

# Washington State Rail Plan

*Technical Note 2: Freight and Passenger Rail  
Inventory*

# Final Report

*prepared for*

**Washington State Department of Transportation**

*prepared by*

**Cambridge Systematics, Inc.**



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# Key Findings

Technical Note 2: *Freight and Passenger Rail Inventory* presents a summary of the infrastructure, services and key features of Washington’s rail system. Included in this review are the state’s Class I and short-line freight railroads, and its long-distance, intercity passenger rail and commuter rail systems. Some of the key findings of this technical note include the following:

## FREIGHT RAIL

- **Washington has over 3,000 miles of railroad tracks<sup>1</sup> that provide mobility for goods moving into, out of, within and through the state.** The movement of these goods is accomplished using a system of main lines, branch lines, industrial spurs and rail yards operated by a variety of carriers.
- **Washington’s Class I railroads—BNSF Railway and the Union Pacific Railroad—together own 60 percent of the rail infrastructure (by mileage), and carry millions of carloads of commodities each year.** With over 3,700 employees and a combined payroll of \$260 million in 2011, these two railroads handle the vast majority of rail freight into, out of, within and through Washington. The two railroads are roughly similar in size, with systemwide gross revenues in 2012 amounting to \$20.5 billion for BNSF and \$20.9 billion for UP.
- **There are 25 Class III railroads in Washington (18 local railroads, and seven switching and terminal railroads), which provide vital transportation links between industries and their markets, in particular, in the state’s rural regions.** Each of these railroads is unique—they vary in size from one mile to over 100 miles of track, and are owned by a variety of public and private entities.<sup>2</sup> Ten out of the 25 railroads are owned by a holding company, eight are owned by public agencies, six are owned by a single private entity, and one is owned by a Class I parent company.<sup>3</sup> This ownership structure reflects the history of short-line railroads in the state, and the fact that the state has at times intervened to acquire short-line railroads that were threatened with abandonment.

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<sup>1</sup> [www.aar.org/keyissues/Documents/Railroads-States/Rankings-2010.pdf](http://www.aar.org/keyissues/Documents/Railroads-States/Rankings-2010.pdf).

<sup>2</sup> WSDOT Railroad GIS Data; Short-Line Railroad Websites.

<sup>3</sup> Note that railroads can be owned and operated by different companies. For example, a publicly owned railroad can be operated by a private entity.

- **Railroad consolidations and abandonments continue to this day, in particular on short-line railroads that are unprofitable or seeing declining number of customers.** Abandonment of a rail line can mean the loss of a valuable transportation asset, and can be economically challenging to industries or cities that rely on it. Thus, there may be public benefit to preserving rail infrastructure. Washington already has two dedicated programs for investment in rail: the Freight Rail Investment Bank and the Freight Rail Assistance Program. However, due to competing needs for scarce public funding, the state's continued role in preserving its freight rail infrastructure is a key question for future consideration by the Washington State Department of Transportation (WSDOT).
- **Intermodal terminals provide transfer points between rail, truck and marine modes, and are key links in supply chains using Washington's international ports for import/export.** The transfer can take place in the form of shifting an intact container or truck trailer holding goods from one mode to another, or moving the contents between a truck or vessel and a railcar. Common commodities that are transferred in this manner include bulk goods, such as grain, cement and pellets made of plastic; assembled motor vehicles; and project cargoes, such as electrical transformers and windmill parts. Facilities where trailers and containers are transferred intact between modes are typically called intermodal terminals. There are several different types of intermodal terminals, each serving a different purpose. On-dock rail terminals handle international containers directly moving from ship to rail and vice versa, while near-dock terminals can handle both port-related and highway traffic.
- **The state's freight rail industry provides benefits to the state, including employment and tax benefits. In addition, it provides a vital mode of transportation to support goods movement industries, such as manufacturing, construction, agriculture, wholesale trade and retail trade.** In Washington state, these industries employ more than 1.2 million people, or 40 percent of the state's total employment. In terms of contribution to the Gross Domestic Product (GDP), goods movement industries provided about 41 percent of the state's total GDP in 2010, or about \$106 billion. Manufacturing was responsible for about \$36 billion of this, retail trade about \$23 billion, and wholesale trade about \$16 billion.<sup>4</sup>

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<sup>4</sup> Technical Note 3a: *Freight Rail Demand, Commodity Flows and Volumes*.

