) is a Class III railroad that interchanges with the BNSF in Wenatchee and runs north to Oroville. Primary commodities are limestone, pulp wood and lumber products. CSCD reported total gross intrastate operating revenue of $1,614,149 in their 2008 Annual Report to the UTC.

Central Washington Railroad

The Central Washington Railroad (CWA) is a Class III railroad in the Yakima Valley. The CWA carries cattle feed, propane, paper products, plastic pellets, cheese, juice concentrate, lumber, apples, and other agricultural goods.[10] The CWA reported total interstate operating revenue of $1,436,210 and total gross intrastate operating revenue of $374,225 in their 2008 Annual Report to the UTC.

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[7] BNSF Railway 2008 Annual Report to the Utilities and Transportation Commission.
[8] www.bnsf.com/investors/investorreports/2Q_2009_Investors_Report.pdf
[9] BDTL is the reporting mark for Ballard Terminal Railroad. A reporting mark is a two-to-four-letter alphabetic code used to identify owners or lessees of rolling stock and other equipment used on the North American railroad network. The marks are stenciled on each piece of equipment, along with a one-to-six-digit number, which together uniquely identify every such rail car. This allows the cars to be tracked by the railroad they are traveling over, which shares the information with other railroads and customers.
[10] http://www.temple-industries.com/companies/central_washington_railroad.php/.

Columbia and Cowlitz Railway

The Columbia and Cowlitz Railway (CLC), a wholly-owned subsidiary of Weyerhaeuser Company, is a Class III railroad that moves freight from the Weyerhaeuser Company mill in Longview to the junction just outside the city limits of Kelso.[11] Primary commodities include forest products, steel, and chemicals. The CLC reported total gross intrastate operating revenue of $2,654,693 in their 2008 Annual Report to the UTC.

Columbia Basin Railroad

The Columbia Basin Railroad (CBRW) is a Class III railroad located near Moses Lake, serving Connell, Warden, Bruce, Schrag, and Othello. The CBRW hauls agricultural goods, inbound fertilizer, chemicals, and processed potatoes and vegetables. The CBRW reported total interstate operating revenue of $4,240,109 and total gross intrastate operating revenue of $787,720 in their 2008 Annual Report to the UTC.

The Portland Vancouver Junction Railroad (PVJR) is a newly formed, wholly-owned subsidiary of CBRW. It is owned by Clark County, serving the Vancouver area since 2004. The Chelatchie Prairie Railroad (BYCX), a tourist railroad, operates passenger excursions between Lucia and Yacolt on weekends and holidays.

Eastern Washington Gateway Railroad

The Eastern Washington Gateway Railroad (EWG) is a Class III railroad that operates a 108-mile branch line that extends from Cheney to Coulee City. Wheat and barley are the principle commodities shipped. It is one of three branch lines of the Palouse River & Coulee City Railroad System owned by the state. The EWG reported total interstate operating revenue of $1,803,601 in their 2008 Annual Report to the UTC.

Great Northwest Railroad

The Great Northwest Railroad (GRNW), a Class III railroad, moves freight between Lewiston, ID, Riparia, and Ayer, interchanging with both the BNSF and UP mainlines in Ayer. Primary commodities are forest products consisting of lumber, bark, paper and tissue, agricultural products, industrial and farm chemicals, scrap iron, and frozen vegetables. The GRNW reported total interstate operating revenue of $3,962,836 in their 2008 Annual Report to the UTC and reported total gross intrastate operating revenue of $113,584.

Kettle Falls International Railway

The Kettle Falls International Railway, LLC (KFR), a Class III railroad, moves freight from the BNSF interchange at Chewelah to Columbia Gardens, British Columbia (B.C.). A second line operates from Kettle Falls to Grand Forks, B.C. Primary commodities include lumber,

[11] http://en.wikipedia.org/wiki/Columbia_and_Cowlitz_Railway/.

plywood, wood products, minerals, metals, fertilizer, industrial chemicals, and abrasives.[12] KFR reported total interstate operating revenue of $4,319,638 and total gross intrastate operating revenue of $460,891 in their 2008 Annual Report to the UTC.

Longview Switching Company

The Longview Switching Company (LSC), a jointly-owned subsidiary of BNSF and UP, is a Class III railroad. The LSC switches trains approximately five miles from the railroad mainlines into the Port of Longview.[13] The LSC reported estimated annual revenue of $1,600,000 in 2008.

Meeker Southern Railroad

The Meeker Southern (MSN) is a 5-mile Class III railroad that connects Meeker Junction in Puyallup with an industrial park in McMillan. The MSN is a wholly-owned subsidiary of the Ballard Terminal Railroad. MSN reported no total gross intrastate operating revenue, but did report $181,796 in interstate operating revenue.

Montana Rail Link

Montana Rail Link (MRL) is a Class II regional railroad that connects with the BNSF at Spokane. MRL is an independently-owned unit of the Washington Companies, headquartered in Missoula, Montana.[14] MRL reported total intrastate revenue of $4,434,250 in 2008.

Mount Vernon Terminal Railway

The Mount Vernon Terminal Railway (MVT) is a Class III railroad providing service and interchanges with BNSF at Mount Vernon. The railroad consists of a 3-track wide yard used for storage and transloading. MVT reported total interstate operating revenue of $61,174 and no intrastate operating revenue.

Palouse River & Coulee City Railroad

The Palouse River and Coulee City Railroad Company (PCC), a subsidiary of Watco Companies operates this Class III railroad, which contains a total of 84 miles of mainline track. PCC reported total interstate operating revenue of $1,479,726 and $355,186 intrastate operating revenue.

Palouse River & Coulee City Railroad System

The Palouse River & Coulee City Railroad System is owned by the state. It is comprised of three Class III railroad lines: the PV Hooper (operated by PCC), CW (operated by EWG), and P&L (operated by WIR).

[12] http://www.omnitrax.com/rail_kfr.aspx/.
[13] http://en.wikipedia.org/wiki/Port_of_Longview/.
[14] http://www.montanarail.com/general_info.htm/.

Pend Oreille Valley Railroad

The Pend Oreille Valley Railroad (POVA) is a Class III railroad, moving freight between Metaline Falls, Newport, and Dover, Idaho on owned and leased trackage. POVA also hosts occasional tourist trains between Ione and Metaline Falls. POVA reported a total interstate operating revenue of $1,899,339 and total gross intrastate operating revenue of $506,001.

Puget Sound and Pacific Railroad

The Puget Sound and Pacific Railroad (PSAP) is a Class III railroad headquartered in Elma. Its main commodities include lumber, logs, and chemicals for the pulp and paper mills. PSAP reported interstate operating revenue of $8,115,618 and total gross intrastate operating revenue of $64,840.

The PSAP also operates on United States Government (Navy) trackage from Shelton to Bangor and on a spur to the U.S. Navy base at Bremerton.

Royal Slope Railroad

The Royal Slope Railroad (RS) is a Class III railroad owned by the state. It connects Royal City to the Columbia Basin Railroad at Othello. The line currently is inactive, but could play a role in future freight rail development.

Tacoma Rail

Tacoma Rail is comprised of two Class III railroads with three distinct and separate divisions—Tidelands Division, Mountain Division, and the Capital Division. The Tacoma Municipal Belt Line (TMBL), which includes the Tidelands and Capital Divisions, is owned by the city of Tacoma, Public Utilities. The Tacoma Rail Mountain Division (TRMW) is owned by the city of Tacoma and operated by Tacoma Rail. TMBL reported a total interstate operating revenue of $14,359,192 and total gross intrastate operating revenue of $785,908 in 2008. TRMW reported a total interstate operating revenue of $539,950 and total gross intrastate operating revenue of $118,641 in 2008.

Tri-City and Olympia Railroad

The Tri-City and Olympia Railroad (TCRY) is a Class III railroad that serves the Richland area, including the Port of Benton and the U.S. Department of Energy. In 2009 the Olympia line ceased operations. Major commodities include agricultural products, grain, feed stock, food and beverages, consumer products, wood products, paper, coal and minerals, building materials, machinery and equipment, vehicles, chemicals, fertilizer, waste and scrap, and nuclear waste as bulk goods, break bulk materials, and liquids.[15] The TCRY reported no total gross intrastate operating revenue in their 2008 Annual Report to the UTC.

[15] Tri-City and Olympia Railroad, www.tcry.com/.

Washington and Idaho Railway, Inc.

The Washington and Idaho Railway (WIR), a Class III railroad, operates the P&L Branch of the Palouse River and Coulee City Railroad System south of Spokane, connecting with BNSF in various locations. Primary commodities are fertilizer, beans and lentils, and forest products. The WIR reported total gross intrastate operating revenue of $824,945 in their 2008 Annual Report to the UTC.

Western Rail Switching

Western Rail Switching (WRS) is a switching and terminal railroad owned by Western Rail, Inc., a used locomotive seller located on the line. In 2004, Spokane County bought BNSF's Geiger Spur and designated WRS to operate it. In January 2009, realignment bypassed Fairchild Air Force Base, through which the spur had run. The west end of the spur now connects to the Eastern Washington Gateway Railroad (EWG) near Medical Lake. EWG now operates the Geiger Spur. WRS continues as an operating business.

Intermodal Facilities, Railroad Terminals, and Rail Yards

Freight terminals are facilities where freight cars are gathered up into trains or where trains are broken down so that cars can be distributed to shippers. Intermodal facilities are locations where freight containers or trailers are transferred between freight modes involved in the intermodal freight trip. Typically, this includes some combination of rail, truck, and water modes. Rail yards are facilities where individual rail cars are grouped together (blocked) by destination and then made up into trains containing many blocks of cars.

Intermodal Facility

The STB defines an intermodal facility as a site consisting of tracks, lifting equipment, paved and/or unpaved areas, and a control point for the transfer (receiving, loading, unloading, and dispatching) of trailers and containers between rail and highway and between rail and truck to/from marine modes of transportation.

There are three primary forms of containers for freight intermodal traffic between rail and highway modes:

- **RoadRailers®** – a specialized truck trailer where the trailer can be attached to rail wheels to haul along the railroad without the use of a separate rail flat car. At the intermodal facility, the trailer can be detached from the rail wheels and driven via truck to its final destination.

- **Trailer on flat car** – a standard truck trailer or container on a chassis loaded onto a flat rail car and hauled to a facility, where it is unloaded from the rail flat car and hauled by truck to its final destination.
- **Container on flat car** – a standardized container loaded onto a flat car or stack car, where it is moved by rail to an intermodal facility and unloaded from the rail car, placed on a rubber-tired highway chassis, and hauled by truck to its final destination.

Standardized containers facilitate the transition between modes of transportation. These standardized containers can be loaded onto and from an ocean-going vessel in a very efficient manner. These same containers can be attached to either a rail chassis or truck trailer chassis to be hauled by rail or truck to their final destination. Container sizes are 8 feet wide and typically 8 feet, 6 inches tall. "Hicube" containers are 9 feet, 6 inches tall. Lengths can vary from 20 feet to 56 feet. A limitation to the container lengths is the maximum allowable trailer lengths in the U.S.

There are 119 intermodal facilities in the state based on U.S. Bureau of Transportation Statistics data. There are 95 intermodal facilities that include freight rail mode. Exhibit 3-7 displays the sites of these intermodal facilities.

Appendix 3-C provides details of these intermodal facilities and commodities and shipments associated with these freight rail intermodal facilities.

Railroad Terminals and Yards

Terminals and yards serve many functions for the railroads. They originate and terminate traffic by building outbound trains and breaking down inbound trains. They are used to classify inbound cars for assignment to outbound trains for through traffic. Yards can offer refueling, crew change, storage, and maintenance functions. Given this key role in the rail network, a significant amount of rail capacity is impacted by the size and efficiency of the terminals and yards.

Exhibit 3-8 summarizes the major terminals and yards that have the most impact on state railroad movements. This table includes the owner, yard/terminal name, location, and function.

Exhibit 3-7: Rail Intermodal Facilities in Washington State

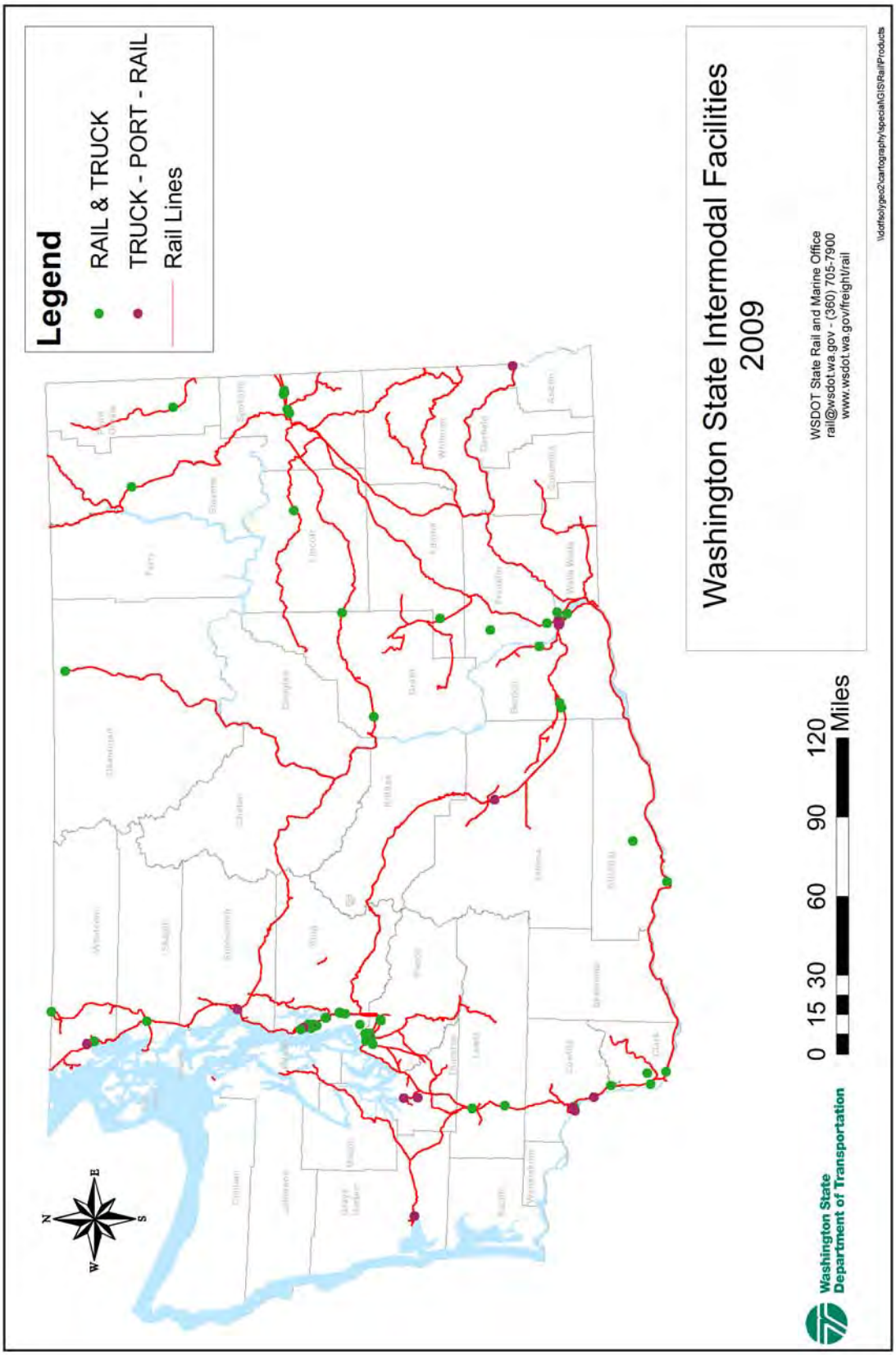


Exhibit 3-8: Railroad Terminals and Yards Impacting Washington State Rail Movements

Owner	Yard/Terminal	Location	Function
BNSF	Bayside/Delta Yards	Everett	Everett generates some traffic locally, but is principally a classification yard for through traffic. It is the southern endpoint for most through traffic on the Everett-Vancouver, B.C. route. Generally traffic from south and east of Everett arrives in Bayside Yard, where it is switched, and made up into trains for north of Everett. Traffic from north of Everett arrives in Delta Yard, where it is switched and made up into trains for south and east of Everett.
BNSF	Hauser Yard	Hauser, ID	Hauser Yard is not important as a terminal; however, it is important as a fuel station and crew change point. Westward trains stop for fuel, providing sufficient fuel for a trip to Seattle, Tacoma, Kalama, Longview, Vancouver, Washington (WA), Portland, Oregon (OR), or Pasco and return. Eastward trains stop for fuel, providing sufficient fuel to reach the next fueling station at Havre, Montana.
BNSF	Pasco Yard	Pasco	Pasco processes traffic to and from local industries and is the BNSF classification yard for carload traffic moving to and from Washington State. Virtually all traffic handled by Pasco Yard is originating from classified traffic or terminating for classification. Pasco also is a crew change point for through trains (generally grain and intermodal trains).
BNSF	East St. Johns	Portland, OR	East St. Johns processes traffic for local industries and is an interchange point for traffic moving between BNSF and UP. Traffic is a combination of through trains and transfers.
BNSF	Lake Yard	Portland, OR	BNSF Lake Yard is adjacent to the Portland Terminal Railroad Lake Yard. It is the BNSF intermodal terminal for the Portland area. Traffic is generally originating and terminating trains.
BNSF	Willbridge	Portland, OR	Willbridge processes traffic for local industries. Traffic is a combination of through trains and yard transfers.
BNSF	Balmer Yard	Seattle	Balmer Yard at Interbay is primarily a classification yard for the Portland-Seattle route. Traffic from the south is distributed to local industries or forwarded to Everett for further classification and forwarding. Traffic from the north is classified by destination station between Seattle and Portland and made up onto trains. Traffic processed by Balmer Yard is generally originating and terminating only. Interbay also is a crew change point for through trains that do not originate or terminate in Seattle terminal. The primary commodity at Balmer is grain hauled for Cargill.

Owner	Yard/Terminal	Location	Function
BNSF	Seattle International Gateway Terminal	Seattle	The Seattle International Gateway (SIG) is the BNSF international intermodal terminal in Seattle. Containers are drayed to and from the Port of Seattle terminals. This traffic is originating and terminating only.
BNSF	South Seattle Domestic Intermodal Yard	Seattle	The South Seattle Domestic Intermodal Yard processes domestic cargo traffic in 53-foot (vs. 40- to 48-foot) containers.
BNSF	Stacy Street Yard	Seattle	Stacy Street Yard is in the same physical location as SIG. Stacy Street Yard is the terminal used by most local industry traffic originating and terminating in Seattle. Traffic to and from Seattle industries south of King Street Station and in West Seattle is processed at Stacy Street Yard. Traffic is generally originating and terminating only.
BNSF	Yardley	Spokane	Yardley processes cars to and from local industries and is a block swap location for intermodal trains. Train traffic is a mixture of originating, terminating, and through trains, including through trains that stop for block swapping as well as setout or pickup. Yardley is a crew change point for through trains.
BNSF	Tacoma Yard	Tacoma	Tacoma Yard processes traffic for Tacoma industries in the Tideflats area west of the Puyallup River. It also is the classification yard for traffic originating and terminating in the Tacoma Rail yard. Traffic arrives in Tacoma from through or terminating trains and the Tacoma Rail traffic is delivered after the train has been switched (sorted). Carload traffic from Tacoma Rail is switched by destination and forwarded on the appropriate train. Traffic is a mixture of originating, terminating, and through.
BNSF	Vancouver Yard	Vancouver, B.C.	Vancouver Yard processes traffic to and from local industries in Vancouver, B.C., and the Port of Vancouver. Traffic is a combination of originating, terminating and through trains that set out and pick up cars.
BNSF	Vancouver Yard	Vancouver, WA	The Vancouver Yard has locomotive maintenance and fueling facilities. It serves as a major switching yard for BNSF railway in the Portland/Vancouver metro area. Vancouver also is a crew change point for through trains moving between the Portland-Seattle route and the Portland-Pasco route.
BNSF	Wenatchee Yard	Wenatchee	Wenatchee Yard processes cars to and from local industries and is the interchange point for traffic moving between BNSF and Cascade & Columbia River Railroad. Traffic is originating and terminating trains. Wenatchee also is a crew change point for through trains.

Owner	Yard/Terminal	Location	Function
Canadian National	Thornton Yard	Surrey, B.C.	This is the northern endpoint for virtually all through traffic on the Everett-Vancouver, B.C. route. Traffic is generally originating and terminating only.
Longview Switching Company	Longview Yard	Longview	Longview Switching Company (jointly owned by BNSF and UP) processes all traffic to and from the Port of Longview and local industries. All traffic is transfer movements between Longview Junction yard and Longview Yard.
Longview Switching Company	Longview Junction Yard	Longview	Longview Junction Yard is the interchange point among Longview Switching Company, BNSF, and UP. It also processes local industry traffic for Ridgefield, Woodland, and Kalama, and interchange traffic to and from Columbia & Cowlitz Railway in Rocky Point. Traffic is a combination of originations and terminations, and traffic arriving or leaving on through trains.
Port of Kalama	Kalama Export Company Terminal	Kalama	The Kalama Export grain terminal (also known as Peavey) can accommodate five grain trains of about 108 cars each and can unload six trains in 24 hours. Traffic is generally originating and terminating only.
Port of Kalama	Cenex-United Harvest Terminal	Kalama	The Cenex-United Harvest grain terminal can accommodate two grain trains of about 108 cars each and can unload two trains in 24 hours. Traffic is generally originating or terminating only.
Port of Portland	Port of Portland	Portland, OR	Port of Portland has several marine terminals and industrial sites that generate traffic directly related to Washington State rail operation. These facilities are connected to BNSF at North Portland Junction and to UP at Barnes. Traffic is a combination of complete trains and traffic to and from through trains.
Port of Seattle	Terminal 5 Intermodal Yard	Seattle	Terminal 5 Intermodal Yard is a Port of Seattle on dock international terminal. BNSF provides the switching service. UP currently has the contract for all traffic originating and terminating at this terminal. Traffic is originates and terminates in this yard.
Port of Tacoma	Port of Tacoma Intermodal Yard	Tacoma	Port of Tacoma has four intermodal yards supporting marine terminals in the Tideflats area. Trains originate or terminate directly in these yards.
Portland Terminal Railroad	Lake Yard	Portland, OR	Lake Yard processes traffic for local industries and serves as an interchange point for BNSF and UP. Traffic is generally originating and terminating trains and yard transfers.
Tacoma Rail (TMBL)	Tideflats Yard	Tacoma	Tideflats Yard switches traffic originating and terminating in the Tacoma Tideflats area east of the Puyallup River, adjacent to the Port of Tacoma intermodal terminals. Traffic is transfer movements between the Tideflats customers and the BNSF and UP.

Owner	Yard/Terminal	Location	Function
UP	Albina Terminal	Portland, OR	Albina processes traffic to and from Portland area industries on UP. It also is one of two UP intermodal terminals for the Portland area. Traffic is generally originating and terminating trains and yard transfers.
UP	Argo Yard	Seattle	Argo Yard also includes subyards Manar and Van Asselt. Argo is the UP intermodal terminal (domestic and international) in Seattle as well as a truck to rail transfer station for solid waste. Argo Yard is almost exclusively used for intermodal traffic and interchanges between BNSF and UP. Van Asselt and Manar yards are used for carload freight originating and terminating at industries on UP in Seattle and Tukwila. Traffic is generally originating and terminating only.
UP	Barnes	Portland, OR	Barnes processes traffic for local industries and the Port of Portland terminals and is an interchange point for traffic moving between BNSF and UP.
UP	Brooklyn Terminal	Portland, OR	Brooklyn is one of two UP intermodal terminals in Portland, Oregon. Traffic is generally through trains with setouts and/or pickups.
UP	Hinkle Yard	Hinkle, OR	Hinkle Terminal is located just southeast of the Tri-Cities in Oregon. It has a major classification yard for carload freight. UP also has a major diesel locomotive maintenance, repair, and fueling facilities in Hinkle. It is also a crew change point for UP trains.
UP	Spokane Yard	Spokane	Spokane Yard processes cars to and from local industries. Train traffic is generally originating and terminating trains. Spokane is a crew change point for through trains.
UP	Tacoma/Fife Yards	Tacoma	The UP Tacoma terminal is split between two yards. The Tacoma Yard processes carload traffic to and from the Tacoma Tideflats area west of the Puyallup River. The Fife Yard processes carload traffic for industries east of the Puyallup River and on Tacoma Rail. Traffic is a combination of originating/ terminating and traffic arriving or leaving on through trains.

Capacity of the Washington State Rail System

Exhibit 3-9 compares the average number of trains operated on each Class I railroad mainline to the practical capacity[16] of the line in 2008. Exhibit 3-10 shows the projected practical capacity for each line in 2028. The data for these maps were derived from the *Statewide Rail Capacity and System Needs Study*, the *2009 Marine Cargo Forecast Technical Report*, BNSF, and UP.

The two maps compare and contrast 20 years of demand growth with current capacity, identifying the gaps in capacity.

Stevens Pass

The Everett-Spokane line, which passes through the Cascade Tunnel at Stevens Pass, is the BNSF's major northern transcontinental route for double-stack intermodal container trains. It is heavily used, operated at about 70 percent of practical capacity in 2008.

Stampede Pass

The BNSF's Auburn-Pasco line, which passes through the Stampede Tunnel, operates today at a low level of practical capacity. The line cannot be used to relieve the Everett-Spokane line, because the ceiling of the Stampede Tunnel is too low to accommodate double-stack intermodal container trains. Grades over Stampede Pass also make it difficult to haul heavily-loaded unit grain trains along this line.

Columbia River Gorge

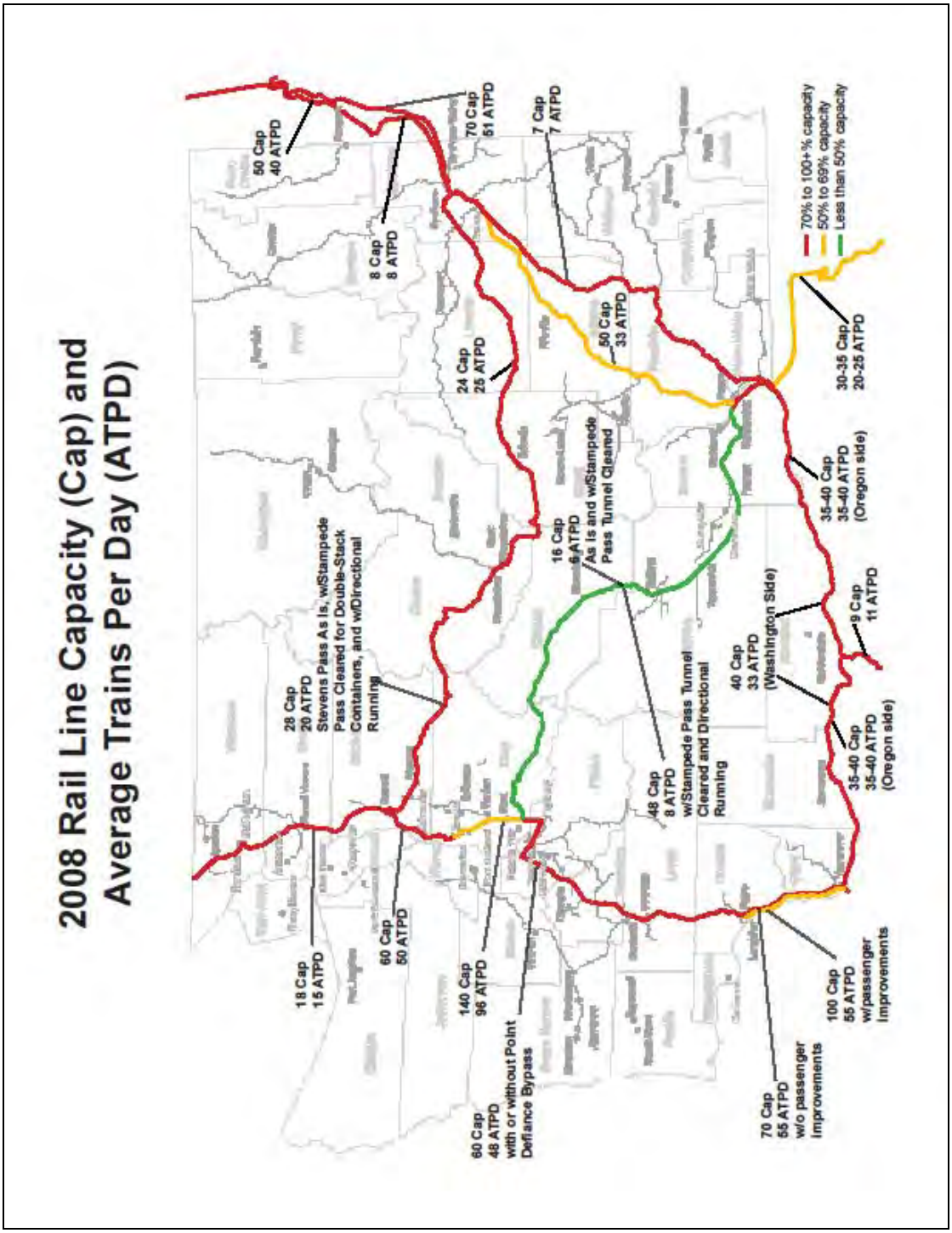
The BNSF's Vancouver-Pasco line, which follows the Columbia River along the north side of the Columbia River Gorge, is used by double-stack intermodal container trains moving east and grain trains moving west to the Puget Sound and Columbia River ports, and carload trains moving both east and west to serve state industrial and agricultural shippers. The line is operating today at about 80 percent of practical capacity.

Interstate 5 (I-5) Corridor

The I-5 corridor rail line runs the length of the state from the Canadian border, through Bellingham, Everett, Seattle, and Tacoma to Vancouver (WA) and Portland. It is the backbone of the state rail system, controlling access to the east-west lines. Most of the line is owned by the BNSF, but the BNSF shares operating rights over significant portions of the line with

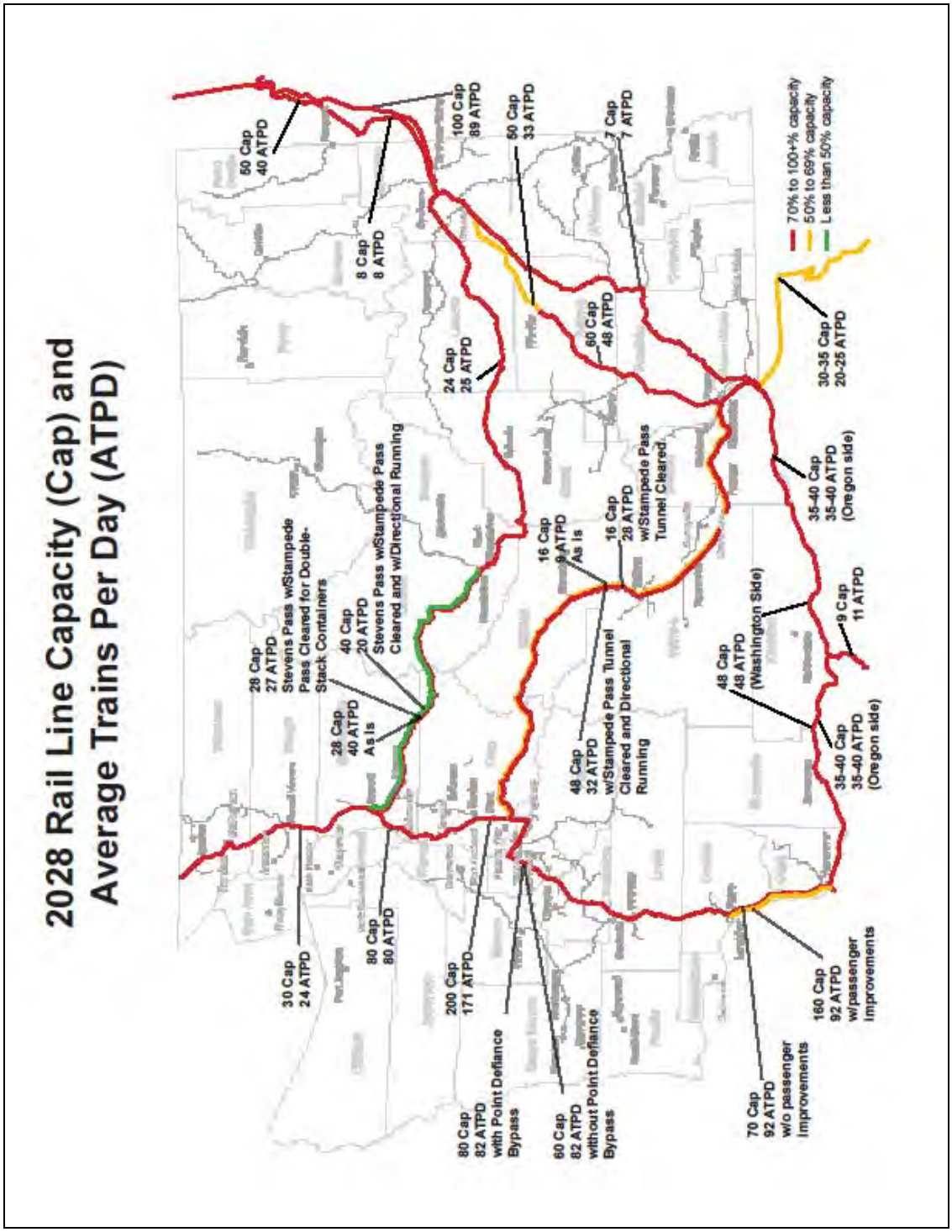
[16] Practical capacity is the highest activity level that a line can operate with an acceptable degree of efficiency, taking into consideration unavoidable losses of productivity.

Exhibit 3-9: 2008 Rail Line Capacity[17]



[17] Train volumes (average trains per day) reflect business activities that are fluctuated sharply and sensitive to economic climate. Although the long-term trend is upward, the short-term trend could drop significantly. The information in this map reflects the long-term forecast results. These numbers were derived based on the best knowledge of the researchers and information available at the time of the research. The recent recession impacts may not be captured by this map.

Exhibit 3-10: 2028 Rail Line Capacity



the UP, Amtrak's intercity rail services, and the *Sounder* commuter rail operations. The line operates at between 40 and 60 percent of practical capacity in most sections, but is subject to frequent stoppages when trains enter and exit the many ports, terminals, and industrial yards along the corridor. Some half dozen sections are chronic chokepoints, causing delays that ripple across the entire state and Pacific Northwest rail system.

Rail Bottlenecks

Exhibit 3-11 locates the major rail bottlenecks by type across the state rail system.

Exhibit 3-11: Railroad Bottlenecks

Bottleneck	Type of Bottleneck
Portland – Vancouver (WA)	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control) Geography, Geology, Topography, Regulation
Vancouver (WA)	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control) Passenger Operation
Ridgefield	Yard Infrastructure
Woodland – Castle Rock	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Passenger Operation
Vader – Chehalis	Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Passenger Operation Geography, Geology, Topography, Regulation
Chehalis	Yard Infrastructure
Centralia	Yard Infrastructure Signal and Traffic Control Systems Passenger Operation
Centennial	Passenger Operation
Nelson Bennett – Ruston	Main Line Infrastructure (Except Signal and Traffic Control)
Ruston – Reservation	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition
Reservation – Puyallup	Yard Infrastructure Signal and Traffic Control Systems
Auburn	Yard Infrastructure Infrastructure Condition
Tukwila – Argo	Main Line Infrastructure (Except Signal and Traffic Control)

Bottleneck	Type of Bottleneck
Argo – South Portal (Seattle)	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Geography, Geology, Topography, Regulation
Tacoma – Tukwila (UP)	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition Geography, Geology, Topography, Regulation
South Portal (Seattle) – MP 8 (Ballard)	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Passenger Operation Infrastructure Condition Geography, Geology, Topography, Regulation
MP 8 (Ballard) – Edmonds	Main Line Infrastructure (Except Signal and Traffic Control)
Edmonds	Main Line Infrastructure (Except Signal and Traffic Control) Passenger Operation Infrastructure Condition
Edmonds – Mukilteo	Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control)
Mukilteo	Main Line Infrastructure (Except Signal and Traffic Control) Passenger Operation Infrastructure Condition
Everett Jct. – PA Jct.	Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition
PA Jct. – Delta Jct.	Yard Infrastructure Signal and Traffic Control Systems Passenger Operation Infrastructure Condition Geography, Geology, Topography, Regulation
Marysville	Infrastructure Condition Geography, Geology, Topography, Regulation
English – Bow	Main Line Infrastructure (Except Signal and Traffic Control)
Bow – Swift	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition Geography, Geology, Topography, Regulation

Bottleneck	Type of Bottleneck
Swift – Thornton Yard (Surrey, BC)	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition Geography, Geology, Topography, Regulation
Vancouver (WA) – Wishram	Main Line Infrastructure (Except Signal and Traffic Control)
Wishram – Pasco	Main Line Infrastructure (Except Signal and Traffic Control) Geography, Geology, Topography, Regulation
Auburn – Ellensburg	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition Geography, Geology, Topography, Regulation
Ellensburg – Pasco	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition Geography, Geology, Topography, Regulation
Everett – Wenatchee	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition Geography, Geology, Topography, Regulation
Wenatchee – Spokane	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition Geography, Geology, Topography, Regulation
Pasco – Spokane	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control) Geography, Geology, Topography, Regulation
Spokane – Athol, ID (BNSF)	Main Line Infrastructure (Except Signal and Traffic Control)
Hinkle, OR – Spokane	Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition
Spokane – Eastport, ID	Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Infrastructure Condition
Vancouver (WA) (BNSF)	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control) Passenger Operation
Kalama (BNSF)	Yard Infrastructure

Bottleneck	Type of Bottleneck
Tacoma (BNSF)	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control)
Tacoma (Tacoma Rail)	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control)
Fife (UP)	Yard Infrastructure Main Line Infrastructure (Except Signal and Traffic Control)
Argo (UP)	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Geography, Geology, Topography, Regulation
Port of Seattle (BNSF & UP)	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Geography, Geology, Topography, Regulation
SIG/Stacy (BNSF)	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Geography, Geology, Topography, Regulation
Interbay (BNSF)	Yard Infrastructure Signal and Traffic Control Systems Main Line Infrastructure (Except Signal and Traffic Control) Passenger Operation Infrastructure Condition Geography, Geology, Topography, Regulation
Everett (BNSF)	Yard Infrastructure Signal and Traffic Control Systems Passenger Operation Infrastructure Condition Geography, Geology, Topography, Regulation
Wishram (BNSF)	Yard Infrastructure
Arco (Cherry Point; BNSF)	Yard Infrastructure
Longview Jct. (BNSF & UP)	Yard Infrastructure Signal and Traffic Control Systems
Pasco (BNSF)	Yard Infrastructure
Centralia (BNSF & UP)	Yard Infrastructure Signal and Traffic Control Systems Passenger Operation
Spokane (BNSF)	Yard Infrastructure

Source: Washington State Transportation Commission (WSTC) *Statewide Rail System and Capacity Study*, 2006

Rail Capacity

Exhibit 3-12 lists the rail segments where mainline practical capacity will be exceeded within 20 years, even with the additional capacity gained by operating longer trains and implementing better scheduling.[18] The existing bottlenecks will persist and worsen, some more quickly than others.

Nationally, rail capacity is not keeping pace with demand. The rail industry today is stable, productive, and competitive with enough business and profit to operate, but it is not yet attracting capital fast enough to replenish its infrastructure quickly or keep pace with demand and public expectations. This trend has been documented in several recent reports.[19]

Examples of capacity constraints:

Stevens Pass. With the Everett-Spokane line nearing its maximum capacity, the BNSF has been routing more intermodal trains south along the I-5 rail corridor to Vancouver (WA) and then east. This has added considerable volume to the Vancouver-Pasco line along the Columbia River Gorge, and made the scheduling of train moves through the Gorge and along the I-5 rail corridor more complex.

I-5 Corridor. The on-time performance of the Amtrak *Cascades* service has dropped, and delays for both BNSF and UP freight trains have increased, although recent changes in freight operating practices have improved performance somewhat. The problem is particularly acute in the Portland/Vancouver (WA) area, where the railroads' north-south and east-west routes intersect. Rail simulation studies (i.e. grain trains bound for the ports, intermodal trains running through, industrial carload trains serving local industries, and intercity passenger trains shuttling up and down the I-5 corridor) show that the delay hours per train moving through the Portland/Vancouver area are greater than the delay hours for trains in the Chicago area, one of the nation's most congested rail hubs.[20] Railroading is one of the most capital intensive industries in the U.S., and investment in fixed assets can be a risky proposition.

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[18] Demand is total demand not just traffic of the owner.

[19] See for example: American Association of State Highway and Transportation Officials, *Freight-Rail Bottom Line Report*, Washington, D.C., 2003; and United States Government Accountability Office, *Freight Railroads: Industry Health Has Improved, But Concerns About Competition and Capacity Should Be Addressed*, Washington, D.C., October 2006.

[20] "Freight, Intercity Passenger and Commuter Rail," PowerPoint presentation to the Portland-Vancouver I-5 Transportation and Trade Partnership on May 21, 2002; and "Final Strategic Plan: June 2002," prepared by Willard F. Keeney and HDR, Inc. for the Portland-Vancouver I-5 Transportation and Trade Partnership.

Exhibit 3-12: Rail Lines in Washington State Exceeding Practical Capacity 2008 and 2028

(Based on Peak Day Train Volumes and Assuming Operation of 8,000-Foot Trains)

Rail Segment	RR	2008 Capacity	2008 Demand	2008 Utilization as % of Capacity	2028 Capacity	2028 Demand	2028 Utilization as % of Capacity
Everett to Seattle	BNSF	60	48	80%	80	80	100%
Seattle to Tacoma	BNSF	140	80	57%	200	171	86%
Tacoma to Kalama/Longview w/Point Defiance Bypass	BNSF	60	62	103%	80	82	103%
Tacoma to Kalama/Longview w/o Point Defiance Bypass	BNSF	60	62	103%	60	82	137%
Kalama/Longview to Vancouver, WA w/Passenger Improvements	BNSF	100	55	55%	160	92	58%
Kalama/Longview to Vancouver, WA w/o Passenger Improvements	BNSF	70	55	79%	70	92	131%
Everett to Wenatchee, as is	BNSF	28	16	57%	28	40	143%
Everett to Wenatchee Stevens Pass as is, w/Stampede Pass cleared for double-stack countainers	BNSF	28	16	57%	28	26	93%
Everett to Wenatchee Stevens Pass as is, w/Stampede Pass cleared for double-stack countainers, and w/directional running	BNSF	28	16	57%	40	20	50%
Wenatchee to Spokane	BNSF	24	18	75%	24	25	104%
Auburn to Pasco, as is	BNSF	16	6	38%	16	9	56%
Auburn to Pasco w/o Stampede Pass Tunnel Cleared	BNSF	16	6	38%	16	28	175%
Auburn to Pasco w/Stampede Pass Tunnel Cleared and directional running	BNSF	48	8	17%	48	32	67%
Vancouver, WA to Pasco	BNSF	40	32	80%	48	48	100%
Vancouver, WA to Pasco	UP	40	40	100%	40	40	100%
Pasco to Spokane	BNSF	50	32	64%	60	48	80%
Pasco to Spokane	UP	7	7	100%	7	7	100%
Spokane to Sandpoint, ID	BNSF	70	45	64%	100	89	89%
Spokane to Sandpoint, ID	UP	8	7	88%	8	8	100%

Blue shows lines that are at or are projected to be at 100 percent or more of capacity by 2028.

Source: 2009 Marine Cargo Forecast

During the 1990s, when railroads found themselves with excess capacity and profits were down, Wall Street downgraded bond ratings and railroad stock prices fell. In the last several years, this trend has reversed and Class I railroads are reinvesting heavily to maintain and add capacity to their systems. However, much of this investment is replacing existing infrastructure and maintaining existing capacity, because rail traffic places

enormous wear and tear on rails, bridges, tunnels, and locomotives. To reduce longer-term financial risk, both the BNSF and the UP have investment strategies that emphasize increasing capacity through operations first and infrastructure expansion last.

To manage demand while new capacity is being added, the railroads are using pricing to turn aside lower-profit carload freight in favor of intermodal and coal traffic, which can be handled more cost-effectively and profitably in unit or destination-specific trains. In some markets and corridors, international intermodal traffic is squeezing out industrial and low-density agricultural carload traffic. Shippers, who are used to being price setters, are now price takers.

Furthermore, the national capacity crunch is focusing more rail traffic and railroad investment on the Pacific Southwest at the expense of the Pacific Northwest and the state. Continuing high levels of growth and the competition between BNSF and UP for the lucrative southern California rail market have made southern California the key focal point of investment for both railroads.

Capacity shortfalls will complicate the improvement of intercity passenger rail service. As a condition of the deregulation of the railroad industry in 1980, federal law requires that freight railroads share the use of their lines with intercity passenger rail providers and give passenger trains priority over freight trains. But the differing needs of the passenger and freight railroad create tension between the needs of the passenger rail operators and the needs of freight rail operators as each tries to maximize the performance of their respective operations.

In general, frequent passenger rail service, especially frequent high-speed rail service, requires relatively wide time-space slots on the mainline to ensure that the passenger trains do not overtake slower-moving carload freight trains.[21]

Recent Major Policy Changes Impacting the Rail System in Washington State

Safety Regulation

The state has very little safety jurisdiction over rail operations, except for public highway-rail crossings. States can conduct inspections in various

[21] Intermodal trains are also significant consumers of rail capacity, because they are long, move at speeds similar to passenger trains, and require priority of movement. The railroads market these trains as premium services, and they generate substantial revenue for the railroads.

safety disciplines as part of a state-federal participation program, but any enforcement is done by the Federal Railroad Administration (FRA) in the areas of hazardous materials, track, signals, and operating practices.

Appendix 3-B discusses rail safety regulation, including rail employee safety, remote control operations, community notice, blocked crossings, train speeds, grade crossing protective zones, housekeeping, quiet zones, crossing consolidation/closure, and Operation Lifesaver—an international organization promoting rail safety and awareness.

Positive Train Control[22]

Positive Train Control (PTC) refers to technology that is capable of preventing train-to-train collisions, over-speed derailments, and casualties or injuries to roadway workers. PTC systems vary widely in complexity and sophistication based on their level of automation, functionality, system architecture (i.e., non-signaled, block signal, cab signal), and degree of control.

Prior to October 2008, PTC systems were being voluntarily installed by various carriers. However, the Rail Safety Improvement Act of 2008 (RSIA), signed by the President Bush on October 16, 2008 as Public Law 110-432, has mandated the widespread installation of PTC systems by December 2015.

Currently, all of the affected railroads are aggressively developing PTC implementation plans as required by the RSIA and adapting their PTC systems to maximize interoperability.[23] The FRA is supporting all rail carriers that have statutory reporting and installation requirements to install PTC, as well as rail carriers that are continuing to voluntarily implement PTC through a combination of regulatory reform, project safety oversight, technology development, and financial assistance.

On March 7, 2005, FRA published regulations regarding performance standards for processor-based signal and train control systems per Title 49 Code of Federal Regulations Part 236, Subpart H. A working group of the Railroad Safety Advisory Committee first developed these performance-based regulations versus traditionally prescriptive regulations. The new performance-based regulations require that a railroad demonstrate with a high degree of confidence, that the risks associated with a new product

[22] http://www.fra.dot.gov/us/content/1265.
[23] The BNSF, UP, Norfolk Southern Railway, and CSX Transportation are leading the interoperability effort for technologies based on the Electronic Train Management System for rail traffic outside of the Northeast Corridor. The National Passenger Rail Corporation (Amtrak) is undertaking similar action for rail traffic in the NEC using the Advanced Civil Speed Enforcement System.

being implemented are less than or equal to the risks associated with the product that is being replaced.

After extensive participation and contributions by railroads, rail labor, suppliers, and other agencies, including the National Transportation Safety Board, the performance-based regulations became effective on June 6, 2005. The Subpart H regulations support the voluntary introduction of innovative technology, including systems using computers and radio data links, to accomplish PTC functions. In addition to supporting advancement of PTC systems, these regulations also facilitate the ever-growing use of processor-based equipment and functioning in otherwise conventional signal and train control systems.

FRA is working to develop a new performance-based regulation to address the various statutory requirements of RSIA and to better support railroads that must install PTC systems. This new regulation is being crafted to ensure system safety while reducing the administrative overhead.

There are currently 11 different PTC pilot projects in varying stages of development and implementation, involving nine different railroads in at least 16 different states, and consisting of over 4,000 track miles. These pilot projects are not only allowing railroads to continue to advance the various technologies used to implement PTC systems, but are providing the railroads valuable experience on installation and test procedures required to meet the 2015 deployment completion date.

Washington State
Department of Transportation

Chapter 4: Freight Rail Services – Effects on the Economy and Society

Functions of Freight in Washington's Economy

Washington State's (state) multimodal transportation system supports economic vitality and quality of life in the state and region. The smooth functioning of highways, railways, ports, pipelines, and airports allows businesses and consumers to trade and purchase the goods necessary to sustain business and daily life. With coordinated planning and strategic investments, the state and its partners can provide a transportation system that meets the challenges and opportunities ahead. Including statewide freight rail into statewide transportation planning and investment decisions is increasingly important.

The three components of the state's freight activities are:

Made in Washington – Regional Economies Rely on the Freight System

The state's manufacturers and farmers rely on the freight system to ship Washington-made products to local customers, big United States (U.S.) markets in California and on the east coast, and worldwide. The state's producers generate wealth and jobs in every region in the state.

Delivering Goods to You – The Retail and Wholesale Distribution System

The state's distribution system is a fundamental local utility; without it state residents would have no food to eat, clothes to wear, books to read, spare parts, fuel for their cars, or heat for their homes. In other words, the economy of the region would no longer function. The value and volume of goods moving in these freight systems is huge and growing.

Global Gateways – International and National Trade Flows Through Washington

This is a gateway state, connecting Asian trade flows to the U.S. economy, Alaska to the Lower 48, and Canada to the U.S. West Coast. About 70 percent of international goods entering the state's gateways continue on to the larger U.S. market. Thirty percent become part of the state's manufactured output or are distributed in the state's retail system (Exhibit 4-1).

Exhibit 4-1: Washington State Is a Global Gateway

Source: Washington State Department of Transportation (WSDOT) Geographic Services and Strategic Analysis and Program Development, 2004

These components underpin our national and state economies, support national defense, directly sustain hundreds of thousands of jobs, and distribute the necessities of life to every resident of the state every day.

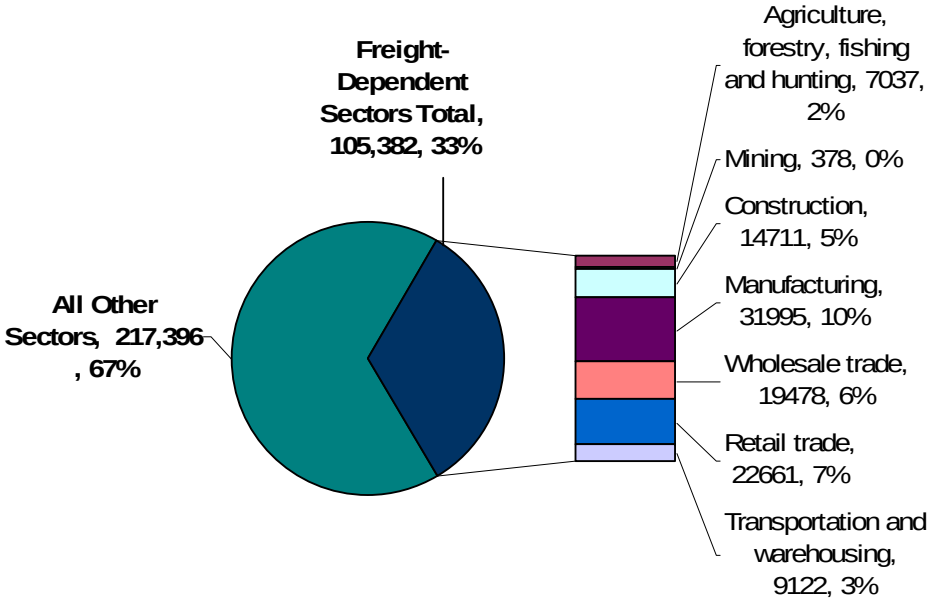
A large part of the state's economy depends on freight for its competitiveness and growth. The most highly freight-dependent sectors include agriculture, mining, construction, manufacturing, wholesale, retail, transportation, and warehousing. In 2008 freight-dependent sectors accounted for 33 percent of the state's Gross Domestic Product (GDP), 71 percent of business income, and 39 percent of state employment (Exhibits 4-2, 4-3, and 4-4).

Freight Rail in Washington's Economy

Rail provides critical transportation for manufacturers, agricultural producers, lumber and wood product producers, the food products industry, and the ports and international trade sector—all important sectors of the state economy. Freight rail, in terms of tonnage, accounted for 19 percent of total freight in the state in 2007.

Exhibit 4-2: Freight-Dependent Sectors GDP
Washington State 2008 ($ Millions)

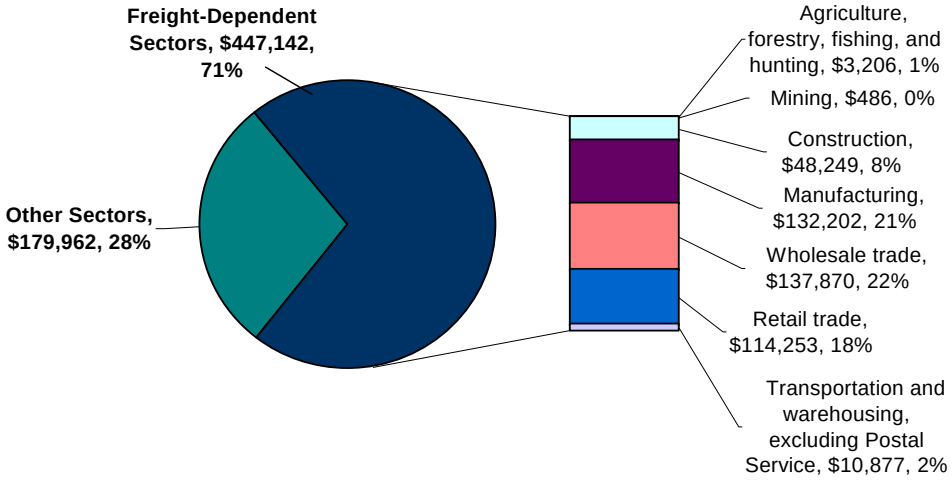
Freight-Dependent Sectors: $105,382
All Sectors: $217,396



Source: U.S. Department of Commerce (USDOC), Bureau of Economic Analysis, compiled by WSDOT State Rail and Marine Office

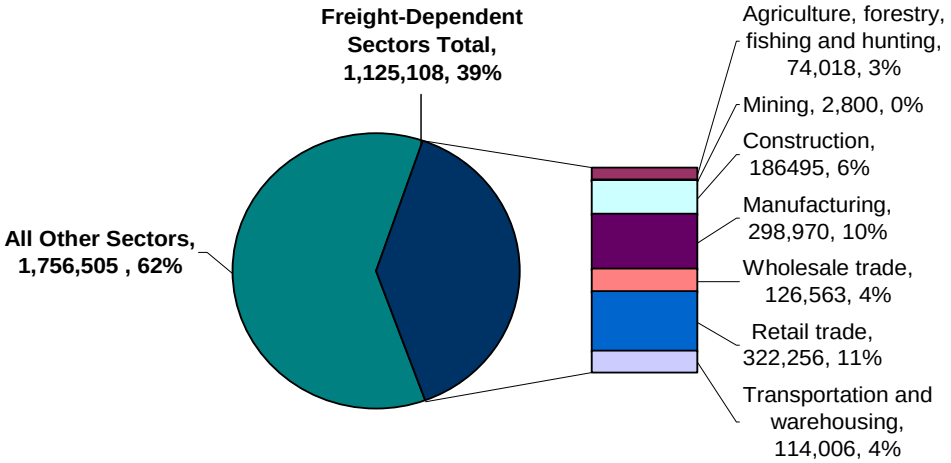
Exhibit 4-3: Business Incomes of Freight-Dependent Sectors
Washington State 2008 ($ Millions)

Freight-Dependent Sectors: $447,142
All Sectors: $627,104



Source: Washington State Department of Revenue, compiled by WSDOT State Rail and Marine Office

Exhibit 4-4: Freight-Dependent Sectors Employment
Washington State 2008 First Quarter
Freight-Dependent Sectors: 1.125 Millions Jobs
All Sectors: 2.881 Millions Jobs

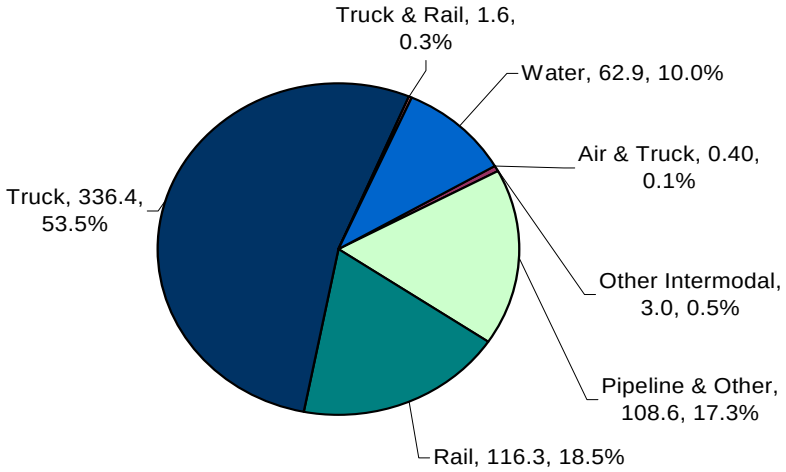


Source: Washington State Employment Security Department 2008, compiled by WSDOT State Rail and Marine Office

Freight Rail Flows

Freight rail provides shippers with cost-effective transportation, especially for heavy and bulky commodities, and can be a critical factor in retaining and attracting industries that are central to state and regional economies (Exhibit 4-5).

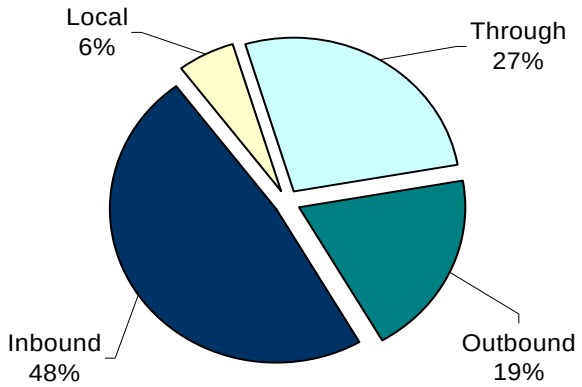
Exhibit 4-5: Freight by Mode – Washington State 2007
(Million Tons)



Source: WSDOT State Rail and Marine Office – Analysis based on Federal Highway Administration (FHWA) Freight Analysis Framework (FAF) Data and 2007 Surface Transportation Board (STB) Waybill Data

In 2007 the state's freight railroads moved more than 116 million tons of freight, an almost 40 percent increase from 83 million tons in 1996. Cargo moving on rail inbound was 48 percent—originating from other states or Canada and terminating in the state. The second largest flow type at 27 percent was cargo moving through the state without loading or unloading. Local cargo, which originated and terminated within the state, comprised six percent of the total rail cargo. Outbound cargo—originating in the state and terminating in another state or Canada—was 19 percent of total state rail freight (Exhibit 4-6).

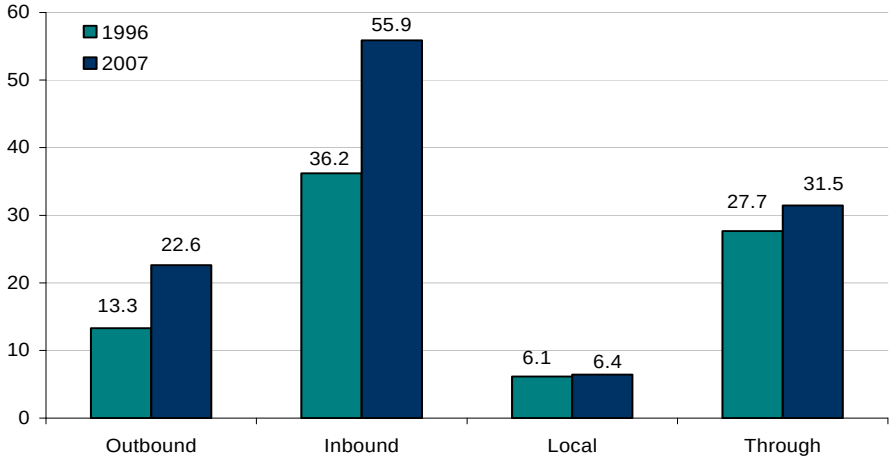
Exhibit 4-6: Rail Freight Flows – Washington State 2007[1]



Source: WSDOT State Rail and Marine Office – 2007 Surface Transportation Board Waybill Analysis

The largest increase in percentage terms is outbound with a 70 percent increase, followed by inbound with a 54 percent increase (Exhibit 4-7).

Exhibit 4-7: Growth of Rail Freight Flows
Washington State 2007 versus 1996 (Million Tons)

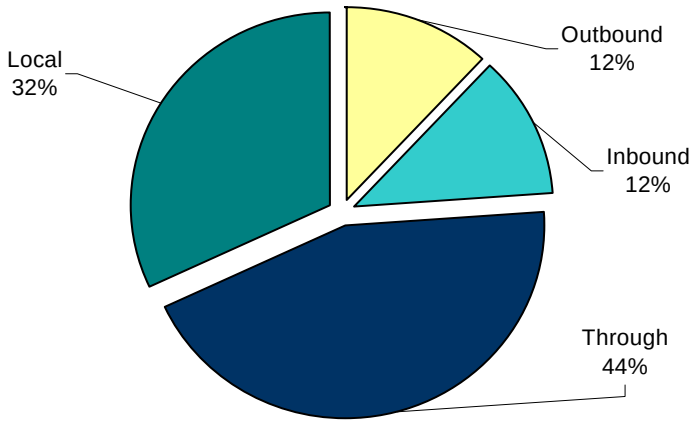


Source: WSDOT State Rail and Marine Office – 2007 Surface Transportation Board Waybill Analysis

[1] Federal Waybill data is available for 2007. 2008 data is not available until early 2010.

As can be seen by comparing Exhibit 4-6 and Exhibit 4-8, the state is much more dependent on inbound cargo than the average state, which has only 12 percent inbound cargo that is moved by rail. In other states approximately one third of the freight rail traffic is local. Local moves by rail in this state are only 6 percent of the total rail freight. The state is truly a Global Gateway for the U.S. Due to this being a coastal state, its through traffic of 31.5 million tons (27 percent) is considerably below the average of all states' through traffic of 44 percent.

Exhibit 4-8: Directional Rail Freight Flows
Average of Other States in U.S. 2007



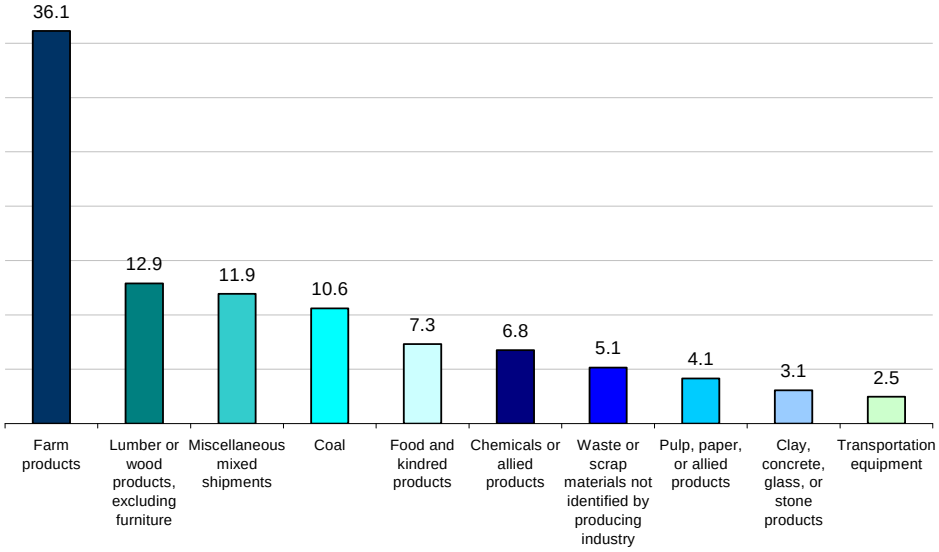
Source: WSDOT State Rail and Marine Office – 2007 Surface Transportation Board Waybill Analysis

Major Commodities Shipped by Rail

The economic vitality of the state requires a robust rail system capable of providing its industries, ports, and farms with competitive access to North American and overseas international markets. The state is well known for its agricultural products such as apples, wheat, soft fruits, and many other agricultural products. Freight rail plays an important role in the state's agriculture sector. Lumber and wood product producers, manufacturers, waste management, and mining also rely on rail transportation to move heavy, bulky products to markets cost-effectively.

Farm products, primarily wheat and grain (36.1 million tons), were the largest commodity moved on our rail system in 2007, followed by lumber and wood (12.9 million tons), miscellaneous mixed shipments (11.9 million tons), and coal (10.6 million tons). In 2007, 100.4 tons (almost 86 percent) of freight moved on state rail was from the top ten commodities (Exhibit 4-9).

Exhibit 4-9: Top 10 Commodities Shipped by Rail
Washington State 2007 (Million Tons)



Source: WSDOT State Rail and Marine Office – 2007 Surface Transportation Board Waybill Analysis

Trade Partners

The state's rail freight supports regional, national, and international trade and economies. In 2007 more than 55 million tons of goods arrived in the state from 42 other states and Canada by rail for export and in-state consumption. Meanwhile, 23 million tons of goods were exported from the state to 45 other states and Canada by rail. Exhibits 4-10 and 4-11 provide details of inbound and outbound flows that reflect the state's trades with its partners.

The state itself plays an important role in support of trade and economy. One example is the Produce Rail Car program operated by WSDOT with leveraged federal grant funds. This program maintains economic viability in farming areas of the eastern side of the state by supporting produce exports through a lower shipping cost. Exhibit 4-12 shows the estimated 2008 economic impacts of this program.

If rail service deteriorates, these businesses may shift their freight to trucks, but this could increase their transportation costs and may increase the road maintenance costs for state and local governments. In some cases, the loss of rail service could drive businesses to relocate or close. Rail service deterioration would also contribute to more congestion, higher green house gas emissions, higher energy use, and a negative impact on safety.

Exhibit 4-10: Inbound Rail Freight Flows

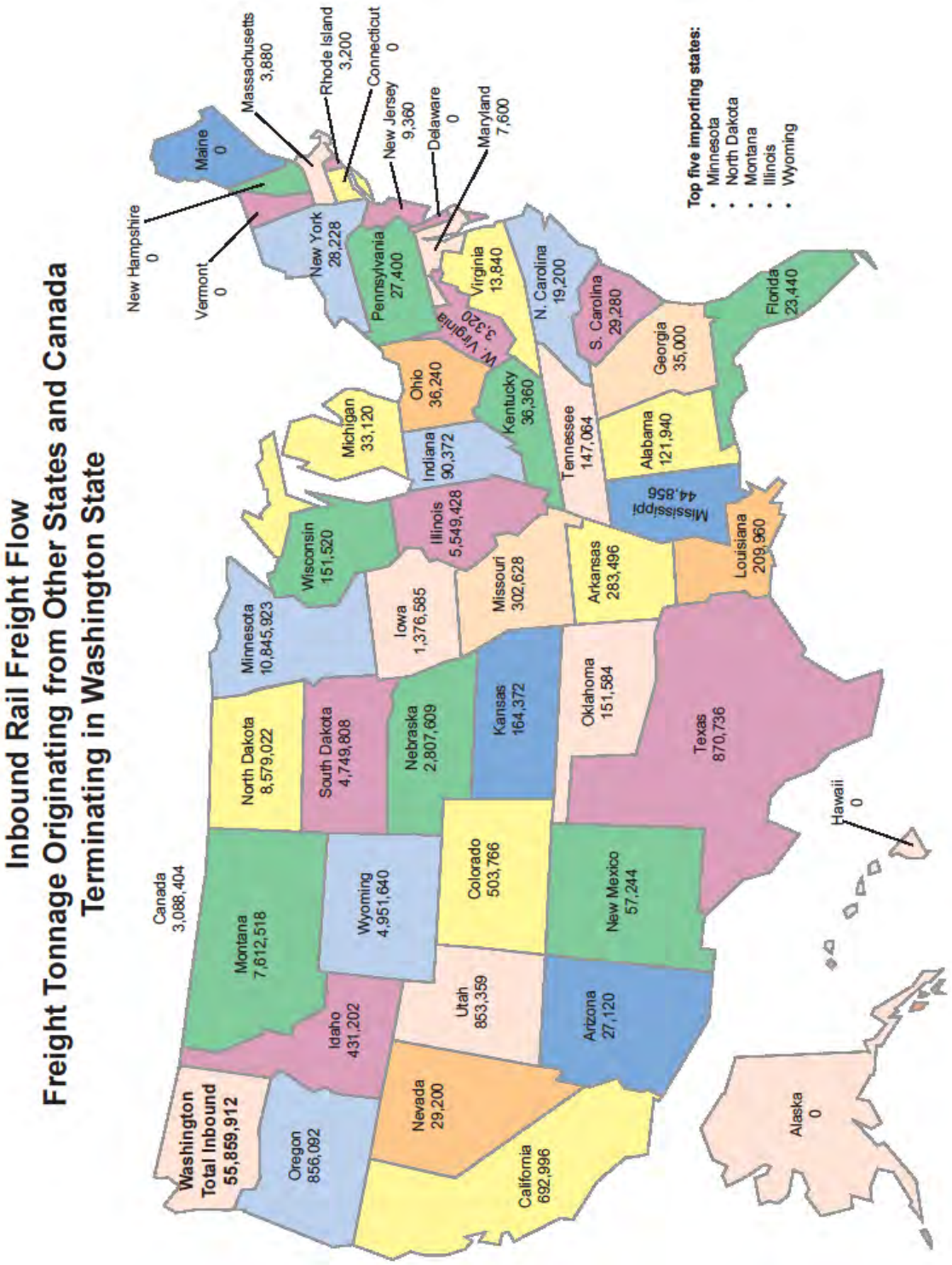


Exhibit 4-11: Outbound Rail Freight Flows

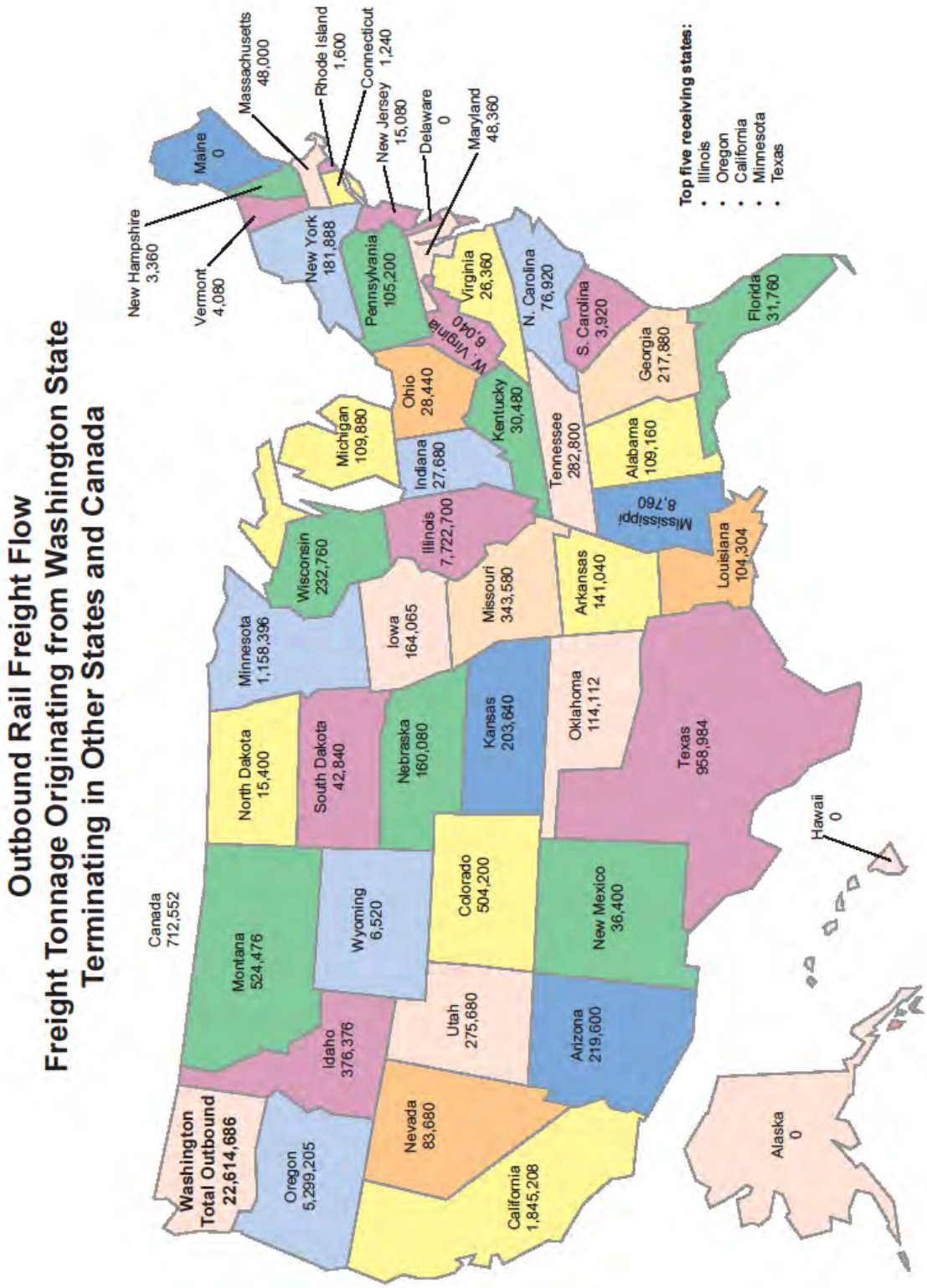


Exhibit 4-12: Economic Output and Employment Supported by Produce Rail Car Program* – Year 2008

Impacts**	Direct	Indirect	Induced	Total
Economic Output ($ Million)	$30	$17	$18	$66
Employment (Jobs)	409	133	151	693
Value Added* ($ Million)**	$13	$8	$11	$32

Source: WSDOT State Rail and Marine Office - IMPLAN Input-Output model for Washington State and its local areas.

* Economic impacts are assessed using the IMPLAN Input-Output model for Washington State and its local areas. Using classic input-output analysis in combination with regional specific Social Accounting Matrices and Multiplier Models, IMPLAN provides a highly accurate and adaptable model for its users. The IMPLAN database contains county, state, zip code, and federal economic statistics which are specialized by region, not estimated from national averages, and can be used to measure the effect on a regional or local economy of a given change or event in the economy's activity.

** Direct impact is measured as the jobs, outputs, and value added within farming industries and shippers supported by the produce rail car program. Indirect impact is measured as the jobs, outputs, and value added occurring within other industries that provide goods and services to the directly affected industries. Induced impact is the change in jobs, outputs, and value added resulting from household spending of income earned either directly or indirectly from the shippers industry's spending.

*** Difference between the total sales revenue of an industry and the total cost of components, materials, and services purchased from other firms within a reporting period (usually one year). It is the industry's contribution to the GDP.

The following section discusses rail-intensive industries in the state and their impacts on the state's economy and dependence on freight rail.

Rail Intensive Sectors and Industries in Washington State

Agriculture and Food Products Industry/Bulk and Specialized Carload Shippers[2]

Agriculture and food product manufacturers are important economic sectors in the state, generating 2.9 percent of the gross state product[3] and accounting for 4.1 percent of 2008 employment.[4] The state agricultural and food manufacturing production was valued at over $13.6 billion in

[2] The section is adopted from the Washington State Transportation Commission's (WSTC) *Statewide Rail Capacity and System Needs Study* (2006).
[3] USDOC Bureau of Economic Analysis.
[4] Employment Security Department.

2008.[5] Agriculture is the primary source of employment in many of the state's rural counties.

Agricultural rail traffic outbound from the state is expected to grow at a compound annual growth rate of 3.3 percent over the next 20 years. The state also has an expanding food products industry with particular strengths in frozen foods (7.3 percent of U.S. output) and wine production.[6]

However, most of the agricultural tonnage moving on the state rail system is midwestern grain moving to the Lower Columbia River and Puget Sound ports for export. And because midwestern grain is moving long distances by unit train, it is generally more attractive for the railroads than local state agricultural shipments, which must move shorter distances for export and may require specialized handling.

The Class I railroads are asking state agricultural shippers to consolidate their shipments at new facilities, and this may be economical for those shippers who can accommodate the changes. However, these changes can also lead to un-served and underserved markets where shippers have difficulty finding efficient transportation. These changes could affect the short lines, which may see declines in their markets; operators of small grain elevators along the short lines who also stand to lose business; and the remaining shippers on the short lines who could see reductions in service and increased costs. The challenge faced by state agriculture is to maintain competitive rail service as it focuses on higher-value added crops and produce that may not generate the volumes that are attractive to the Class I railroads. This need to consolidate carloads for more efficient rail service is a prime situation where state funding could make sense. This has been done very successfully in Oregon.

Ports and International Trade Sector/Intermodal Container Shippers[7]

The state's ports and international trade industry depend on rail to export grain and other agricultural products, and to import intermodal containers of consumer goods. Although in 2007 rail only accounts for 19 percent of total freight in the state in terms of tonnage, it accounts for 42 percent of marine cargo.[8] If the rail system cannot deliver high-quality transportation services, especially for intermodal cargo that is not destined

[5] Department of Revenue.
[6] WSTC – *Statewide Rail Capacity and System Needs Study* (2006).
[7] The section is developed based on 2006 WSTC *Statewide Rail Capacity and System Needs Study* and WSDOT/Washington Public Ports Association (WPPA) *2009 Marine Cargo Forecast*.
[8] WSDOT/WPPA *2009 Marine Cargo Forecast*, STB Waybill data 2007, and United States Department of Transportation (USDOT) FAF 2008.

for this state, shippers may shift to other ports. This could affect port-supported economic sectors. In addition, export trade plays a major role in the state economy. Rail frequency and quality affects the frequency and array of service offered by shipping lines. Without good rail connections to support both import and export trade, state ports would become less attractive to ocean carriers, and ultimately, the state would become a less attractive location for export businesses.

About 40 percent of the state's rail traffic is related to port activity. The amount moving to state ports by rail is forecast to increase from the current 42 million tons to 66 million tons in 2030.[9] The state's ability to meet this opportunity will depend on the investments made to expand and improve rail operations and infrastructure.

International trade generates large flows of intermodal containers through the Ports of Seattle and Tacoma. Between 1999 and 2008, container traffic grew at an average annual rate of 2.9 percent from 2.76 million Twenty-Foot Equivalent Units[10] (TEUs) to 3.57 million TEUs at Puget Sound ports.[11] Much of the container traffic consists of merchandise and retail goods imported from Asia through the ports, and then transferred to rail for shipment to Midwestern and eastern U.S. markets. Businesses and consumers across the U.S. benefit from this international trade, but healthy deepwater ports also provide benefits to the state.

The state is among the top export states due to the strong market for Boeing aircraft. While many state exporters do not use the rail system to deliver goods to state ports, the existence of a healthy rail system is important, because it brings more traffic to the ports and more shipping services that can be used by state exporters. Strong long-haul rail services allow ocean carriers to access larger and more distant inland markets. Local export shipments help to balance import and export flows for the carrier. Thus, a strong rail system helps attract ocean carrier services to state ports and makes the state a more attractive location for national, regional, and local export businesses.

Manufacturers/Industrial Carload Shippers[12]

Manufacturing and industrial product industries are among the largest rail-using state businesses, and they primarily use rail carload services. Shippers include producers of metals, machinery, transportation equipment (including aircraft), wood and paper, petroleum, and plastic

[9] WSDOT/WPPA *2009 Marine Cargo Forecast.*
[10] Twenty-Foot-Equivalent Unit. The 8-foot by 8-foot by 20-foot intermodal container is used as a basic measure in many statistics.
[11] Port of Seattle and Port of Tacoma.
[12] The section is adopted from *Statewide Rail Capacity and System Needs Study*.

products. In 2008 the largest tonnage volumes of outbound shipments from these industries were waste and scrap materials; pulp, paper, and allied products; transportation equipment; primary metal products; and chemicals and allied products.[13] Inbound manufactured or industrial products included coal; chemicals; clay, concrete, glass, and stone; pulp and paper; and primary metal products.[14]

The volume of shipments of manufacturing goods is expected to grow steadily. However, many of the shippers reported that they were paying higher prices, were getting lower quality service, and were often having business turned away by the railroads.[15] These shippers will substitute truck for rail when they can, but for shippers of bulky, semi-finished products, or primary materials, trucking may not be feasible or cost effective. Hence, there is a risk that the state will lose some of the businesses, such as coal and gravel that depend on carload shipments, to relocation or closure.

A key feature of rail is the ability to move heavy and high/wide manufacturing products that cannot be moved via truck.

Economic Impacts of Freight Rail

Freight rail has significant economic impacts. In 2007 total state rail freight revenue, including rail-only and rail intermodal, amounted to $2 billion. Freight rail employed 4,207 people in the state and contributed $533 million to the state's GDP directly. The state's freight rail system also supports other economic sectors. Exhibit 4-13 provides an overview of the economic impacts of freight rail in the state.

Major Drivers in Freight Rail Demand

There are four major drivers that determine freight demand:

- Population size and trends; demographic changes.
- Economic activity, both domestic and international.
- Trade activity, both domestic and international.
- Supply chain practices.

[13] Goods shipped from this state to other states and countries by rail.
[14] Goods shipped from other states and countries to this state by rail. Do not confuse this with state import.
[15] Shippers' survey conducted by researchers of *2006 Statewide Rail Capacity and System Needs Study*.

Exhibit 4-13: Economic Impacts of Freight Rail Transportation – Washington State 2007

Impact Category	Direct*	Indirect**	Total
Employment (Jobs)	4,207	6,057	10,264
Business Revenue ($ Million) ***	$1,154	$884	$2,038
Employee Compensation ($ Million)	$417	$259	$676
GDP ($ Million) ****	$533	$383	$916
Tax Impact ($ Million)	N/A	N/A	$271

* Directly related to freight rail transportation industry.

** Jobs that support freight rail transportation but not hired by rail transportation industry.

*** Business revenue of an industry is total sales of all business in the industry.

**** GDP is value-added or the difference between the value of its output and the value of its input. GDP of an industry is measured as sum of values added by all businesses in the industry. It is sales of goods minus purchase of intermediate goods to produce the goods sold.

Sources: Association of American Railroads, WSDOT State Rail and Marine Office - IMPLAN Input-Output model for Washington State and its local areas.

Population Growth and Trade Growth

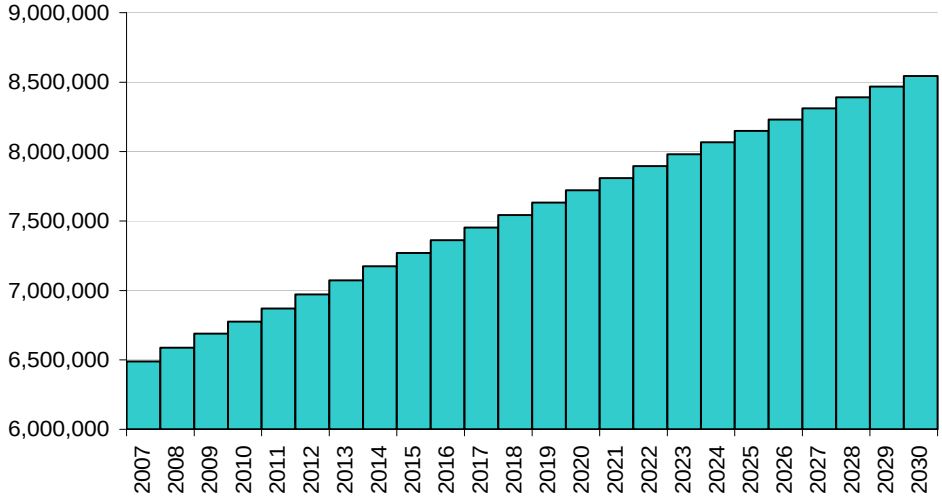
As Exhibit 4-14 shows, the population of the state is projected to grow at 1.2 percent a year. However, freight rail demand in the state is tied both to U.S. population growth and to state population growth, due to the fact that the state is one of the major global gateway states and plays an important role in the national economy and international trade. Therefore, freight rail demand grows faster in Washington State than the national average.

It is estimated that one in four jobs in the state is trade related.[16] Thus, for the import side of the equation, it is the growth in the total U.S. population and their consumption that drives the demand for freight rail in this state. On the export side of the equation, the demand is built on world population growth of developing countries in Asia and their need to feed their people. U.S. imports grew at an annual pace of 8.8 percent between

[16] www.washingtonports.org and www.portjobs.org/.

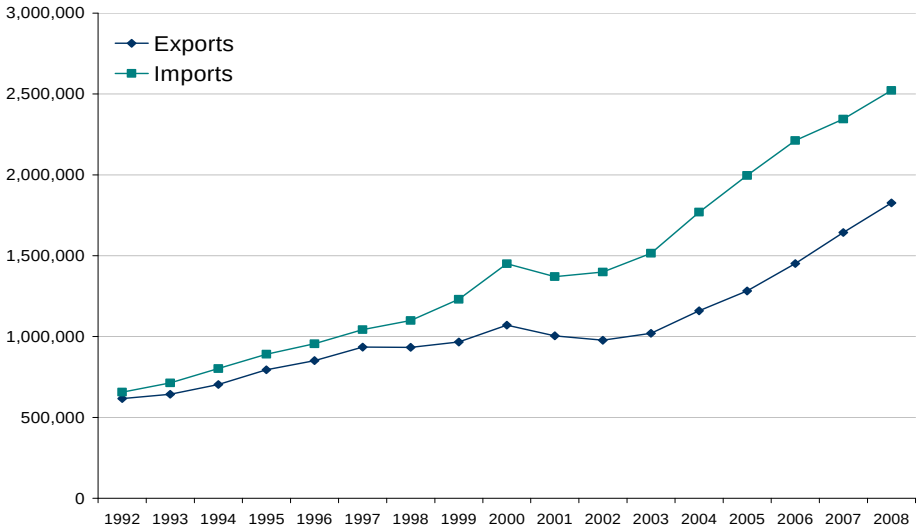
1992 and 2008, and U.S. exports grew at 7.0 percent during the same period (Exhibit 4-15).