## PASSENGER RAIL

- **This technical note focuses on three types of passenger rail services in Washington: long-distance, intercity and commuter rail.** Amtrak provides long-distance service on two routes: the Empire Builder and the Coast Starlight. WSDOT, Oregon Department of Transportation and Amtrak provide intercity service on Amtrak Cascades. Sound Transit provides commuter rail service between Everett, Seattle and Lakewood in western Washington.
- **The Coast Starlight performed below the standard during the first three quarters of FY 2012, with regard to host-responsible delays and Amtrak-responsible delays.** The top causes of host-responsible delays were passenger train interference, which includes meeting or following other passenger trains; commuter train interference, which involves meeting or following commuter trains; and signal delays. The most frequent Amtrak-responsible delays are passenger-related delays and locomotive failures.
- **Empire Builder service also suffered system delays in 2011 and 2012 due to weather-related events such as flooding and landslides.** Between October 2011 and June 2012, the Empire Builder generally performed below standard. Performance improved significantly during the second quarter of 2012 from 66 percent to 82 percent for endpoint<sup>5</sup> on-time performance (OTP) and from 44 percent to 78 percent for all-stations OTP. However, the third quarter saw another decrease.
- **In the third quarter of 2012, 71 percent of Washington-funded Amtrak Cascades trains were on time.** The OTP target is 80 percent.
- **Effective October 2013, the federal government will cease funding Amtrak Cascades service, pursuant to the Passenger Rail Investment and Improvement Act of 2008.** This will increase operating costs for states. Currently, Washington and Oregon jointly fund 80 percent of Amtrak Cascades' operating costs, but as of October 1, 2013, their share will rise to 100 percent.
- **Sounder commuter rail continues to rebound from a decline in ridership observed from 2009 to 2010.** This decline was the result of several factors, including the ongoing economic downturn and associated sluggish job market, and landslides in the north, which resulted in many canceled trips. In 2008, voters approved a ballot measure called Sound Transit 2, which outlines long-term improvements and expansions to Sounder Commuter Rail.

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<sup>5</sup> Endpoint OTP measures how late the train arrived at its final destination. All-station OTP measures how late the train arrived at each station on the route.



# 1.0 Introduction

The purpose of Technical Note 2: *Freight and Passenger Rail Inventory* is to provide a summary of current freight and passenger rail infrastructure in Washington. The focus throughout the technical note is to document the physical infrastructure that constitutes the state's rail system, however the institutional context, which governs this system, is also summarized. Subsequent technical notes will include information about passenger rail ridership, freight rail volumes, commodity flows, trading partners and passenger/freight forecasts. Therefore, this information is not included in this technical note.

Finally, Technical Note 2 complies with the guidelines released by the Federal Railroad Administration (FRA).<sup>6</sup> It is organized into the following sections:

- **Section 2.0 Washington's Freight Rail System.** This section provides a detailed inventory of the existing freight rail system in Washington. It includes discussion of railroad history, composition of the freight rail industry, major freight corridors, active and abandoned rail lines, and also intermodal connections.
- **Section 3.0 Washington's Passenger Rail System.** This section provides a detailed inventory of the existing passenger rail system in Washington. It includes discussion of long-distance, intercity and commuter rail services as well as details on operating statistics, stations, fleet and transit connections.

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<sup>6</sup> These guidelines are numerous, and can be referenced on the FRA's website: [www.fra.dot.gov/Page/P0511/](http://www.fra.dot.gov/Page/P0511/).



## 2.0 Washington's Freight Rail System

The freight rail system provides several important services to Washington. First, it provides vital goods movement connectivity between Washington and its trading partners. This facilitates the movement of goods and helps to connect Washington industries to markets throughout the United States and beyond. For example, freight trains carry Washington grain and agricultural products to deep-water ports for export to international markets, and deliver some manufacturing product to markets in other states. In addition, the freight rail system helps to deliver goods required by Washington's thriving industries and growing consumer population. Whether it is cars, coal, furniture, construction materials or other items, the rail system helps to supply citizens and industry with the commodities that they need. In all, the freight rail system—along with the state's truck, air cargo and marine transportation systems—is a vital contributor to Washington's economic health and quality of life.

The freight rail system in Washington consists of an expansive network of main lines, branch lines, yards and terminals that connect the state and local regions to the rest of the country and international gateways, including the Ports of Seattle and Tacoma. This section provides an inventory of the existing freight rail system in Washington. It includes a discussion of the evolution of freight rail operations; composition of the freight rail industry; major freight corridors and infrastructure, including both active and abandoned rail lines; and also intermodal connections.