Exhibit 4-14: Population Growth – Washington State 2007-2030



Source: Washington State Office of Financial Management

Exhibit 4-15: U.S. Export and Import, 1992 to 2008
($ Million)



Source: U.S. Census Bureau, Foreign Trade Division

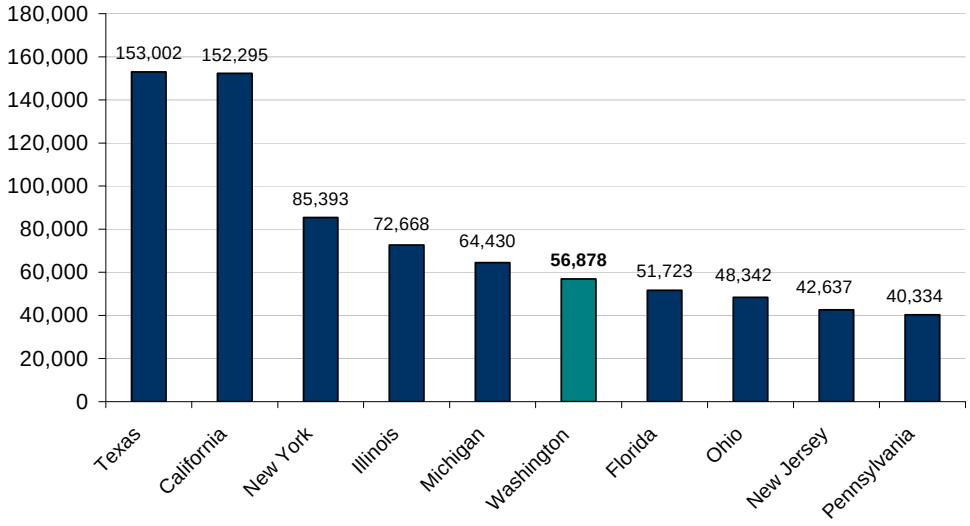
Most trade forecasters agree that the degree of foreign trade dependency on the world's major economies will continue to grow. That is the U.S. and its major trading partners will continue to become more "open" economies. This trend will continue because the developing world continues to offer increasingly advantageous locations for production. Economic efficiency is the driver for economic globalization. As a consequence, the ability to produce lower cost goods and services in

different locations leads to more trade and transportation. While the past growth rate is not expected to be sustainable, it is believed the trend of imports and exports is likely to continue to grow at a slow but steady pace.

The state, as a major global gateway state, shared a significant portion of such growth in 2008, ranking sixth in exports (Exhibit 4-16).

Imports drive the demand for rail service in the state as the fast growth of international container traffic through state gateways to U.S. markets continues. However, the trend has been slowing lately and future growth is likely to continue at a slower pace (Exhibit 4-17).

Exhibit 4-16: Top Ten Export States in the United States – 2008
($ Millions)

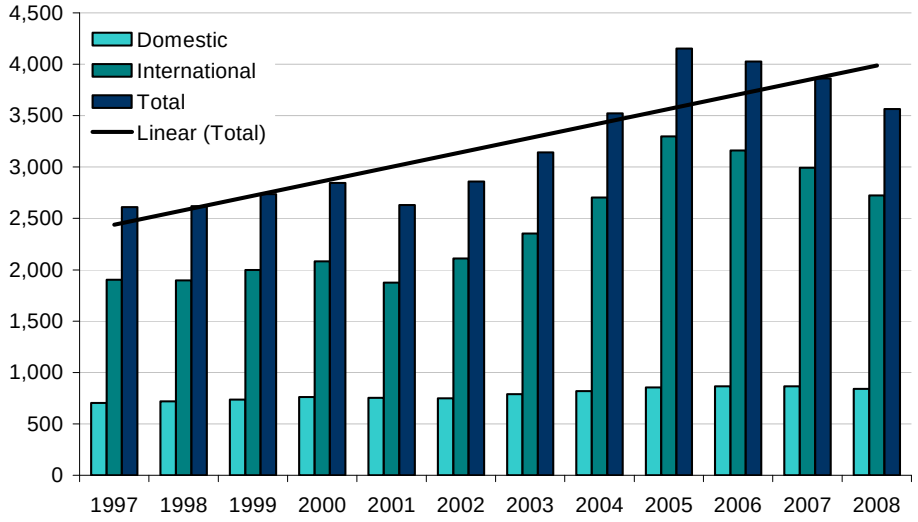


Source: U.S. Census

Economic Growth

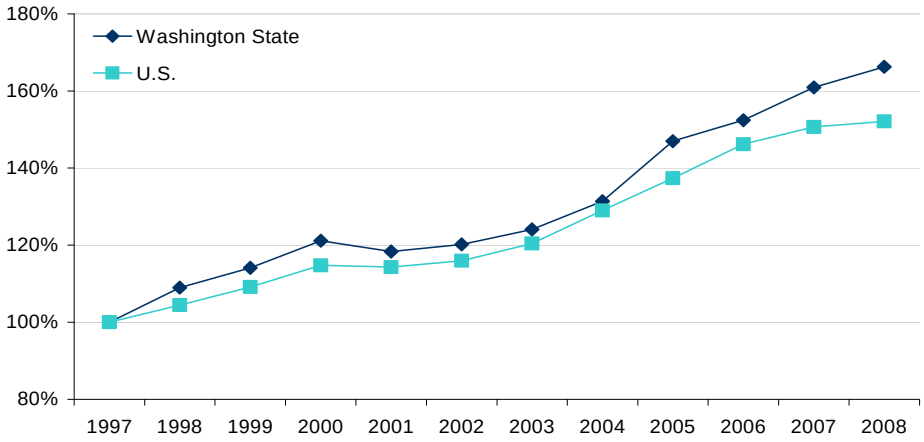
The economic growth of many sectors of the state economy is dependent on freight. Most of these freight-dependent sectors at some point depend on the rail system within the state to move their goods. The growth of freight dependent sectors in the state is faster than that of the U.S. (Exhibits 4-18 and 4-19).

Exhibit 4-17: Container Traffic Through Puget Sound Ports 1998–2008 (1000 TEUs)



Source: Port of Seattle and Port of Tacoma

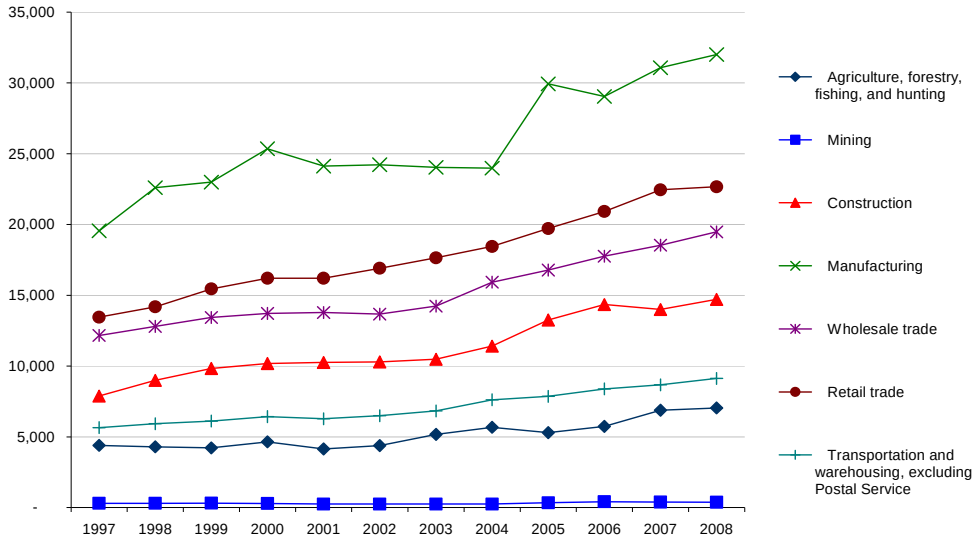
Exhibit 4-18: GDP Growth of Freight-Dependent Sectors – Washington State vs. United States, 1997 to 2008



Note: Freight-dependent sectors include agriculture, mining, construction, manufacturing, wholesale, retail and transportation, and warehousing.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Exhibit 4-19: GDP Growth by Freight-Dependent Sectors – Washington State 1997 to 2008 ($ Million)



Source: U.S. Bureau of Economic Analysis

Future Demand – Washington State Rail Forecast

Sources

Future demand of rail freight services are assessed based on five main studies (Appendix 4):

- Washington State Transportation Commission (WSTC): *Statewide Rail Capacity and System Needs Study – Freight Transportation Demand Forecasts* (2006).
- USDOT Federal Highway Administration: *2007 Updates of Freight Analysis Framework Forecast*.
- WSDOT/WPPA: *2009 Washington State Marine Cargo Forecast*.
- U.S. STB: *2007 Rail Waybill Sample Data*.
- American Association of State Highway and Transportation Officials (AASHTO): *Freight Demand and Logistic Bottom Line Report* (Draft), 2006.

Methodology and Forecasts

The WSDOT State Rail and Marine Office adopted the forecast results from the above sources. For rail mode related forecasts, 2007 Waybill data are used as a base for projections, since data for 2008 was not available at the time of forecasting.

However, the 2008 and 2009 recession has had profound impacts on the U.S. and world economies and many effects are likely to take many years

to understand. Therefore, the results of the forecasts in this plan could be slightly optimistic from a long-term forecast perspective. The forecasts will be updated as necessary as the data for 2008 and 2009 become available.

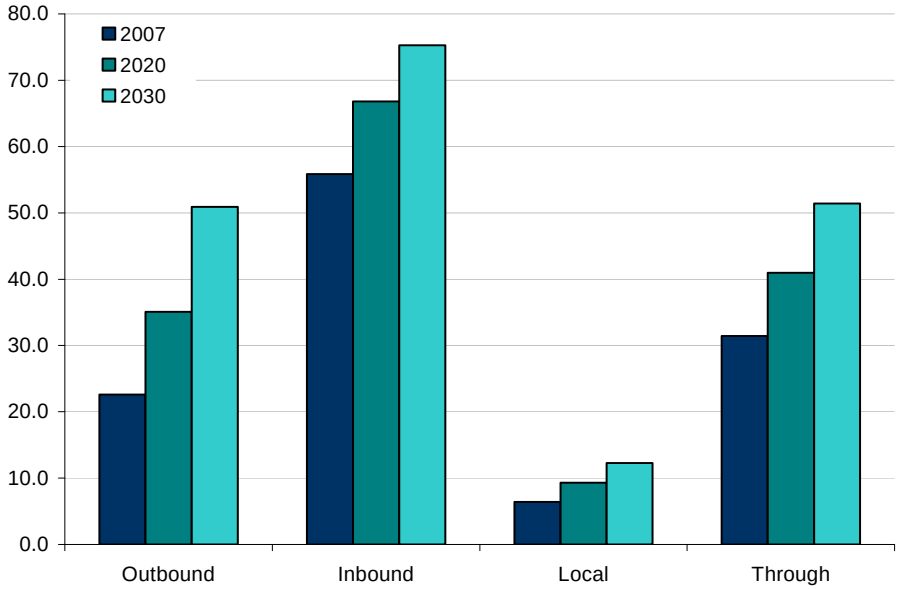
While the most recent recession data for freight is not available and therefore not incorporated into most of the analytical models, the sources used for the forecasts are long-term data. Historical data used in those models reflect the effects of previous recessions. In addition, while the economy went into recession in 2008, state port-related imports and exports started to decline in 2007. Rail traffic in 2007 was not as strong as the economy itself in that year. Therefore, the correction factor of this recession to the forecast results may not be dramatic, but could be significant when the data are incorporated into the long-term trends.

Summary of Rail Freight Forecast

The state's mainline freight rail demand can expect continued growth over the next 10 to 20 years. The railroads are expected to need to move more than 152.1 million domestic tons of freight in 2020, up from 116.3 million in 2007, a 2.1 percent compound annual growth rate. In 2030, it is projected that there will be close to 189.9 million tons needing to be moved, a 2.2 percent annual growth over the 10 years from 2020 to 2030, and a steady 2.2 percent growth rate over the 23 years between 2007 and 2030. Exhibit 4-20 shows the growth of rail tonnage in the forecast years. While local and inbound traffic continue to grow, they will slow to slightly lower levels of growth from 2020 to 2030 compared to 2007 to 2020 growth levels. Outbound and through traffic will both grow at higher rates in the more distant future as compared to the next 10 years.

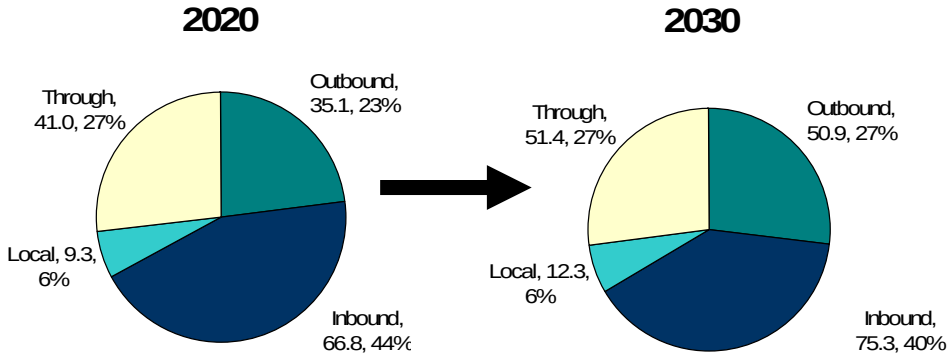
Exhibit 4-21 shows the projected distribution of the inbound, outbound, through, and local shares of the state's total freight rail tonnage for both forecast years of 2020 and 2030. Of all shares, outbound traffic is projected to continue to grow the most between 2020 and 2030, growing from 23 percent to 27 percent between 2007 and 2020, and expanding to 35 million tons. Local and through traffic is projected to continue to maintain approximately 6 percent and 27 percent of the tonnage, respectively, over the next 10 and 20 years. Inbound traffic is projected to encompass a smaller percent of the traffic, as it will claim 44 percent of the tonnage in 2020 and only 40 percent in 2030.

Exhibit 4-20: Washington State Rail Freight 2007, 2020, and 2030 (Million Tons)



Source: WSDOT State Rail and Marine Office

Exhibit 4-21: Rail Freight Distribution (Million Tons)



Source: WSDOT State Rail and Marine Office

The distribution of traffic tonnage by commodity through the forecast years is shown in Exhibit 4-22. Farm products shipped by rail are projected to continue to be a significant tonnage commodity group, growing to more than 64.7 million tons in 2030, up from 36.1 million tons in 2007. Miscellaneous mixed shipments, primarily in the form of imports, are projected to increase from 11.9 million tons in 2007 to 14.3 million in 2020 and 17.6 million in 2030.

Exhibit 4-22: Projected Rail Freight Growth of Top 10 Commodities – Washington 2007-2030 (Million Tons)

Commodity	Year					
	2007	2010	2015	2020	2025	2030
Farm products	36.1	38.8	42.8	48.1	55.2	64.7
Lumber or wood products, excluding furniture	12.9	12.8	12.0	11.2	10.2	9.2
Miscellaneous mixed shipments	11.9	12.6	13.4	14.3	16.0	17.6
Coal	10.6	11.0	12.7	14.8	17.1	19.9
Food and kindred products	7.3	7.2	7.9	9.3	11.0	13.2
Chemicals or allied products	6.8	7.8	8.2	8.7	9.1	9.5
Waste or scrap materials not identified by producing industry	5.1	5.1	5.8	6.6	7.6	8.9
Pulp, paper, or allied products	4.1	4.1	4.2	4.2	4.2	4.3
Clay, concrete, glass, or stone products	3.1	3.4	3.9	4.5	5.1	6.0
Transportation equipment	2.5	2.5	2.3	2.3	2.5	2.8
State Total	**116.3**	**122.2**	**131.9**	**145.7**	**161.9**	**183.0**

Source: WSDOT State Rail and Marine Office - Analysis and forecast based on FHWA Freight Analysis Framework Data and 2007 Surface Transportation Board Waybill data.

2009 Marine Cargo Forecast

In 2009 the WPPA and WSDOT jointly conducted a 5-year update of the *2004 Marine Cargo Forecast*. These two organizations have been providing joint cargo forecasts since 1985. The purpose is to assess the expected flow of waterborne cargo through the state port system and to evaluate the distribution of cargo through the rest of the state's transportation network. The current report is a 20-year forecast of trade (2008 to 2030) moving through the state by water, rail, roads, and current capacity of transportation infrastructure.

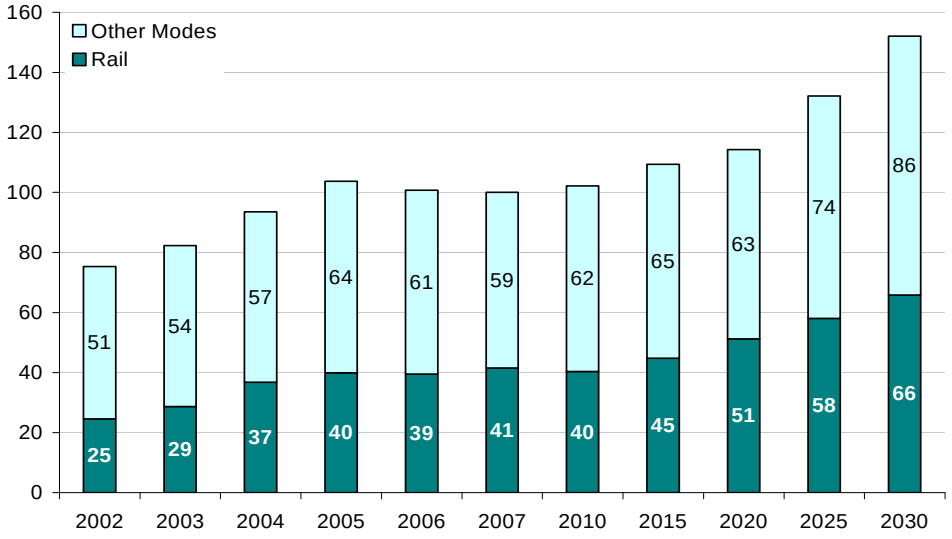
The Marine Cargo study found that rail freight is likely to play an increasingly important role in marine cargo movement. As Exhibit 4-23 and Exhibit 4-24 demonstrate, rail freight demand is expected to account for a larger share of marine cargo movement in the future, due to a higher growth rate than other modes over the forecast period.

Three factors drive increased marine cargo growth. First, U.S. consumption increases as population and living standards increase.

Second, economic globalization makes countries more specialized in production to achieve efficiency. As a result of this globalization, exports and imports increase. Last, containerization of the transportation industry generates more intermodal traffic that demands rail services.

However, the recent economic recession is likely to have impacts on long-term growth potential. Forecast results presented in this section, which did not include the data of this severe recession, are likely to be optimistic. This plan will be updated as the new data and forecast results become available.

Exhibit 4-23: Marine Cargo Trends – Rail vs. Other Modes 2002 to 2030 (Million Tons)

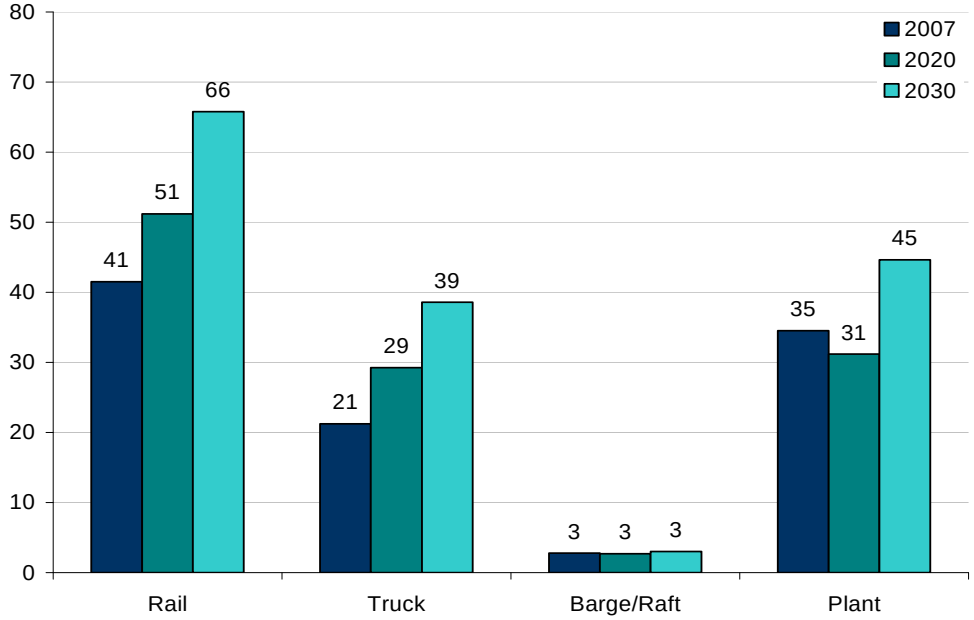


Source: 2009 WPPA/WSDOT Marine Cargo Forecast

Findings identified by the 2009 Marine Cargo Forecast are as follows:

- State public ports have experienced strong and steady growth during the past quarter of a century. State ports have experienced the following increases over the last 16 years:
  - Almost all cargo types have shown substantial gains, with the exception of timber.
  - Cargo volumes at deep water ports have tripled.
  - Containerized cargo has increased 500 percent.
- The study suggests that strong growth can be anticipated into the future. The state's waterborne commerce is expected to grow at slightly less than 2 percent per year through 2030. Growth is anticipated within all cargo categories, although it will vary by commodity type.

Exhibit 4-24: Marine Cargo Port Modal Distribution
Washington State 2007, 2020, and 2030 (Million Tons)



Source: 2009 WPPA/WSDOT Marine Cargo Forecast

Highlights of the forecast include the following:

- **Containers are projected to continue to be the fastest growing cargo type.** State ports can expect continued competition, but the growth opportunities are projected to remain positive for the next 20 years. Container traffic grew from nearly 2.9 million TEUs in 2002 to nearly 3.9 million TEUs in 2007. Puget Sound containerized trade is projected to grow by an average of 4.1 percent per year in the forecast period, reaching 9.7 million TEUs in 2030, given the three drivers (population growth, globalization, and containerization) explained in the previous section.
- **Auto imports will experience rapid growth.** Auto imports are expected to more than double from 690,000 units in 2007 to approximately 1.5 million units in 2030. Competitive rail service will be essential to meeting this demand, as three quarters of auto imports currently move to inland locations by rail.
- **Log exports will level off.** After decades of decline, log exports are expected to level off and remain flat through the forecast period. The loss of log exports has affected many ports, which have responded with successful diversification programs. Many have found niche opportunities, such as importing wind energy equipment.

- **Break-bulk cargo volumes will grow slowly.**[17] Metal, forest products, and other break-bulk cargo will grow slowly due to containerization and structural changes in the industries that produce these cargoes. Much of the expansion will occur as ports diversify. As a result, break-bulk traffic through state ports is projected to grow from 2.3 million metric tons in 2007 to around 3.0 million metric tons in 2030.
- **Grain shipments will expand moderately.** After increasing substantially in recent years, grain shipments are likely to grow modestly in the face of significant domestic and international competition, maximum yields per acre, and maximum acres in production.
- **Dry bulk trends will continue.** Some stalwart cargoes (such as bauxite) have decreased while others (such as petroleum coke) have increased. These trends will continue.
- **Liquid bulk will shift from domestic to foreign.** Both crude oil and petroleum product imports will shift from domestic to foreign sources as Alaskan production tapers off.

Update on National Trends

The demand for freight rail services will grow because the rail freight is driven by three factors (population growth, globalization, and containerization). Assuming moderate rates of economic growth, the tonnage of freight moved in the U.S. is likely to increase three quarters in 30 years (2006 to 2035) (Exhibit 4-25). This rate of growth is about the same as the last 20 years and roughly tracks growth in the U.S. Gross Domestic Product. The following section first looks at the projected growth in the demand for freight traffic (both total and for rail) and then discusses the rail industry response to this demand growth.

The growth in freight tonnage is expected to continue at 2.5 percent to 3 percent per year at least through 2035. The demand for freight rail services is projected to increase by a total of 73 percent based on tons through 2035, assuming continued investment in the rail system to handle growth. Despite this, the rail share of national freight shipments is shrinking slightly. By 2035 rail's share of total freight tonnage is expected to decline from 9.7 percent to 9.5 percent, and rail's share of value could decline from 2.9 percent to 2.8 percent. Exhibit 4-26 shows freight modal distribution in 2006 and 2035.

[17] Break-bulk cargo is cargo that is too big or too heavy to fit into a container or traditionally cannot be vacuumed out of a ship.

Exhibit 4-25: U.S. Shipments by Mode – 2006 and 2035 (Millions of Tons)

Mode	2006				2035			
	Total	Domestic	Exports[3]	Imports[3]	Total	Domestic	Exports[3]	Imports[3]
Total	20,974	18,985	620	1,369	(R) 37,212	33,668	(R) 1,112	(R) 2,432
Truck	12,659	12,389	169	101	22,814	22,231	262	320
Rail	2,040	1,905	41	95	3,525	3,292	57	176
Water	688	582	48	58	1,041	874	114	54
Air, air & truck	15	5	4	6	(R) 61	10	(R) 13	(R) 38
Intermodal[1]	1,503	194	353	956	2,598	334	660	1,604
Pipeline & unknown[2]	4,068	3,909	6	153	7,172	6,926	5	240

[1] Intermodal includes U.S. Postal Service and courier shipments and all intermodal combinations, except air and truck.

[2] Pipeline and unknown shipments are combined because data on region-to-region flows by pipeline are statistically uncertain.

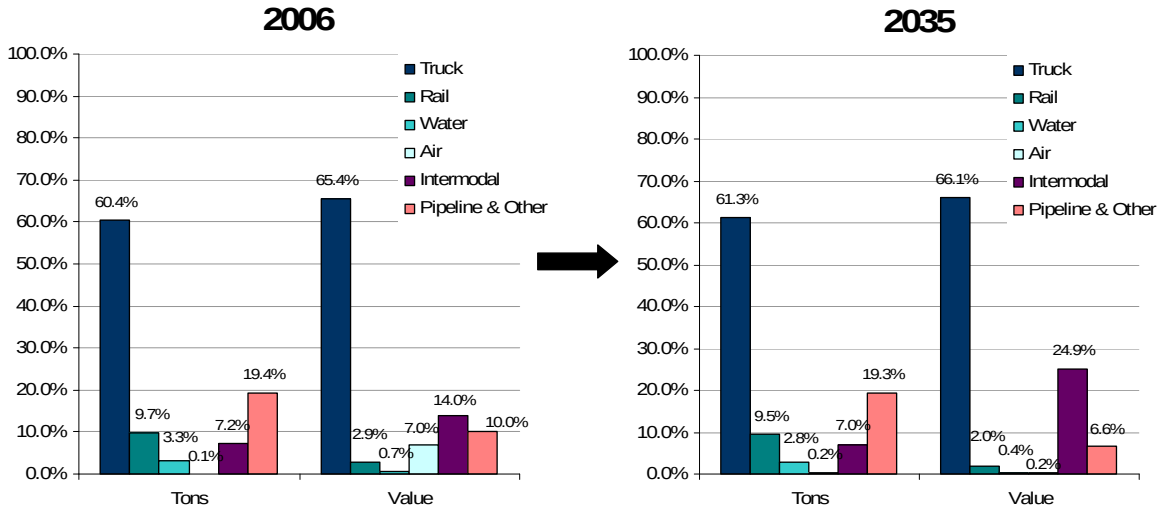
[3] Data do not include imports and exports that pass through the U.S. from a foreign origin to a foreign destination by any mode.

(R) Revised

Note: Numbers may not add to total due to rounding.

Source: USDOT, FHWA, Office of Freight Management and Operations, FAF, Version 2.2, 2007

Exhibit 4-26: U.S. Freight Tons and Value by Mode, 2006 and 2035



Source: USDOT FHWA, FAF, 2007

Rail market share is also shrinking in part because of structural changes in the economy. The U.S. is producing and shipping more value-added products and fewer heavy manufactured goods. Freight shipments are

lighter, less bulky, and higher in value, making them better suited to highway container transport or truck than rail. This trend is expected to continue, with the value per ton going up over the next decade, suggesting more growth in high-value commodities than low-value commodities and more demand for trucking services.

Rail market share also may be shrinking because of the slow pace of rail investment. The industry is purposefully operating near capacity because of its capital intensity, and it is using demand management as well as investment to respond to traffic volumes. This means that some customers are not well served by the market. Railroads, like all private industry, will continue to make capital decisions based on private financial returns, and public benefits will be just an incidental part of the decision unless public capital plays a role. Demand for rail transportation is driven by the commodity markets it serves, as well as by carrier performance. Almost three-quarters of the current national rail tonnage and revenue come from four market groups: coal, farm and food products, chemicals and petroleum, and the intermodal business (listing them in order of tonnage size). Some 40 percent of the physical volume is in coal alone, but the revenue picture is different and more balanced: intermodal and coal each comprise about 20 percent of the revenue (with intermodal somewhat the larger), while the farm and food group and the chemicals and petroleum group comprise about 15 percent each. Roughly 60 percent of all new rail tonnage is attributable to coal and intermodal, and although the top four markets remain the same, by 2035 intermodal should be second only to coal in terms of physical volume, and will be substantially the most important source of rail revenue. The intermodal business is projected to maintain a 3.8 percent compound annual growth rate over the next three decades, causing it to more than triple in size, primarily because of its role in carrying containerized imports for the globalizing economy. Traffic in transportation equipment will also grow at an above-average pace, expanding by 2.6 percent per year and more than doubling in volume by 2035. This business is chiefly automotive products.

Bulk services are dedicated unit trains hauling a single bulk commodity, such as coal or grain. Intermodal services, as defined by the rail industry, are trains hauling international and domestic containers and trailers. All other rail freight, such as chemicals, forest products, and automobiles, move as general merchandise. The long-term prospects of national growth for selected rail commodities through the year 2035 are:[18]

- **Coal** – Rail should remain its primary mode of transport, with a 62 percent cumulative growth in national rail tonnage by 2035.

[18] Forecasts developed by Global Insight and obtained from the AASHTO Freight Demand and Logistic Bottom Line Report (Draft), 2006

- **Farm and Food Products** – Modest growth of slightly less than 1 percent per year, with cumulative growth in 2035 projected to be 21 percent larger than today.
- **Chemical and Petroleum** – Slow growth of less than 1 percent per year and accumulating to a 27 percent increase by 2035.
- **Lumber and Forest Products** – Slow growth around or just above 1 percent per year, and a total increase in rail shipments of 40 percent to 49 percent by 2035.
- **Transportation Equipment** (Automobiles) – Solid growth of 123 percent in tonnage through 2035.
- **Intermodal** – Prospects for rail intermodal business are robust, with tonnage volumes rising 213 percent by 2035.

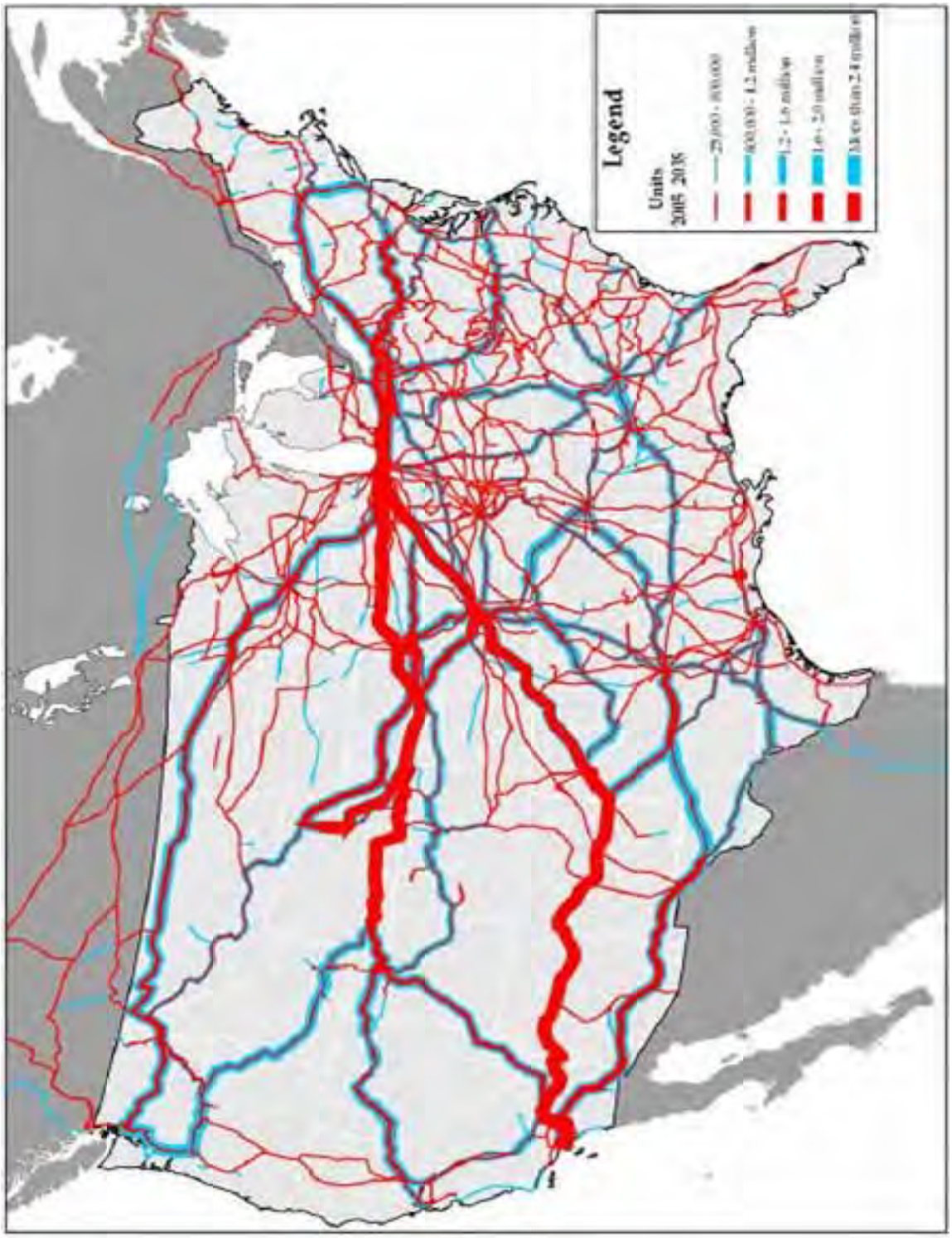
Exhibit 4-27 demonstrates the projected growth demand for rail in the U.S. between 2005 and 2035. More capacity will have to be developed in the rail network in this state. This topic will further be explored in Chapter 5.

Impacts of Freight Rail on Society

All transportation modes (motor vehicles, rail, air, barge, and so on) produce externalities—unintended consequences or indirect effects that are created by some activity. The costs associated with these externalities are not directly charged to any specific individual, but are borne by society as a whole. The negative health impacts associated with air pollution are a classic example of such an externality. Although travel by air, car, or rail creates air pollution impacts, riders, in general, are not charged for their contribution to decreasing air quality. How are these externalities assessed to society? This can be explained by a classic theory in benefit/cost analysis or project investment analysis—with or without analysis—as shown in Exhibit 4-28.

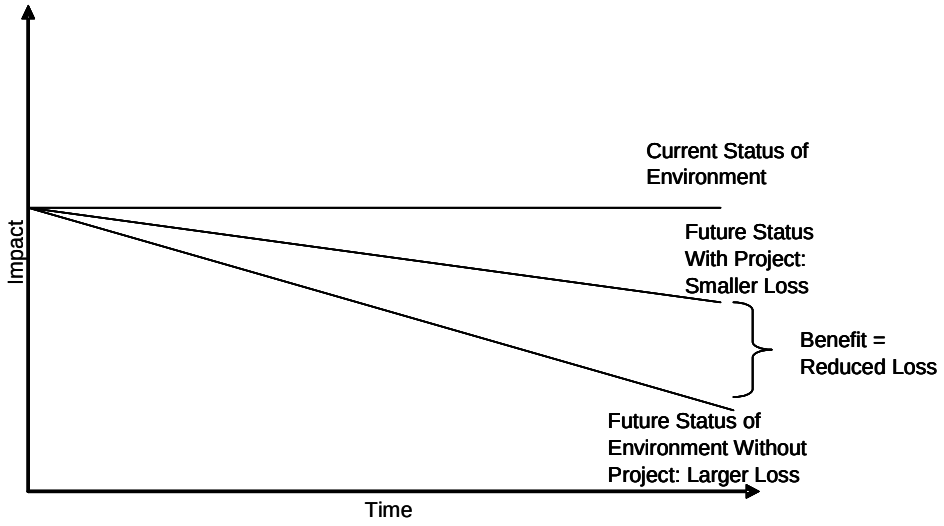
As the chart shows, pollution is likely to increase over time because of current practices. With a project that could lead to less pollution created, society gets benefits by having fewer negative impacts. The reduction in cost of loss would be the benefits of the project invested. This principle applies to freight rail investment. In general, rail has less negative impacts on society. Since rail generates fewer emissions per ton-mile, using rail as an option to ship heavy goods helps reduce pollution. This emission reduction would be the benefit of investment in freight rail.

Exhibit 4-27: Comparison of Total Rail Flow Railcars per Year – 2005 and 2035



Source: AASHTO Freight Demand and Logistic Bottom Line Report (Draft), 2006

Exhibit 4-28: Principle of With/Without Analysis



There are multiple benefits associated with freight rail. The magnitude of benefits received by the people of this state depends on how freight rail will be integrated into the policies. These policies should embrace integrated solutions for interconnected problems. In general freight rail has been identified by many studies to have four categories of societal impacts: transportation benefits; economic impacts; safety, energy, and environmental impacts; and land use impacts.

Transportation Benefits

Low Shipping Costs

Rail provides shippers of heavy materials or large volumes of materials with a transportation option that can be significantly cost effective. Depending on the density of the commodity, one railcar may move the same weight or volume as four or five trucks. For such shippers, rail is usually the low-cost option, and rail rates have been dropping. On average, it costs 29 percent less to move freight by rail today than in 1981, adjusted for inflation. The associated cost savings (in the billions of dollars annually) are vital to the viability of these businesses. The availability of rail service can be an important factor for states and municipalities interested in retaining and attracting these types of businesses. Availability of freight rail can improve the competitiveness of our economy by reducing overall shipping costs.

Intermodal Connectivity and International Trade

Freight-rail service provides a critical link in the nation's intermodal freight transportation system, serving the trucking and maritime shipping industries, and supporting the nation's international trade and global competitiveness. The rail and trucking industries are competitors, but they are also partners. Unless a rail move is "door-to-door," it begins or ends

with a truck move. This could involve the transfer of an intermodal container or the transfer of bulk and carload commodities via transload or transflow operations. Rail and trucking companies are partnering to provide integrated door-to-door intermodal services that optimize the relative strengths and efficiencies of each mode.

Congestion Relief

As the economy and population continue to grow, freeway traffic congestion problems, particularly in the I-5 corridor, will increase. Freight rail can help share some incremental demand, which otherwise would be picked up by trucks. However, the substitutability between highway freight and rail freight is limited. The potential of freight rail as part of the solution for congestion needs further examination.

Transportation Choice

Freight rail provides shippers another transportation option, especially for long-distance and intermodal shipping.

Economic Benefits

Supports Local Communities

Freight rail construction projects bring jobs and revenue to local communities and businesses.

Supports Economic Viability

Freight rail that serves an underserved market can help maintain economic viability of local economies.

Generates Tax Revenues for Public Programs

Rail supports growth of many businesses in various industries that pay business taxes to governments.

Safety, Energy, and Environmental Benefits

Public Safety

Rail transportation has a strong safety record with a lower national accident fatality rate. Freight rail provides an option for policymakers who would like to improve public safety.[19]

Energy Benefit

Freight rail is much more efficient than airplanes and motor vehicles in terms of energy use per ton hauled. Increasing rail capacity will reduce

[19] Government statistics show that freight rail is safer in terms of both fatality and injuries. See Texas Transportation Institute: A Modal comparison of domestic freight transportation effects on the general public. 2007.

the growth of other energy-inefficient modes and help tackle the energy dependence problems.

Pollution Reduction

Emission reduction is an important environmental issue facing transportation operators. The environment plays a fundamental role in determining quality of life and economic well-being for state citizens. The level of released toxic substances and greenhouse gas emissions for freight rail is low.[20] Increasing the use of rail for long-haul freight is an option that would help reduce environmental pollution.

Land Use and Community Impacts

Rail helps reduce land use impacts because it uses less right of way than highway for the same carrying capacity. It also requires less land for yards than the trucking industry based on per ton-mile freight. Rail also releases fewer harmful substances into the environment.

State land use planning authority primarily resides within local government. WSDOT, local governments, and regional governments have a shared responsibility to enhance the quality of life and economic vitality for all state residents while providing a safe and efficient transportation network. Because land use decisions and patterns of land development can significantly influence the safety and efficiency of the transportation system, local government land use decisions, both individually and collectively, are matters of critical importance to WSDOT and freight owners. The Growth Management Act, the Shorelines Management Act, and the State Environmental Policy Act provide WSDOT with opportunities to coordinate and communicate with local governments as they draft plans and regulations that may affect the state transportation system. These acts ensure the needs of both the communities and the freight owners are met.

[20] AASHTO: Railroads provide significant environmental benefits. The U.S. Environmental Protection Agency estimates that for every ton-mile, a typical truck emits roughly three times more nitrogen oxides and particulates than a locomotive. Related studies suggest that trucks emit six to 12 times more pollutants per ton-mile than do railroads, depending on the pollutant measured. According to the American Society of Mechanical Engineers, 2.5 million fewer tons of carbon dioxide would be emitted into the air annually if 10 percent of intercity freight now moving by highway were shifted to rail.

Washington State
Department of Transportation

Chapter 5: The Changing Rail System – Issue Discussion and Needs Assessment

Overview of Issues and Needs Assessment

This section presents short- and long-term freight rail needs in Washington State (state). The assessment is based on data provided directly by the state's freight railroads, ports, public agencies, and other key stakeholders. In total, this needs assessment identifies 109 short- and long-term capital improvement projects and other initiatives. Several freight rail needs have been included in this total, even though they have not progressed to the point of having full solutions and cost estimates. The total cost for the projects, where cost estimates are available, is $2.0 billion.[1]

Key Issues

The key issues addressed in this section are rail system needs, abandonment, port access and competitive needs of the ports, intermodal connectors, and emerging issues and data needs. Each of these topics is described in detail in this chapter.

Purpose of the Needs Assessment

The primary purpose of the needs assessment is to develop a reasonably comprehensive list of necessary or desired freight rail improvements. This list will allow the Washington State Department of Transportation (WSDOT) to gauge the condition of the system and assess potential public involvement. Railroad needs, for the purposes of this rail plan, are restricted to capital needs and do not include operating expenses or subsidies. A need for this plan is defined as a need regardless of whether it is privately- or publicly-funded or remains unfunded. Thus, the needs included in this assessment should be considered "unconstrained" needs and not a funding commitment.

WSDOT will review and evaluate these needs when determining appropriate levels of public support for a project. Inclusion of a need in the *Washington State 2010-2030 Freight Rail Plan* does not constitute a commitment on the part of WSDOT or the state to provide funding. As comprehensive as this plan attempts to be, it must be noted that this document does not include all freight rail needs.

[1] Twenty-one projects did not report a cost for their project.

The freight railroads are private, for-profit businesses and in some cases did not submit all their capital needs for inclusion in this public document. This is especially true in cases where private capital is available to fully fund planned improvements. Traditionally, railroads are less likely to submit projects where the railroads believe that public involvement in specific projects is less likely or where disclosure of a need could adversely affect their strategic business ventures. Therefore, the needs that are listed in this section are only those projects that have been specifically submitted for inclusion in this list of projects.

Methodology

WSDOT compiled a list of needs for the state's freight rail system from prior studies, a survey, and a set of interviews and reviews with key stakeholders. Specifically, the freight railroads, the ports, and other stakeholders were engaged in this effort. The needs range from well developed plans that have been through a full planning and design process, to new concepts, to a wish list of projects. This is why not all projects have full information in the list contained in Appendix 8-A. The only restrictions on the needs submitted for inclusion in the list were:

- The needs focus on freight rail projects, since passenger rail needs continue to be identified in other studies. Although some passenger rail needs were included, especially when they also impact freight operations, this list should not be considered a comprehensive list of passenger rail needs.
- The needs focus on projects that improve the movement of rail freight. For example, improvement of a road-rail grade crossing to help mitigate highway congestion is not a freight rail need; it is generally classified as a safety issue.
- The needs focus on capital improvements, and do not include operating expenses for the freight railroads. The freight rail system is dynamic and driven by customer demands and trends.

Therefore, needs continually change. The needs in this plan are current through October 2009, and were assembled with the procedure outlined in Exhibit 5-1 below.

Exhibit 5-1: Procedure for Collecting Freight Rail Needs

Timeframe	Activity
June 2009	Held initial stakeholder meeting.
August 2009	Requested railroads, ports, and other stakeholders fill out survey of needs.
September 2009	Conducted initial in-person interviews with some of the railroads and ports.
October 2009	Reviewed the list of needs for duplicates and incomplete information. Followed up with reminder telephone calls and clarified any questions.
November 2009	Sent out to the railroads, ports, and stakeholders for final review, and conducted final round of follow-up questions as necessary.

Rail Abandonments: Recent, Proposed, and At-Risk Lines

Abandoned Rail Lines

Current Abandoned Lines

Exhibit 5-2 shows the abandoned rail lines 1998 and before, and the current abandoned rail lines (1999 to 2009) in the state.

As of the *Washington State Freight Rail Plan 1998 Update*, there had been a total of 1,975 miles of rail lines (132 segments) abandoned from 1953 to 1998. Since 1998 there has been an additional 70.23 miles abandoned. A list of abandonments from 1953 to 2009 can be found in Appendix 5-A.

This state has one of the best state rail preservation and development programs in the country. The state has invested $99 million in its rail freight infrastructure since 1980. An additional $35 million in investment is anticipated from 2010 to 2012 (see Exhibit 5-3).

These investments include the Freight Rail Assistance Program ($6 million 2007-2011) and Freight Rail Investment Bank Program (Rail Bank) loans. The Rail Bank has $7.5 million in funding available from 2007-2011, with a maximum loan of $250,000. All of these investments have been in regional and small railroads, in recognition of the fact that these railroads are a vital component of the state's transportation system and economic well-being.

Exhibit 5-2: Abandoned Rail Lines

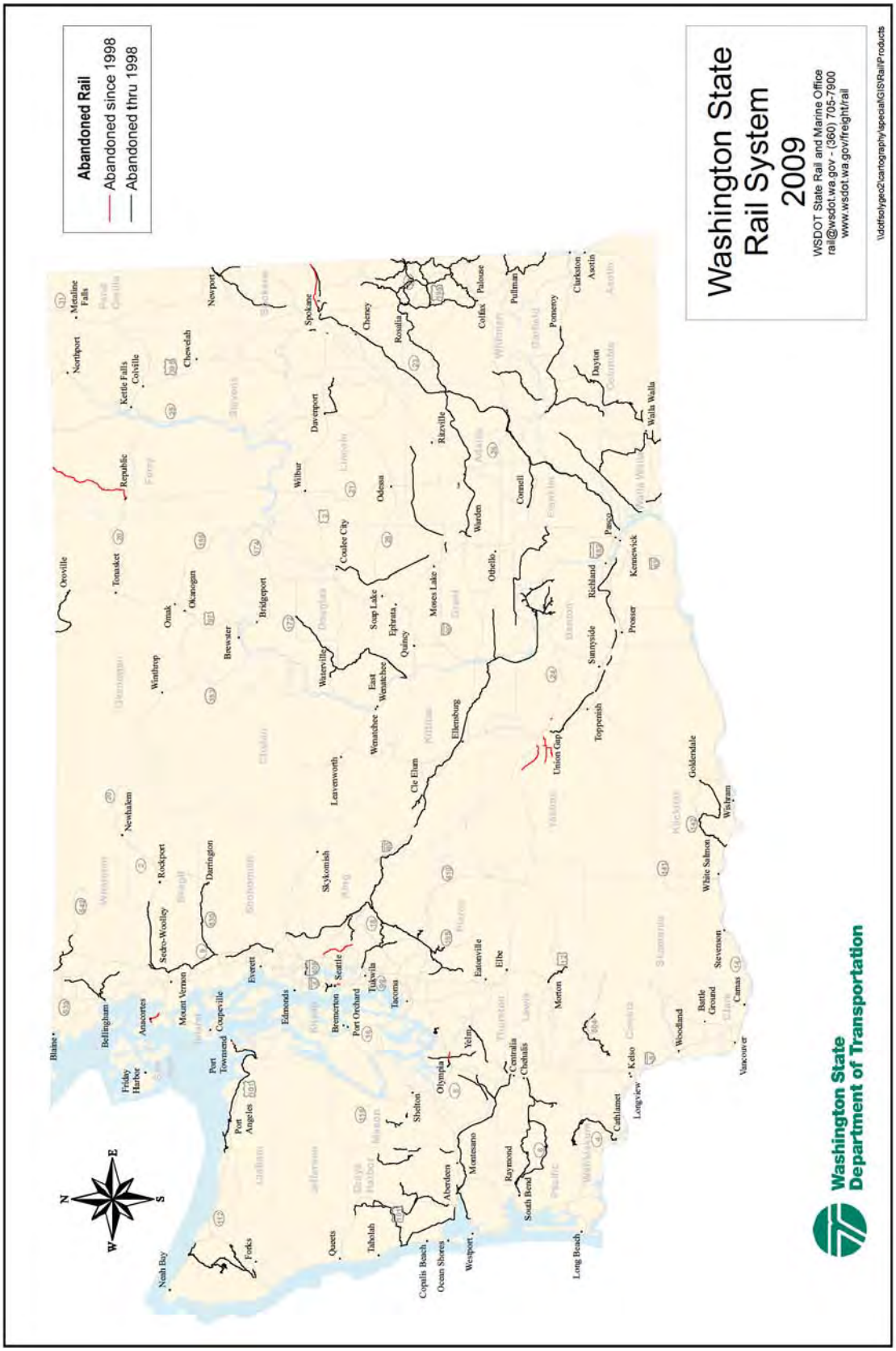
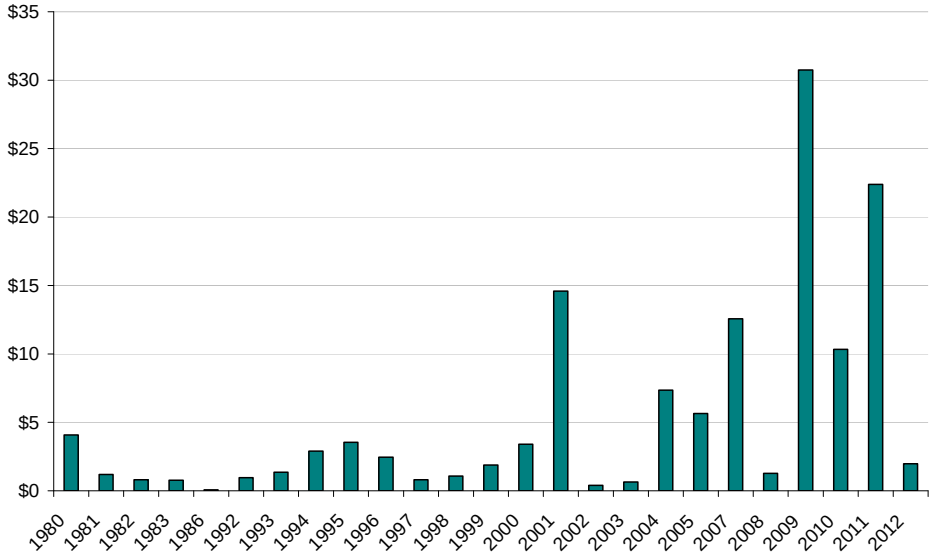


Exhibit 5-3: Washington Rail Investments ($ Millions)



Source: WSDOT State Rail and Marine Office

Rail abandonments have been widespread in the United States (U.S.) since the passage of the national railroad reform legislation, ending most federal regulation of railroads, over 20 years ago. Given a greater opportunity to control costs and generate revenues, Class I railroads sold, abandoned, or leased their less profitable lines. This proved to be an opportunity for others; a great many short-line railroads were formed to operate lines divested by Class I railroads. In other cases, rail lines were abandoned and the real estate was used for other purposes.

The state's rail abandonment program is assisted by the federal government through the Local Rail Freight Assistance program. The state has been one of several states that has worked to preserve rail infrastructure. This program has preserved and developed rail lines that would otherwise have been abandoned. This has been very important in meeting present and future transportation needs.

Many of the short lines around the nation and in the state were created from branch or light density lines of the larger Class I railroads. These lines were either abandoned or sold by the Class I railroads during their industry restructuring of the 1980s and 1990s. Most of the lines sold through the abandonment process by Class I railroads were in poor[2] physical condition at the time of abandonment. Many of these branch lines have sections of lighter rail than is necessary for today's new railcar load limits and weight-restricted bridges.

[2] Poor physical condition is track that is in disrepair from wear and tear or has deteriorated due to lack of maintenance.

As illustrated in Exhibit 3-5 in Chapter 3, there are 19 active short-line railroads operating in the state. The majority of these railroads operate on light density lines that were divested by the Class I (mainline) railroads. They are located throughout the state and play a critical role in moving a wide variety of products, including agricultural products, frozen foods, lumber, gravel, and petroleum products. Often locally-owned and operated, many short-line railroads in the state keep hundreds of small businesses and communities connected to the national mainline rail system.

Many of these branch lines were sold by the Class I railroads because they could not make a profit operating these light density lines. Nearly every short-line railroad began its existence with track that had received little investment under previous owners. Whether they are municipally or privately held, many short lines are in need of infrastructure funding for rehabilitation or improvement.

These existing lines present an opportunity to the state. In many cases, improvements for the state's short lines involve upgrades to existing infrastructure, rather than capacity expansion projects that involve more significant environmental issues. They should therefore be able to move more readily from planning to construction. A review of the most recent WSDOT short-line funding proposals indicates that most of these projects involve improvements to existing infrastructure. In many cases these improvements involve increasing track capacity maximums from 263,000 pounds per car to 286,000 pounds per car to meet Class I railroad requirements. Upgrading track to handle the heavier cars may make economic sense, if it results in an increase in the amount of traffic on a line. However, if cargo volumes remain the same, but the number of carloads decreases due to the heavier loading, the benefit is less clear. This is especially the case if the contract between the short-line operator and the Class I railroad is on a per-car basis, in which case the reduced number of cars would result in reduced revenue. Some short lines are more successful than others, and the viability of each depends on its own particular circumstances. Those short lines that have faced ongoing problems with cash flow and capital for infrastructure improvements are the ones most at risk. WSDOT has been able to assist many of the short lines with project funding, but these infrastructure investments may not be sufficient to make each short line economically viable. However, even if lines are marginal, there may be a compelling state interest in supporting these lines in order to reduce truck traffic or to maintain jobs, among other reasons that serve the public interest.

To determine future potential abandonments, the WSDOT State Rail and Marine Office surveyed the rail industry with the results below in Exhibit 5-4. The exhibit shows the results of the survey taken in summer

2009, which reported that there are four potential future abandonments and one anticipated re-opening.

Exhibit 5-4: Abandonment Survey List – Likely Abandonments

Submitted by	Railroad Owner	Railroad Operator	Location
Port of Grays Harbor	PSAP	PSAP	West of Hoquiam River
Port of Othello	State of WA/ Columbia Basin RR	Closed	Reopen Milwaukee Line
Port of Seattle	BNSF	BNSF	Eastside Line: Woodinville/Renton and Woodinville/ Redmond
Union Pacific	UP	None	Yakima Industrial Lead, MP 57.3 to MP 58.75
Union Pacific	UP	None	Yakima Industrial Lead, MP 62.75 to MP 63.55

Projection of Future Abandonments and Their Impacts, Capacity, and Needs Forecasts

When a rail line is abandoned, it is critical that the integrity of the right of way be maintained. If an abandoned line ends up parceled off piece by piece, it would be extremely difficult, if not impossible, to reconstruct the line for a future transportation use. Given the limited opportunity to expand the highway system, an abandoned railroad right of way represents an extremely valuable transportation resource.

As a result of the decrease in route miles, many of the state's communities no longer have access to rail service. To counter that trend and support economic development initiatives of the state, the WSDOT State Rail and Marine Office has implemented a rail line preservation initiative to retain the potential of rail service along these abandoned routes.

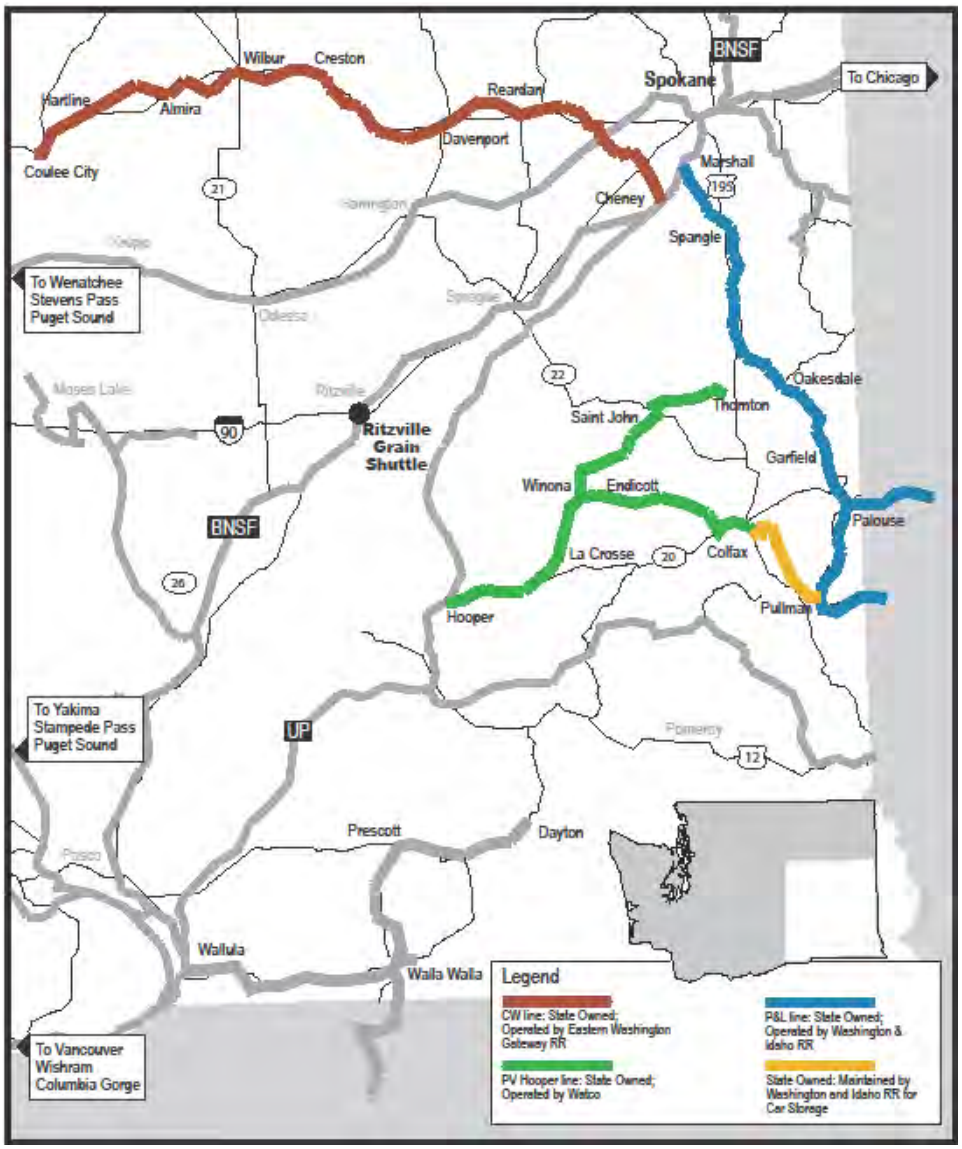
Examples of Successes

Purchase of the Palouse River and Coulee City Rail System

The state currently owns the former Palouse River and Coulee City Rail System, which consists of three branches (see Exhibit 5-5). WSDOT purchased the rights of way and rail on the P&L Branch and PV Hooper Branch of the rail system in November 2004. WSDOT purchased the CW Branch and the remaining rights in the other two branches in May 2007.

WSDOT contracted with private railroads to operate each of the branches. The Palouse River and Coulee City Railroad operates the PV Hooper Branch; the Eastern Washington Gateway Railroad operates the CW Branch; and the Washington and Idaho Railway operates the P&L Branch.

Exhibit 5-5: Palouse River and Coulee City Rail System



WSDOT oversees the facilities and regulatory portions of the operating leases. The Palouse River and Coulee City Rail Authority (an intergovernmental entity formed by Grant, Lincoln, Spokane, and Whitman Counties) oversees the business and economic development portions of the operating leases.

The Palouse River and Coulee City Rail System currently provides local rail service to grain shippers and other businesses in Whitman, Lincoln,

Grant, and Spokane Counties. The three lines require rehabilitation to remain commercially viable.

Public ownership of the Palouse River and Coulee City Rail System capital assets provides an opportunity for private operators to provide economically viable rail service to shippers along the lines. Rehabilitation is needed to correct the effects of decades of deferred maintenance. Many places along the lines must be operated at a speed lower than would be allowed if the lines had been properly maintained on an ongoing basis. Rehabilitation will prevent further deterioration, help raise operating speeds in some locations, and make the operation of the lines more efficient and commercially viable.

Rail Banking

Rail banking is used by the state when the state has an interest in retaining rail lines that have been abandoned, should they become economically viable at a future date. If it appears that a line could become economically viable within ten years, the line may be rail banked or purchased by the state to prevent its loss as a rail corridor. A rail banked line may be used as a trail on an interim basis. Maintenance or other changes on a rail banked line used as a trail must preserve the ability to use the line as a railroad in the future.

A good example of this is the Milwaukee Road Corridor (Milwaukee Road). In the 1980s, the state acquired the abandoned Milwaukee Road and, through legislation, gave much of the line to the Washington State Parks and the Department of Natural Resources. Both segments are managed by their respected departments as a recreation trail. Washington State Parks created a trail along the railbed with their part of the line. It is now known as part of the John Wayne Trail. In its heyday, the Milwaukee Road was a vital trade link between Seattle and the Midwest and was the world's longest electric rail line at the time. The railroad bed follows I-90 across Snoqualmie Pass. The 100-mile portion from Cedar Falls (near North Bend) to the Columbia River near Vantage has had the tracks removed and the area has been turned into a state park, known as Iron Horse State Park. On average, the trail is about a half mile from the highway and about 300 feet higher. The trail follows the former railbed of the Chicago, Milwaukee, St. Paul, and Pacific Railroad two-thirds of the way across the state. The gravel pathway offers hikers, bicyclists, equestrians, and cross-country skiers a chance to travel along the historic Milwaukee Road right of way on a gentle, easy-to-negotiate grade. In 2006 WSDOT was given the authority to enter into a franchise agreement for a rail line over the portions of the Milwaukee Road between Ellensburg and Lind by July 1, 2019.[3]

[3] RCW 79A.05.120.

Port Access

Port access to rail service is very important to the vitality of the ports in the state. As economic development agencies, ports are a fundamental part of the state's economy. State ports face substantial competition from other ports and shipping routes. The majority of the cargo that comes through state ports is discretionary cargo (i.e., containers, autos, grain, dry bulks, and break-bulk cargos) that can shift to other gateways, if shipping through these other ports becomes more efficient or cost effective than using state ports. To be competitive, ports must have good rail access. As an added benefit, rail is a community-friendly mode, as it is a safe, energy-efficient way to move goods along major corridors.

Washington State Ports

The state has 75 ports, not all with water access, as shown in Exhibit 5-6. The state has 11 deep-draft ports, a tremendous asset for the state's economy. Seven of these ports are on the Puget Sound. The largest ports, the Ports of Seattle and Tacoma, together comprise the third largest container load center in the nation—behind the load center complexes of Los Angeles/Long Beach and New York/New Jersey. One deep-draft port, the Port of Grays Harbor, is located on the coast; and three are located on the Columbia River. Together, these ports create a seamless network that sends goods to global markets, and imports goods from other countries, bound for in-state stores and other destinations across the U.S.

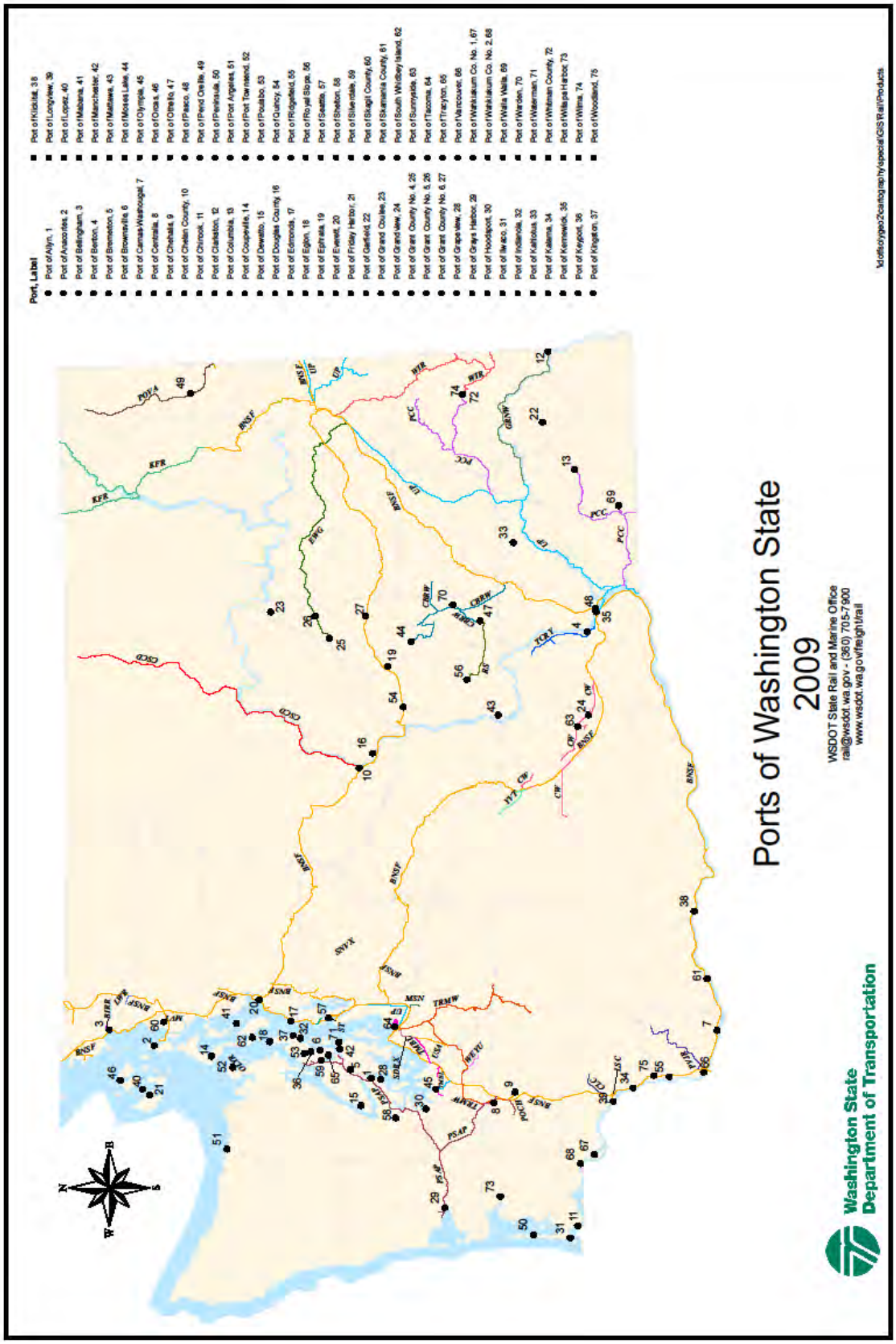
The Columbia/Snake River system stretches 365 miles inland from the Pacific Ocean. The three deep-draft ports along this system—Longview, Kalama, and Vancouver, Washington (WA)—are major shipping centers for the state. Upstream, the Ports of Klickitat, Pasco, Kennewick, and Benton are served by barge along the Columbia River. The Ports of Whitman County, Walla Walla, and Clarkston are served by barge along the Snake River.

Although there are many ways to classify ports in the state, this plan has selected four classifications:

- Intermodal Ports.
- Agricultural and Bulk Ports.
- Rail-Dependent Break-Bulk and Industrial Ports.
- Rail-Serviced Industrial Ports.

The following is a listing of ports by category. It should be noted that some of the larger ports will be listed multiple times depending on their diversity.

Exhibit 5-6: Washington State Ports



Intermodal (Container) Ports – Seattle and Tacoma

These ports have on-dock and off-dock intermodal rail yards, where containers are loaded directly from ships to rail, removing the need for truck drayage. The cargo is transported from ship to rail either by truck or yard equipment (in the case of on-dock rail). Unit trains of containers are built by destination and usually depart within 24 hours of ship arrival. The majority of these containers are destined for the Midwest and Upper East Coast regions.

Agricultural and Bulk Ports, (primarily grain elevator facilities) – Garfield, Grays Harbor, Longview, Kalama, Seattle, Tacoma, Vancouver (WA), Snake River Elevators: Almota, Clarkston, Lewiston, Walla Walla, Whitman, and Wilma

By tonnage, 36 percent of all state agricultural shipments move by rail. Agricultural rail traffic outbound from this state is expected to grow at a compound annual growth rate of 3.3 percent over the next 20 years. The state also has a growing food products industry with particular strengths in frozen foods (7.3 percent of U.S. output) and wine production.

Agriculture and food product manufacturers are an important economic sector in the state, generating 3 percent of the gross state product and accounting for 6 percent of the employment. Agriculture is the major source of employment in many of the state's rural counties.

However, most of the agricultural tonnage moving on the state rail system is Midwestern grain moving to the Lower Columbia River and Puget Sound ports for export. And because Midwestern grain is moving long distances by unit train, the Midwest grain is generally more profitable for the railroads than local state agricultural shipments, which often are moving shorter distances for export or require specialized handling. Products such as wheat, corn, and soybeans, from the Midwest and eastern Washington, also travel by barge and rail to these Lower Columbia seaports.

The Class I railroads are asking state agricultural shippers to consolidate their shipments at new facilities (such as the Ritzville loader), and this may prove economical for those shippers who can accommodate the changes. These changes may affect the short lines, which could see declines in their market share. There is a concern by the operators of small grain elevators along the short lines, who also stand to lose business. The remaining shippers on that line could also experience reductions in service and increased costs.

The challenge faced by the Department of Agriculture, the Agriculture Commission and the WSDOT State Rail and Marine office is to maintain

competitive rail service as it focuses on higher value-added crops and produce that may not generate the volumes that are attractive to Class I railroads.

Rail-Dependent Break-Bulk and Industrial Ports – Anacortes, Everett, Garfield, Grays Harbor, Kalama, Longview, Olympia, Seattle, Tacoma, and Vancouver (WA)

Break-bulk cargo is too big or too heavy to fit into a container or traditionally cannot be vacuumed out of a ship. There are, however, exceptions, such as "identity preserved" or "designer" bulk grain that is blown into containers for transportation in order to keep the origin of the crop separated from other production sources. Historically, the major commodity groups moved in break-bulk form to and from Pacific Northwest ports have included apples and other fruit, metals, and forest products. Apples were at one time one of the most important break-bulk cargos, but they have essentially become 100 percent containerized. Some cargos that move in break-bulk form can also move in containers (so-called "swing" cargos), and the differences in pricing between the two modes can lead to cargo shifting from one to the other, while others have moved completely to containers. Although a number of factors influence whether swing cargos are shipped in break-bulk or containerized form—such as westbound trans-Pacific container rates, frequency of sailings, and the size of overseas orders—price is probably the most significant factor. Shipping lines have added so much container ship capacity to satisfy demand for U.S. imports from Asia that there has been substantial excess westbound capacity. This resulted in a decrease in westbound container rates, which attracted break-bulk swing cargos. Another general trend impacting break-bulk cargos has been a continuing decline in exports of forest products. This decline has been offset by the increase in imports of metal products.

Here are examples of break-bulk cargos moved by the different ports:

- The Port of Port Angeles serves as a gateway for logs and lumber.
- The Port of Anacortes exports logs, chemicals, and petroleum coke from the Anacortes oil refinery.
- The Port of Bellingham handles break-bulk and liquid-bulk commodities.
- The Port of Everett handles fruit, logs, general break-bulk, and some containers.
- The Port of Olympia specializes in handling break-bulk, ro-ro (roll-on, roll-off), bulk, forest products, and containerized cargos.
- Port of Tacoma break-bulk includes wide and heavy cargos such as farm machinery, large factory/production parts for the Canadian Oil Sands, large motorized vehicles.

- Port of Vancouver, USA handles a large volume of wind energy components and has developed a successful "land bridge" rail strategy for moving these components to the U.S. Midwest and western Canadian destinations in addition to other break bulk commodities.

Rail-Serviced Industrial Ports – Benton, Bremerton, Chelan, Clarkston, Columbia, Ephrata, Garfield, Kennewick, Mattawa, Moses Lake, Othello, Pasco, Quincy, Ridgefield, Royal Slope, Shelton, Sunnyside, and Whitman County 3 & 4

The above-named ports have rail-served industrial property. In many cases these ports do not have water access although, through their economic development capacities, these ports are able to provide land and facilities that are rail-served, enabling the local community to have rail access.

Port access issues are more closely related to location than to type of port. Some of the current access challenges and related projects are summarized below. It should be noted that several of the ports have significant rail projects currently underway or scheduled for the near future.

The Military and Rail

Another area of break-bulk cargo that is sometimes forgotten is the U.S. military cargo that moves through the state annually via multiple break-bulk ports. The growth of the state's bases is due in part to the freight infrastructure system's ability to support the U.S. military's readiness and operational movements.[4] Military facilities in the state are important contributors to the U.S. defense and national security system. This state is home to the largest Army base on the West Coast, two Air Force bases, six critical Navy facilities, and two military medical centers. The military's ability to efficiently move freight in and through the state is dependent on an effectively functioning intermodal freight movement system. Specific freight mobility issues for the military in the state are summarized below.

Puget Sound seaports have a strategic role in support of Fort Lewis as the only Power Projection Platform—for gathering, staging, and mobilizing forces and material—on the West Coast. If a major military conflict were to trigger mobilization activity, inbound cargo needed for that mobilization would travel by road and rail from across the U.S. to Fort Lewis, for shipment through the Port of Tacoma to points outside the country.

[4] Surface Deployment and Distribution Command – Transportation Engineering Agency: 2004. This information is provided to the state for planning purposes.

Under such a scenario, it is expected that the Port of Tacoma would need to handle daily volumes of up to 600 containers, 350 rail cars, and 1,100 wheeled vehicles. This volume could create truck bottlenecks at the Interstate 5 (I-5)/Port of Tacoma Road exit and rail chokepoints at Bullfrog Junction in the Port of Tacoma tideflats.

In 2004 the military also began using the Port of Olympia for shipments out of Fort Lewis. The efficient movement of cargo may be hindered because of needed rail capacity enhancements at the ports. There has been a five-fold increase in the number of rail cars that have passed through the Port of Olympia since 2002. At that time 168 cars came through the Port of Olympia. It increased to 876 in 2004. The return of Army shipments related to the Iraq War accounted for about 17 percent of rail volume. In response, the Port of Olympia spent $1.4 million to add a rail line on its docks closer to where ships berth.[5]

The Port of Seattle also has as a role in supporting overseas military logistics. The Port of Seattle has been designated as a sustainment port, one that will be used to ship consumable supplies to troops in the event of a major overseas conflict. Under this scenario, 300 to 600 containers of supplies could arrive on 100 to 350 rail cars on a typical day, with a peak of up to 1,100 containers per day. Military logistics officials have expressed concern about potential bottlenecks when accessing Terminals 5, 18, and 46 at the intersection of East Marginal Way and South Spokane Street, and the single railroad track access under the Spokane Street Bridge to the Port's terminals. The Port of Seattle is working to solve this problem through an East Marginal Way grade separation.

In addition to the ports named above, there are Ordnance Transport Requirements for Bangor, provided by the state rail system. Ordnance is delivered to the Port Hadlock Naval Ordnance Center via rail car to Bangor on the Hood Canal, and then trucked to Port Hadlock.

Autos and Rail

Fully assembled autos are imported primarily through the Ports of Tacoma and Vancouver (WA). These are discharged from the ports on rail and truck. In order for these ports to keep these auto accounts, reliable rail service is a must; there is also a competitive advantage compared to San Pedro Bay in Los Angeles, California as the Pacific crossing is one day less.

[5] As reported by Szymanski, Jim, *Rail cargo business chugs along at port*. The Olympian. Sunday, February 27, 2005. Retrieved as of February 2005 from: www.theolympian.com/home/news/20050227business/96117.shtml.

Key Needs of Ports

Nearly all of the state's deep-water ports are located adjacent to the I-5 corridor, or are on short-line railroads that branch off the I-5 corridor. As a result, rail connectivity issues for the ports and capacity issues on the I-5 corridor are necessarily tied. Along the corridor there are five main areas where mainline capacity needs and connectivity issues intersect, including:

- Vancouver (WA).
- Kalama to Longview.
- Centralia.
- Tacoma.
- Seattle.

Each of these is examined in more detail in Appendix 5-B.

WSDOT, as the state agency that administers state and federal transportation funds that are spent on rail projects in the state, works closely with port districts to improve freight rail access throughout the state. These rail projects help the state's business community gain better access to rail transportation. As referenced in other areas of this plan, examples of past WSDOT projects include purchases of grain hopper cars, rehabilitation of short lines, purchase of branch lines, and preservation of abandoned rail right of way.

Intermodal Connectors

These are locations where two modes meet and the cargo moves from one mode to another. In most cases this involves transferring a piece of cargo from a truck to a train or vice versa.

Within this label, intermodal connectors can be seen in many different types of facilities. The following describes some of these facility types.

Inland Ports

Rail access is a significant element of port competitiveness strategy. By providing an inland port service, a seaport (in theory) can make intermodal rail service available to a broader range of customers. If priced sufficiently low, the inland port service can offer cost savings to container shippers and thereby increase the port's competitiveness.

Inland ports have become an increasingly popular concept as the drive for transportation efficiency continues. Inland ports are perceived to reduce congestion, improve transit times and reliability, while at the same time

decreasing costs and promoting economic development. For a detailed discussion of inland ports, see Appendix 5-C.

Other Intermodal Connectors Within the State

In addition to rail-served inland ports, the two most prominent alternatives for rail transportation are on-dock intermodal and near-dock intermodal.

On-Dock Intermodal

Port of Seattle

Terminals 5 and 18 have on-dock intermodal facilities within the terminal footprint (see Exhibit 5-7). Both on-dock intermodal yards can load international containers from the ship without using a public street.

Port of Tacoma

The Port of Tacoma has four intermodal yards; three are on-dock and one near-dock. These four yards are served by Tacoma Municipal Belt Line, the short line that serves the Tacoma Tideflats area. All four of these intermodal yards were built by the Port over the years to meet customer needs (see Exhibit 5-8).

Near-Dock Intermodal

South Intermodal Yard in the Port of Tacoma is a near-dock intermodal facility located on Milwaukee Avenue near the entrance of the APM terminal. It is operated by a third-party operator, Pacific Rail Services, under the direction of the Port of Tacoma. It has direct street access and has the capability of loading or unloading directly to road-ready trucks.

Seattle is supported with two near-dock international intermodal facilities, the BNSF Railway's (BNSF) Seattle International Gateway and the UP's Argo Yard. Both facilities are located less than two miles from Terminals 5 and 18 and directly across from Terminals 46 and 30. Both yards have direct access to the mainlines for each railroad.

Mainline Domestic Intermodal Terminals

In addition to the on-dock international intermodals yards, both BNSF and UP have intermodal yards in the Puget Sound that cater to domestic intermodal cargo. This is cargo that is in larger domestic containers, which are usually a 53-foot box that mirrors the domestic trucks used by the large retailers, such as Safeway, Target, or Wal-Mart. Due to the length of the domestic container, this type of train requires dedicated rail cars that will hold these longer boxes.

Exhibit 5-7: Seattle Freight Network

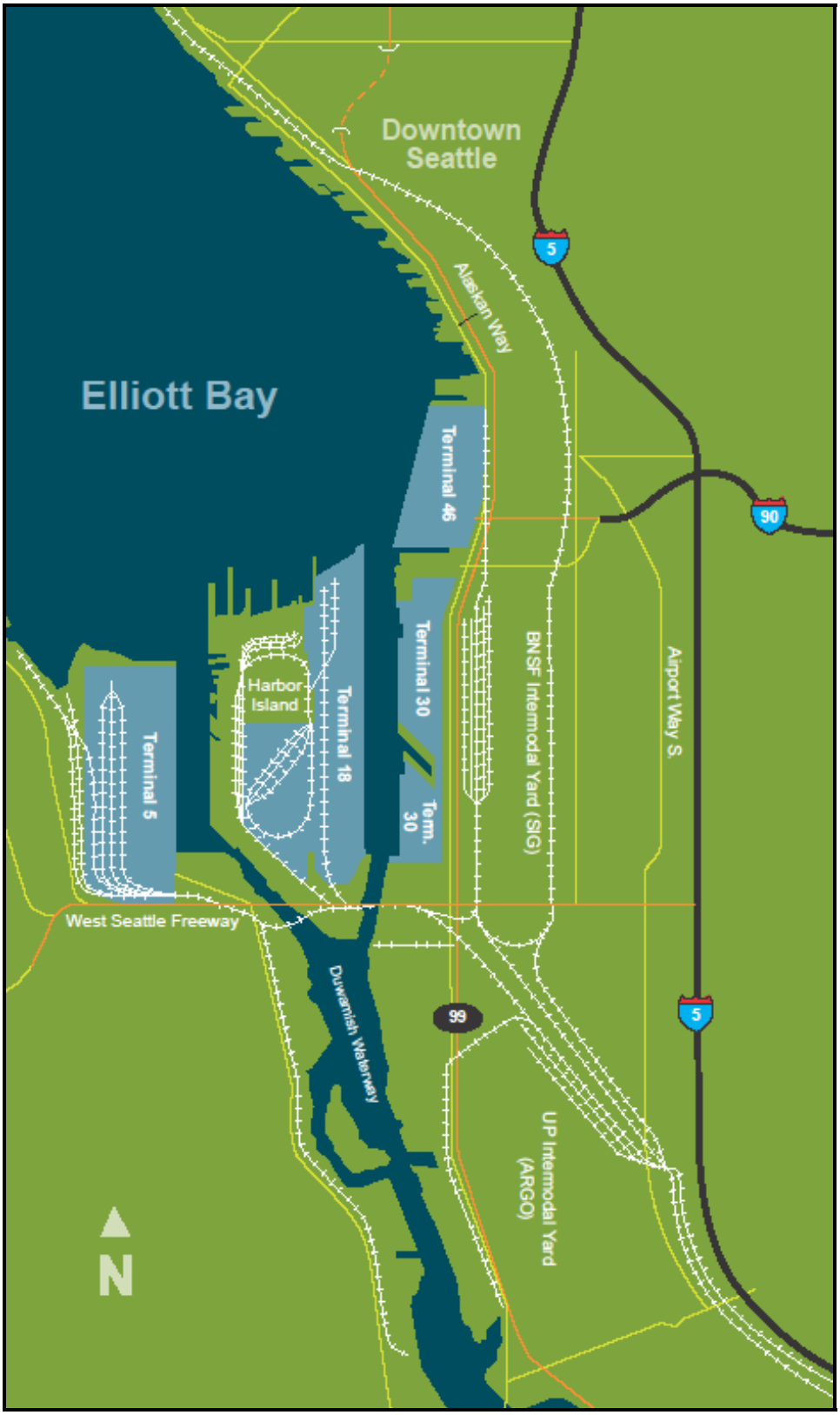


Exhibit 5-8: Tacoma Freight Network

BNSF has their South Seattle yard located near the south end of Boeing field.

UP loads domestic containers at both their Seattle Agro facility and their new Domestic Yard in Tacoma, co-located in the South Intermodal Yard.

Intermodal Connections

There are other types of intermodal connectors such as rail-to-barge, truck-to-grain elevators, rail-to-bus, as well as airports. In most cases airports are not supported by rail, although for freight there is the truck-to-

plane intermodal connector. Exhibit 5-9 shows all intermodal connections in Washington State. Exhibit 5-10 shows intermodal facilities in the Puget Sound area. Exhibit 5-11 shows intermodal facilities that include the rail mode. Appendix 3-C provides a detailed commodity description for these intermodal facilities.

Many smaller-size intermodal facilities are not included in BST's database. But, these intermodal facilities are important to the state's economy and should be identified. A study is needed to expand the database to include all intermodal connections.

Rail Freight System Issues and Needs

Mainline Freight Issues

Capacity/Bottlenecks

The benefits that the state can obtain from a robust rail system are threatened because the system is nearing capacity. Service quality is strained and rail rates are going up for many state businesses. The examples of rail lines that are currently running at capacity or near capacity are discussed in Chapter 3.

The pressure on the rail system will increase in the next decades. To accommodate this growth, many more rail lines within the state will be operating at or above their practical capacity.

Growth in rail traffic and rail congestion issues are also affecting state communities by increasing delays for automobile and truck drivers at rail-highway crossings, creating noise[6] and safety problems, and disrupting communities and environmentally sensitive areas with construction projects. Dealing with these problems in an uncoordinated fashion on a case-by-case basis is often frustrating for both the communities and the railroads.

[6] The Final Horn Rule was promulgated by the Federal Railroad Administration and published in the Federal Register on April 27, 2005. The rule required trains to sound a horn or whistle when approaching a highway railroad grade crossing. The intent was to develop a mechanism for a public authority to authorize a whistle/horn ban at a crossing(s) with the authority jurisdiction under the context of an existing state law or modified state law.