### 2.1 COMPOSITION OF THE FREIGHT RAILROAD INDUSTRY – A BRIEF HISTORY

#### Railroad History in the United States

The present rail industry is a reflection on its history as one of America's oldest large-scale geographically dispersed commercial enterprises. From its beginnings in 1828 to World War I, the railroad industry established itself as the dominant form of land transportation. This was due to its ability to move large volumes of passengers and freight much more rapidly and efficiently than any other mode. However, by the 1920s, when the rail network had reached its largest size of more than 380,000 miles, it was generally recognized that too many lines had been constructed, that competition among railroads had weakened the financial outlook for the once all-powerful industry, and that trucks were evolving to the point where they could compete for freight. It was also apparent that

automobiles, buses, and—somewhat later—airplanes would take most of the passenger traffic away. The faster and more flexible highway mode had begun to make inroads into the railroad’s traffic during the 1920s, a trend that then continued largely unbroken—with the exception of during World War II—for almost 70 years.

By the 1990s, the size of the rail network had declined by almost half, and the rail industry’s shares of traffic and especially transportation revenue had dropped dramatically. Mergers, which had begun almost as soon as railroads were first constructed, have continued until only a handful of major carriers remain. These resulted in the creation of the seven Class I railroads in the United States, two of which serve Washington. At the same time, as the primary railroad network was being consolidated, many lower-density lines were spun off as small railroads, or short lines. By 2007, these short-line railroads operated one-third—45,800 miles—of the 140,100-mile U.S. network; and for commodities other than coal and intermodal, they handled 41.5 percent of all rail shipments in North America. These short lines perform a critical transportation function for local agriculture and industrial product shippers, connecting them at the local level to the Class I railroad main line services, for which they generate a significant volume of revenue.<sup>7</sup>

## Railroad History in Washington

In Washington, the evolution of railroads mirrored that of the national trends described above. Construction of railroads began in Washington in 1870 to build the Northern Pacific Railroad, connecting Kalama and Tacoma, with eventual connections linking Portland, Spokane Falls and cities in the upper Midwest. In 1873 a resident of Seattle also wanted to build a line to Walla Walla. Though this effort only made it to the western foothills of the Cascade Mountains, this caused Northern Pacific to look at connections between eastern Washington and the Puget Sound. Soon after, Northern Pacific began construction west of Pasco through the Yakima Valley, and at the same time, track work began near Tacoma in an easterly direction. The two rail lines were to meet at Stampede Pass.<sup>8</sup>

In May 1888, the 1.8-mile long Stampede Pass Tunnel was completed, and this linkage between Pasco and Tacoma supported Washington’s application for statehood. The next big rail construction project was connection to the Great Northern Railway, through the completion of the Cascade Tunnel at Stevens Pass in 1900. The connection to the Great Northern Railway was made possible through the construction of the Southern Railway on Bellingham Bay, and the Seattle, Lakeshore, and Eastern Railway. This connection enabled people in

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<sup>7</sup> *Washington State Freight Plan*, Appendix 3B, reworded and restructured by Cambridge Systematics.

<sup>8</sup> *Ibid.*

Washington to have rail access to commercial centers across North America. Passengers and freight came to the new state on the Canadian Pacific, the Northern Pacific, the Great Northern, and the Union Pacific Railroads.<sup>9</sup>

Soon afterwards, more railroads and new stations started to spring up in Washington. In 1908 the Spokane, Portland, and Seattle Railway completed a new line connecting Vancouver, Pasco and Spokane. Later that year, a new steel bridge created a continuous rail link between Portland, Tacoma, Seattle and British Columbia. In 1909 the Chicago, Milwaukee, St. Paul, and Pacific began operations across Snoqualmie Pass, where it operated transcontinental passenger trains to both Seattle and Tacoma, and operated transcontinental freight service into Tacoma.<sup>10</sup>

However, in the early 1920s automobile and truck transportation began to become very popular, with the construction of the Pacific Highway and other roadways. Eventually, this decreased the demand for passenger rail service and pushed the nationalization of passenger rail in the United States. Freight rail suffered a similar fate from competition with trucks, and the passage of the Staggers Rail Act in 1980 only helped further facilitate consolidations of railroads. This eventually led to the formation of BNSF Railway (BNSF) and Union Pacific Railroad (UP) as the only Class I railroads operating in the state. In some cases, when branch lines become unprofitable, they are sold by the Class I railroads to smaller operators. Some of these still exist today as short-line railroads. More detailed discussion of Class I railroads, as well as short lines, will follow in later sections.<sup>11</sup>

## **2.2 COMPOSITION OF THE FREIGHT RAILROAD INDUSTRY – CURRENT CONDITIONS**

### **Railroad Classification and Ownership**

Washington has over 3,000 miles of railroad tracks,<sup>12</sup> which consists of main lines, branch lines, industrial spurs and rail yards operated by a variety of carriers, typically classified by size and geographic reach. The most commonly used classification scheme originated with the federal Surface Transportation Board (STB). This scheme, which is primarily based on operating revenue, not only identifies a railroad's relative stature, but also the level of financial and