Exhibit 5-9: All Intermodal Freight Connectors in Washington State

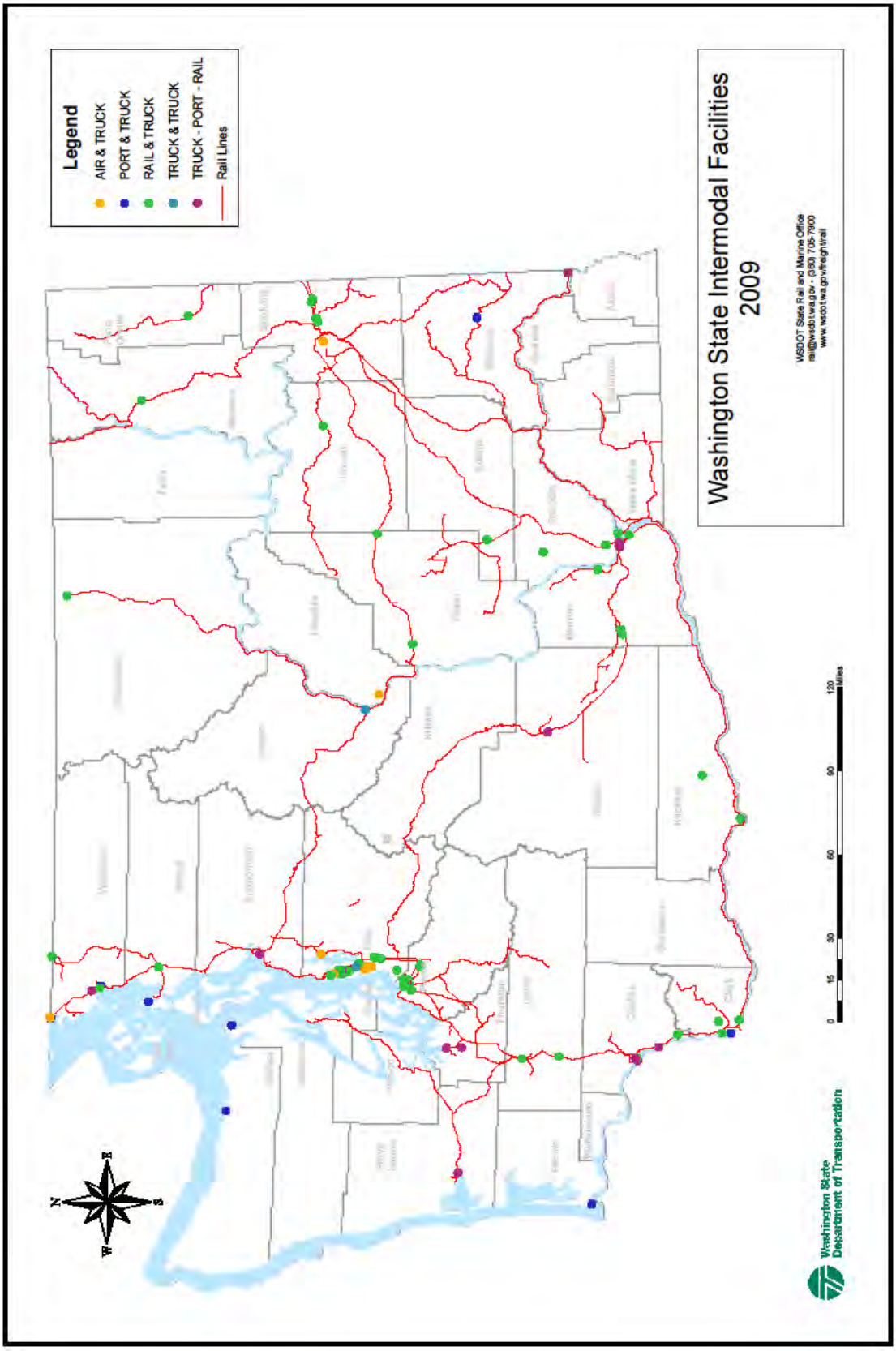


Exhibit 5-10: All Intermodal Freight Connectors in the Puget Sound Region

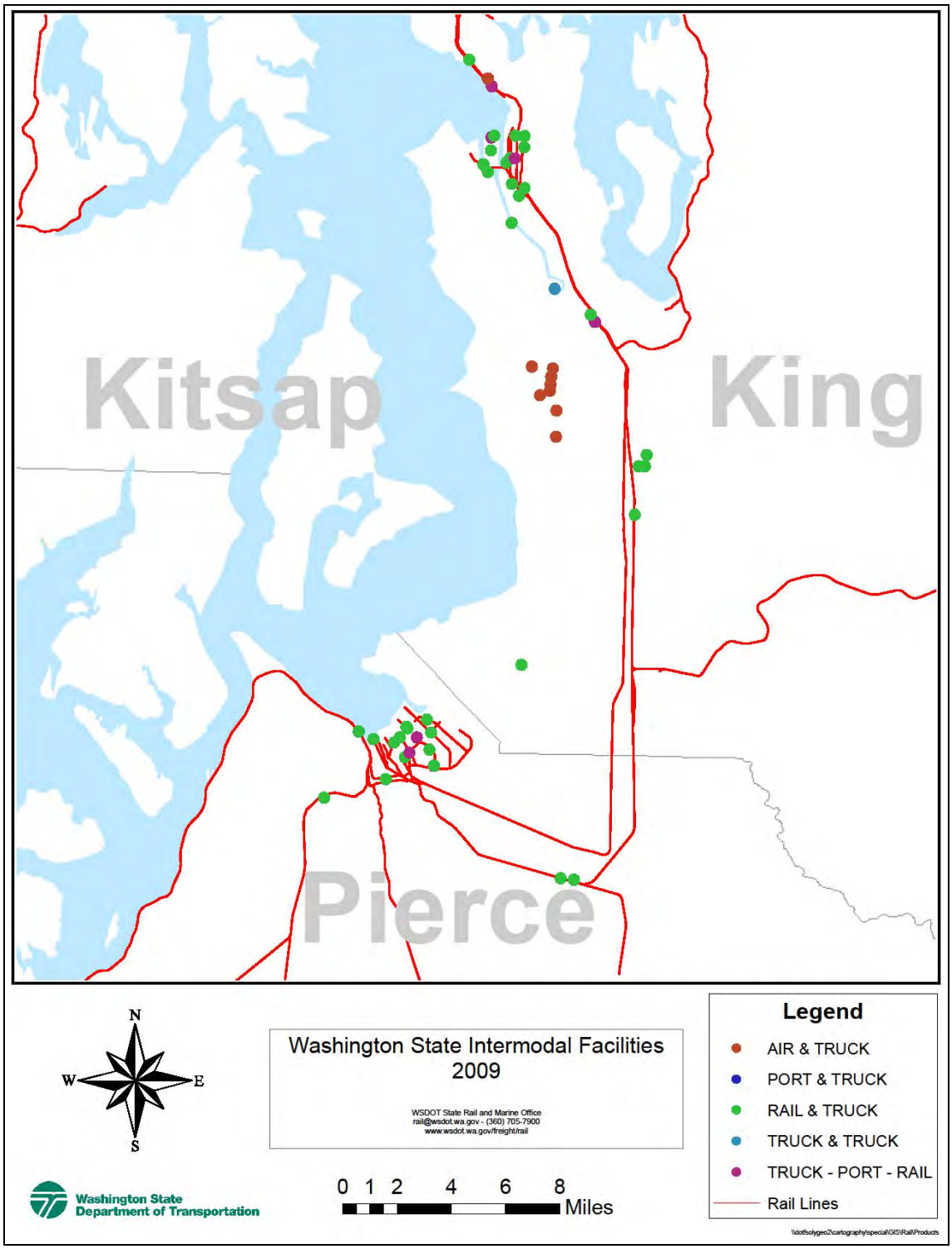
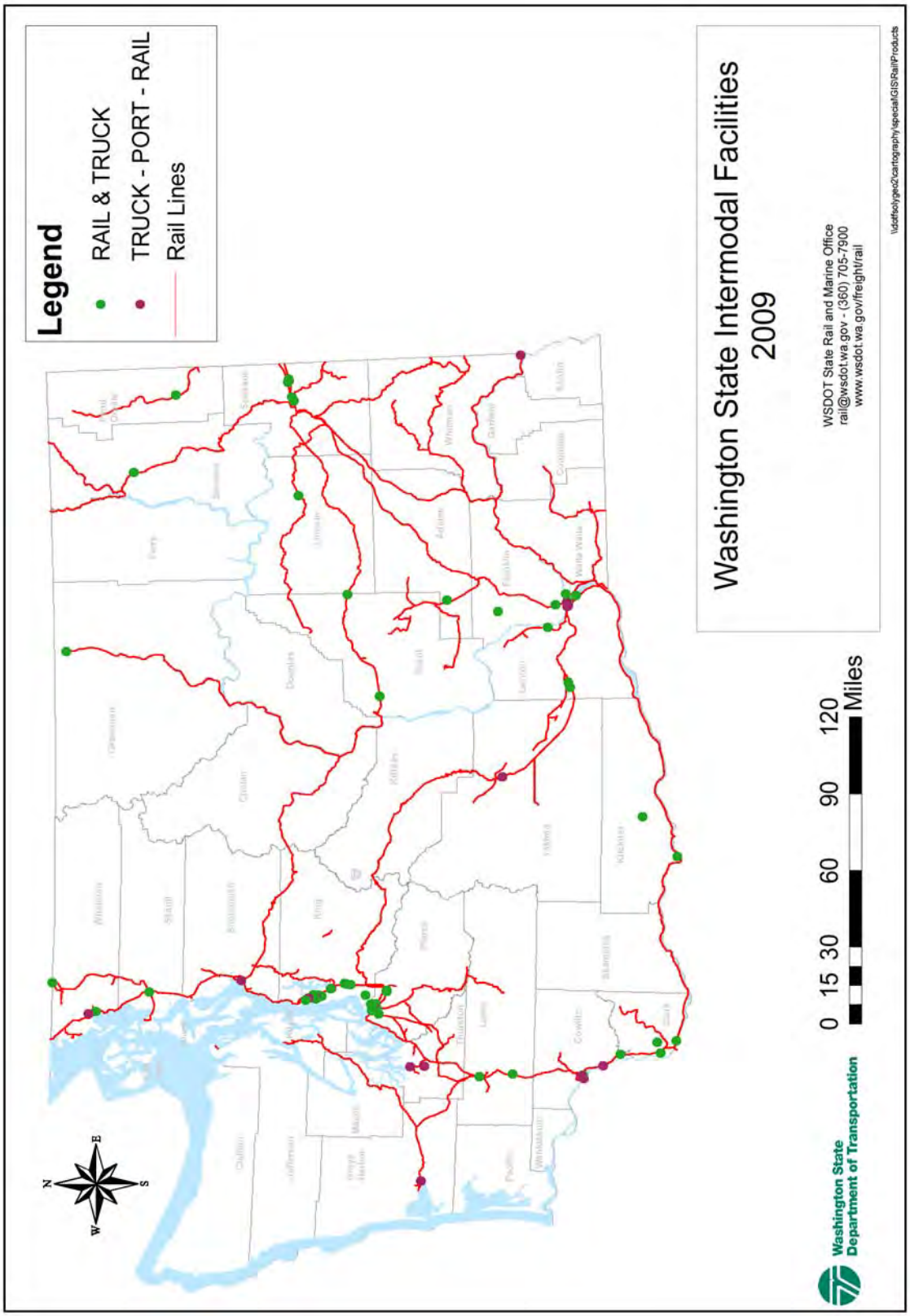


Exhibit 5-11: Rail Intermodal Freight Connectors in Washington State



Clearances

As referenced earlier in Chapter 3, the Stampede Pass route is limited to single-stack trains due to the clearance restrictions of that line, as it can not handle the height of double-stack trains. There are also height limitations caused by the Chuckanut tunnels on the I-5 rail corridor between Everett and Bellingham.

Freight and Passenger Mainline Issues

As freight and passenger trains compete for time and space on the rail system, the capacity constraints may also frustrate the service and ridership plans for the state's passenger rail program. The cost of resolving the rail chokepoints in the I-5 corridor to meet passenger service and ridership goals is increasing. WSDOT continues to look for funding solutions to these issues. Currently, WSDOT has $1.3 billion of grant applications into the federal government under the American Recovery and Reinvestment Act of 2009 (ARRA) programs. Current grant requests are described later in this chapter under High-Speed Passenger Rail in the Emerging Issues section.

Without capacity improvements, rail will not meet the demand of the state freight market, rail shipping prices will increase, and service reliability will deteriorate for many of the state's industrial and agricultural shippers.

Freight and Commuter Issues

Sound Transit provides *Sounder* commuter rail services in the Puget Sound region, with weekday peak-period service between Seattle and Tacoma and between Seattle and Everett. Both services operate over BNSF tracks.

The ongoing improvements at King Street Station in Seattle have contributed to more efficient combined freight and passenger operations between the Seattle Tunnel and Argo Interlocking. As with the Vancouver (WA) to Tacoma segment of the I-5 corridor, BNSF has no capacity expansion plans in its 5-year capital investment plan for this segment beyond that being driven by increases in intercity and commuter passenger growth plans.

Sound Transit and BNSF are currently in discussions to update the operating and volume agreement between Tacoma and King Street Station in Seattle. These discussions are focusing on an agreement similar to the one now in place between King Street Station and Everett. Under this scenario, Sound Transit would purchase additional train slots rather than paying for specific physical improvements. Assuming an agreement is reached, this arrangement would ultimately result in 15 round-trip

commuter trains per day between Seattle and Tacoma. In return, BNSF would be expected to construct the capacity improvements necessary to ensure that passenger and freight movements continue to operate efficiently. Ports are concerned that improvements are made in a timely manner, before the service starts, to avoid disrupting freight service when the additional commuter trips begin.

Short-Line Freight Issues

As regulatory changes allowed for Class I railroads to rationalize their networks by selling off unprofitable lines, more new enterprising, innovative, and customer-oriented rail companies emerged. Although some have failed, many more have lowered the cost structures of marginal, neglected rail lines and turned them into prosperous operations. Short lines now comprise 37 percent of the active rail network in the state in terms of operational miles.

However, the short-line railroads still have challenges. Some of these are capacity issues at interchange points with the Class I mainline and handling heavier weighted rail cars. In the case of the interchange the issue may only affect the short lines and may not impact Class I mainline capacity.

In general short lines have lower operating speeds and track conditions in comparison to Class I railroads. Further, it is clear that the need for capacity improvements are not limited to the Class I railroads. Prior to being sold to a short line, the "excess" sidings and yard tracks of a Class I-owned branch line were often removed to minimize maintenance costs and real property tax liabilities. Those actions made business sense under the regulatory and tax framework at the time. However, today, under the management of short-line operators, rail traffic has returned to these branch lines; the lack of runaround sidings, yard tracks, and interchange tracks can cause inefficient operations that increase the railroad's cost to serve shippers or can decrease safety.

Heavy-Axle Load Rail Cars

In the 1970s, many coal-originating railroads increased rail car weight limits for coal cars from 263,000 pounds to 286,000 pounds, as a result of heavier track structures being implemented at that time. In 1994 the Association of American Railroads (AAR) approved the same increase in weights for covered hopper cars. The latter change had a much bigger impact because covered hopper cars circulate throughout the North American rail system, hauling a variety of commodities on Class I railroads, as well as on short-line railroads.

A lengthy and costly effort was undertaken by the Class I railroads and some of the short lines to upgrade their lines to carry the heavier cars. However, track and bridge structures of many of the short lines are still incompatible with the interline standard of 286,000 pounds. Unfortunately, these are the railroads that are the least able to afford the high cost of upgrading their tracks to this standard.

Most recently, the Class I railroads across the nation are now carrying some 315,000-pound cars on main routes that have been certified for this new weighted car. Again, it is unlikely that short lines will be able to afford to upgrade their track to handle such cars in the near future. Even if they are able to upgrade the capacity of the track, it is unlikely that the bridges will be upgraded to this new standard. Thus, this incompatibility has forced bulk cargo either into less efficient cars or on to the highways.

System Preservation

Many of the short-line railroads are owned by private operators, making information on system conditions difficult to compile. Indications are that short-line rail tracks are facing large rehabilitation needs, and may be at least partly unfunded. Worsening track conditions could lead to further abandonment.

There is a no more fundamental transportation capital investment than system preservation to keep the physical infrastructure in good condition.[7] As transportation facilities age and are used, a regular schedule of rehabilitation, reconstruction, and replacement is needed to keep the system usable. Timing is important: if preservation investment is deferred, costs increase dramatically, leading to the saying "Pay me now, or pay me more—significantly more—later."

"Asset management" is a term that describes a proactive approach to investing in preservation at the right time to optimize rail condition. Asset management includes having comprehensive inventories of transportation facilities; a system for measuring and reporting system condition; predictive condition models that anticipate rehabilitation or replacement needs; and an investment program that ensures that the right investments are made at the right time.

In 2002 and 2003, the legislature reinforced this state's commitment to asset management. Legislation specifically required maintenance and preservation to be included in state plans for highways, ferries, and rail, and required cities, counties, and transit agencies to manage and report system condition. These requirements will help ensure that more

[7] Good condition is defined as not needing repair or maintenance.

consistent condition information will exist in the future about all transportation assets.

This chapter later discusses information needs in more detail; however the list below is an example of needed data and analysis related to abandonments and short-line railroad development.

1. **Abandonment** – What service area did these lines serve? Have they been banked or converted?
2. **Inventory** – What are the current short-line facilities and conditions?
3. **Assessment** – What is the short-line economic impact to the state? What is the short-line economic impact of the preservation or abandonment?

Underserved Markets (Grain Trains and Produce Cars)

Grain Trains

In the early 1990s, a national shortage of rail covered hopper cars made it difficult and expensive for state farmers to get grain to market. To help alleviate this shortage of grain cars, the Washington State Energy Office and WSDOT used federal funds to purchase 29 used grain cars in 1994 to carry wheat and barley from loading facilities in eastern Washington to export facilities in western Washington and Oregon. The Washington Grain Train currently has 89 grain cars in the fleet (71 are owned by the state, and 18 are owned by the Port of Walla Walla). The UP, BNSF, and state short-line railroads operate the cars and carry the grain to market. WSDOT is currently in the process of purchasing an additional 29 cars mandated by the state legislature.

Serving over 2,500 cooperative members and farmers in one of the most productive grain-growing regions in the world, the Washington Grain Train helps carry thousands of tons of grain to deep-water ports along the Columbia River and Puget Sound for transport to ships bound for Pacific Rim markets.

The Washington Grain Train produces a number of important public benefits, including:

- Helps move state products reliably and efficiently to domestic and international markets.
- Helps preserve the state's short-line railroads by generating revenues that may be used to upgrade rail lines and support the railroad's long-term infrastructure needs.
- Helps support a healthy rail network that may maintain and attract new businesses in rural areas of the state.

- Saves fuel over shipping by truck.
- Supports air quality improvement initiatives.
- Helps reduce wear and tear on local roadways by using rail.
- Supports the users by using equipment not subject to market based premiums.

The Washington Grain Train was started with federal "seed" money and operates without any taxpayer subsidy. WSDOT, the Port of Walla Walla, the Port of Moses Lake, and the Port of Whitman County all manage the Washington Grain Trains. WSDOT oversees the entire program, and the port districts collect monthly payments from the railroads for the use of the cars. The ports can use up to one percent of the payments they receive from the railroads for fleet management services.

The Washington Grain Train collects wheat and barley from grain elevators in eight cities in eastern Washington. These are: Warden, Schrag, La Crosse, Prescott, Endicott, Willada, St. John, and Thornton. The grain is transported to export facilities in Kalama, Tacoma, Seattle, Vancouver (WA), and Portland, Oregon.

Since its beginning, the Washington Grain Train program has carried over 9,000 carloads totaling more than 900,000 tons of grain from the state to national and international markets. Total carloads for the second quarter of 2009 increased 5.4 percent over the second quarter of 2008. There were 412 carloads shipped in the second quarter of 2009, compared with 391 in the second quarter of 2008. In 2008, a total 1,332 carloads were shipped compared to 1,822 carloads in 2007.

Produce Cars

In 2003 the state legislature enacted legislation (RCW 47.76.400) that authorized WSDOT to established a pool of refrigerated railcars to transport perishable agricultural goods. This legislation was in response to the state's agricultural community's inability to secure an adequate supply of refrigerated railcars during peak seasons from the railroads.

WSDOT started operation of the Washington State Produce Rail Car Program in 2006. Federal fund appropriations of $2 million and $200,000 from the state for startup operations and contract monitoring enable the railcar pool program to start.

On August 18, 2006, WSDOT signed a contract with Rail Logistics, LC to lease up to 50 refrigerated railcars and to manage the fleet. This contract was renewed in June 2009 for two additional years. The program is intended to provide the opportunity to open new markets for Washington State produce while maintaining economic viability for Washington's

agricultural community. The public benefit is that these rail cars minimize the added wear and tear on state roadways caused each year by thousands of heavy truckloads.

New Services

In October 2007, the partnership of UP, RailEx, and CSX Transportation initiated a new twice weekly unit train service carrying perishables (fresh fruit and vegetables) from Wallula, WA to Schenectady, New York. The cross-country trip takes 128 hours, a time that is very competitive with an over-the-road truck.

The 55-car train has next generation refrigerated boxcars that have the most efficient insulation, uses an environmentally-friendly and energy-efficient refrigeration unit, and has a global positioning system to monitor the "health" of the refrigeration unit and the temperature in the car.

Each train carries about the same amount of produce and perishable items that would have been moved by more than 200 over-the-road trucks. With the produce moving by rail instead of truck, 100,000 fewer gallons of diesel fuel are used each time the produce unit train operates.

Emerging Issues

Following is a discussion of four major emerging issue categories:

- Freight Rail Capacity and Competition.
- Positive Train Control Implementation.
- Impacts of Dam Breaching or Loss of Columbia-Snake Inland Waterway System.
- Statewide Information and Data Needs.

Freight Rail Capacity and Competition

Challenges that the state faces to achieve continued economic growth include:

- Increased rail competition for the Pacific Northwest (PNW) from other regions in the U.S. and Canada.
- East-west rail capacity issues.
- PNW ports serve discretionary traffic that can easily move to another gateway.
- Panama Canal expansion.
- Increasing competition from Pacific Southwest and Canadian Ports.
- Highway congestion.
- Restoration of Puget Sound.

On a per ton basis, trucking uses over 10 times more energy on average to transport freight than rail transportation. However, the average truck carries just less than six tons of freight, while the average rail car carries a load of 46 tons, reflecting the heavier, bulky commodities that railroads generally haul. Thus, when comparing energy intensity on a per-vehicle-mile or per-car-mile basis, the difference between the two modes is significantly reduced. It should be noted that rail is still less energy intensive.

The *National Rail Freight Infrastructure Capacity and Investment Study*, performed by AAR, assumes the Class I railroads will be able to generate approximately $96 billion of the $135 billion cumulative in the 28-year investment indentified through increased earnings from revenue growth, higher freight volumes, and productivity improvements. This would leave a national gap of approximately $39 billion or $1.4 billion per year to be funded from other sources in order to achieve performance improvements, while meeting the demand of the current rail market for freight shipments.

BNSF's capacity investment plan for the state over the next five years does not include any significant expenditure due to the current reduction of traffic volumes other than participation in siding extensions at Mount Vernon and Stanwood, and construction of a new customs inspection siding at Swift (Blaine) between Everett and the Canadian border.

In the meantime, competition from other ports on the west coast of North America continues to grow. Ports in southern California continue to attract a large portion of the West Coast international trade due to the huge local market they serve, and Oakland, while often considered less of a competitive threat, has continued to develop new properties as they have become available, and has seen growth in its international trade.

Of special importance for state ports, however, is competition from the Canadian ports of Vancouver, British Columbia (B.C.) and Prince Rupert; substantial investments are being made at both of these ports in order to improve their competitive positioning. Port Metro Vancouver (PMV), in particular, is developing ambitious plans for container facilities that could increase capacity by a factor of four over the next dozen years. The Port of Prince Rupert (PPR) also has ambitious plans to increase container throughput four-fold over the foreseeable future.

Both PMV and PPR have and are receiving significant support from the federal and provincial governments for their efforts to expand and improve freight mobility. That support will potentially involve government investment exceeding $1 billion (Canadian) for projects currently identified and under consideration. In addition, at least in

PMV's case, the ports have taken a proactive role in moving a variety of freight mobility projects forward.

The widening of the Panama Canal also provides shippers improved alternative routes to U.S. midwestern and eastern destinations. It is currently unknown the actual impacts that this expansion will have on state ports. There are numerous studies available on the subject without a consistent conclusion on the effects on the West Coast ports. There are many criteria that will be evaluated in a shipper's decision to use or not route their cargo through the expanded canal. Some of these include time to destination, fully loaded cost of the transport, customer service of the transportation vendors, etc. The newer, larger, more efficient ships will be able to use the expanded canal. Passage through the Panama Canal is currently limited to Panamax ships, which are no wider than 106 feet.[8] The challenge for the shipper is that although the larger ships can transit the canal, port facilities that are capable of berthing these larger ships are limited in number. Many West Coast ports are capable of handling these larger ships, but many of the gulf and East Coast ports have depth or height limitations at their ports that may prevent these larger ships from berthing. Various ports are in the process of making improvements in order to handle the larger ships.

The recent economic downturn has resulted in both Class I railroads serving the state (BNSF and UP) to reduce planned 2009 capital expenditures by $100 to $200 million in pure capacity expansion projects. This brings concerns that the Class I railroads could delay capacity enhancements in an attempt to control capacity, which could affect the competitiveness of the state as compared to other states. The capacity expansion projects that remain are those where previous commitments have been made including BNSF's intended improvements on the "Transcon" between southern California and Chicago (Abo Canyon double-track) and UP intended double-tracking on the "Sunset Route" between southern California and El Paso, Texas.

The positive side is that both BNSF and UP plan on continuing to invest in maintenance of existing track and purchase of locomotives—both are key components in maintaining capacity capability over existing track infrastructure. This capital investment, with a view to the long term, provides a good example of the path that the state should pursue in funding rail improvements, especially for those projects where the long-term interests of the state are clearly identifiable and the project timelines are long.

[8] A Panamax ship is no larger than a ship that can carry the equivalent of 3000 Twenty foot Equivalent Units (TEU). A TEU is a measure used in the marine industry to measure a container into equivalent units of 20 feet long, 8 feet wide, and 8 feet high.

For the state to stay competitive, a strong coalition must be developed among the stakeholders. This coalition must develop an integrated plan to develop the needed capacity to retain the state's rail freight market share. In this chapter the needs as well as risks have been identified. It will be detrimental to this state if a cohesive rail network is not maintained.

Some suggest that a High-Capacity Freight Corridor be developed. This High-Capacity Freight Corridor has been referenced by some stakeholders as the Northern Corridor and by others as the Hi-C. These two concepts have slight variations, but are built on the same assumption concept that a high-capacity rail corridor must be maintained and improved upon from the Puget Sound to Chicago, Illinois. This is not currently supported by either BNSF or UP. Perhaps the designation as a Corridor of National Significance will meet the goal. No matter which name or design is chosen, a national cohesive effort needs to be developed by both the public and private partners in order to achieve the economic growth that benefits the state's competitive position. The corridor will require infrastructure and operational improvements as well as cooperation between the BNSF and UP. An agreement on the priorities would need to occur and a funding program developed. Below is a selection of highly visible projects that need to be considered as the competitive strategy is developed.

Class I Railroad Competition

It is important to the state's economy to have healthy railroads competing for business in the state. This competitive environment will influence how aggressive is the rate structure offered and the level of investments the Class I railroads are willing to make within the state to increase their network capacity.

BNSF and UP capital investment decisions and strategies are based upon capacity needs and positioning their network to be more attractive to the customer. Class I railroads normally spend approximately half of their annual budgets for maintenance of their physical network (e.g., rail, ties, ballast, bridges, etc.). With capital expenditures for UP and BNSF amounting to $3 billion per year over the last few years, a significant portion of both railways' capital expenditures has been for maintenance of existing track. This expenditure is very important to the efficiency of the system since deferred or reduced maintenance can result in lower throughput on deteriorating track.

Similarly, BNSF and UP continue to make significant investments in locomotives. Trains that are under-powered often cannot maintain the maximum allowable speed, consuming more capacity than trains that have

sufficient power to maintain track speed. Both railroads continue to purchase locomotives that are much cleaner in emissions and more fuel efficient than older generations of locomotives. For instance, the required use of "green" locomotives in the Los Angeles Basin has caused the railroads to replace older locomotives with the newer more environmentally-friendly engines. In addition to locomotives, capital expenditures for new or improved signal systems on existing networks also enhance the capacity of a segment of track.

Both BNSF and UP allocate 10 percent to 12 percent of annual capital spending to expansion of their physical networks. This normally amounts to capacity expansion expenditures between $200 and $300 million spread across their respective 30,000 plus mile systems; though this expenditure accelerated somewhat in the period from 2005 to 2007. The emphasis of both railways was in constructing double track on the single-track segments for their respective mainline routes into and out of southern California. For example, BNSF's project to construct the 3rd main track over Cajon Pass was a project that took four years to complete at a total cost of approximately $90 million. The new mainline is 16 miles long and is projected to increase total train capacity by 50 trains per day to approximately 150 trains per day.

In addition to physical capacity expansion projects—such as constructing new main track, building new meet/pass sidings, and extending sidings—capacity expansion dollars are also used for expanding or constructing new yard and intermodal facilities. Consequently, competition for expansion capital is intense each year and the railroads normally focus those expenditures in locations they consider to be competitively sensitive or have the highest return on investment.

To focus BNSF and UP on the state's rail needs, the following things must happen:

- The state's economy must be growing.
- State ports must be efficient.
- Stakeholders must demonstrate their understanding of how important the rail system is to both the economy and ports.
- Rail operator's business needs must be acknowledged.

Another issue is the potential for Canadian National (CN) and Canadian Pacific (CP) to gain access to the state through either their current agreements with the BNSF and UP or through future agreements. This would again change the competitive landscape of the PNW. Depending on the agreement, this may be very positive or very detrimental to the state's ports and their competitiveness compared to other ports.

Finally, there must be consensus on what are the priority projects and the funding mechanism to get the improvements built.

East-West Issues

Northern Corridor/Northern Tier/High-Capacity Freight Rail Corridor

It is important for the economic growth of this state to have efficient, well-connected east-west rail corridors leading to other population centers in the U.S., especially the Midwest and upper northeast regions. As has been noted in Chapter 4, the state is dependent on freight movements in and out of the state to other mega regions where the goods are consumed or produced. The concept of the Northern Corridor is built upon the current routes of the Class I railroads along the Northern Tier from Washington to Illinois. This corridor links the two economic regions of the Pacific Northwest and the Great Lakes. Unfortunately, there are limited numbers of markets between Spokane and Minneapolis-St. Paul. Thus, the majority of the container trains leaving the state are direct trains with their first destination as St. Paul, before moving on to the Chicago area, where the train is either unloaded or switched to an eastern railroad for movement to the eastern or southern populated regions of the U.S. This route handles a magnitude of cargo types, such as intermodal containers, automobiles, agricultural products, and bulk commodities, such as minerals and coal. This corridor is of national significance and needs to be designated as such; and is essential to the competitiveness of the state's ports and other industries that drive economic growth within the state. It competes with six other transcontinental corridors extending from the Pacific to the East Coast.

The importance of the Northern Corridor should be recognized as one that connects Asian and North American markets together. This corridor competes with the central and southern U.S. rail corridors. In addition, the Canadian, Mexican, and Panamanian corridors provide effective alternatives for transportation of goods to all U.S. markets.

To achieve this, a coordinated approach between the corridor states and the private sector is needed to ensure that this corridor gets the same attention and funding as other parallel corridors. The obvious partners in the Northern Corridor include the states of Washington, Oregon, Idaho, Montana, North Dakota, South Dakota, Wyoming, Minnesota, Wisconsin, Indiana, and Illinois. This is the broad band of states that encompass the I-90 and I-95 highway corridors. The improvements in this corridor must

include the improvements required at the eastern end of this corridor, primarily Chicago and the CREATE[9] project.

While this corridor has experienced satisfactory maintenance and modernization, no large scale capacity improvements are currently scheduled, unlike competing corridors in the Southwest.

Regardless of the method chosen to improve capacity, there have been three barriers that are addressed in Chapter 8: identifying funding sources, developing participation across the states within the corridor from all stakeholders, and reaching agreement with the private owners of the rail infrastructure (i.e. the mainline railroads) on the priority of necessary improvements. Federal, tribal, state, local, and port governments all have a stake in the successful operations of railroads in the Northern Corridor.

Potential railroad benefits of the high-capacity freight corridor are:

- Increase east-west train capacity.
- Improve crew utilization/reduces labor costs.
- Improve fuel savings and locomotive use.
- Improve mainline train velocity across the state.
- Allow increase in train length for intermodal trains in the eastward direction from 7,000 feet to 8,000 feet without distributive power.

Potential public benefits are:

- Provide east-west rail capacity needed for port growth enabling a strong local economy.
- Mitigate for increased train traffic.
- Bypass major eastern Washington cities.
- Tie into the WSDOT-owned short lines in eastern Washington.
- Provide short-haul capacity to eastern Washington growers.
- Remove trucks from I-90.
- Spur economic development in eastern Washington.
- Improve air quality through reduced emissions.
- Improve national security.

WSDOT State Rail and Marine Office should lead the organization of the corridor coalition to make sure the development of the coalition and corridor meet the needs of the state and its stakeholders. The partnership should be formed and the cost and benefits analyzed. The following must be determined:

[9] CREATE stands for Chicago Region Environmental and Transportation Efficiency Program. This is a $1.5 billion project to improve freight rail connections in and around Chicago, Illinois.

- What is considered a public benefit to be funded by public funds?
- Which improvements are private and need private funding?

Once the coalition is organized these neighboring states can develop a joint plan to encourage and facilitate more service to the shippers along the Northern Tier.

Stampede Pass Clearance and Signal Systems

In the *Washington Public Ports Association (WPPA) Rail Capacity Study – 2004*, an analysis was performed on two scenarios that involved rerouting of traffic from Stevens Pass to Stampede Pass. The first anticipated the "clearing" of the Stampede Pass tunnels for double-stack rail cars in order to relieve capacity pressure on Stevens Pass.[10] The second analysis involved directional running of trains between Spokane and the Puget Sound, with westbound trains operating via Stevens Pass and eastbound trains operating via Stampede Pass.[11] 'Clearing" the Stampede Pass tunnel will significantly increase the capacity over Stevens Pass. But, BNSF has no capital investment allocated for clearing the tunnel in its current 5-year plan.

The issue of directional running is more problematic. This is an operational consideration for the private entities and cannot be enforced by the state. Directional running requires a one-way westbound route and a separate one-way eastbound route. Because of the grade issues on the two passes, it is thought that Stevens Pass would be the westbound route and Stampede Pass would be the eastbound direction. The re-routing of trains eastbound over Stampede Pass would add 82 miles to the trip. The longer distance and the lower speed per mile on the Stevens Pass route to Spokane require an additional crew shift to be added. The additional crew is due to labor rules restricting the number of hours a crew can work. This extra labor cost is in addition to other operational issues this route presents. Re-opening the Ellensburg to Lind cut-off would reduce the number of miles traveled since it would eliminate the need to go through Pasco. It could also alleviate some of these operational issues. However, the timing of these improvements is subject to various long-term issues that can't be forecast with any sense of confidence. The more significant questions, from a capacity demand perspective, are when will growth frequently stress the capacity on Stevens Pass and how will BNSF address the issue.

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[10] Clearing refers to the crowning of a tunnel to allow taller rail cars to pass through or "clear" under the ceiling of the tunnel.

[11] Directional running is the concept that trains are routed only one direction on a corridor so that operational capacity is increased due to the fact that all trains move in the same direction not unlike a one-way street.

Both the *WPPA Rail Capacity Study – 2004* and the *Statewide Rail Capacity and Systems Needs Study* (2006) projected that as daily capacity demand on Stevens Pass reached daily sustainable capacity, overflow BNSF trains would be rerouted to or from the Puget Sound, either via Stampede Pass or the I-5 corridor to Vancouver (WA) and the Columbia River Gorge route.

Finally, additional capacity may be achieved if some bulk trains can be rerouted over Stampede Pass versus their current routing along the Columbia River Gorge. Currently testing is underway using mid-train helpers to enable heavy trains to climb steep grades. Should the distributed power (i.e. mid-train helper[12]) test prove to be productive, BNSF will have the ability to allocate additional trains to Stampede Pass that would otherwise operate via the Columbia River Gorge between Pasco and Vancouver (WA).

Bridging the Valley (Spokane to Athol)

A series of rail and road improvements jointly referred to as the "Bridging the Valley" project, have been planned between Spokane, WA and Athol, Idaho to separate vehicle traffic from train traffic. Where there are currently 75 railroad/roadway crossings, this project will construct approximately 19 grade-separated crossings within the BNSF corridor. The UP mainline will be relocated to an alignment within BNSF's mainline corridor to eliminate all mainline at-grade crossings on the UP line between Spokane and Athol, Idaho. However, the BNSF has indicated that capacity on this segment is sufficient. BNSF supports the grade separations envisioned, but does not support the relocation of UP onto the BNSF line. The railroad currently sees no value in participating in the project due to the fact that conjoining the two railroads on one line could damage the BNSF franchise significantly.

North-South Issues

North-South Corridor (I-5 Corridor Including Access to Canada)

As discussed in earlier chapters, the fluidity of the I-5 rail corridor is mandatory for the economic health of the state. This corridor can be classified as extending from Portland, Oregon to Vancouver, B.C. A north-south corridor supporting the east-west movement of cargo moving through the state is required to keep the rail network flowing. As the projections of cargo and passenger volumes are met, it will be especially important that attention is kept on the health of this north-south corridor.

[12] Distributed power or mid-train helpers are engines that are placed in the middle of the train. These additional engines help "power" a long or heavy train by distributing the load of the train between the front engines and those in the middle of the train.

Currently, BNSF has no public plans, other than those proposed to support intercity passenger train volumes, to increase capacity over the route. From a freight perspective, BNSF believes sufficient capacity exists for the foreseeable future. Indeed, BNSF sees nothing in this corridor as "freight driven." BNSF indicated it will construct additional capacity in the corridor only as driven by growth in passenger train volumes.

In the future, it will be very important to monitor the capacity and needs of this corridor and advocate capacity improvements to meet the growth projections. This will require coordination between all stakeholders and partners to assure the capacity is available for this corridor and its communities to meet their respective needs. This may require a true public-private partnership including regional agencies such as metropolitan planning organizations, Sound Transit, Amtrak, rail freight customers, ports, local communities, as well as other stakeholders. Public funding could include safety improvements, such as grade separations. Private railroad funding could include improvements, such as longer sidings or additional mainline tracks. One of the options to eliminate passenger freight conflicts and to enhance capacity for both is to create a dedicated high-speed passenger rail track.

In addition to the above improvements, BNSF recently constructed a 10,000-foot clear siding at Colebrook, B.C. Colebrook is located where the British Columbia Railway (BCRC)[13] Port Subdivision from Roberts Bank merges with BNSF's mainline to New Westminster and is approximately halfway between Swift and Brownsville. Prior to constructing the new Colebrook siding, BNSF had no meet/pass locations between the border and Brownsville.

Dedicated High-Speed Passenger Rail Track

This is an emerging issue in the United States as 11 high-speed rail corridors have been identified, with projects in various stages of development. One of the most ambitious, California's high-speed rail system, eventually will connect San Diego with San Francisco and Sacramento.

Here in Washington, the concept of dedicating tracks solely for high-speed passenger rail is under discussion. There are many differing opinions that are not fact based. Typically high-speed passenger rail is defined as trains that are capable of moving at a rate of speed between 150 to 180 mph. Currently our rail lines are limited to a maximum of 79 mph. As has been discussed in this plan, the I-5 rail corridor is currently shared with passenger rail (both commuter and intercity) through the state from

[13] BCRC is a class II regional railroad owned by the British Columbia provincial government until it was sold to CN in 2004.

Vancouver, WA to Vancouver, B.C. The potential speed differential burdens both freight and passenger operations.

Thus, the high-speed concept needs to be explored in more detail to determine the true pros and cons of a dedicated corridor. One of the advantages of the concept of freight rail is that freight could re-gain rail capacity on the I-5 corridor rail line if passenger rail has its own dedicated rail line in that corridor.

An example of separating freight from passenger within a corridor is the Pt. Defiance Bypass project. This project plans to separate passenger trains from freight trains by re-routing passenger trains to an inland route that runs parallel to the I-5 highway from Tacoma to DuPont. The line will be extended to reconnect with the BNSF mainline in Nisqually.

The improvements will allow passenger trains to use the bypass route without being delayed by freight trains. This will result in:

- Improved passenger rail reliability.
- Provide faster and more frequent Amtrak *Cascades* service. Speeds will be increased up to 79 mph.
- Allow increased freight rail service around Pt. Defiance and along southern Puget Sound by eliminating passenger trains from the BNSF mainline.

Eastside Line

BNSF is in the process of abandoning this corridor and the Port of Seattle has committed to acquiring it through the federal abandonment process and rail banking two of the lines. The future use of the corridor has been discussed among various groups in the region for many years.

The Eastside Rail Corridor consists of a 42-mile rail corridor stretching from the city of Renton to the city of Snohomish, with an 8-mile rail spur running between the cities of Woodinville and Redmond. The rail corridor passes through the cities of Newcastle, Renton, Bellevue, Kirkland, Woodinville, Maltby, Snohomish, and Redmond.

In fall 2003, BNSF indicated its intent to divest roughly 42 miles of railroad corridor in east King and south Snohomish Counties from its operational rail lines. BNSF asked if there was public interest in maintaining/preserving this extensive corridor for transportation purposes. The Puget Sound Regional Council (PSRC) took on the question of "public interest" and conducted a series of discussions with the eight jurisdictions along the corridor plus WSDOT, Sound Transit, and several of the regions' environmental/bicycling interests. The resulting

recommendation to preserve the corridor for future transportation uses was endorsed by PSRC's Executive Board, who unanimously agreed that this regional rail corridor should be preserved for future transportation uses and communicated this regional interest to BNSF in July 2004.

The final PSRC recommendations, completed in 2007, proposed transportation uses over different time periods such as short, medium, and long term. The findings include:

- This unique corridor should be preserved.
- It is not a strategic regional or state freight rail corridor.
- Freight rail access to Boeing's Renton plant needs to be preserved.
- Prior regional public transit studies in north-south Eastside Corridor need to be respected.
- "Medium-term" timeframe is needed to achieve long-term passenger rail objectives.
- The cost effectiveness of trail development should be optimized.

Port of Seattle is currently in the final acquisition stages to purchase this corridor. It is anticipated that this transaction will close by early 2010. The Eastside Corridor has two portions: the northern portion, between Snohomish and Woodinville, and the southern portion, which stretches from Woodinville to Renton and includes the Redmond spur. Under the terms of the acquisition agreement, BNSF agreed to select a third-party rail operator to maintain the operation. The operator will pay the Port of Seattle for the rights to use the land and will provide freight rail service for shippers in Snohomish County.

Positive Train Control Implementation

Both the BNSF and the UP face a new capital expenditure requirement as a result of the recent Federal Railroad Administration (FRA) and Congressional decision that mandates that Positive Train Control (PTC) be implemented on all mainline corridors that carry both freight and passenger trains. The legislation, passed in the wake of a head-on collision in California between a UP freight train and a Metrolink commuter train, requires the installation of PTC by the end of 2015. The legislation also requires that PTC be installed on all routes that handle certain hazardous materials.

As a practical matter, this means that the U.S. freight railways will be required to install PTC on virtually all mainline corridors. Nationwide, it has been estimated that implementation of PTC will cost billions. The capital requirements needed to meet the PTC mandate is likely to place further pressure on discretionary capital spending for capacity expansion

The major U.S. railroads, including BNSF, UP, CSX Corporation, Norfolk Southern, and Kansas City Southern, have been in various stages of testing PTC for a number of years. One of the significant issues the railroads have been dealing with is inter-operability, or the ability of the PTC systems of each railroad to communicate with another railroad's system when locomotives are operating on another railroad. As a result of the recent legislation, the railroads have initiated an effort to develop a system that will work across all of the railroads.

Impacts of Dam Breaching or Loss of the Columbia-Snake Inland Waterway System

Transportation System Impacts

The current Columbia-Snake Inland Waterway System is efficient for moving cargo. This system provides shippers with an alternative to shipping by rail, imposes price competition on the railroads, and supplies sufficient capacity to absorb substantial fluctuations in grain shipments, especially during peak export months and years. The major components of the existing barge transportation system include:

- Barge terminals and river elevators.
- Access roads to the barge terminals and river elevators.
- Navigation channel.
- Locks.
- Barge fleet.
- Export elevators.[14]

To complicate this issue is the fact that the waterway is owned and controlled by the Army Corp of Engineers.

Siltation has been problematic in the McNary Dam pool, which is the first Columbia River dam below the Snake River. If the Snake River dams were to be breached (removed), much of the grain (and other commodities) that is now barged on the Snake River could be expected to shift to loading or unloading facilities in the McNary Dam pool. Elimination of barge transportation on the lower Snake River will result in a less efficient system for moving freight.

In addition to the effect that dam breaching would have on the barge system, transportation impacts would also be shifted to the road and rail systems in the region. The mainline rail system, short-line rail system, and state and county road systems could all be expected to carry an increased share of the freight now shipped by barge. Depending on the

[14] Export elevators are elevators that can load export ships directly from the elevator.

closure all grain currently shipped by barge may be shifted to rail. This could cause capacity constraints to be reached.