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<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> [www.aar.org/keyissues/Documents/Railroads-States/Rankings-2010.pdf](http://www.aar.org/keyissues/Documents/Railroads-States/Rankings-2010.pdf).

statistical reporting that it must submit to the STB. Three classes of railroads are defined by the STB as follows:<sup>13</sup>

- **Class I.** Annual operating revenue of more than \$433.2 million. The BNSF and the UP are the only Class I railroads in the state, as shown in Figure 2.1 (page 2-8) and Figure 2.2 (page 2-11). These two Class I railroads provide the majority of rail service in terms of traffic handled, as well as total mileage operated in the state.
- **Class II.** Annual operating revenue between \$34.7 million and \$433.2 million. Class II railroads are also commonly referred to as regional railroads by the Association of American Railroads (AAR). The only Class II railroad with operations in Washington is Montana Rail Link.<sup>14</sup>
- **Class III.** Revenues of less than \$34.7 million and are engaged in line-haul<sup>15</sup> transportation. Class III railroads are commonly referred to as short-line railroads, of which there are 25 in Washington—18 local railroads and seven switching and terminal railroads. Class III railroads can also include tourist railroads, which primarily exist to handle passengers, but may also handle freight. These railroads are discussed briefly in Section 3.5 (Tourist and Historical Services) of this technical note.

Included within the Class III category are **Switching** or **Terminal** railroads, i.e. railroads that engage primarily in switching and/or terminal services for other railroads. The STB considers these to be Class III carriers, irrespective of their operational or revenue characteristics. There are seven such railroads in Washington at present.

The structure of ownership is also a useful means of classifying railroads. Ownership takes on many different forms, all of which are represented by one or more Washington railroads:

- **Class I Parent(s).** Typically a switching or terminal railroad is owned by one or more Class I railroads. For instance, the Longview Switching Company in Washington is owned by both UP and BNSF.

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<sup>13</sup> [www.stb.dot.gov/econdata.nsf/eb5a2730831be9b8852575a000495ec8/48f3885d7a5b882e852575190052fa79/\\$FILE/Railroad%20Revenue%20Thresholds%20for%20last%205%20years%20thru%202011.pdf](http://www.stb.dot.gov/econddata.nsf/eb5a2730831be9b8852575a000495ec8/48f3885d7a5b882e852575190052fa79/$FILE/Railroad%20Revenue%20Thresholds%20for%20last%205%20years%20thru%202011.pdf). Note: The revenue classifications are adjusted annually to reflect inflation.

<sup>14</sup> However, the Alaska Railroad operates a barge service from Seattle, WA that connects to its own main line at Whittier, AK.

<sup>15</sup> Line-haul movement is the long-haul rail portion of a trip between the originating and terminating intermodal yards. On either end of the line-haul is the local dray to and from the actual shipper or receiver of the goods.

- **Industry.** Usually operated by or on behalf of a specific industry, but can provide service to other unrelated firms. The most common owners are mineral, steel and forest products companies. Washington once had a vast network of railroads in the forest products industry. Only a few of these lines remain, while the remainder have been abandoned.
- **Holding Company.** A railroad that is owned by a corporation holding several short lines. An example of a holding company is Genesee & Wyoming Company, which operates roughly 100 short lines throughout North America, three of which are in Washington.<sup>16</sup>
- **Public.** This category consists of railroads that are owned by states, counties, public ports, municipalities, federal (typically for military purposes), as well as other public agencies. Note that publicly-owned railroads can be operated by a private operator. Tacoma Rail and the Yakima Central are examples of publicly-owned railroads in Washington. In addition, the public can also own railcars and operate them on privately-owned railroads. A prime example of this is the Washington Grain Train, where the state, together with the Port of Walla Walla, owns 136 grain cars to help move grain products to market on BNSF, UP and short-line railroads.<sup>17</sup>
- **Independent.** A railroad that is independently owned and operated with the underlying infrastructure either directly owned by the operator or by a third party, such as a Class I railroad or public agency. Mount Vernon Terminal Railway, for instance, is independently owned.

In addition to the concept of ownership, rail carriers often hold rights to use the specific trackage of another carrier. The nature of these arrangements varies considerably, of which one common form is trackage rights, whereby the tenant gains access to operate their own trains over specific line segments of the owning railroad. In turn, the line's owner is compensated through a contractually set fee schedule. These arrangements have generally been the result of mergers, where a carrier would obtain rights to serve locations that would cease having competitive service; line sales, where the selling carrier seeks to retain access; and strategies to mutually gain operational flexibility and capacity. However, it is important to recognize the actual ownership of a particular line, since it is the owner who has primary control over operations, maintenance and capital planning.

Trackage rights arrangements are extensive among Washington's freight railroads. These trackage rights were established over many years, some dating back to the early 1900s, and others quite recent, including the Southern

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<sup>16</sup> In 2013, Genesee & Wyoming acquired RailAmerica, expanding Genesee & Wyoming's presence in Washington.

<sup>17</sup> [www.wsdot.wa.gov/Freight/Rail/GrainTrain.htm](http://www.wsdot.wa.gov/Freight/Rail/GrainTrain.htm).

Pacific/Union Pacific (SP/UP) and Burlington Northern/Santa Fe (BN/SF) mergers in the mid-1990s, as well as various line sales to private and public entities. In addition to the privately negotiated trackage rights, freight railroads also operate over publicly-owned trackage. This is the case for the Eastern Washington Gateway Railroad, Palouse River and Coulee City Railroad, Washington and Idaho Railroad and several others.

## 2.3 CLASS I RAILROADS

Class I railroads in Washington operate nearly 60 percent of the total rail mileage in the state, and constitute the main arteries for moving freight into, out of and through the state. This section provides detailed discussion of the two Class I railroads in Washington, BNSF and UP, by reviewing their history, operating statistics and key corridors and subdivisions in the state.

### **BNSF Railway**

As one of the largest Class I railroads in the United States, the BNSF was formed through the merging of some 390 railroads over more than 150 years. In Washington, BNSF's story began in 1970 when the Great Northern; Northern Pacific; the Spokane, Portland, and Seattle; and the Chicago, Burlington, and Quincy railroads merged and become the Burlington Northern Railroad. In the wake of the Staggers Rail Act,<sup>18</sup> in 1983 the Burlington Northern Railroad discontinued rail service across the Stampede Pass and in 1995 it merged with the Santa Fe Railroad to form the Burlington Northern and Santa Fe Railway. In 1996 the BNSF repaired and reopened the Stampede Pass line, one of the important east-west lines in the state.<sup>19</sup> In 2005, the railroad changed its name to BNSF Railway. It is currently a wholly owned subsidiary of Berkshire Hathaway, Inc., which purchased it in 2009 for \$44 billion.

Today, BNSF is the largest rail operator in Washington in terms of miles operated, tonnage and other factors.<sup>20</sup> As Table 2.1 shows, BNSF operates on 1,633 miles of track in the state. BNSF owns 1,444 miles of this track, and operates over the remaining 189 miles through trackage rights (mainly with UP). To manage and maintain this system, BNSF employed over 3,000 workers in Washington in 2011, equating to a payroll of \$166 million.

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<sup>18</sup> The Staggers Rail Act included provisions that allowed the railroads greater flexibility to abandon or sell underperforming rail lines.

<sup>19</sup> Partially reworded from the *Washington Freight Rail Plan*, Appendix 3B, 2009.

<sup>20</sup> Freight rail tonnages, volumes and commodities will be the focus of a different technical note. Reference to these subjects in Technical Note 2 will be for the purpose of establishing context only.

**Table 2.1 Class I Railroad Operating Characteristics in Washington – 2011**

Name	Employees	Payroll (Millions of Dollars)	Miles Operated (Including Trackage Rights)	Originating Carloads	Terminating Carloads
BNSF	3,382	\$166	1,633	521,197	693,914
UP	309	\$24	532	287,714	265,036

Source: UP statistics from UP Factsheet, Form 10K for Washington, 2011; BNSF statistics from BNSF Factsheet, Form 10K for Washington, 2011.

BNSF carried about 1.2 million carloads in 2011 – about 521,000 carloads of freight originated in the state, and about 694,000 terminated in the state. Some of the key commodities shipped from Washington by BNSF include intermodal/consumer products and industrial products; key commodities shipped to Washington include intermodal/consumer products, agricultural products, cereal grains, coal and industrial products. Detailed discussions of commodities will be provided in Technical Note 3a: *Freight Rail Demand, Commodity Flows and Volume*.