The short-line rail system can also be expected to handle an increased volume of grain if the Snake River dams are breached. Unfortunately, the short-line railroads that currently operate in the grain-producing region of eastern Washington only generate enough revenue to cover operating costs, and are not generally able to finance capacity upgrades. Rail-served grain elevators may also require substantial capital improvements, if they are to handle the grain expected to shift from barge transportation. Many of these elevators have not been used for rail loading in years, and the condition of their equipment is unknown. Additionally, the rail sidings at many of these elevators are only long enough for three cars, while the current standard for sidings is a minimum of 25 or 26 cars.

The highway system will also face increased costs, due to shifting transportation patterns. Roads that were not designed and constructed to handle large volumes of truck traffic can be expected to face increased maintenance costs.

Other issues to be considered in this discussion are:

- The need for the eastern Washington producers to continue to move containerized commodities such as peas and lentils.
- The need to move products from the coast to eastern Washington that barges will not handle, such as fertilizers.
- The cost of long distance trucking as compared to either rail or barge.
- The transportation of products that do not have access to a waterway.
- Rail competitiveness as compared to barge and truck.

Rate Impacts

The fact that the region served by the Snake River barge system is also served by railroads means that neither mode of transportation is able to charge monopoly rates for service. Breaching the Snake River dams, however, would decrease competition and would likely lead to rate increases. According to the National Corn Growers Association, “it has been demonstrated numerous times that areas throughout the country that do not have access to barge transportation have higher rail rates.” The Tennessee Valley Authority examined the effect of barge transportation on rail rates on the upper Mississippi River, and concluded that “the continued availability of water transport appears to have a significant impact on the pricing behavior of other surface transportation modes—at least when these modes are reasonably close to the river. In particular,

there is a large body of economic literature, which suggests that available barge transportation effectively constrains railroad pricing for the transportation of commodities that are moved by barge. These barge-constrained rail prices have come to be called 'water-compelled' rates."

Statewide Information and Data Needs

The United States Department of Transportation (USDOT) and FRA are aware that statewide information and data is needed by the states in order to develop statewide rail plans. In these plans, the states set policies for freight and passenger rail transportation within their boundaries, establish priorities and implementation strategies that enhance rail service in the public interest, and serve as the basis for federal and state rail investments within the state. Currently, there is not enough data collected by the states or for the states in order for the analysis to be done to meet all of these expectations.

It is recognized that not only does the data need to be available but this data needs to be centralized into a designated office within state Departments of Transportation. The USDOT expects that these state rail plans will provide detailed insight into the concerns facing state transportation systems and set forth state visions of how rail transportation can address those issues. An element that the USDOT views as necessary includes multimodal transportation, especially ways in which modes can be integrated to serve transportation customers more effectively and efficiently.

States are in a unique position to provide information on local rail bottlenecks and resulting traffic congestion. Such information can affect the movement of goods and people, not only in that location but throughout the rest of the corridor as well. This lack of information can negatively affect the larger transportation network. Resolving such issues can improve transportation flows and positively affect the movement of goods and people far beyond state borders.

The current lack of a centralized point of data collection and retention limits the depth of the analysis that can occur on the system as a whole. As discussed throughout this plan, it is critical that the rail within the state and the nation be viewed as a total system and not individual ownerships or projects. Rail is one mode in the U.S. transportation system and it must be viewed as a part of the whole transportation system that must adequately and efficiently move both goods and people.

An example of the lack of critical information needed for decision makers is adequate data on short-line railroads within the state.

Short-line railroads (approximately 2,000 operating miles) are essential to the state economy, yet the state has virtually no physical condition information about these railroads. Most short-line railroads have no detailed condition inventory, while others have not updated their detailed condition inventory for many years.

A detailed, physical condition inventory of the state short-line railroad lines and facilities is needed to guide state investments for rail projects, specifically in the areas of project level analysis, infrastructure delivery planning, and decision making about rail infrastructure improvements. The condition inventory is estimated to cost between $1 million to $2 million, depending on level of detail and inclusivity required in the inventory.

A Statewide Rail Information Center Is Needed

A Statewide Rail Information Center would enable transportation planning and policy development to incorporate rail information to better support economic development and societal needs to address unexpected and disruptive events. A great deal of rail information and data exists at national, state, and regional levels. However, such data and information were not systematically organized and normalized to meet the needs of transportation planning and regional socioeconomic development.

The fact that rail information and data was not developed in a consistent way over time becomes a barrier for integrating rail information in transportation decision making. Gaps exist between availability of rail data and information and the needs for such data and information. This center would be able to develop needed data systematically and consistently to meet WSDOT's needs.

Regional economic planning organizations, transportation planning organizations, local communities, private industries, and information producers have a strong need for a statewide information center. This information center would assist these stakeholders to meet the challenges of systematically and consistently collecting, developing, and distributing freight information and data.

Summary

To retain the state's ability to compete in the complex world of goods movement, the state and its partners must position the state to provide efficient rail transportation. In order to accomplish this goal, the partners must work together to collect data that can be used to identify the chokepoints in the system. Those chokepoints must then be evaluated to determine their costs and benefits to both public and private stakeholders. A priority list must be developed based upon this analysis so that

policymakers can make educated decisions on the improvements that need to be funded and when. Working together the state can build an efficient rail network to support it citizens, businesses, and customers.

Washington State
Department of Transportation

Chapter 6: State Roles and Partners

Washington State's Current Roles

Transportation planning is an ongoing collaborative process to develop a multimodal transportation system that:

- Supports sound transportation investment decisions as evidenced in the overall program and its elements.
- Supports economic vitality.
- Increases safety and security.
- Increases accessibility and mobility options.
- Protects the environment and improves quality of life.
- Enhances system integration and connectivity.
- Promotes efficient system management and operation.
- Emphasizes system preservation.[1]

"Moving Washington" articulates Washington State's (state) vision for transportation. The vision focuses on improving freight rail capacity, promoting public safety, maintaining economic viability, and enhancing environmental sustainability. State roles support this vision through varied legislative statutes.

Four groups within the state government have legislatively mandated roles and responsibilities for oversight, management, and implementation of the state's interest in passenger and freight rail. They are the Washington State Department of Transportation (WSDOT), the Freight Mobility Strategic Investment Board (FMSIB), the Utilities and Transportation Commission (UTC), and the Washington Community Economic Revitalization Board (CERB).

Washington State Department of Transportation

WSDOT is charged with planning, funding, implementing, constructing, and maintaining the multimodal transportation system in this state. As such, it is the conduit for state and federal transportation dollars. Freight and passenger rail programs are housed within the State Rail and Marine Office. See Chapter 1 for authorizing statutes.

WSDOT is the steward of a large and robust transportation system, and is responsible for ensuring that people and goods move safely and efficiently. In addition to building, maintaining, and operating the state

[1] WSDOT Planning Office, www.wsdot.wa.gov/planning/.

highway system, WSDOT is responsible for the state ferry system, and works in partnership with others to maintain and improve local roads, railroads, airports, multimodal transportation facilities, and promote programs that encourage citizens to use alternatives to driving alone.

WSDOT works towards supporting the following statewide transportation policy goals established by the state legislature for all public investments in transportation:

- Safety.
- Preservation.
- Mobility.
- Environmental quality.
- System stewardship.

State Rail Transportation Authority

WSDOT is the agency that oversees multimodal planning, including rail, at a statewide level. The WSDOT State Rail and Marine Office provides project management, oversight capacity, and editorial control over the *Washington State 2010-2030 Freight Rail Plan*.

State Rail Approval Authority

The WSDOT Secretary of Transportation is the state-designated approving authority for the *Washington State 2010-2030 Freight Rail Plan*.

State Freight Rail Plan Advisory Committee

The State Freight Rail Plan Advisory Committee serves as the external rail advisory body for the *Washington State 2010-2030 Freight Rail Plan.*

Internal Advisory Group

The WSDOT Strategic Planning and Programs Office coordinates statewide multimodal transportation planning, priorities, and issues, including programming and financial planning.

WSDOT State Rail and Marine Office

The State Rail and Marine Office, which is part of the WSDOT Freight Systems Division, has a strategic leadership role for freight rail investment that is essential to manage the state's freight and passenger rail capital programs and operations.

Strategic Planning

The State Rail and Marine Office coordinates with public and private sector partners to develop strategic rail plans, policies, and legislative proposals that guide strategic investment in freight rail transportation. The office conducts legislative-directed policy and legislation analyses and strategic investment assessments. It develops and uses benefit/cost tools that reflect legislative priorities and stakeholder interests to prioritize freight projects and evaluate funding requests. It also develops strategic plans, such as the *Washington State 2010-2030 Freight Rail Plan*.

Program and Project Management

The State Rail and Marine Office manages freight rail programs and projects (i.e. capital construction projects, Freight Rail Investment Bank, Freight Rail Assistance Program, Grain Train program, Produce Railcar program, and state-owned rail lines discussed in Chapters 3, 5, and 8) that promote the goals of the freight rail system. Some increase public safety by reducing at-grade crossings with high accident potential (WSDOT/FMSIB projects), while others enhance capacity or leverage federal funding sources that enhance economic viability to meet the needs of the overall state economy.

Statewide Freight Rail System Utilization Data and Information

The State Rail and Marine Office helps stakeholders build an understanding of the issues and think about the potential of freight rail as part of a strategic multimodal transportation system. The office conducts research and analyses for freight policies and legislations. It develops and provides statewide freight rail system utilization data and information that is essential for regional and local freight planning and operations. Examples include freight rail system databases, physical and condition inventories, maps, needs assessment analysis, capacity studies, commodity flow and socioeconomic impact analyses, and freight modeling to forecast future capacity and needs.

Public Outreach

The State Rail and Marine Office provides outreach consistent with state and federal policies to increase public awareness and to broaden the understanding of railroad system costs, benefits, and investments necessary to form a cohesive and efficient multimodal transportation network.

In the past 18 years, the State Rail and Marine Office has used its powers and authorities under Chapter 47.79 RCW (high-speed ground transportation), Chapter 47.76 RCW (rail freight service), and Chapter 47.06 RCW (statewide transportation planning) in the following ways:

- To develop the Amtrak *Cascades* service as part of its high-speed intercity rail program.
- To acquire and preserve rail lines and rights of way abandoned by Class I railroads (and other railroads).
- To provide assistance to short-line railroads to maintain service for shippers and receivers who do not have access to mainline rail service.
- To lease specialized railcars (e.g. hopper cars for the Washington Grain Train program, refrigerated cars for the Produce Rail Car program) to ensure an adequate pool of equipment for state growers.
- To develop Amtrak *Cascades* long-range and mid-range plans, and coordinate with other statewide planning efforts.
- To develop a benefit/cost methodology to evaluate projects for potential investment.

The State Rail and Marine Office is currently managing more than 50 capital rail projects that are proposed, funded, or underway, and support freight and passenger rail mobility in the state. When completed, these rail projects will result in improved freight mobility, improved safety, reduced rail congestion, upgraded tracks, and improved frequency of Amtrak *Cascades* passenger rail service.

The State Rail and Marine Office follows a rail improvement strategy for state participation that is consistent with the Washington State Constitution. There are a number of provisions in the constitution that limit the state's involvement in the private rail system. The guidelines outlined in Article VIII of the constitution, "State, County, and Municipal Indebtedness," limit the extent to which the state, counties, or cities can give or loan credit to corporations. The provisions of RCW 47.76.250 (essential rail assistance account - purposes) address this limitation by clarifying how a state may participate in projects with private ownership. This RCW also allows private entities that meet minimum eligibility criteria to receive grant funds, if contractual consideration is provided in return. At a minimum, such contractual consideration shall consist of defined benefits to the public with a value equal to or greater than the grant amount, and where the grant recipient provides the state a contingent interest adequate to ensure that such public benefits are realized.

Freight Mobility Strategic Investment Board

FMSIB was created by the Washington State Legislature in 1998 and is established as a rule-making board by RCW 47.06A.030. Its purpose is to administer projects and strategies that lessen the impacts of freight movement on local communities and facilitate efficient and profitable freight movement in the state. The 10-member board has representatives from state ports, railroads, cities, counties, WSDOT, the Governor's Office, truckers, marine operators, and private citizens. Periodically,

FMSIB issues a call for projects in order to maintain a 6-year list of active projects. FMSIB's past rail funding has primarily supported grade separation and crossing improvement projects.

Utilities and Transportation Commission

The UTC protects consumers by ensuring that utility and transportation services are fairly priced, available, reliable, and safe. The UTC is responsible for railroad safety under Title 81 RCW (transportation). The rail group is part of the UTC Safety and Consumer Protection Division, but separate from the Transportation Safety Group, which covers persons and property traveling on state roads. A primary responsibility of the rail group is to work with the Federal Railroad Administration (FRA) to inspect rail shipments of hazardous materials. There are more than 300 inspection points throughout the state, including shippers' facilities, railroad yards, and terminals.

Washington Community Economic Revitalization Board

CERB is a statutorily authorized state board. CERB is the state's strategic economic development resource, focused on creating and retaining jobs in partnership with local governments, and financing public infrastructure that encourages new development and expansion in targeted areas. It receives administrative support from the state Department of Commerce. It issues grants and loans that will retain existing jobs and create new ones, boosting business growth across the state. CERB can provide funding for rail projects that promote industrial development and has done so in the past. An example of this type of project was its $1,000,000 low-interest loan to the Port of Longview to help construct a second rail line and rail spurs serving a planned new facility for processing newly imported cars.[2]

Summary

Each of these groups within state government has knowledgeable staff that carries out its mandates effectively. However, the lack of a central point of contact and coordination makes it difficult for businesses, communities, and the railroads to work with the state. In some cases, it weakens the state's negotiating position.

The existing statutes, in Appendix 1-A, define the state interest in freight and passenger rail, assign roles and responsibilities for the oversight of the state's interest in rail, and establish a number of specific passenger and freight investment programs. The statutes provide a broad foundation for continued state participation in the preservation and improvement of the

[2] *Statewide Rail Capacity and System Needs Study, Final Rail Study Report*, Section 4.3, pp. 36-37, 2006.

rail transportation system, where there are public benefits to the state, its businesses, and its communities.

Washington's Strategic Partners

The state has a leadership role to encourage and build strong partnerships within the public and private sectors that ensures future economic competitiveness and viability among the railroads, ports, shippers, governments, communities, and other key stakeholders. Such partnerships are built on common interests, common understandings, and existing relationships. Appendix 6 contains a list of WSDOT freight partnerships. Some of these partners and partnerships are discussed below.

Freight Railroads

Freight railroads are business ventures. Their motivation to work with the state originates from the possibility of improved financial return. They increasingly recognize their important role in meeting public goals, such as improved air quality. Freight rail projects and policies that simultaneously boost a railroads' bottom line and advance the public interest may merit greater attention and resources from the state during the planning processes as railroads are more likely to reciprocate. Chapter 3 describes the state's railroads in more detail.

Ports

Ports are the only public agencies whose primary mission is to promote economic development, and the related businesses and jobs.[3] According to the Washington Public Ports Association (WPPA), there are 75 port districts in the state that were originally authorized in 1911 to provide maritime shipping facilities and rail/water transfer facilities. Since then, many additional authorities have been granted, such as building and operating airports (1941); establishing industrial development districts (1955); developing trade centers (1967); and developing economic development programs and promoting tourism (1980s). Ports provide the public a direct way to own and manage important community assets such as waterfront land and airport facilities. Chapter 5 describes the state's ports in more detail.

Shippers

Shippers are the public and private sector customers of the statewide rail system. They move a wide variety of goods, including raw materials, finished goods, and waste, from origin to destination, using rail and other modes of transportation. Top shippers are the manufacturers/industrial

[3] WPPA, Commissioner Resource Guide, www.washingtonports.org/downloads/commissionerresourceguide.pdf/.

carload shippers, the ports and international trade sector/intermodal container shippers, and the agricultural and foods products industry/bulk and specialized carload shippers.[4] Chapters 3 and 4 describe shipping demand and rail freight services in more detail.

Other Partners

Federal Railroad Administration

The FRA was created by the Department of Transportation Act of 1966 (49 United States Code 103, Section 3(e)(1)). The purpose of the FRA is to promulgate and enforce rail safety regulations; administer railroad assistance programs; conduct research and development in support of improved railroad safety and national rail transportation policy; provide for the rehabilitation of Northeast Corridor rail passenger service; and consolidate government support of rail transportation activities. Today, the FRA is one of ten agencies within the United States Department of Transportation (USDOT) concerned with intermodal transportation. It operates through seven divisions under the offices of the Administrator and Deputy Administrator.[5]

The federal government, through the Passenger Rail Investment and Improvement Act of 2008 (PRIIA), requires coordination of the state rail plan with state transportation planning goals and programs. It also requires coordination of rail transportation roles within the state transportation system. Under the "Intergovernmental Coordination" section of PRIIA, the state should also review freight and passenger service activities and initiatives with regional planning agencies, regional transportation authorities, and municipalities.

Regional Planning Organizations

There are two types of transportation planning organizations in the state with coordination and development roles for projects and programs by region. A Metropolitan Planning Organization (MPO) is comprised of elected officials in an urbanized region with 50,000 or more in population. MPOs provide a forum for local decision making on transportation issues of a regional nature. Under the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the policy for the metropolitan planning process is to promote consistency between transportation improvements and state and local planned growth and economic development patterns.[6]

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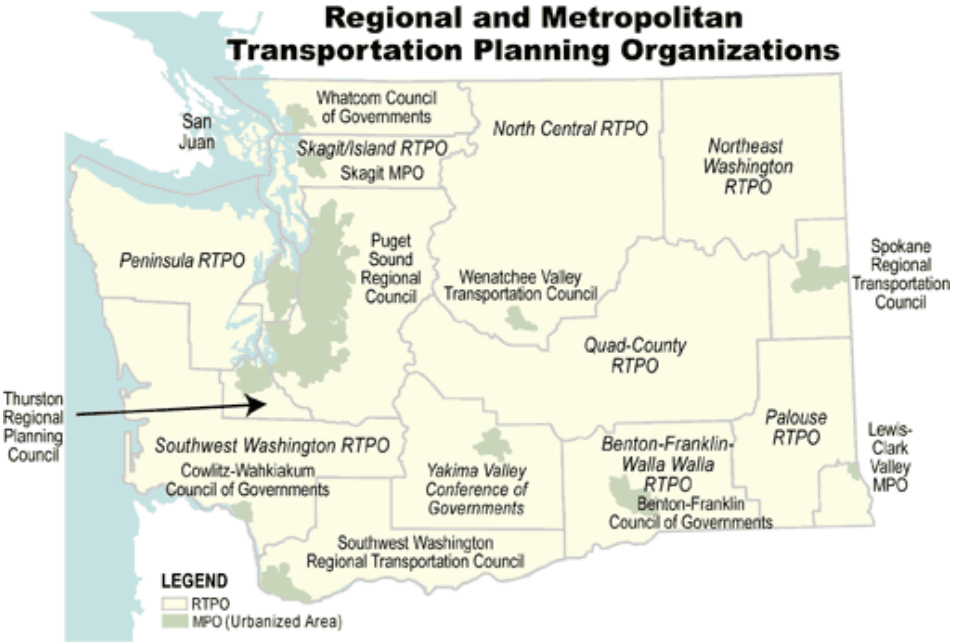
[4] *Statewide Rail Capacity and System Need Study*, Tech Memo 10.1, Analytical Plan, pages 4-5, 2006.
[5] FRA, www.fra.dot.gov/.
[6] MPO, www.wsdot.wa.gov/planning/metro/.

A Regional Transportation Planning Organization (RTPO) is formed through a voluntary association of local governments within a county or contiguous counties. RTPO members include cities, counties, WSDOT, tribes, ports, transportation service providers, private employers, and others. RTPOs were authorized by the state as part of the 1990 Growth Management Act to ensure local and regional coordination of transportation plans.[7]

MPOs and RTPOs are organized by function into executive, boards, policy boards, and technical assistance committees with supporting staff. Exhibit 6-1 is a map of the MPO and RTPO coverage across the state.

Exhibit 6-1: Regional and Metropolitan Transportation Planning Organizations



The MPO/RTPO Coordinating Committee includes a representative from each MPO and RTPO. It also includes a representative of the Tribal Transportation Planning Organization (TTPO). The TTPO is an advisory committee comprised of designated transportation planners from each tribe along with state and federal government representatives. The TTPO serves in a technical assistance and advisory capacity for tribal, state, and federal governments.

[7] RTPO, www.wsdot.wa.gov/planning/Regional/.

Tribal Governments

WSDOT maintains government-to-government relations with 35 federally recognized tribal governments. Twenty-nine tribes are located in the state; the additional six tribes have reservations outside the state, but have traditional homelands, treaty rights, or other interests within the state. Tribes may have public and private interests in freight rail development through the community and economic development arms of their governments.

Many tribes, including Chehalis Confederated Tribes, Colville Confederated Tribes, Kalispel Tribe, Nisqually Indian Tribe, Puyallup Tribe, Squaxin Island Tribe, Swinomish Tribe, Tulalip Tribes, and Yakama Nation, have reservation lands that are on or near railroad main lines or spurs. WSDOT will work with tribes to develop any potential rail-related projects and develop a detailed map that shows tribal reservation boundaries in relation to rail access.

WSDOT is committed to working with tribes to build durable intergovernmental relationships that promote coordinated transportation partnerships in service to all citizens. The *WSDOT Centennial Accord Plan* was created in accordance with the *1989 Centennial Accord* and the *1999 Centennial Accord Implementation Guidelines*. The *Centennial Accord* mandated that each state agency must have a procedure to implement effective government-to-government relations. The *WSDOT Centennial Accord Plan* includes the WSDOT Secretary's Executive Order on Tribal Consultation, a Dispute Resolution Policy, and detailed descriptions of the programs, services, and funding available to tribes from key WSDOT divisions and offices.[8]

Public-Private Partners

With funding limited for any infrastructure project, future investments may require involvement in public-private partnerships. Public-private partnerships are defined as a cost-sharing method of funding a project between public and private entities based on expected benefits. They may use a combination of funding sources and may include an integration of tax exempt bond financing (when available), state and federal loan guarantees, grants, or contributions from the railroads, as well as dedicated funding sources. Public ports use public-private partnerships, for example, in their lease arrangements for joint development of a terminal or facility. Ports transfer the future services rendered by a fixed

[8] WSDOT *Centennial Accord Plan*, March 2009, www.wsdot.wa.gov/tribal/Centennial_Accord.htm/.

asset (e.g., a container crane or other terminal facility) to a private organization, while retaining the title to that fixed asset.[9]

Strategic Rail Corridor Network

The Railroads for National Defense (RND) Program ensures the readiness capability of the national railroad network to support defense deployment and peacetime needs. The RND Program, in conjunction with the FRA, established the Strategic Rail Corridor Network (STRACNET) to ensure that FRA minimum rail needs are identified and coordinated with appropriate transportation authorities. STRACNET is a nationwide, interconnected, and continuous rail line network serving defense installations. STRACNET works with the FRA and USDOT's Surface Transportation Board, state departments of transportation, American Association of Railroads, American Railway Engineering and Maintenance of Way Association, Railway Industrial Clearance Association, and individual railroad companies to protect this railroad infrastructure.[10]

West Coast Corridor Coalition

The West Coast Corridor Coalition (WCCC) is a partnership of state departments of transportation, regional and local transportation agencies, ports, and related transportation organizations (both public and private) from Alaska to California. The WCCC has begun to identify regional, system-wide issues and develop a foundation allowing the coalition and its members to address issues and chokepoints that cross jurisdictional interests and financial boundaries.[11]

Strategic Planning

The State Rail and Marine Office recently participated in an FRA meeting as part of the development of a preliminary national rail plan. The issues discussed were summarized in the *2009 Preliminary National Rail Plan* (below).[12]

- Collaboration and stakeholder agreements.**
- Implementation timeline and evaluation criteria.***
- Need for public education/outreach.*
- Livability issues.
- Interconnectivity.*
- Sustainable federal funding.**

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[9] *Statewide Rail Capacity and System Needs Study*, Tech Memo 6, p, 25, 2006.
[10] RND, www.tea.army.mil/DODProg/RND/default.htm/.
[11] *West Coast Corridor Coalition Trade and Transportation Study*, www.wsdot.wa.gov/NR/rdonlyres/5A019EA4-50EF-4286-96F9-05398B52608A/0/_DR1_WCCC_TradeandTransportationStudy_COMPLETEweb.pdf.
[12] *2009 Preliminary National Rail Plan*, page 32.

- Sustainable state funding.*
- National equipment standards.**
- Environmental processes.
- Positive Train Control.*

* Issue was briefly discussed at the Seattle meeting.
** Issue was raised multiple times/discussed in greater detail at the Seattle meeting.
*** Most prominent issue discussed at the Seattle meeting.

The *2009 Preliminary National Rail Plan* addresses the need to rebalance the transportation system by strategically aligning the state rail plans and the national rail plan. It requires states to provide key leadership in developing common understandings, aligning goals, and taking actions that further state and national policy goals.

PRIIA (PL 110-432, Division B, Section 303) contains a legislative mandate that directs the FRA to develop a long-range national rail plan consistent with state-approved plans. PRIIA requires states to establish or designate a state rail transportation authority. This authority is responsible for:

- Developing statewide rail plans and policies for freight and passenger rail transportation within their boundaries.
- Establishing priorities and implementing strategies that enhance rail service in the public interest.
- Serving as the basis for federal and state rail investments within the state.

The FRA expects state rail plans to provide detailed insight into the concerns facing state transportation systems and to set forth their vision of how rail transportation can address those issues.

In addition to PRIIA requirements, the *2009 Preliminary National Rail Plan* provides the states with a framework of elements that the FRA views as necessary for creating a viable national rail plan. The FRA encourages states to collaboratively raise additional issues and provide other relevant information. States need to consider all other modes of transportation, especially ways in which modes can be leveraged to serve transportation customers more effectively and efficiently.

The National Rail Plan will examine passenger and freight corridors running through and between states, and coordinate the states' plans into a blueprint for an efficient national system, thereby meeting both regional and national goals. The majority of the infrastructure is owned and

maintained by the freight railroads. Therefore, the FRA will continue to work with states to develop plans that contain proposals or initiatives for partnering with freight carriers and other stakeholders in the development of plans and objectives.

The National Rail Plan will likely encourage rail development and growth, much like the model of the interstate highway system. The plan will also recognize that the traffic flow of passengers and freight rely on the connectivity of regional corridors that pass through several states.

Future Roles

Washington State

The *Statewide Rail Capacity and System Needs Study* (2006) made the following recommendations about building and aligning existing state powers and authorities to further the state interest in the rail system (some recommendations have been implemented):

- Influence the investment decisions of the Class I railroads to resolve rail chokepoints of critical importance to key rail user groups in the state and, thereby, provide more capacity for state rail users. This will generally involve public-private partnerships in which the state is a minority partner, but the state's investment can influence the timing and priority of the Class I railroads' investment decisions.
- Increase advocacy for a federal program that addresses critical national rail capacity needs. Many of the key capacity chokepoints in the state rail system affect the national economy and shippers outside of the state. The state should look for federal action and funding to address these chokepoints.
- Work with rail users in industrial and agricultural markets to assist in the transition to rail service models that preserve high quality, reasonably priced, rail service options. The state can help ensure that these transitions occur in a timely fashion before the lack of action has negative economic consequences for the state.
- Work with third-party service providers and advocate for innovative operations practices and services that support the economic development goals of the state and its communities.
- Establish local governance models that allow shippers and affected communities to be involved directly in the resolution of short-line problems.
- Support cost-effective intercity passenger rail options that improve the overall balance and performance of the state's highway and air passenger systems.

- Create a more effective, centralized, rail management function within state government with authority to advocate and negotiate state interests with the railroads.[13]

The study recommended that the state continue to participate in the preservation and improvement of the freight and passenger rail transportation system where there are public benefits to state businesses and communities. The study also recommended that state decisions to participate in projects, programs, and other rail initiatives be based on a systematic assessment and comparison of benefits and costs across users and across modes.

State Rail and Marine Office

Based on recommendations of this study and previous studies, the State Rail and Marine Office should continue to preserve and improve the rail transportation system, guided by the following general principles.[14]

1. Emphasize operations and nonfinancial participation in projects before capital investment.
2. Preserve and target competition.
3. Encourage private investment that advances state economic development goals.
4. Leverage state participation by allocating cost responsibility among beneficiaries.
5. Require projects to have viable business plans.

The State Rail and Marine Office should be designated by legislation as the single entity to coordinate and direct the state's participation in the preservation and improvement of the rail transportation system. The office should have the authority to negotiate directly with the railroads.

As a single entity performing these duties, the State Rail and Marine Office should be able to:

1. Represent the interests of multiple stakeholders in negotiations with rail carriers more effectively than individual stakeholders by themselves.
2. Develop strategic packages of projects and actions across the state that would effectively promote state interest and be more attractive to the rail carriers than dealing with projects on a case-by-case basis.

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[13] *Statewide Rail Capacity and System Needs Study*, Final Rail Study Report, Section 4.4 through Section 5.6, pp. 37-55, 2006.
[14] *Statewide Rail Capacity and System Needs Study*, Final Rail Study Report, Section 4.4 through Section 5.6, pp. 51-52, 2006.

3. Better serve the interests of multiple communities in resolving common rail issues.
4. Work more effectively with partners in other states and at the national level.

The State Rail and Marine Office should continue its leadership role to influence and shape state and national level development of rail policies and programs, including the coordinated development of multistate coalitions to address rail system needs across the Pacific Northwest.

The State Rail and Marine Office should continue its leadership role to work with the railroads to identify, prioritize, and implement the most cost-beneficial regional improvements.

The State Rail and Marine Office should also implement an asset management plan to govern investment and management decisions for state-owned rail assets. Guiding principles should include:

1. Decisions based on a business-case analysis of the goals and objectives for each class of assets.
2. Clear performance measures and a monitoring system to determine how assets are performing.
3. Benchmarks for each performance measure based on industry standards.
4. Development and use of an inventory management system, including information about condition and disposition of assets.

Continued Statewide Coordination and Partnerships

Public-public, public-private, and private-private partnerships of the future will increase in importance and include new financing mechanisms that involve multistate, multimodal coordination. The *Statewide Rail Capacity and System Needs Study* (2006) includes examples of innovative partnerships, such as rural rail transportation districts, multistate consortiums, statewide strategic partnership board, and rail operations forums. Rail operations forums, for example, are meetings of public and private sector rail stakeholders that are held on a monthly or quarterly basis. At the meetings, stakeholders discuss, plan, and implement operational actions that can improve the efficiency or velocity of the rail operations of the group.[15]

Investments in big projects with statewide public benefits will require public leadership and partnerships driven by public interest. With the American Recovery and Reinvestment Act of 2009 Track 3 and 4 grant

[15] *Statewide Rail Capacity and System Needs Study*, Tech Memo 10.3, pp. 1-8, (2006).

applications, for example, the lead agency of each project would need to develop a funding plan and partnership profile in order to demonstrate the 50 percent funding match and leverage funds for public funding support. To enable effective corridor-level system development with impacts beyond the confines of state boundaries, multistate multimodal coalitions and plans are needed. Such coalitions and partnerships, using a sound benefit/cost methodology based on goals and legislative priorities, will provide input into the state prioritization and investment processes to prioritize projects in the statewide public interest. The state will have an important leadership role to encourage partnerships that succeed in meeting future rail infrastructure priority needs.

Conclusion

The WSDOT State Rail and Marine Office has an increasing strategic planning role in statewide passenger rail and freight rail development. Clarification is needed to align the office's role and authority with the vision and goals developed earlier in this plan. To be in alignment with other state plans, the state passenger and freight rail plans should be combined into a "one-rail" plan and updated frequently in the future.

Washington State
Department of Transportation

Chapter 7: Investment Prioritizing and Project Evaluation

Freight rail has many benefits. With its cost effectiveness, fuel efficiency, safety records, and lower environmental impacts, freight rail is a viable option to help solve economic, social, and environmental problems with integrated solutions.

The freight railroads in Washington State (state) are owned mainly by private entities and for-profit companies. Despite primarily private ownership, freight rail transportation provides public benefits that warrant taxpayer participation in improvements at both federal and state levels. The common public benefits associated with freight rail include stimulating the state's economy, supporting local communities and businesses with jobs and revenues, reducing congestion, improving public safety, offering a transportation choice for shippers, reducing environmental pollution, and saving energy.

Investment policies in freight rail are developed by both public and private policymakers. However, the benefits and costs from public perspectives are very different than those from private perspectives. Therefore public investment priorities, criteria, and decision-making processes are also different from those of private investment.

Decision makers of public investment include federal agencies, state agencies, tribal agencies, and regional and local public entities, such as counties, cities, and ports. Private investment decision makers include private entities and individuals, such as railroads.

Public and Private Benefits

For rail-related investment, private benefits have typically accrued to rail carriers, shippers, rail property owners, and other non-governmental groups. Public benefits are broadly assigned to government agencies that represent taxpayers.

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA)[1] definitions of public and private benefit are described below:

[1] PRIIA (Public Law No. 110-432, Division B, enacted Oct. 16, 2008, Amtrak/High-Speed Rail).

Private Benefit

Private benefit is a benefit accrued to a person or private entity, other than Amtrak, that directly improves the economic and competitive condition of that person or entity through improved assets, cost reductions, service improvements, or any other means as defined by the Secretary.

Public Benefit

Public benefit is a benefit accrued to the public, in the form of enhanced mobility of people or goods, environmental protection or enhancement, congestion mitigation, enhanced trade and economic development, improved air quality or land use, more efficient energy use, enhanced public safety or security, reduction of public expenditures due to improved transportation efficiency or infrastructure preservation, and any other positive community effects as defined by the Secretary.[2]

Federal Requirements

The new law (PRIIA) requires the project list, in states' long-range service and investment programs, to document the anticipated public and private benefits and the public investment benefit-cost correlation for each project. PRIIA also specifies that states consider additional economic and societal impacts of investment projects (Exhibit 7-1).

Exhibit 7-1: Federal Requirements for Benefit Assessment and Documentation

Required Documentation for Each Project	**Anticipated private benefits**	• Economic competitiveness • Cost reductions • Improved assets • Service improvements
	Anticipated public benefits	• Congestion mitigation • Enhanced trade and economic development • Improved air quality • Improved land use • Enhanced public safety • Enhanced public security • Reduction in public expenditures • Community effects
	Correlation between public funding contributions and public benefits	***Statement and/or benefit/cost ratio***

Source: American Association of State Highway and Transportation Officials (AASHTO) *State Rail Planning Guidebook September 2009*

[2] *2009 AASHTO State Rail Planning Guidebook*

State Requirements

Under ESHB 1094, the Washington State Legislature required the Washington State Department of Transportation (WSDOT) to develop and implement the benefit/impact evaluation methodology recommended in the *Statewide Rail Capacity and System Needs Study*, which was published December 2006.

The study recommended that three categories of public benefits should be included in benefit/cost (B/C) analysis (Exhibit 7-2).

The study also recommended that the state measure benefits in terms of each user group. The measures that best describe the potential benefits and impacts to each group are presented in Exhibit 7-3.

Freight Rail Investment Analysis in Washington State

Priorities and Criteria

Projects should be evaluated using the same methodology that would provide consistent and objective comparisons to federal grants, state funds, local public entities, and private partners. The value of a standard methodology, or at least broadly accepted factors or parameters, is to establish mutually acceptable benefits vernacular for evaluating the projects side-by-side.

Priorities and criteria for evaluation reflect public investment policies and determine how the evaluation will be performed.

Benefit evaluation in this state will follow both federal and state priorities and criteria. PRIIA does not specifically require states to prioritize projects, but it does require a prioritization of options to increase intermodal connectivity. State legislation requires that WSDOT develop a B/C methodology and use it to evaluate state projects based on six clearly specified legislative priorities:

- Economic, safety, or environmental advantages of freight movement by rail compared to alternative modes.
- Self-sustaining economic development that creates family-wage jobs.
- Preservation of transportation corridors that would otherwise be lost.
- Increased access to efficient and cost-effective transport to market for the state's agricultural and industrial products.
- Better integration and cooperation within the regional, national, and international systems of freight distribution.
- Mitigation of impacts of increased rail traffic on communities.

Exhibit 7-2: Variables for the State Benefit/Cost Analysis

Variable Description	Explanation
Transportation and Economic Benefits	
Avoided maintenance costs	If the project preserves rail service, the no-action alternative may put more trucks on the highway. This may produce a net positive or negative benefit, to be evaluated based on the type of road affected and the cost of maintaining the rail line.
Reduction in shipper costs (for shipments originating in state) – freight only	Benefits are derived from lower logistical costs to the shippers, which ultimately can lead to lower consumer prices.
Reduction in automobile delays at grade crossings	Benefits result from improving grade crossings and decreasing automobile delays.
Economic Impacts	
New or retained jobs	Jobs that a particular project/action may keep from moving out of the state (e.g., by construction of a rail spur serving a factory or warehouse, etc.), or new jobs that are created within the state. Also to be considered are changes in job quality and pay levels (e.g., adding, losing, or changing union jobs). This measure accounts for both retained and new jobs.
Tax increases from industrial development	A rail action/project may foster industrial development that results ultimately in increased industrial property taxes to the state.
External Impacts	
Safety improvements	By diverting truck freight to rail, savings on highway safety improvements can occur.
Environmental benefits	Railroads are on average three or more times more fuel efficient than trucks. The state can benefit from savings due to environmental improvements.

Source: *Statewide Rail Capacity and System Needs Study* (2006)

Exhibit 7-3: Benefit and Cost Measures

Rail User	Benefit and Cost Measures
State	• Jobs created/retained (private sector, public sector, and impact on rail-related union jobs). • Tax benefits (through new or retained businesses). • Contribution to transportation system efficiency/balance (measured in terms of reduced travel delays, improved system reliability, or system redundancy as appropriate). • Environmental benefits (air pollution and water quality impacts). • Safety benefits (reduced property damage, injuries, and fatalities). • Availability of partner funding. • Cost to state. • B/C ratio (using recommended B/C analysis methodology)
Shippers	• Business cost impact (through impact on cost of service). • Access to service (does project increase rail/transportation service options). • Service reliability (on-time performance). • Transit time.
Passengers	• Rail capacity for passenger trains. • Travel costs. • Travel time. • Increased modal choice/access.
Railroads	• System velocity improvements. • Hours of train delay. • Yard dwell time. • Increased revenue traffic. • Equipment availability.
Ports	• Throughput. • Market share.
Communities (similar to state)	• Environmental benefits. • Safety benefits. • Reduced roadway delays and truck/auto delay at grade crossings. • Local jobs created or retained.

Source: *Statewide Rail Capacity and System Needs Study* (2006)

These priorities are in order of relative importance specified by the legislature. This requirement also directed WSDOT to evaluate rail project benefits compared to alternative modes.

Understanding Principles in Assessing Public Investment

Investment analysis in the public sector is very different from private sector analysis. There are several principles that must be understood in analyzing public investment and public benefits.

Discounting

Discounting addresses the problem of translating values from one time period to another. The larger the discount rate, the more weight that is placed on benefits and costs in the near-term, over benefits and costs in the future. Long-term benefits, such as environmental quality, are important public policymaking criteria. Consequently, public investment analysis usually uses a relatively lower discount rate than the private sector.

Leveraging

Public projects usually involve multiple sources of investment and partnership. While the analysis of such an investment assesses the efficiency, it also assesses the effectiveness of public investment only. In other words, a measure of the effectiveness of public investment is how much additional investment a public investment can bring into a specific project. This measure is called leveraging.

Distributional Benefits

Many public investment projects provide distributional benefits to the public by transferring public resources to where they are needed most. Such a transfer payment is not a traditionally defined benefit. It could be measured as a public benefit, if it helps reach the goal of public policy to benefit the targeted public group.

With/Without Principle

Many public investment projects provide benefits to the public by mitigating negative impacts. While such investment does not create positive value, it reduces the negative value. The difference between the larger negative value and the smaller negative value is defined as a benefit based on the with/without principle. For example, a freight rail capital project could lead to removal of some trucks from a highway. This will reduce environmental emissions since rail, in general, has less emission per ton-mile. Without such an investment project, societal loss due to higher emissions would be much larger. The reduced societal loss would be the benefit of the investment project.

Period of Analysis

The length of a period used for analyzing benefits and costs is very important. Many public benefits last for a long period of time, while investment occurs in early stages of a project life. Therefore, a full lifecycle is preferred in public investment analysis.

Evaluation Strategies and Methods

PRIIA-Defined Benefits and Potential Project Evaluation Strategies

Exhibit 7-4 outlines each of the PRIIA-defined benefits and potential project evaluation strategies for these benefits.

Exhibit 7-4: PRIIA-Defined Benefits and Evaluation Strategies

Benefits	Source of Benefits or Impacts	Potential Measurement
Economic competitiveness	Improved assets and service reliability or frequency allows companies to do business more efficiently.	Lower business costs (e.g., savings resulting from faster travel time and other improvements) increase the competitiveness and business attraction to the state.
Improved assets	Infrastructure, rolling stock, or facilities improvements.	Lower costs for capital maintenance of assets.
Cost reductions	Time savings provides unit cost reductions (labor, inventory, etc.) accruing to carriers, shippers, and passengers.	Lower total business costs (from all categories) and lower personal travel costs (e.g., less auto maintenance and gasoline; fewer hours of highway delay).
Service improvements	Time savings, improved reliability, new access, increased frequency, added capacity.	Time savings due to increased speed, reliability, and frequency accruing to rail passengers, carriers, and shippers.
Enhanced mobility of people and goods	Improved mode choice options and services.	Reduced distance to passenger stations or freight terminals and improved intermodal linkages.
Environmental protection or enhancement	This consideration is closely related to air quality effects (below) but could measure other benefits to water quality, wildlife, noise, historic resources, or other factors outlined in National Environmental Policy Act (NEPA).	States should use existing study information from Environmental Impact Statements (EIS), Environmental Assessments (EA), or other resources and customize to the unique characteristics of the project.

Benefits	Source of Benefits or Impacts	Potential Measurement
Congestion mitigation	Highway-to-rail diversion of passengers and freight decreases highway congestion. Investment in rail capacity decreases rail congestion.	Some statewide or multi-state highway models can predict change in hours of delay. Other tools, including FHWA's HPMS or HERS can be used to estimate delay effects. Rail carriers can predict similar measures.
Enhanced trade and economic development	Similar to the economic competitiveness measure with benefits originating from improved travel time, capacity, or improved access or connectivity.	Estimated increase in tonnage or value of commodities due to rail improvement.
Improved air quality	Changes in mode share are the chief drivers of air quality benefits. On a per-passenger-mile and per-ton-mile basis, rail generally produces more savings than other modes.	Use the change in miles traveled by mode to estimate the net reduction in emissions from standard factors for pollutants produced on a per-mile basis for passengers or freight.
Improved land use	Better coordination of transportation and land use.	Percentage of residents and businesses with good access to rail facilities/stations. Cost savings by reducing average trip distance to rail by auto or commercial vehicle.
Enhanced public safety	Reduced highway vehicle miles traveled (VMT) for truck and auto, lowering crash exposure.	Savings resulting from lower medical care, vehicle repair, highway delay, and legal costs associated with crashes. Standard cost of crash rates per mile.
Enhanced public security	Protecting the public from crime or terrorist events results in public cost savings similar in scope to those associated with safety.	Reduced risk of security incident resulting from investment in surveillance, physical barriers, or other measures.
Reduction in public expenditures	Improved transportation efficiency or infrastructure preservation from decreased highway VMT.	Savings from lower maintenance and safety directly resulting from lower auto and truck VMT.
Community effects	Enhanced livability provided by expanded transportation options, including intermodal linkages, walk-ability, and local commerce.	New or improved linkages between modes, high-density development, and non-motorized transport (e.g., walking paths, bike trails).

Source: *AASHTO State Rail Planning Guidebook* September 2009

Methods Recommended in the *Statewide Rail Capacity and System Needs Study* (2006)

The Washington State Transportation Commission (WSTC) *Statewide Rail Capacity and System Needs Study* used several sources of information to determine the variables to measure public benefits in the state, including the following:

- Best practices review of rail B/C methodologies used by other states and organizations.
- Consultation with area experts—including shippers, community association representatives, ports, railroads, and others—who are members of the Washington State Rail Study Technical Resource Panel.
- Metrics derived from established state policy as captured in the Revised Code of Washington and in previous case studies of state participation in the rail system.