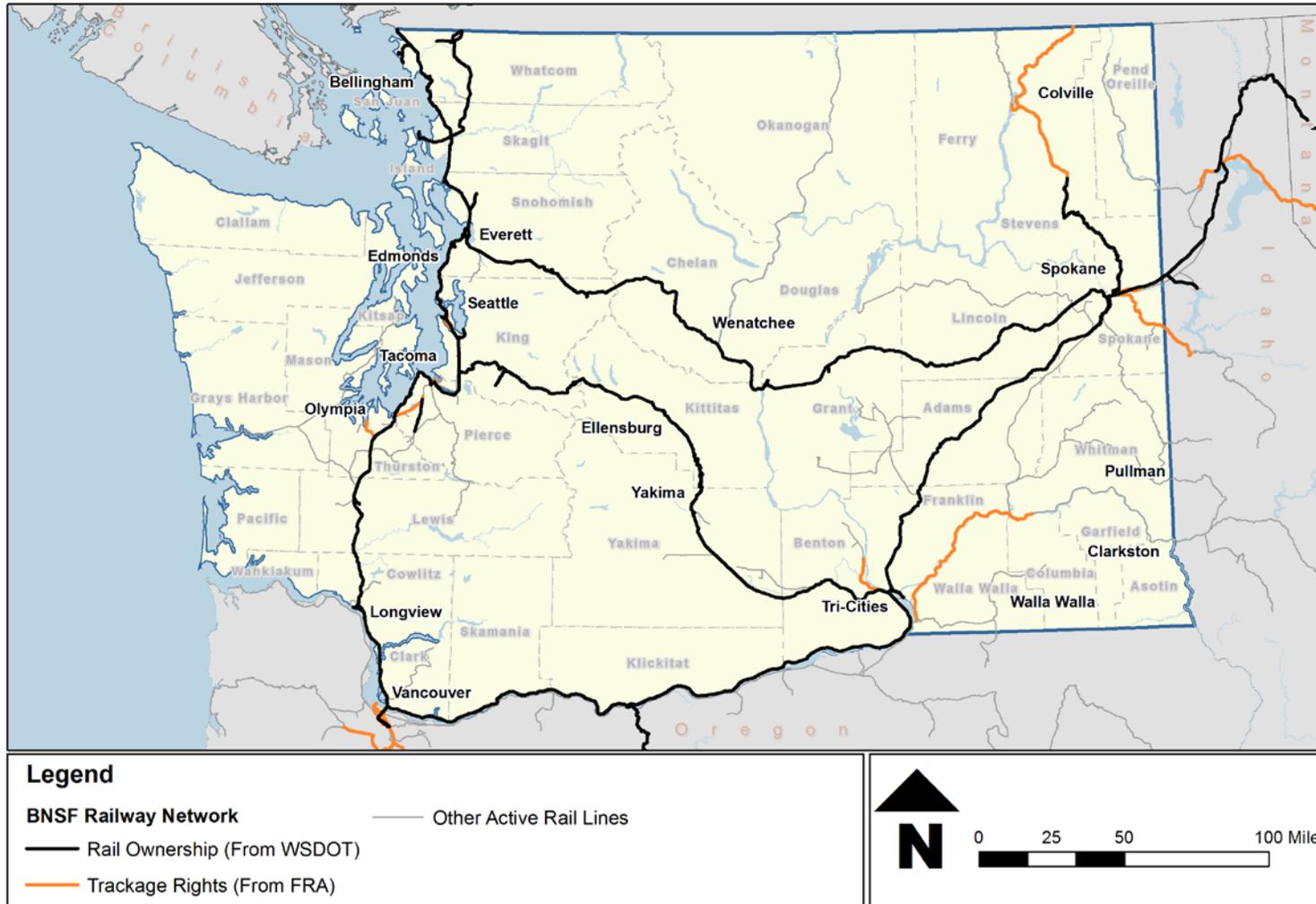
The BNSF operation in Washington consists of three east-west lines and one north-south line that roughly parallels the I-5 corridor. BNSF owns and operates the three east-west lines. The Everett to Spokane line, which passes through the Cascade Tunnel at Stevens Pass, is BNSF’s primary route for double-stack intermodal traffic. The Auburn to Pasco route crosses the mountains through the Stampede Pass Tunnel. The third route follows the north side of the Columbia River from Vancouver to Pasco. These two routes continue from Pasco to Spokane. The BNSF east-west corridors converge in Spokane to feed the two major BNSF routes providing access to grain producers in the Midwest and intermodal freight connections in Chicago, and joint-line connections with other Class I railroads serving points throughout North America.

The three east-west routes are linked by the north-south I-5 rail 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 and Portland. It is the backbone of the Washington rail system, providing access to the east-west lines. Most of the line is owned by the BNSF, but the BNSF shares operating rights over the line with the UP, Amtrak’s intercity-rail services, and Sounder commuter-rail operations. Figure 2.1 shows the rail system map of BNSF in Washington, along with trackage rights and ownership information.<sup>21</sup>

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<sup>21</sup> *Statewide Rail Capacity and System Needs Study*, 2006, supplemented with other Washington State Department of Transportation (WSDOT), Federal Railroad Administration (FRA) and BNSF data.

Figure 2.1 BNSF Railway System in Washington



Source: Cambridge Systematics Mapping of WSDOT, FRA, BNSF Data.

## Union Pacific Railroad

The UP is the largest railroad in North America, operating 31,900 route-miles in 23 states. The first UP line arrived in the Washington Territory in 1881 in the form of the Oregon Railway and Navigation Company with a line from Bonneville, Oregon to Walla Walla, Washington Territory. This line was extended further into Washington Territory in subsequent years before it was sold in foreclosure to the Oregon-Washington Railway and Navigation Company, which became a fully-owned subsidiary of the UP in 1936. This subsidiary constructed a joint line with the Chicago, Milwaukee, St. Paul, and Pacific Railroad between Tacoma Junction and Black River Junction, near Seattle, providing access to the Seattle area. Further access to downtown Seattle was provided via trackage rights on the Northern Pacific and the Pacific Coast Railway. Later in 1958, UP bought the Spokane International Railroad that operated from Spokane to Eastport, Idaho. In 1996, UP and the Southern Pacific Railroads merged, thus enabling UP to serve more long-distance shipments in a single-line movement than before.<sup>22</sup>

Today UP is the second largest rail operator in Washington. It operates on 532 miles of track—260 miles are made possible through various trackage rights.<sup>23</sup> Through trackage rights sharing with BNSF, UP is able to reach Puget Sound from Vancouver, Washington. UP's operations in Washington created 309 jobs in 2011 and generated a \$24 million payroll. Revenue is generated from carrying more than 287,000 carloads of freight from Washington, and more than 265,000 carloads of freight to Washington.<sup>24</sup> Inbound and outbound commodities carried on UP's system include intermodal/consumer products, chemicals and coal. UP moves soda ash and grain to Kalama and handles consumer products on double-stack trains from Seattle and Tacoma. In addition, UP also moves municipal trash from Seattle to a landfill in eastern Oregon.

UP's primary east-west corridor serving traffic in and out of Washington is in Oregon, running between Portland and Hinkle on the south side of the Columbia River. At Hinkle, the line forks: one line runs northeast from Hinkle to Spokane, linking up with the Canadian Pacific near Eastport, Idaho; and the other line runs southeast from Hinkle to Pocatello, Idaho, connecting to UP's Central Corridor and the heavily trafficked lines serving the Powder River Basin coal fields. This line is the UP's major connection between the grain producing regions of the Midwest and the Columbia River and Puget Sound ports. UP has operating rights over BNSF's corridor from Vancouver, Washington to Tacoma,

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<sup>22</sup> Material drawn from the *Washington Freight Rail Plan*, Appendix 3B, 2009.

<sup>23</sup> Union Pacific Washington State Statistics Report, 2011.

<sup>24</sup> Freight rail tonnages, volumes and commodities will be the focus of a different technical note. Reference to these subjects in Technical Note 2 will be for the purpose of establishing context only.

and operates on its own track from Tacoma to Seattle. This is UP's primary intermodal route connecting to the Ports of Seattle and Tacoma. South of Portland, UP owns and operates rail tracks alongside I-5, which is the major conduit for forest products from British Columbia, Washington and Oregon to the large population centers of southern California and the Southwest. Figure 2.2 shows the rail system map of UP in Washington, including information on ownership and trackage rights.<sup>25</sup>

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<sup>25</sup> *Statewide Rail Capacity and System Needs Study, 2006.*

Figure 2.2 UP Rail System in Washington



Source: Cambridge Systematics Mapping of WSDOT, FRA, UP Data.

## Rail Corridors and Subdivisions

The freight network consists of subdivisions, branches and secondary lines. Subdivisions are major components of the regional and national network, connecting major population centers and terminals, while branches and secondary lines generally extend from a subdivision, terminating at a single point or connection to another railroad. Subdivision designations are defined by the private railroads.

However, in Washington, the definition of strategic rail corridors is provided by the Freight Mobility Strategic Investment Board (FMSIB). FMSIB was created by the Washington State Legislature in 1998, and was established as a rule-making board by RCW 47.06A.030. FMSIB is held accountable to create a comprehensive and coordinated state program to facilitate freight movement between and among local, national and international markets, which enhances trade opportunities. FMSIB defines strategic rail corridors in order to track the corridors carrying the highest volumes. It updates this information annually, based on freight tonnage information provided by the railroads. In the latest update, all rail lines carrying more than five million tons of cargo are counted as strategic rail corridors. Using corridor definitions from the *2010–2030 Freight Rail Plan* and updated information from the 2012 strategic rail corridors, 11 major rail corridors and 13 low-density rail corridors are identified, with the major rail corridors roughly corresponding to the strategic rail corridors. These corridors, along with length, signal control type, number of tracks and subdivisions information, are summarized in Table 2.2.