The study recommended that B/C ratio be applied to all projects, both passenger and freight. The B/C ratio would enable state decision makers to evaluate cost-benefit tradeoffs and not focus solely on benefits. The precise calculation methodology for the B/C ratio is left to WSDOT to finalize and may vary depending on the project type and the level of investment. The study also recommended that the three category benefits (in Exhibit 7-2) are quantified in the benefit/impact methodology to be developed by WSDOT.

However, the B/C ratio is only one of the measures used to evaluate benefits and impacts to the state. Some of the other measures are also included within the B/C calculation, but they are also broken out separately so that decision makers can weight these more heavily when making decisions than they would be in a true B/C ratio. The framework does not recommend a specific weighting procedure, but leaves this decision to the legislature or the WSTC.

The study also recommended user group benefit assessment. Measures that best represent public benefit are determined for each user group. The metrics to characterize and measure the public benefit of a rail action are presented in Exhibit 7-3. The metric selection reflects the stakeholder involvement process in WSTC's study. Benefits and impacts of individual projects or groups of projects are evaluated for each of four groups of affected parties: 1) the state; 2) users (shippers and passengers); 3) carriers (railroads and ports); and 4) communities (affected by rail service to or through the community). The idea of the framework is to determine whether the impacts of the project or package on each group is positive or negative, and if the impact is high, medium, or low, relative to the needs

of that group. The results of this evaluation tell whether other parties should be involved in the project and what type of partnership arrangement is most appropriate. The evaluation of a project as having high, medium, or low benefits/impacts is always based on a comparison with some other action—at least a no-action scenario, but preferably at least one other option that may or may not involve providing the transportation service by another mode (Exhibit 7-5).

Exhibit 7-5: Possible Methodology to Measure Public Benefit in Washington State

	Measures	No action	Alternative A	Alternative B
State	Jobs			
	Tax/Fee Benefits			
	System Efficiency			
	Environmental Benefits			
	Safety Benefits			
	Partner Funding			
	Cost to State			
	Benefit/Cost			
	Transit Time			
	Summary State			
Shippers	Business Cost Impacts			
	Access to Service			
	Service Reliability			
	Summary Shippers			
Passengers	Rail Capacity for Passenger Trains			
	Travel Costs			
	Travel Time			
	Increased Modal Choice/Access			
	Summary Passengers			

	Measures	No action	Alternative A	Alternative B
Railroads	System Velocity Improvements			
	Hours of Train Delay			
	Yard Dwell Time			
	Increased Revenue Traffic			
	Equipment Utilization			
	Summary Railroads			
Ports	Throughput			
	Market Share			
	Summary Ports			
Communities	Environmental Benefits			
	Safety Benefits			
	Reduced Roadway Delays			
	Local Jobs			
	Summary Communities			
National	Percent Benefits in Washington State			
	Other States Benefiting			
	Summary National			

Source: WSTC *Statewide Rail Capacity and System Needs Study* (2006)

Rail Benefit/Impact Evaluation Methodology – Description

The benefit/impact evaluation method was developed in 2007, based on legislative direction and priorities specified by the legislature.

Stakeholder Involvement

WSDOT formed an advisory group that includes a broad range of stakeholders to guide the development of Rail Benefit/Impacts Methodology. The Advisory Committee consisted of the Freight Mobility Strategic Investment Board, Department of Commerce, Department of Agriculture, WSTC, labor, mainline railroads, short-line private railroads, representatives from cities and counties, various ports, legislative and Governor's staff, and WSDOT staff.

Guiding Principles

The Advisory Committee developed six guiding principles for the development process:

- Provide a benefit/impact evaluation methodology and supporting tools as recommended in the *Statewide Rail Capacity and System Needs Study* (2006).
- Develop a benefit/impact evaluation methodology that includes the priorities set forth in ESHB 1094.
- Develop a benefit/impact evaluation methodology that includes measurable public benefits.
- The *Statewide Rail Capacity and System Needs Study* (2006) recommends using only a few good measures, including applying qualitative analysis techniques.
- This document is dynamic and proposed alternative evaluation methods should be reviewed for incorporation or used as supplements.
- Decision makers will take into account the public interest and good, going beyond analysis of single stakeholder interests.

Rail Benefit/Impact Evaluation Methodology

The Rail Benefit/Impact Evaluation Methodology is comprised of the following components:

- Rail Benefit/Impact Evaluation Methodology (Guidance Document)
- Proposal Application
- Rail Benefit/Impact Evaluation Workbook
  - Legislative Priority Matrix
  - Project Management Analysis
  - User Benefit Levels Matrix
  - Benefit/Cost Analysis Calculator
  - Benefit/Cost Analysis Summary Sheet
  - Benefit/Impact Evaluation Summary Sheet

The components of the methodology are intended to assist the decision maker in the evaluation and recommendation process. The level of rigor applied to the use of any tool should recognize the type, size, and complexity of project and expectations of results.

Application Process

The application for a rail grant or loan is the document that gathers the initial information that will be evaluated for possible selection. The application needs to collect enough information to effectively start the evaluation and selection process. It also needs to contain information for follow-up calls to users and applicants.

Since calls for projects may be driven by a variety of factors and limitations, there needs to be clear communication on the application document to ensure the right information is gathered. A standard application may not fit all calls for projects; therefore the application may need to be modified to gather the appropriate information.

At other times, a project may simply be assigned without an application process through legislation. Such a project still requires that a benefit/impact evaluation be conducted and the results and recommendations shared with the appropriate parties to validate the project or show the level of impacts and alternatives.

Benefit/Cost Calculator

The B/C Analysis is a major component of the Rail Benefit/Impact Evaluation Methodology that will be used when evaluating rail projects. The calculation (B/C ratio) produced will also be supplemented with an assessment of other benefit categories. That supplemental information will be generated by the requested project information in the application form. The major categories for B/C Analysis will be:

- Transportation and economic benefits.
- Economic impacts.
- External impacts.

The Benefit/Cost Analysis Calculator was created to assist in a fast evaluation of benefits as specified in the previous section. The Benefit/Cost Analysis Calculator is a spreadsheet with areas of benefit, equations for calculations, and benefit parameters to calculate the B/C ratio for a given project or action on a project.

The defined equations and input areas in the calculator are based on documented standards, research, and common practice. These equations will be periodically reviewed and updated with changes in industry practices, price indexes, and new accepted standards. The input values must be verified based on actual data and verifiable field information in consideration of expected project results, freight logistics, user logistics, local economic influences, current costs, impacts to industries, and historical data. The Benefit/Cost Analysis Calculator uses default values that are included in the equations contained in the Benefit/Cost Instruction sheet. They are used to calculate a dollar value for benefits. These default values are based on generally accepted practices and some may need to be adjusted for project specific goals and objectives. For more detailed information on the application of values to specific project objectives and

goals, a review of *NCHRP Report 586* should be done.[3] WSDOT economists will update these default values every biennium.

Legislative Priority Matrix

This qualitative evaluation tool was also developed to help policymakers understand the results and effects of proposed investment. One of these qualitative matrices is Legislative Priority Matrix. The Legislative Priority Matrix worksheet is intended to help the evaluator determine how a project aligns with the legislative priorities. The priorities were provided in a relative order of importance. Each priority area is weighted based on that order.

The benefit measures that have been identified for each priority are to be used as a baseline of measures. In the future, there may need to be other or different measures considered for a project. As the new measures and their parameters are identified and proven, they should be included for use on future projects. This matrix is used to aid benefit/impact evaluation in terms of state priorities and to provide additional information based on expert and value judgments to determine a project's public value.

Project Management Assessment Matrix

The Project Management Assessment Matrix is intended to help determine the current status of the project and how likely it can successfully be delivered within the constraints of scope, schedule, and budget. The scores are compiled to determine a project management score. The comment box should note how a score was determined.

User Benefit Levels Matrix

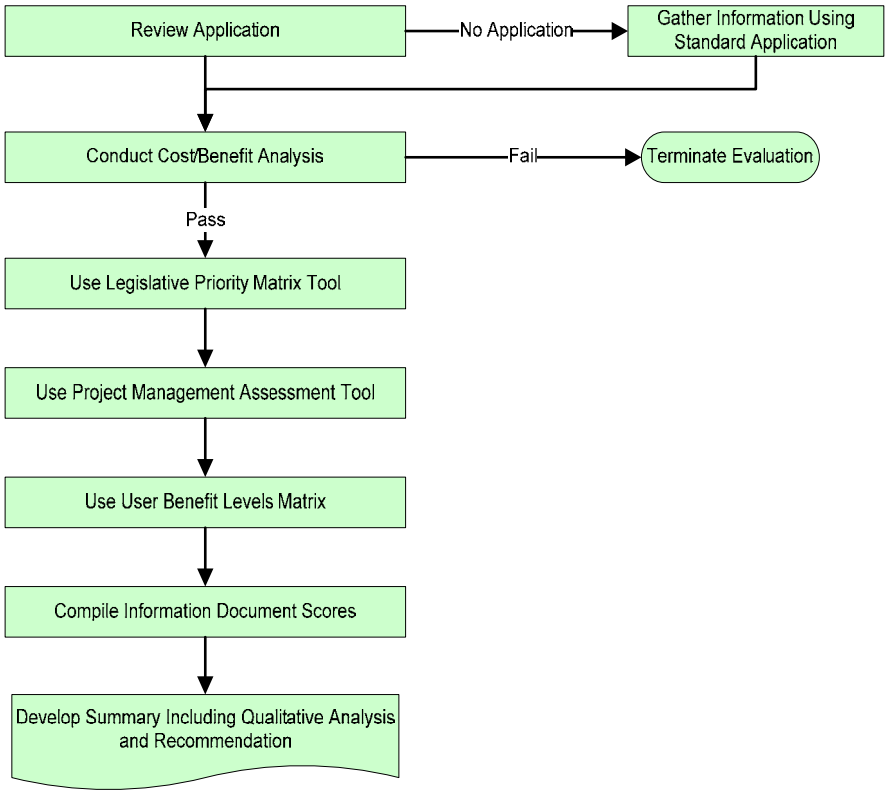
The User Benefit Levels Matrix is intended to help determine who benefits from the project and at what level. Each measure of the matrix is to be completed by assigning a percentage that represents the amount of benefit for each user. The percentage of benefits is then added for each user and divided by the number of measures used, to provide an overall project benefit for each user.

Project Evaluations

A project evaluation may begin with a proposal application or by a request from the legislature. Both will require evaluation steps to be completed as indicated in Exhibit 7-6 and as described below:

[3] TRB NCHRP Report 586: Rail Freight Solutions to Roadway Congestion - Final Report and Guidebook.

Exhibit 7-6: Benefit Impact Evaluation Process



1. Review the application or obtain information to conduct the evaluation. If there is no application, use the current general project application, eliminating superfluous questions. This is a tool to identify what information is needed from the project stakeholders.
2. Next, the WSDOT State Rail and Marine Economist will compile data for a B/C analysis and use the Benefit/Cost Analysis Calculator. Any additional data or information necessary to analyze the true benefits and costs will be included. This may require a qualitative analysis and summary.
3. If the Benefit/Cost Analysis Calculator indicates a ratio greater than one, then the Legislative Priority Matrix should be used. The evaluator should use the tool as indicated in its guidance for each priority measure. Once complete, justification for selections and a score will become part of the project documentation.
4. The evaluator will use the Project Management Assessment Matrix. If the evaluator has questions on any of the project management assessment areas, they should contact one of the State Rail and Marine Office Project Managers. This will ensure consistent interpretation with adopted standard operating procedures.
5. The final tool to be used is the User Benefit Levels Matrix. This tool helps determine which users are receiving a benefit and at what level.

6. Once a project has been through the above steps, the evaluator needs to compile all of the information to generate a score and to develop a recommendation. Depending on the project, a qualitative summary may need to be included to convey benefits that are not easily quantifiable.
7. If there are multiple recommendations, a summary should be written to incorporate all recommendations for easy review.

Decision Documentation

While the workbook spreadsheets provide documentation and justification for the decisions made, there may be additional documentation requirements. Documentation on value judgments that are qualitative rather that quantitative will need to have supporting information about the decision. When required, the decision documentation package should include:

1. Summary of spreadsheet determinations including alternatives.
2. Additional social or economical values considered.
3. Justification for value judgment determinations.
   a. Benefits and impacts reviewed.
   b. How the reviewed benefits and impacts apply.
   c. Determination considerations.
   d. Justification documentation.

Appendix 7 provides more details about the benefit/impact methodology.

Limitations and Future Improvements

Limitations

The Rail Benefit/Impact Evaluation Methodology has limitations:

- While this tool is a way to consistently evaluate proposed projects in a fast-paced legislative decision process, it is more suitable for smaller size projects that need decision support information in a short timeframe. Large investment projects need customized B/C analysis and socioeconomic impact assessment specifically designed for the project, based on both federal and state requirements and other specific considerations.
- While default benefit values built into the model can provide consistent and fast analyses to present valuable information, these values, in general, reflect an average of those benefits. Some projects deviate greatly from the average situation and might find that the benefit evaluation from the tool is not accurate. Again, large

investment projects need a customized B/C analysis and socioeconomic impact assessment to justify the size of the investment.

- The evaluation of societal impacts is standard in this tool. This might not reflect true societal impacts of some rail projects. Large investment projects need a more detailed assessment of societal impacts of the rail project.

Future Needs and Improvements

The methodology was developed primarily based on state requirements and federal requirements before PRIIA. The new federal requirements to evaluate and document project benefits have not yet been incorporated into the methodology. WSDOT is prepared to update the methodology when federal guidelines become available.

The Rail Benefit/Impact Evaluation Methodology and tools have been developed with the ability to expand future versions. One such expansion will be the inclusion of the information from the Statewide Rail Data and Analytic Program. This new information will be part of all project evaluations once it is available. Incorporation of this data into project evaluations will generate recommendations consistent with statewide freight strategic goals.

In addition, as changes in the economy and state goals occur, the methodology will need to be updated to ensure the correct benefits and measures are being used. The methodology addresses the need to use lessons learned for improvement as well as being dynamic enough to stay current. A technical work group will be put in place to periodically review baseline evaluation results and the latest evaluation results to ensure that the correct measures and benefits for the current freight conditions are being used.

Washington State
Department of Transportation

Chapter 8: Financing Washington's Freight Rail System

This chapter reviews the needs of Washington State's (state) freight rail system as identified by the stakeholders and Washington State Department of Transportation (WSDOT) staff. The project list is discussed followed by a synopsis of funding sources. The chapter concludes with the vision of future funding for state freight rail investments.

Needs for Investment

This section presents short- and long-term freight rail needs in the state. The needs assessment is based on unconstrained capital projects submitted directly by the state's railroads, ports, public agencies, and other key stakeholders. The needs assessment identifies 109short- and long-term statewide capital improvement projects and initiatives. The total investment needed for the projects, where cost estimates are available, is $2.0 billion.

Driven by customer demands and changing trends, freight rail needs constantly change. The primary purpose of the needs assessment is to develop a comprehensive project list of unconstrained, current priority freight rail improvements as identified by the stakeholders. This list will allow WSDOT to gauge the condition of the system and assess potential public involvement. The freight railroad system needs include both private and public sector capital improvement projects.

Inclusion of a need/project in the *Washington State 2010-2030 Freight Rail Plan* does not constitute a commitment on the part of WSDOT or the state to provide funding.

Exhibit 8-1 describes the needs identification process to develop the project list.

Exhibit 8-1: Needs Identification Process

Timeframe	Activity
March through June 2009	Develop the Projects Survey (online and PDF file formats) based on American Association of State Highway and Transportation Officials (AASHTO) guidelines, model rail plans, and key stakeholder interviews.
	Introduce the needs assessment and survey tool at the June 11 Advisory Committee kick-off meeting.
July through December 2009	E-mail the Projects Survey to Advisory Committee, railroads, ports, shippers, Metropolitan Planning Organizations (MPO)/Regional Transportation Planning Organizations (RTPO) Coordinating Committee, and associated organizations.
	Use e-mail, Web site, and e-newsletter to promote the survey and encourage responses.
	Open the survey to maximize responses. The survey was originally opened from July 31 to August 19, extended to August 21, then left open.
	Review survey responses and clarify any questions. Present a project list summary for discussion and suggestions at the September 30 and October 6 Advisory Committee meetings.
	Augment the project list and needs assessment based on suggestions, prior studies, sources, and knowledge of WSDOT project team.
	Evaluate and analyze the project list for inclusion in the plan.
	Review the project list with stakeholders as part of the overall plan review process.

Source: WSDOT State Rail and Marine Office

The plan does not include all of the statewide freight rail needs for several reasons. First, the freight railroads are private, for-profit businesses. In some cases, they did not submit all their capital needs for inclusion in this public document. This is especially true in cases where private capital is available to fully fund planned improvements, where railroads believe that public involvement in specific projects is less likely, and where disclosure of a need could adversely affect strategic business ventures. Second, the

outreach effort to develop the needs assessment/project list was limited due to resources available. Increased outreach to stakeholders could encourage respondents (i.e. more interviews, more rounds of review) to identify more projects. Therefore, the needs/projects list in this plan represents those projects that have been submitted and do not involve speculation or rumors.

The project list includes project information about the organization and railroad, project type, public benefits, private benefits, and project estimates and funding details. Projects range from well-developed projects to new concepts. Chapter 5 includes a discussion of large-scale emerging projects that are not included in the project list.

Projects Survey

The project list contains the detailed needs submitted by freight stakeholders participating in developing the *Washington State 2010-2030 Freight Rail Plan*. Appendix 8-A contains the project list that was generated by the Projects Survey with the following data collection fields:

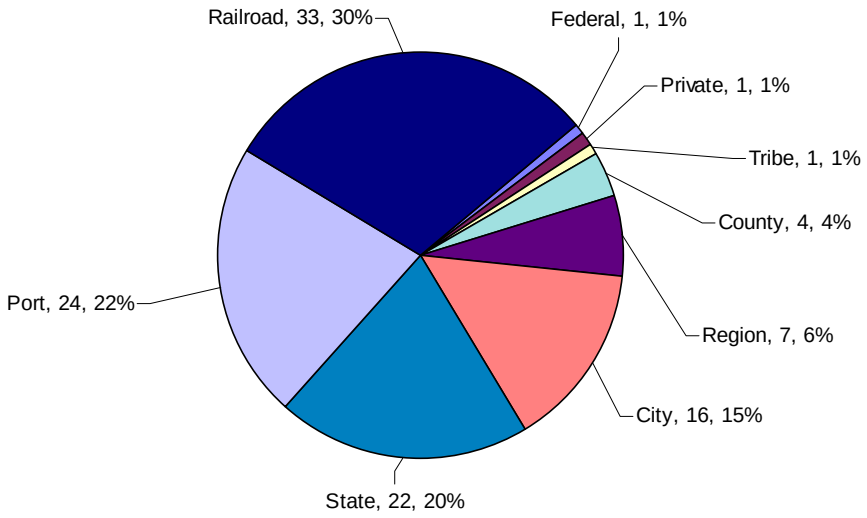
- **Respondent Information.** Organization, name, title (optional), e-mail address, and phone number.
- **Project Information.** Railroad owner (list of railroads was provided), railroad operator (list of railroads was provided), and any others involved in the project (optional).
- **Project Details.** Project name, location, description (optional).
- **Project Benefits.** Project type (list of project types was provided), public benefits (list of public benefits was provided, optional), and private benefits (list of private benefits was provided, optional).
- **Project Estimates and Funding Details.** Estimated total project cost, cost breakdown (preliminary engineering, right-of-way, construction, unknown), committed funds (federal, state, local, tribal, private, other), additional funds needed (federal, state, local, tribal, private, other), start dates (preliminary engineering, right-of-way, construction), and estimated project completion date.

The project list has been edited for length and clarity, but otherwise represents the extent of information provided by the stakeholder participants in the needs identification process. Thus, some cells are blank and, for some needs, there is a lack of cost estimates and other information that may become available in the future. The amount of detail provided varies by stakeholder. For example, a railroad may have included milepost information as part of the location description while another stakeholder may have referenced only the county.

Project Summaries

A general project assessment is provided below. Exhibit 8-2 shows the project respondents. Note that top respondents are ports, railroads, and the state.

Exhibit 8-2: Survey Respondents



Source: WSDOT State Rail and Marine Office

Estimated Completion Dates

Exhibit 8-3 shows a summary of projects and their project completion dates. Note that most of the reported project completion dates are 2010 and 2011.

Exhibit 8-3: Estimated Completion Dates

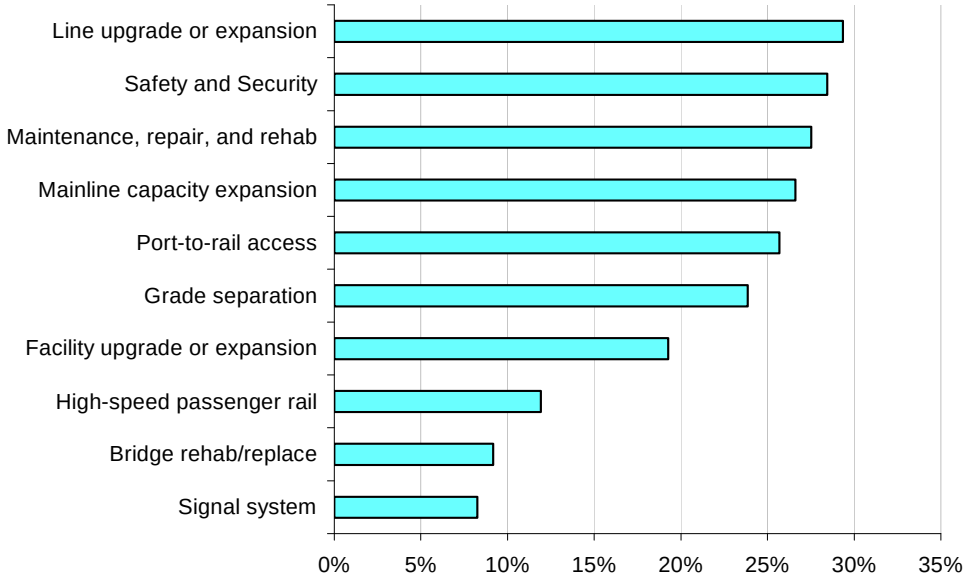
Year of Expected Completion	Number of Projects
2010	12
2011	21
2012	5
2013	4
2014	6
2015	2
2016	2
2018	1
2020	2
Not Specified	54

Source: WSDOT State Rail and Marine Office

Project Types

Exhibit 8-4 shows a summary of projects that reported project types (multiple choices are possible). Note that the top project types are line upgrade or expansion; safety and security; maintenance, repair and rehab; mainline capacity expansion, port-to-rail access, and grade separation projects.

Exhibit 8-4: Project Types

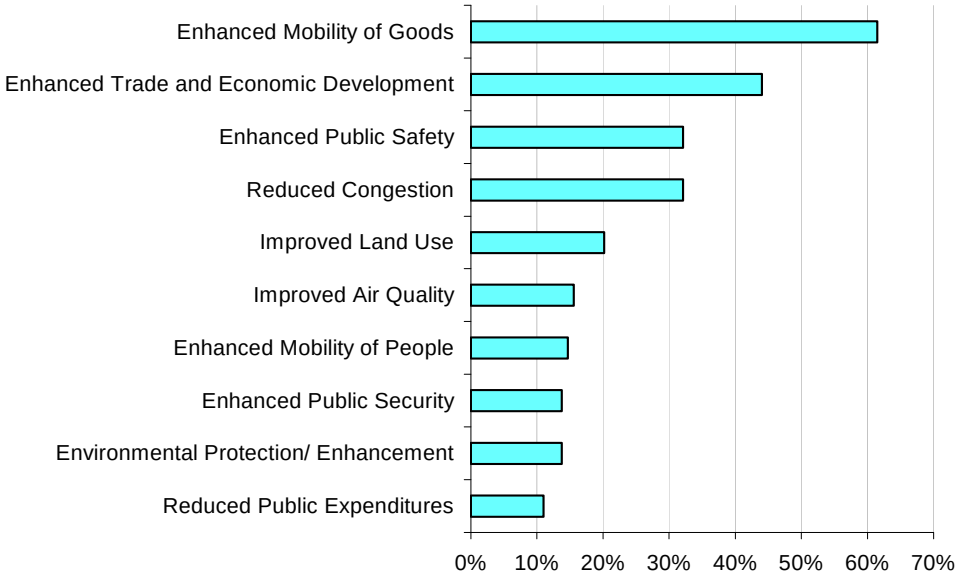


Source: WSDOT State Rail and Marine Office

Public Benefits

Exhibit 8-5 shows a summary of projects that reported public benefits (multiple choices are possible). The most common public benefit is enhanced mobility of goods, followed by enhanced trade and economic development, enhanced public safety, and reduced congestion.

Exhibit 8-5: Public Benefits

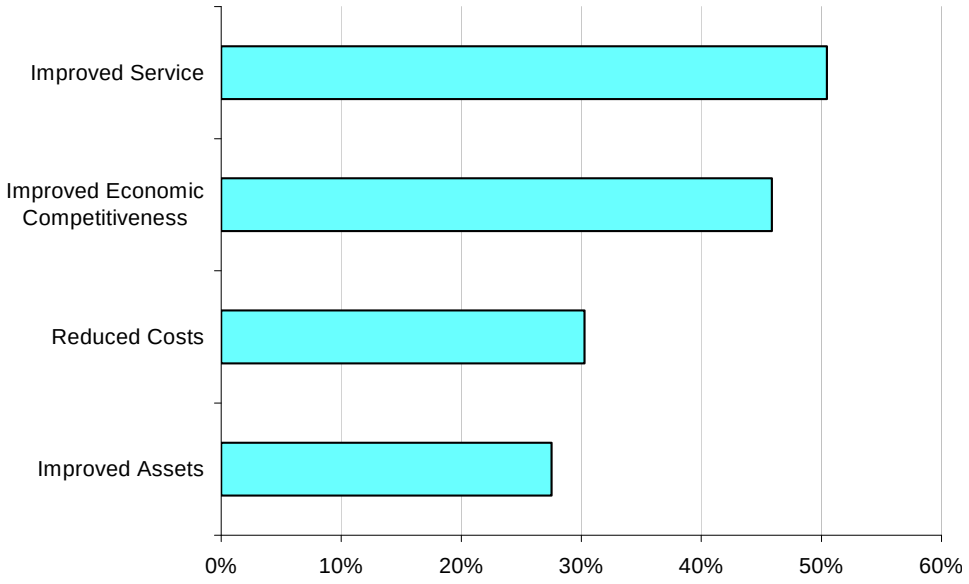


Source: WSDOT State Rail and Marine Office

Private Benefits

Exhibit 8-6 shows a summary of projects that reported private benefits (multiple choices are possible). The top benefit is improved service, followed by improved economic competitiveness, reduced costs, and improved assets.

Exhibit 8-6: Private Benefits



Source: WSDOT State Rail and Marine Office

Mainline Summary

Class I railroad owner or operator projects that reported project type (multiples are possible) are primarily mainline capacity upgrade and safety and security projects. The top public benefits are moving goods, trade and economic development, and safety and security. The top private benefits are economic competitiveness and improved service.

Short-Line Summary

Class II or Class III railroad owner or operator projects (not in the summary above) that reported project type (multiples are possible) are primarily maintenance and rehab, line upgrade, and facility upgrade projects. The top public benefit is moving goods. The top private benefits are economic competitiveness, reduced costs, and improved service.

Port-to-Rail Projects Summary

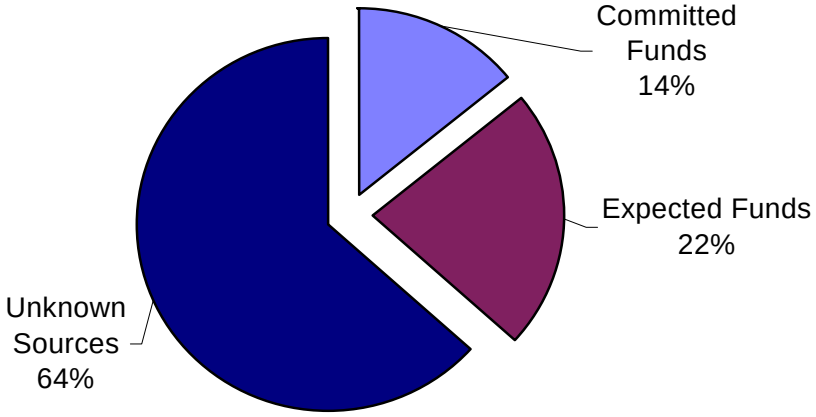
Of the reported projects, 26 percent listed port-to-rail access as one of the project types.

Funding Needs Summaries

Funding Needs by Commitment

Of the projects that report funding needs, only 14 percent are reported as committed funds, 22 percent are reported as funds expected from various sources, and 64 percent are reported as needs that have no identified sources (Exhibit 8-7).

Exhibit 8-7: Funding Needs by Commitment

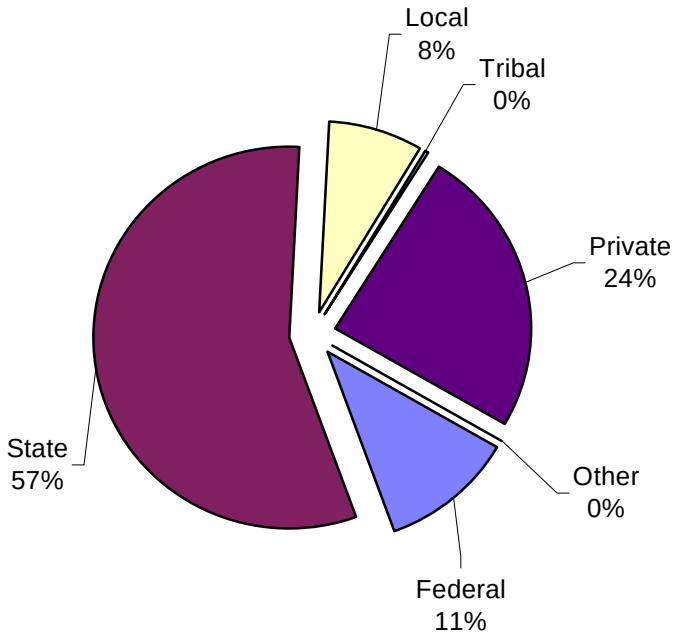


Source: WSDOT State Rail and Marine Office

Committed Funds by Source

Breaking down the committed funds portion further shows that of those projects that reported committed funds, 57 percent reported as state funds, 24 percent reported as private funds, 11 percent was reported as federal funds, 8 percent reported as local funds, and 2 percent reported tribal funding needs (Exhibit 8-8).

Exhibit 8-8: Committed Funds by Source



Source: WSDOT State Rail and Marine Office

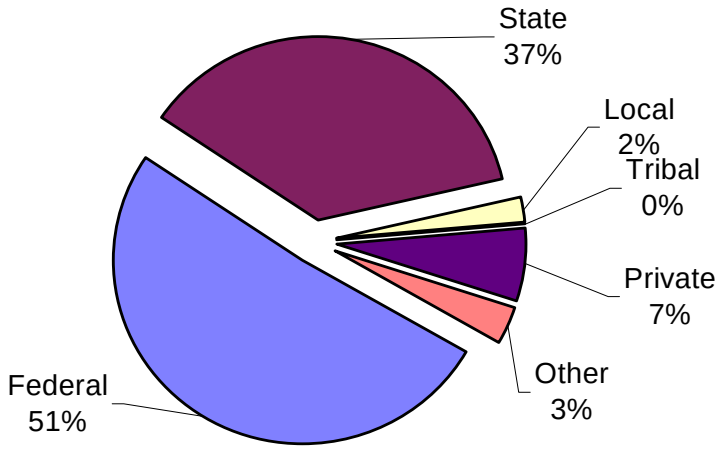
Expected Funds by Source

Of the projects that reported expected funds, 51 percent are expected from federal sources, 37 percent are expected from state, 7 percent are expected from private sources, 2 percent are expected from local funds, and 3 percent are expected from other sources (Exhibit 8-9).

The expectation of a 51 percent share from federal sources is very optimistic. This is 11 percentage points higher than the average federal aid of 40 percent for highway capital expenditure projects over the last 50-year history of that program.[1]

[1] TRB Special Report 297, Funding Options for Freight Transportation Projects, November 2009 pg 25.

Exhibit 8-9: Expected Funds by Source

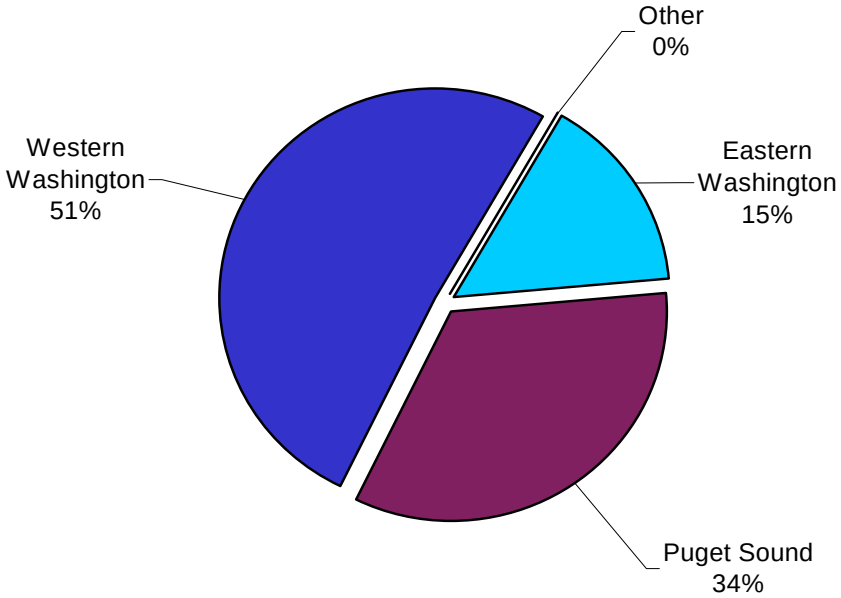


Source: WSDOT State Rail and Marine Office

Funding Needs by Area

In Exhibit 8-10, about half of the projects are located in western Washington, one-third is located in Puget Sound area, and most of the remaining projects are located in eastern Washington.

Exhibit 8-10: Funding Needs by Area



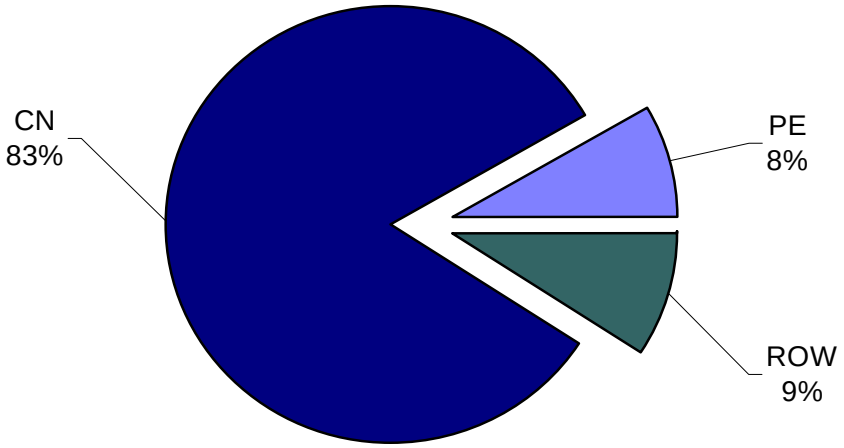
Source: WSDOT State Rail and Marine Office

Funding Needs by Phase

Of the projects reporting funding needs by project phase, 83 percent of the funding needs are associated with the construction (CN) phase of development. Right-of-way (ROW) and preliminary engineering (PE)

phases have funding needs of 9 percent and 8 percent, respectively, as shown in Exhibit 8-11.

Exhibit 8-11: Funding Needs by Phase



Source: WSDOT State Rail and Marine Office

The summaries above are very rough indicators, in part, due to the limited amount of data processing completed at this stage of freight rail statewide needs assessment. However, they do provide some value and insight into statewide need. The State Rail and Marine Office will continue to work with stakeholders to further clarify statewide need, improving the quality and quantity of the project information and analysis.

Funding for Freight Rail

All state and federal governments must address the needs for rail within the United States (U.S.). At the federal level, there has not been a dedicated nor consistent source of funds for rail development. This has resulted in rail receiving only 1 percent of the governmental expenditures as compared to the other transportation modes as shown in Exhibit 8-12 below. From 1995 to 2006, overall actual government funding for all modes has increased by 40 percent, with air transport doubling. Governmental support of rail expenditures remained at 1 percent of the total expenditure. Highway funding, as the largest sector at $99 billion, lost expenditure shares over a 10-year period, dropping from 63 percent of the total down to 50 percent.

Exhibit 8-12: Governmental Transportation Expenditure by Mode
($ Millions)

Mode	1995	% of Total	2006	% of Total
Highway	$90,075	63%	$99,784	50%
Transit	25,460	18%	44,097	22%
Rail	1,049	1%	1,548	1%
Air	19,250	13%	41,195	21%
Water	6,623	5%	10,888	5%
Pipeline	24	0%	91	0%
General Support	775	1%	1,795	1%
Total	**$143,256**	**100%**	**$199,398**	**100%**

Note: Percentages may not add correctly due to rounding.

Source: U.S. Department of Transportation (USDOT), Bureau of Transportation Statistics, 2009

Numerous studies have identified the need for increased rail investment nationwide. Many of these studies called for the federal government to become a stronger rail investment partner.

On the passenger rail side, the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) authorized slightly more than $13 billion over a 5-year period to Amtrak and states to encourage the development of new and improved intercity rail passenger services. The American Recovery and Reinvestment Act of 2009 (ARRA) provides the ability for states to apply for funds to design and build high-speed rail corridors for passenger movement.

In addition to the high-speed rail grants, there are $27 billion of highway infrastructure funds available to states for "shelf" ready highway projects. States will receive the funds and will have 120 days to allocate those funds—each state has a large degree of freedom on what projects to fund. The $27 billion constitutes the majority of the funds destined for highway infrastructure spending under the stimulus act.

A third source of grant funds under ARRA is Transportation Investment Generating Economic Recovery (TIGER) grants. Eligible projects for this grant program include highway or bridge work normally funded under programs like the Surface Transportation Program; public transportation projects, such as those funded by the New Starts or Small Starts program;

passenger and freight rail infrastructure projects; and port infrastructure projects.

Eligible TIGER grantees include state, local, tribal, and territorial government entities, such as transit agencies, port authorities, and multijurisdictional coalitions. Award amounts will range from a minimum of $20 million to a maximum of $300 million, though the USDOT may waive the minimum threshold in the case of small projects.

These are examples of a substantially increased role of the federal government in funding the nation's passenger rail network. At the state level, the state funding has been accomplished through small funding sources that need to be reauthorized every couple of years.

Within the state the majority of the rail lines are privately owned and the majority of the passenger rail movements share these rail lines with freight. The efforts of the federal government has helped leverage other limited resources to improve our rail systems. But the needs for these rail system improvements always exceed the funding available for these improvements.

The state has had a longstanding involvement in passenger rail service, investing heavily to develop the Amtrak *Cascades* intercity passenger rail service. Since 1994 it has also provided emergency funding to failing short-line railroads and purchased specialized freight cars to ensure that agricultural shippers in the state have access to service and equipment.

The Washington State Transportation Commission prepared and submitted the *Statewide Rail Capacity and System Needs Study* in 2006. The key question asked by the legislature of this study was: "Should the state continue to participate in the freight and passenger rail system, and if so, how can it most effectively achieve public benefits?" The conclusion was that the state should continue to participate in freight and passenger rail systems.

The study concludes that the economic vitality of the state requires a robust rail system capable of providing its businesses, ports, and farms with competitive access to North American and overseas international markets. However, it also concludes that the mainline rail system is nearing capacity. Service quality is strained and rail rates are going up for many state businesses. The pressure on the rail system will increase as the state economy grows over the long term. It is recognized that although the long-term trend increases over time, there are major fluctuations year to year in the growth pattern. The total freight tonnage moved over the state rail system is expected to increase by 2 to 3 percent per year for the next

20 years. The state's role is necessarily shaped by the fact that nearly all freight railroads are privately-owned, for-profit companies.

The major freight railroads are investing to add capacity and improve service in the state, but their business practices and investment priorities are understandably driven primarily by the railroads' national-level needs and competition. The needs of state businesses and communities are just one part of the railroads' considerations. Additional investment and incentives for investment are needed to ensure a robust rail system that meets the state's economic needs, as well as the railroads' business needs.

A carefully planned program of state investments, and other actions that are consistent with the policies recommended by that study, will allow the state to realize a higher level of public benefits—in economic growth, jobs, tax revenues, and reduced community impacts—from the rail system than would be obtained without state participation. However, the state should invest only when it has been demonstrated that projects will deliver public benefits to the citizens and businesses of this state, and when it has been demonstrated that there is a low likelihood of obtaining those benefits without public involvement.

Advances towards a national rail policy and funding framework were more modest in the federal Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)[2] than many had hoped for. However, there is a growing recognition that multistate coalitions and the federal government will play a role in the future of the nation's rail system because the scale of the rail system transcends state boundaries. Recently, there has been emphasis in national transportation policy discussions of the need for a national rail policy to ensure that there is adequate investment to eliminate critical rail chokepoints and add needed capacity. The emphasis has increased as states have considered the difficulties of accommodating more truck traffic on highways and as shippers and motor carriers face increased fuel costs and labor shortages.

WSDOT is very active with the Federal Railroad Administration (FRA) in the development of the mandated National Rail Plan. This participation at the national level will enable the state to influence the plan development so that the state's needs are supported as well as the corridors and markets that are connected to the state's economy.

[2] SAFETEA-LU was the federal surface transportation authorization act that provides federal funding to state transportation agencies. SAFETEA-LU was enacted in 2005 and expired in 2009.

Current Funding Sources

State

The state provides several funding sources for priority freight rail investment projects that provide statewide public benefits. They are described by agency below.

Each of these agencies has knowledgeable and effective staff, and each carries out its mandates effectively; however, the lack of a central point of contact and coordination makes it difficult for businesses, communities, and the railroads to deal with the state, and in some cases, weakens the state's negotiating position.

Washington State Department of Transportation

WSDOT has the following funding programs:

Freight Rail Investment Bank Program

This grant program is managed by the State Rail and Marine Office. The Governor and legislature provided $5 million for the Freight Rail Investment Bank (Rail Bank) grant program for the 2009-2011 biennium. It is anticipated the Washington State Legislature will continue allocating $5 million for Rail Bank projects in the following biennia. The goal of the Rail Bank is to assist with the funding of smaller capital rail projects. Funds will be available for up to $250,000 and must be matched by at least 20 percent of funds from other sources.

The Governor and legislature expect these projects to be prioritized using the following priorities, in order of relative importance:

1. Economic, safety, or environmental advantages of freight movement by rail compared to alternative modes.
2. Self-sustaining economic development that creates family-wage jobs.
3. Preservation of transportation corridors that would otherwise be lost.
4. Increased access to efficient and cost-effective transport to market for the state's agricultural and industrial products.
5. Better integration and cooperation within the regional, national, and international systems of freight distribution.
6. Mitigation of impacts of increased rail traffic on communities.

Prior to 2009 the Rail Bank program was open to public sector participants only, participants such as publicly-owned railroads, port districts, rail districts, and local governments. However, in 2009 the legislature opened the loan program to eligible private sector organizations with projects that will further the state interest.

Eligible projects must have one or more of the following state benefits:

- Advance the state economic development goals.
- Leverage state participation by allocating cost responsibilities among beneficiaries.
- Demonstrate that there is a low likelihood of obtaining public benefits without public involvement.

Project examples include:

- Strategic multimodal consolidation centers. Project proponents to provide:
  - Service agreement from the BNSF Railway and/or the Union Pacific Railroad.
  - Volume commitment from shippers.
  - Business analysis of value offered.
- Rail rolling stock purchases (powered or unpowered).
- Intermodal transfer or transload facilities or terminals, including attached fixtures and equipment used exclusively for this facility.
- Terminals, yards, roadway buildings, fuel stations, or railroad wharves or docks, including attached fixtures and equipment used exclusively in the facility.
- Railroad signal, communication, or other operating systems, including components of such systems that must be installed on locomotives or other rolling stock.
- Siding track.
- Railroad grading or tunnel bore.
- Track including ties, rails, ballast, or other track material.
- Bridges, trestles, culverts, or other elevated or submerged structures.

Freight Rail Assistance Program

This is a grant program where the Washington State Legislature authorized WSDOT to provide grants to:

- Support branch lines and light density rail lines.
- Provide or improve rail access to ports.
- Maintain adequate mainline capacity.
- Preserve or restore rail corridors and infrastructure.

As required by Revised Code of Washington Chapter 47.76, projects must be shown to maintain or improve the freight rail system in the state and benefit the state's interests. Project proposals may be submitted if they include one or more of the following benefits to the state:

- Improve freight mobility.

- Increase economic development opportunities.
- Increase domestic and international trade.
- Preserve or add jobs.
- Reduce roadway maintenance and repair costs.
- Reduce traffic congestion.
- Improve port access.
- Enhance environmental protection.
- Enhance safety.
- Support economic viability of branch lines or light density lines.
- Maintain adequate mainline capacity.
- Preserve or restore rail corridors and infrastructure.

Project examples include:

- Rehabilitate tracks or restore tracks that were removed.
- Upgrade tracks to handle heavier rail cars and/or improve system velocity.
- Provide a rail connection to existing industries not currently served by rail.
- Develop rail infrastructure that can be proven essential to attract new businesses.
- Repair damaged rail infrastructure.
- Increase rail system capacity and/or velocity in general.
- Preserve a rail corridor.
- Improve connections to a port or transload facility.
- Construct transload or other facilities.
- Purchase or rehabilitate railroad equipment.

The Washington State Legislature has allocated $2.75 million for freight rail assistance projects in 2009-2011. The legislature will determine how those funds will be spent based upon the applications submitted through WSDOT. Appendix 8-B shows a list of historical and planned projects managed by WSDOT.

Two other boards that were created by the Washington State Legislature as mentioned in Chapter 6 are the Freight Mobility Strategic Investment Board (FMSIB) and Washington Community Economic Revitalization Board. Both agencies have grant programs for qualified projects.

Grain Train Revolving Fund

This revolving fund is a financially self-sustaining transportation program that supports Washington's farmers, short-line railroads, and rural economic development. The Washington State Grain Train Program operates without taxpayer subsidy. Operations of the Grain Train began in 1994 and it has grown to a 89-grain car fleet (71 are owned by the state,

and 18 are owned by the Port of Walla Walla). Currently, WSDOT is in the process of acquiring an additional 29 cars.

The grain train's day-to-day business operations support a unique revolving fund that pays for fleet expansion. It is an excellent example of a self-sustaining state financing model. The expansion financing is set up as follows:

- The grain shippers pay the railroads a haulage fee for the grain movement to the deepwater ports. The Class I railroads and the short lines share these haulage fees.
- The Class I railroads then pay the short line a "rental" fee for the use of the publically-owned grain hopper cars. These rental fees are deposited directly into the accounts managed by each of the three port districts; a portion of these funds are used for grain car maintenance, a portion is set aside for eventual car replacement (estimated 20-year life), and the rest is set aside and used as a "revolving' fund that is periodically tapped for fleet expansion.
- Once the revolving fund has grown large enough to purchase used grain hopper cars (a standard 26-car set plus three extras), a process is put into place to locate and purchase the said cars.

Federal

The funding sources described in this section are continuations of existing programs or were newly created by the SAFETEA-LU legislation. There had been high hopes that Congress would take a bolder stance on funding flexibility as part of the reauthorization process and allow funding of rail projects from highway provisions as was done for transit; however, this did not happen. There were successes, including the new provisions for Transportation Infrastructure Finance and Innovation Act (TIFIA) loans that allowed funding of freight projects. However, there continues to be a lack of diversity of funding sources for freight projects. This continues to be an obstacle to a major national funding program for rail. Highway agencies, much of the trucking industry, and portions of the construction industry are opposed to changing federal law to allow the Highway Trust Fund to be used for investments in non-highway projects, fearing that this will aggravate the current and expected shortfalls in investments in highways.

Another disappointing aspect of the 2005 federal surface transportation reauthorization process was the degree to which promising new programs were subject to project earmarks and how little discretion the USDOT was given in implementing these programs. This was particularly true of the National Corridor Infrastructure Improvement Program, the Projects of National and Regional Significance, and the Freight Intermodal

Distribution Pilot Grant Program. Almost all funds in those programs were earmarked by Congress to specific projects.

Nonetheless, the Federal Highway Administration (FHWA) is preparing regulations for these programs with the intent of influencing the character of the projects that were earmarked by Congress. While this might seem to be of little importance, it may still be beneficial for the state to comment on the regulations and to meet with the FHWA staff to influence the regulations for these programs and their future directions. This could set the stage for a more favorable outcome in the next reauthorization (as well as ensure that any project earmarks received by the state can be implemented consistent with the state's rail policies).

Congestion Mitigation and Air Quality Program

The Congestion Mitigation and Air Quality (CMAQ) Program was created in 1991 by the Intermodal Surface Transportation Efficiency Act. CMAQ was created to provide innovative funding for transportation projects that improve air quality and help achieve compliance with national air quality standards set forth by the Clean Air Act. CMAQ funds are often used for freight and passenger projects, including priority control systems for transit vehicles, intermodal facilities, rail track rehabilitation, and new rail sidings. CMAQ funds also can be used for construction activities that benefit private companies; if it can be shown that the project will improve air quality by removing trucks off the road. SAFETEA-LU provided $8.6 billion for the CMAQ program for the FY2006 through FY2009 period. The funds were fully allocated to the individual states. The state received approximately $153.241 million for FY2004 to FY2009.

Because CMAQ funds are allocated to states based on the population of local areas in the state that are in noncompliance, or seeking to maintain compliance with national standards for ozone and carbon monoxide, there is little that the state can do to increase its share. However, it can estimate its next CMAQ allotment and make plans for packaging funds with other sources to create the largest benefit to the rail system. Projects that will result in either maintaining or adding to the amount of traffic diverted from autos and trucks to rail would be particularly well suited for these funds.

Capital Grant Program for Rail Line Relocation and Improvement Projects

The Capital Grant Program for Rail Line Relocation and Improvement Projects was created under Section 9002 of SAFETEA-LU to fund local rail line relocation and improvement projects. States were eligible to receive grant funds from this program for the following types of rail projects:

- Rail line improvement projects serving the purpose of mitigating the impacts of rail traffic on safety, motor vehicle traffic flow, community quality of life, and/or economic development.
- Rail line relocation projects involving a lateral or vertical relocation of any portion of the rail line.

Section 9002 of SAFETEA-LU[3] authorized, but did not appropriate, $350 million per year for the FY2006 through FY2009 period. According to the grant allocation requirements slated under this program, at least 50 percent of the grant funds awarded under this program in a fiscal year must have been provided as grant awards, not to exceed $20 million each. The state or non-federal entity receiving the grant was required to pay at least 10 percent of the total cost of the project being funded by this grant program.

Projects of National and Regional Significance Program

The Projects of National and Regional Significance (PNRS) Program was created by Section 1301 of SAFETEA-LU to provide grant funds for high-cost projects of national or regional significance. Projects eligible for funding under this program included any surface transportation project authorized under 23 United States Code (USC) for assistance, including freight rail projects. In addition, projects must have had a total eligible project cost greater than or equal to the minimum of $500 million; or 75 percent of the total federal highway funds apportioned to the state where the project was located (in the most recent fiscal year). Federal shares for this program were generally 80 percent of total project cost.

Eligible project activities included development phase activities, right-of-way acquisition, construction, reconstruction, rehabilitation, environmental mitigation, construction contingencies, equipment acquisition, and operational improvements. Funds were allocated to projects based on a competitive evaluation process based on the ability of projects to satisfy criteria that included, but were not limited to, generating national economic benefits, reducing congestion, and improving transportation safety.

SAFETEA-LU authorized $1.602 billion for this program from FY2006 to FY2009. In the future, the state should consider positioning several of the larger rail infrastructure projects for PNRS funding, if available under the next transportation funding authorization. The state also should consider supporting projects under this program that are located in other states, but have significant benefits to this state.

[3] SAFETEA-LU authorization ended September 2009; no reauthorization has been passed at this time.

Freight Intermodal Distribution Pilot Grant Program

The Freight Intermodal Distribution Pilot Grant Program was created under Section 1306 of SAFETEA-LU to provide grant funds to states to facilitate and support the development of intermodal freight transportation initiatives at the state and local levels. This Pilot Grant program was for congestion reduction and safety enhancements, and to provide capital funds to address freight distribution and infrastructure needs at intermodal freight facilities and inland ports. This was a pilot program and Congress earmarked all the grant funds from this program, totaling $30 million, to five states (Alaska, California, Georgia, North Carolina, and Oregon) for six projects, with each project receiving $1 million for the five years from FY2005 through FY2009.

United States Department of Commerce Economic Development Administration Funds

The United States Department of Commerce's Economic Development Administration (EDA) provides grants for economic development projects in economically distressed industrial sites. A critical objective of the program is to promote job creation and/or retention in the region. Eligible projects must be located within an EDA-designated redevelopment area or economic development center. Freight-related projects that are eligible for funding from this program include industrial access roads, port development and expansion, and railroad spurs and sidings.

Evidence of the economic distress that the project is intended to alleviate is required of the grantees. The program provides grant assistance up to 50 percent of a project cost; however, it can provide up to 80 percent of cost for projects located in severely depressed areas. During the fiscal year 2008, the EDA awarded 146 grants for $281 million. EDA funds have been used as a funding source by at least one rail project in the state in the past.[4] This funding source should be considered for state rail improvement projects, such as industrial rail spurs and sidings in industrial areas, that can be shown to support employment growth and contribute to economic development.

U.S. Department of Agriculture Community Facilities Program

The U.S. Department of Agriculture Community Facilities Program provides three types of funding for the construction, enlargement, extension, or improvement of community facilities in rural areas and towns with a population of 20,000 or less. The three programs are:

[4] D St. Project in Tacoma, WA.

1. Direct Community Facility Loans.
2. Community Facility Loan Guarantees.
3. Community Facility Grant Program.

Grant assistance is available for up to 75 percent of project cost. Rail-related community facilities eligible for funding from this program include rail spurs serving industrial parks, and other railroad infrastructure in the region, such as yards, sidings, and mainline tracks.

The Community Facility Program amounted to $297 million in direct loans, $208 million in loan guarantees, and $17 million in grants for FY2007. The average loan, loan guarantee, and grant amounts are estimated to be $442,000, $860,000, and $32,000, respectively. This funding source could be used by the state for rail improvement projects in rural agricultural and industrial regions.

Produce Rail Car Program

This project, modeled on the successful Washington Grain Train project, provides refrigerated rail cars to help address the critical shortage of railcars for Washington farmers and agricultural shippers. These farmers and shippers need to move perishable commodities like fruit and vegetables to ports and other markets.

In 2001, the Washington State Potato Commission and Washington Potato & Onion Association proposed the program because rail-car shortages were becoming an annual problem for perishable product shippers.

Washington legislators passed a produce rail car law in 2003. Senator Murray secured $2 million in funding from the 2004 and 2005 omnibus appropriation bills to make this project fully operational.

Federal Rail Assistance Program

This is a state administered federal matching program for projects associated with light density rail lines that is currently not funded. The program was originally established in 1973 to provide financial assistance to states for the continuation of rail freight service on abandoned light density lines in the Northeast. The Railroad Revitalization and Regulatory Reform Act of 1976 expanded the program to all states and to lines threatened with abandonment. Funding for this program has not been re-authorized since 1989. However, some states used Local Rail Freight Assistance Program funds to create revolving loan programs, which permitted new loans to be made as existing loans were repaid.

Federal Loans and Tax Credits

The funding programs described in this section include both loans and credit enhancement programs. In the case of loans, a project sponsor borrows funds directly from a state Department of Transportation (DOT) or the federal government under the condition that the funds will be repaid. Credit enhancement involves the state DOT or the federal government making the funds available on a contingent, or standby, basis. An example of this is a TIFIA loan guarantee. This type of credit enhancement helped to reduce the risk to investors and, thus, allowed the project sponsor to borrow at lower interest rates.

Several loan and credit programs that can be used to finance freight rail projects at the state level were created or changed substantially in SAFETEA-LU. These include:

- The Railroad Rehabilitation and Investment Financing Program (RRIF), which saw a tenfold increase in funding, from $3.5 billion to $35 billion between 2000 and 2006.
- TIFIA, which widened the definition of eligible projects to include freight rail projects. Eligible projects included projects that improved/facilitated public or private freight rail facilities that provided benefits to highway users, intermodal freight transfer facilities, and port terminals and port access.
- Private Activity Bonds (PABs) were established as a new source of funding in SAFETEA-LU. This reauthorization of the surface transportation bill amended the Internal Revenue Service (IRS) code to allow use of PABs for highway and freight transfer facilities. PABs, otherwise known as tax-exempt facility bonds, were qualified bonds, which meant that interest on the bonds was excluded (not subject to income reporting) for federal income tax purposes in the gross income of recipients. With this qualified status and the resulting tax benefit to investors, exempt facility bonds was offered at lower interest rates, reducing the cost of financing projects for the bond issuer.

These three actions helped to widen the pool of funding available to freight rail projects. They are explained in greater detail below.

Railroad Rehabilitation and Investment Financing Program

Section 9003 of SAFETEA-LU amended the RRIF program, which was created originally under Section 7203 of the 1998 Transportation Equity Act for the 21st Century (TEA-21). The RRIF program, administered by the FRA, provided financial assistance in the form of direct loans and loan guarantees to eligible recipients for the following types of rail projects:

- Acquisition, improvement, or rehabilitation of freight (intermodal or carload) and passenger rail equipment and facilities, including tracks, yards, bridges, etc.
- Refinancing of outstanding debt incurred in the acquisition, improvement, or rehabilitation of freight and passenger rail equipment and facilities.
- Development of new freight and passenger rail facilities.

The RRIF program did not provide financial assistance for rail operating expenses. Recipients eligible for direct loans and/or loan guarantees from the program included public and private entities, railroads, joint ventures (including at least one railroad), limited-option freight shippers (e.g., shippers who owned a plant or facility served by no more than a single railroad), and interstate compacts consented to by Congress under Section 410(a) of the Amtrak Reform and Accountability Act of 1997. Thirteen loans, totaling $517 million, have been issued since 2002. The smallest and largest loans approved were $2.1 million for the Mount Hood Railroad and $233 million for the Dakota, Minnesota, and Eastern Railroad.

Direct loans from the program were used to finance 100 percent of the total project cost, while loan guarantees were made for up to 80 percent of the cost of a loan, for terms up to 35 years. The program required applicants to cover the subsidy costs through payment of a "credit risk premium" equal to a fraction of the loan amount calculated based on the financial viability of the applicant and the value of the collateral provided to secure the debt.

Transportation Infrastructure Finance and Innovation Act

TIFIA was created in 1998 by TEA-21. The strategic goal of this program was to leverage limited federal resources and stimulate private capital investment by providing credit assistance (up to one-third of the project cost) for major transportation investments of national or regional significance. The program had a project cost threshold for eligibility, which is the lower of $50 million or 33 percent of a state's annual federal-aid apportionment for highway projects.

SAFETEA-LU expanded TIFIA eligibility to certain private rail projects. Eligibility for freight facilities included the following:

- Public or private freight rail facilities providing benefits to highway users.
- Intermodal freight transfer facilities.
- Access to freight facilities and service improvements, including capital investments for Intelligent Transportation Systems.

- Port terminals, but only when related to surface transportation infrastructure modifications to facilitate intermodal interchange, transfer, and access into and out of the port.

The TIFIA credit program offered three distinct types of financial assistance: secured (direct) federal loans to project sponsors; loan guarantees by the federal government to institutional investors; and standby lines of credit in the form of contingent federal loans.

Federal credit assistance from this program could not exceed 33 percent of the total project cost. SAFETEA-LU authorized $122 million per year to pay the subsidy costs of supporting federal credit under TIFIA. There was no limit on amount of credit assistance that was provided to borrowers in a given fiscal year. Repayment of TIFIA loans came from tolls, user fees, or other dedicated revenue sources. As of July 2006, TIFIA assistance amounted to $3.2 billion, leveraging $13.2 billion of investment in 14 transportation projects.

TIFIA has been a promising funding source that should be reviewed for applicability by the state during authorization of the successor bill to SAFETEA-LU.

State Infrastructure Bank

The State Infrastructure Bank (SIB) program was started as a pilot program that was authorized under Section 350 of the National Highway System Designation Act of 1995 (NHS). SIBs are revolving infrastructure investment funds, which are established and administered by states and are eligible for capitalization with federal-aid highway apportionments and state funds. The purpose of SIBs is to provide innovative and flexible financial assistance to states for rail, highway, and transit projects in the form of loans and credit enhancements. The state should consider establishing an SIB. Financial assistance is available to public and private entities through SIBs. The assistance includes below market rate subordinate loans, interest rate buy-downs on third-party loans, loan guarantees, and line of credit. Law makers should be encouraged to include this program in reauthorization packages. The following federal transportation funds may be used to capitalize SIBs:

- **Highway Account.** Up to 10 percent of the federal-aid highway apportionments to the state for the NHS program, Surface Transportation Program, Highway Bridge Program, and the Equity Bonus.
- **Transit Account.** Up to 10 percent of the federal funds for transit capital projects under Urbanized Area Formula Grants, Capital Investment Grants, and Formula Grants for other than Urbanized Areas.

- **Rail Account.** Federal funds for rail capital projects under Subtitle V (Rail Programs) of Title 49 USC.

A state that sets up and uses an SIB is obliged to match the federal SIB capitalization funds on an 80 to 20 federal/non-federal basis. The exception is funds from the highway account, where a sliding-scale matching provision applies.

Railroad Track Maintenance Credit

The Railroad Track Maintenance Credit authorized under Section 45G of the IRS Code provides tax credits to qualified taxpayers for expenditures on railroad track maintenance on railroad tracks owned or leased by a Class II or a Class III railroad.

The amount of tax credit provided equals 50 percent of the qualified railroad track maintenance and rehabilitation expenditures. Qualified railroad track expenditures include all expenditures towards maintenance and rehabilitation of railroad track, including roadbed, bridges, and related track structures.

Eligible taxpayers qualifying for this credit include any Class II or Class III railroad, and any person transporting property on a Class II or a Class III railroad facility, or furnishing railroad-related property or services to a Class II or a Class III railroad on miles of track assigned to such person by the Class II or Class III railroad. The maximum credit allowed under this program is $3,500 per mile of railroad track owned or leased by an eligible taxpayer, or railroad track assigned to the eligible taxpayer by a Class II or a Class III railroad that owns or leases the railroad track. This credit program, which was released in 2004, was for a 3-year period from December 31, 2004 to December 31, 2007.

However, for eligible taxpayers not having enough taxable income to make full use of the credit, the credits can be carried forward for a 20-year period.

Ports

Ports have multiple external financing options. One of these is the ability to issue private activity bonds.

Private Activity Bonds (Tax Exempt Bonds)

Title XI Section 11143 of SAFETEA-LU amended Section 142(a) of the IRS Code to allow the issuance of tax-exempt private activity bonds for highway and freight transfer facilities. States and local governments were

allowed to issue tax-exempt bonds to finance highway and freight transfer facility projects sponsored by the private sector.

SAFETEA-LU included a cap of $15 billion on private activity bonds. Passage of the private activity bond legislation reflected the federal government's desire to increase private sector investment in U.S. transportation infrastructure. Providing private developers and operators with access to tax-exempt interest rates lowered the cost of capital significantly, enhancing investment prospects. Increasing the involvement of private investors in highway and freight projects also generated new sources of money, ideas, and efficiency.

A tax-exempt bond is an obligation issued by a state or local government, where the interest received by the investor is not taxable for federal income tax purposes. Because of the exception of federal income tax on the interest earned, these bonds have a lower cost of financing compared to taxable bonds. Section 11143 of SAFETEA-LU created a new type of exempt facility eligible to be financed with tax-exempt bonds—the qualified highway or surface freight transfer facility. The new type of exempt facility bonds could be used to finance certain projects for surface transportation, projects for certain international bridges or tunnels, or facilities to transfer freight from truck to rail or rail to truck, provided the project or facility received federal assistance. In general, the law limited the total amount of such bonds to $15 billion and directed the Secretary of Transportation to allocate this amount among qualified facilities.

Section 142(m) 1) defines "qualified highway or surface freight transfer facilities" as:

(A) Any surface transportation project that receives federal assistance under Title 23 USC (as in effect on August 10, 2005, the date of the enactment of Section 142(m));
(B) Any project for an international bridge or tunnel for which an international entity authorized under federal or state law is responsible and which receives federal assistance under Title 23 USC (as so in effect); or
(C) Any facility for the transfer of freight from truck to rail or rail to truck (including any temporary storage facilities directly related to such transfers) that receives federal assistance under Title 23 or Title 49 as so in effect.

Private

Other Funding Sources

The other source of funding for freight rail projects that must not be overlooked is investments by the railroads. In 2006 U.S. Class I freight railroads spent more than $8.3 billion laying new track, buying new equipment, and improving infrastructure. This was a 21 percent increase from 2005 and represented record levels of investment.[5] Much of this money went toward maintenance of existing facilities, but there was significant double-tracking and siding construction to expand freight rail capacity along several high-density routes.

The emergence of both the public and private sectors to enter into new partnerships, such as the Alameda Corridor in southern California and the Chicago Region Environmental and Transportation Efficiency (CREATE) project in Chicago, are the most likely scenario of the future funding for large-scale rail projects. Multistate coalitions, such as those pioneered by the I-95 Corridor Coalition with its Southeastern Rail Operations Study (SEROps), hold promise as models for how states and private freight railroads can work together in the future. AASHTO's new *Freight Bottom Line Report* is attempting to define directions for national rail freight policy, recognizing the need to define a national rail network and better understand the chokepoints in this network. Recent funding increases proposed for Amtrak and the strong role that a number of states have taken in intercity passenger rail also suggest directions for future public funding of the passenger rail system.

The state continues to take an aggressive position in promoting an appropriate role for the public sector in shaping the future of the private rail system. By clearly defining when and how the public sector should play a constructive role in partnership with the private sector to advance rail system goals, this state is a leader in the national rail policy discussion. By examining emerging directions in this national discussion, the state also can position itself effectively to take advantage of emerging funding opportunities and offer itself as a model for the rest of the nation. As growth in trade and passenger travel put increasing pressure on the state's rail system, the necessity of protecting, maintaining, and growing the system will be viewed as a crucial aspect of the state's economic well being.

[5] Association of American Railroads, "Major Freight Railroads to Invest $8.3 Billion in Infrastructure in 2006," March 16, 2006, retrieved from www.aar.org/Index.asp?NCID=3582.

Public-Private Partnerships

Public-Private Partnerships (PPP) are contractual agreements formed between a public agency and a private-sector entity that allow for greater private-sector participation in the delivery of transportation projects. Expanding the private-sector role allows the public agencies to tap private-sector technical, management, and financial resources in new ways to achieve certain public agency objectives, such as greater cost and schedule certainty, supplementation of in-house staff, innovative technology applications, specialized expertise, or access to private capital.

To address future capacity issues from the growth in freight, the freight railroads have indicated an interest in participating in PPPs that provide tangible benefits for both the public and private sectors. As referenced above, the Alameda corridor is an example of a PPP—it is a $2 billion, 20-mile rail expressway connecting the Ports of Los Angeles and Long Beach with rail yards near downtown Los Angeles. Some other successful freight rail related PPPs are:[6]

- **CREATE** – a $1.5 billion project to improve rail freight connections involving the state of Illinois, city of Chicago, and major freight and passenger railroads serving the region.
- **Heartland Corridor** – a $200 million multistate partnership with Norfolk Southern to increase the flow of goods between the East Coast and Chicago.
- **Reno Trench** – a multimillion-dollar project that separates trains running through downtown Reno, Nevada from motor vehicle traffic.

Strategies

State Rail and Marine Office actions should be guided by the general principles in the *Statewide Rail Capacity and System Needs Study* (2006). These principles should be followed when sufficient public benefits are identified to justify public participation in the preservation and improvement of the rail transportation system:

- **Emphasize operations and nonfinancial participation in projects before capital investment.** The state should give priority to preserving and improving rail transportation through leadership, planning, permitting, maintenance, and operations that leverage existing rail infrastructure and services rather than through capital investment.

[6] Association of American Railroads, "Public-Private Partnerships for Freight Rail Infrastructure Projects", February 2008.

- **Preserve and encourage competition.** Investment in one railroad's infrastructure can change the competitive balance among railroads to the detriment of the overall system. Before making an investment that directly benefits only one rail company, the state should conduct a comprehensive analysis of competitive impacts on other rail carriers and users.
- **Target actions to encourage private investment that advances the state's economic development goals.** State actions should influence railroad investment decisions so that rail improvements generate greater benefits to the state than could be achieved if the state did not invest.
- **Leverage state participation by allocating cost responsibility among beneficiaries.** The state should not invest in the private rail system unless the railroads and other beneficiaries participate in proportion to their benefits and risks.
- **Require projects to have viable business plans.** Funding from the state should be contingent upon demonstration that the project proponent has rail service and customer agreements in place in order to make the project financially viable.

Additional strategies that WSDOT should consider are:

- **Establish a State Infrastructure Bank.** Refer to page 8-24 for more information on the State Infrastructure Bank program.
- **Continue as a leader in the development of the National Rail Plan.** This leadership role is an important asset for the state as the development of the plan can be influenced to make sure that the final plan supports the needs of the state, the corridors that carry the state's cargo, as well as the markets that are the foundation for the state's economy.
- **Maximize the use of federal funding available through federal transportation funding programs**. This is especially true for intercity passenger rail and for multistate initiatives. Federal funding support for freight rail investments has traditionally been offered through a mixture of grants, loans, and credit enhancement programs.
- **Be active in the development of the authorization of the next surface transportation bill** advocating for programs that benefit Washington State' rail programs. Position WSDOT for any pilot projects that become available in the authorization, such as the state of Oregon involvement in the Freight Intermodal Distribution Pilot Grant Program under SAFETEA-LU.
- **Continue to engage the railroads in public-private partnerships**, with a goal of sustaining a freight and passenger rail system that provides benefits to both.

- **Remain active in regional and national rail issues, to ensure that state investments achieve maximum value, and to ensure that efficient access to and from the state is maintained.** States have been very effective at supporting and funding improvements on short-line railroads and funding spot improvements on Class I lines solely within their jurisdictions, but states have been less effective at funding corridor-scale rail improvements that cross state boundaries. The Class I railroads long ago reorganized themselves to invest and operate at the regional and national scale. The states and the federal government have not built comparable institutional mechanisms to plan, negotiate, and finance large multistate rail projects. WSDOT should pursue multistate projects that sufficiently benefit the state.
- **Strengthen coordination with state economic development agencies to ensure that rail investments are supporting and spurring the desired economic growth.** Evaluation of rail investments need to consider the type of business, so focus is placed on industries important to the state's current economy, or are targeted as important to sustain the state's future economy. These include, but are not limited to, agriculture, international trade, energy, and construction.
- **Continue to support maintenance and modernization of the rail system to enhance local freight and passenger rail service, when public benefits to the state, residents, and shippers can be demonstrated.** It also includes supporting new technologies, especially when those technologies support WSDOT long-term transportation goals.
- **Support investment in freight and passenger rail projects that enrich quality of life and support responsible environmental stewardship.** This includes projects that reduce transportation delays, improve transportation safety, improve air quality, reduce noise, and reduce other negative transportation impacts to communities.
- **Develop a strategy for passenger rail services in the state outside the intercity (Amtrak *Cascades*) and Sound Transit areas.** This would address the growing requests and needs and establish a methodology for integrating this into future rail plans.

Vision for Future Funding

For the state rail system to serve the many roles described in this plan, the system must be maintained and expanded when and where necessary. As the past has shown, leaving this funding responsibility to the private railroads alone may not result in a rail system that meets the needs of the state and the nation. These needs include the ability to compete in the global economy by improving the intermodal connectivity and assuring both public and private benefits to all stakeholders. The responsibility for funding the necessary investments for the rail system to serve both state

and interstate commerce should be shared, where appropriate, among the private railroads that own much of the rail infrastructure and the various levels of government.

There needs to be a stable, predictable funding partnership consisting of the railroads (including Amtrak), the federal government, and state government to invest in rail transportation. This is in parallel to funding mechanisms for other modes of transportation, such as highways, transit, and aviation. The state's investment policy supports sharing of project funding among the partners in relation to the benefits received. The share of funding for specific projects will differ based upon the specific type of investment and benefit attributes. The funding package must be developed on the demonstrated benefits received by all parties.

Federal

The enactment of PRIIA and ARRA are examples of the expansion of the federal role in this partnership. These two authorizations are examples of good models that should be expanded into the freight rail funding arena. These models would provide infusion of federal funding for freight rail investments that benefit interstate commerce, the environment, and the public. Funding infrastructure projects—such as the removal of network bottlenecks that impede interstate commerce, last mile access to ports of entry, and constructing rail-truck or rail-barge intermodal transfer facilities—have these interstate commerce and public benefits.

Funding from government should be dedicated and predictable so that rail investments can be adequately included in transportation plans and programs. New federal funding programs should be multi-year and not depend on annual appropriations from Congress. A dedicated, predictable funding source for future rail investments is needed at both the federal and state level. Continuing and supplementing state funding with a dedicated funding source for rail will provide an advantage to the state in the ability to leverage future federal aid as well as leverage longer-term commitments from the private railroads.

State

The current dependency on bi-annual appropriations from state government makes funding for longer-term rail investments difficult to predict. In addition, similar to capital program development for other modes, rail projects start as proposals and require planning and engineering during the early project development process in order to result in a specific project with detailed cost and schedule. A dedicated funding source needs to be indentified and implemented.

This plan contains the results of the survey of the rail industry's 20-year needs for freight-related infrastructure improvements and presents the WSDOT State Rail and Marine Office's rail investment strategy for freight rail infrastructure improvements. The strategy presented in Chapter 4 is intended as a guide for WSDOT in selecting future freight projects.

Freight rail investments identified in the rail needs survey total more than $2.0 billion over the next 20 years. The project sponsors as a whole have only identified committed funds for 10 percent of the total need. Thus, 90 percent of the $2 billion, or $1.8 billion, is needed to complete the funding packages of the identified projects. Many of the projects do not even have a targeted funding plan.

In addition,the listing is an underestimate of the total need, due to the fact that it does not include projects that are private in nature or are joint investments that benefit both freight and passenger service. It should be noted that the list does not include the cost of Mega projects, such as the crowning of Stampede Pass tunnel, or the investments required to develop the multistate national corridor from the Puget Sound to Chicago.

Traditionally, the state, through WSDOT's State Rail and Marine Office and FMSIB, has assisted the freight railroads in improving their infrastructure where there is a clear public benefit. Projects that improve the railroads' ability to divert truck traffic from overburdened highways, construct intermodal facilities, reduce vehicle emissions, and increase safety rail-highway crossings all have public benefits. Many rail investments have significant economic development benefits such as port access improvements. While many projects have public benefits, the rail freight infrastructure investments will continue to be a primary benefit to the railroads and their stakeholders and should be funded as such.

This rail plan recommends that the state continue to support freight rail infrastructure improvements that have demonstrated public benefit. Future federal funding programs to increase investment in freight service should also be implemented.

Summary

There are existing funding programs at the federal and state levels that provide some opportunity of funding freight rail projects. However, these programs are relatively small or narrowly focused, while there is a rapidly growing need to increase investment in rail transportation. The enactment of PRIIA is an excellent example of a multi-year authority for Amtrak and creates new federal funding programs for intercity passenger rail. PRIIA authorizes a rail passenger funding program for states to use to improve

and expand passenger rail service, similar to federally funded programs for other transportation modes. A comparable program for freight rail should be enacted at the federal level.

Additional investment from both public and private sources will be needed in the future to address existing freight rail infrastructure needs and allow for growth in freight rail systems to serve the economy.

Chapter 9: Challenges and Opportunities

The proceeding chapters of this plan have indentified and discussed a number of freight rail issues in Washington State (state). The majority of the issues concern rail capacity of the rail system and funding for the needed infrastructure improvements. The challenges are summarized below followed by an action plan formulated around the six goals that have been developed by the State Rail and Marine Office in conjunction with the State Freight Rail Advisory Committee (Advisory Committee).

Transportation Challenges

This chapter is developed as guidance for future Washington State Department of Transportation (WSDOT) actions. The following trends were taken into consideration:

Population Growth

The state's growth puts pressure on all aspects of the state's infrastructure, especially the transportation system. A growing population not only needs to move people, it also increases the economic activities required to support this growth and generates freight requirements to support this expanded population base. Thus, this population growth challenges our transportation capacity, with the demands to move people and goods.

Safety and Security

The state puts a high priority on the safety and security of its transportation system. However, as the demand for mobility grows, so does the incident of accidents. To this end, it is beneficial to move as much freight and people as economically feasible as possible on rail. As more goods and people are moved on our rail system, it will be even more important to retain the high level of safety and security the system currently achieves.

Preservation and Maintenance

As documented in earlier chapters there is a significant level of investment needed in the state rail system for both expansion and maintenance of the current system. It is mandatory that the system is kept up to modern standards, especially the supporting short lines. In addition, as rail corridors are abandoned or freight services suspended, it is important that the state plan for long-term preservation of these rail corridors and rights of way for future use.

Rail's Role in the State's Economy

A large part of the state's economy depends on freight for its competitiveness and growth. Freight-dependent sectors, in general, include agriculture, mining, construction, manufacturing, wholesale, retail, transportation, and warehousing. In 2008 freight-dependent sectors accounted for 33 percent of the state's Gross Domestic Product, 71 percent of business income, and 39 percent of the state's employment. These sectors will demand faster and more reliable transportation options in the future for both their employees and their freight. Significant increases in freight are forecast both for the state and nationally. Although trucks will continue to handle the majority of the freight, highway congestion, climate concerns, and energy costs will influence more freight to be moved by rail within the state.

Capacity Constraints in the Transportation System

The urban and interregional highway corridors are currently heavily congested during peak periods and are forecast to be increasingly congested over the next 20 years. Significant additional capacity is required at our ports to meet the future forecasts for international cargo flows. Freight rail capacity will have to grow to meet this demand, if the state wants to retain their competitive edge as a gateway to the Midwest and Upper East Coast of the United States.

Rising Cost of Transportation

Although the current economic downturn has resulted in a very competitive cost environment in which to provide transportation infrastructure, it is forecast that these costs will rise in the future. As energy costs rise and state revenues decline, transportation budgets are strained during the same time that capacity improvements are needed.

Energy Efficiency and Climate Change Concerns

The Governor's 2008 Climate Action Team – Transportation Implementation Working Group (Climate Team) identified that emissions from transportation related activities account for nearly half of the total greenhouse gas (GHG) emissions in the state. The Climate Team stated that achieving significant reductions related to GHG emissions is critical for the state and will require meeting the short- and long-term vehicle miles traveled benchmark. The challenge is compounded by the paradox that transportation funding is dependent on the gas tax, while the goal of the Climate Team is to reduce the amount of miles traveled. The ultimate goal is to build, operate, and maintain a transportation infrastructure that is efficient and effective at moving people and goods. To achieve this vision, the state must reexamine how investments in transportation infrastructure and services are made. The state needs to make funding decisions and

pursue revenue generating strategies that stimulate behaviors that support climate change solutions and discourage behaviors that contribute to the problem. One of the solutions recommended by the Governor's Climate Action Team is rail transportation, as it is one of the most energy-efficient ways to move people and goods along major corridors.

Balancing Transportation and Community Livability

The balance between transportation and community livability continues to be a challenge in this state. As demand for mobility of people and freight continues to increase and choices for locating new development in or near urban areas becomes more constrained, investing in rail creates an opportunity. Rail transportation can be the solution to meeting mobility needs while promoting and retaining livable communities.

Transportation Funding

The Governor has announced that there is a transportation funding crisis in this state. As mentioned above the state budget is under pressure from reduced revenues, not only from gas taxes but all general fund revenues. This is a challenge both for the state as it attempts to meet citizen and business needs, but also as it pursues funding from other sources that require matches from the state.

Transportation Opportunities: Implementation of the Plan

Economic Competitiveness and Viability

Goal: Support Washington's economic competitiveness and economic viability through strategic freight rail partnerships.

Next Steps:

- WSDOT's State Rail and Marine Office should prepare a "needs" analysis on the project list to determine which infrastructure improvements can be financially supported.
- The State Rail and Marine Office needs to lead the planning effort to integrate individual plans into a system plan by:
  - Working with the state's Metropolitan Planning Organizations (MPOs), Regional Transportation Planning Organizations (RTPOs), and tribes to integrate freight rail into future regional transportation plans.
  - Working with the Department of Commerce and Department of Agriculture to develop a coordinated economic development approach, including infrastructure funding options for economic viability programs, such as grain trains and produce rail cars.

  - Working with the federal government to get the Northern Tier route designated as a National Rail Corridor.
  - Developing a plan to eliminate bottlenecks and improve capacity and velocity inside and outside of the state. The office needs to work with public and private sector partners in states along the I-5 rail corridor as well as newly designated East/West national corridor.
  - Using the Advisory Committee to enhance communication with the railroads, ports, shippers, industry representatives, and local communities and coordinate activities at the regional, state, and national level on needed projects, programs, and policy decisions.
- The State Rail and Marine Office should create a Rail Data Center to improve the state capacity to develop and manage freight rail system information, research capacity, and data capacity that support federal and state decision making and policy development in freight rail, enhance state and local freight rail planning and statewide coordination, and evaluate funding priorities of freight rail development.
- State agencies need to increase awareness of freight rail, when appropriate, as a vital mode of transportation within the supply chain through a public education process coordinated with other freight partners.

Preservation

Goal: Preserve the ability of Washington's freight rail system to efficiently serve the needs of its customers.

Next Steps:

- WSDOT's State Rail and Marine Office should confirm the at-risk system components that can benefit from public support.
- The State Rail and Marine Office should support the efforts of Class I railroads to compete for state and federal funding for major capacity preservation projects, when appropriate.
- The state should provide financial assistance to short-line railroads to maintain and preserve essential rail lines and prevent abandonment, when appropriate.
- The state should lead the coordination of plans involving rail corridor maintenance and preservation, including the identification of funding strategies for implementation of these plans.
- State agencies should integrate freight rail system development, land use planning and policies, public-private partnerships, and funding strategies consistent with the state vision and policy goals to protect and grow freight mobility.

- The State Rail and Marine Office should work with ports and railroads to project the functionality and viability of existing port access connections between port terminals, intermodal rail yards, and mainline tracks.
- The State Rail and Marine Office should create criteria to be used to evaluate at-risk rail corridors for public investment.
- The State Rail and Marine Office should consider acquiring rail corridors scheduled for abandonment that have met public investment criteria and have the potential to be reactivated in the future.
- The State Rail and Marine Office should work with short-line and mainline railroads to enable compatible interim use of a rail corridor right of way (i.e. rail/trails) within statutory limits, until such time that the right of way is returned to active rail use.

Capacity

Goal: Facilitate freight rail system capacity increases to improve mobility, reduce congestion, and meet the growing needs of Washington's freight rail users, when economically justified.

Next Steps:

- The state should designate a single entity to coordinate and direct the state's participation in the preservation and improvement of the rail transportation system. This entity should have the authority to negotiate directly with the railroads.
- WSDOT's State Rail and Marine Office should develop a comprehensive strategy to increase the state's east/west and north/south rail capacity in partnership with Class I railroads, ports, communities, and the federal government.
- The State Rail and Marine Office should continue to pursue passenger rail funding for the north/south Interstate 5 (I-5) corridor at the federal level that either maintains or creates freight rail capacity, such as the American Recovery and Reinvestment Act of 2009 application for a dedicated high-speed rail corridor.
- The State Rail and Marine Office should develop a comprehensive strategy for the coordination and support of positive train control systems development within the state.
- WSDOT should develop data and information, through a Statewide Rail Information Center, for freight rail demand, rail capacity constraints, and capacity use information needed for statewide planning and operation to enhance freight capacity.
- The State Rail and Marine Office should continue pursuance of funding for a rail facility inventory to include assessments for location of rail facilities and condition of physical assets.

- The State Rail and Marine Office should provide technical assistance to public and private entities such as the Freight Mobility Strategic Investment Board, Puget Sound Regional Council, and local communities for evaluation and prioritization of freight rail projects.

Energy Efficiency and Environmental

Goal: Take advantage of freight rail's modal energy efficiency to reduce the negative environmental impact of freight movement in Washington.

Next Steps:

- WSDOT should implement rail projects that reduce truck traffic, when economically feasible.
- The state should encourage use of environmentally-friendly equipment to decrease fuel consumption and air emissions such as:
  - "Green" switching locomotives in port areas and other rail yards close to residential areas, including the use of locomotive anti-idling devices.
  - Technologies that reduce wheel/track friction.
- The state should assess the effects of climate change on the rail system and identify where weather and climate events can impact rail infrastructure and operation. The state should coordinate these findings with the capacity needs and prioritization of improvements.
- The Department of Ecology and the State Rail and Marine Office should provide assistance in evaluating benefits of reducing environmental emissions and energy savings of rail-mode based options in intermodal and multimodal transportation planning.

Safety and Security

Goal: Address the safety and security of the freight rail system and make enhancements, where appropriate.

Next Steps:

- The state should expand education outreach to new and existing stakeholder groups, such as working with railroads and other partners to reduce pedestrian trespassing through joint public awareness efforts.
- The state should continue to support safety improvements of rail-highway crossings, signal systems, rail lines, and rail facilities, through regulations and partnership.
- WSDOT should review best practices, consult with area experts, work with partners, and develop a list of temporary rail-highway grade crossing closures and alternative routes in the event of natural and man-made disasters.

- WSDOT's State Rail and Marine Office should work with partners to plan for rail safety measures and routing before, during, and after emergencies.
- The State Rail and Marine Office should support railroads, Amtrak, local law enforcement agencies, and others to identify and implement rail security measures based on guidance from existing federal law (PL 110-432), identifying partnerships and other funding sources to enhance rail system security.

Livable Communities

Goal: Encourage livable communities and family-wage jobs through freight rail system improvements.

Next Steps:

- The state should support strategic partnerships along the state's rail corridors that improve the quality of life for the state's citizens.
- The state should encourage rail partners to implement projects on the project list that would improve the livability of a community by reducing emissions and noise.
- The state should encourage rail partners to implement projects that provide wages and jobs for local economies and communities.
- The state should encourage rail partners to involve local communities in program planning and project implementation processes.
- The state should encourage private investment that advances state economic development goals.

Conclusion

The *Washington State 2010-2030 Freight Rail Plan* lays the foundation for an improved and sustainable freight rail system in the state by identifying a vision for the state's freight rail service and establishing goals, objectives, strategies, and actions to achieve that vision. This has been accomplished by working with various stakeholders, including the rail industry, rail advocates, ports, governments, elected officials, and many other concerned groups and individuals. This collaboration is essential to creating a vision that reflects the needs of the community and ultimately to having a responsive, efficient, and sustainable rail transportation network.

Dedicated investment by government and the private railroads will be required to reach these goals and accomplish all of the rail improvements identified in this plan.