Table 2.2 also includes the signal control type for each rail corridor. These signal types are introduced here because they directly relate to the traffic safety and operational performance of a rail line, and will be mentioned throughout this plan. Their main purpose is to control train movements on rail lines to prevent trains from colliding with each other. They differ in their sophistication and their complexity: at one end of the spectrum are the basic control types: i.e. manual control and Track Warrant Control (TWC—a type of manual control where orders are given by radio to dispatch trains). More advanced control methods include Automatic Block Signaling (ABS), where a series of signals divide a line to control train movements in blocks; and Centralized Traffic Control (CTC), where a dispatcher remotely controls signals and sets train paths from a central location. More centralized control methods can help reduce inefficiencies by consolidating operations. Therefore, many major rail corridors have CTC as a control method.

Figure 2.3 shows these major rail corridors in a graphical format.

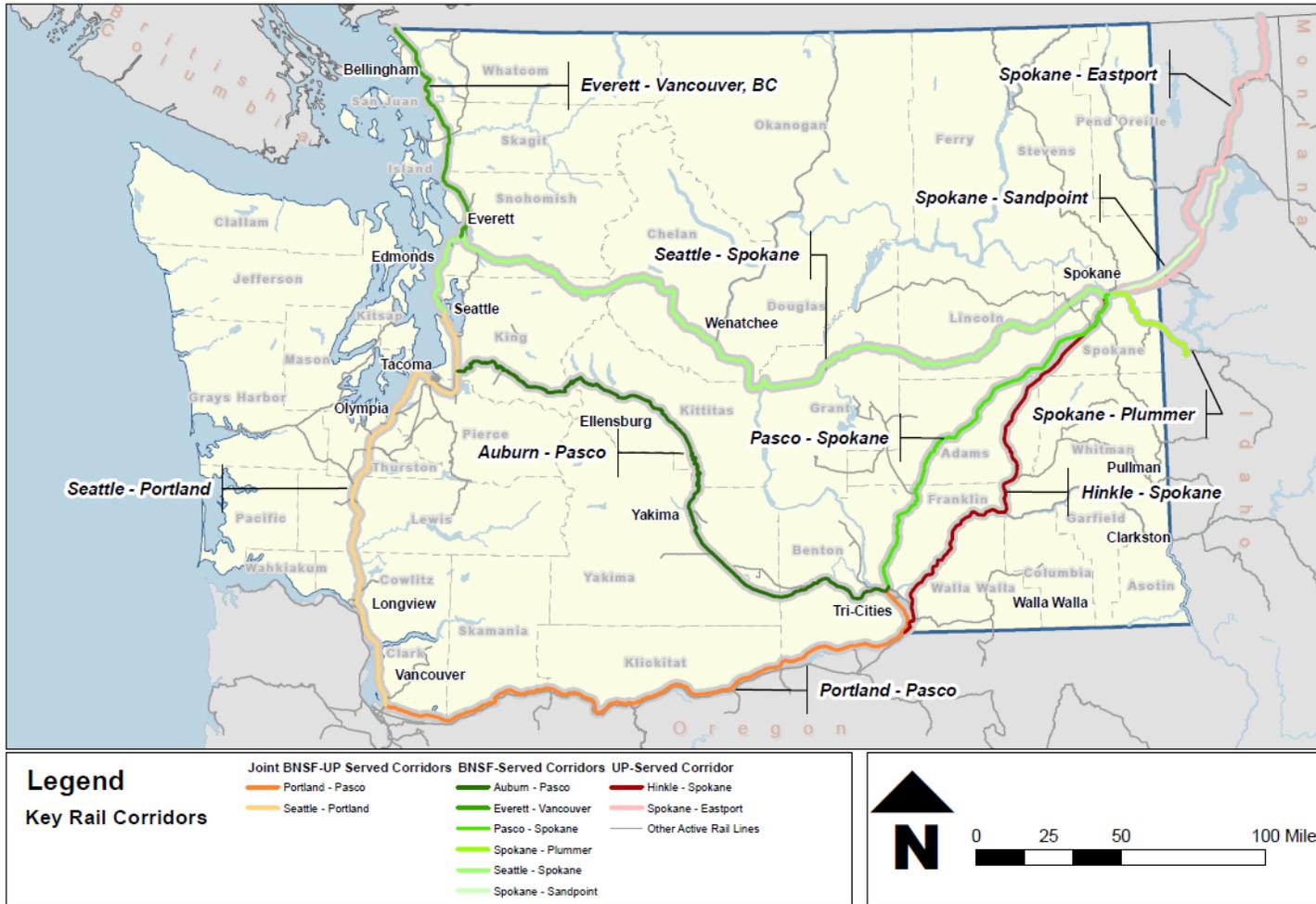
**Table 2.2 Strategic (Major and Minor) Rail Corridors in Washington**

Railroads	Corridor Name	Length (Miles)	Signal Control	Number of Tracks	Subdivisions	
BNSF	Strategic Corridors	Seattle-Spokane	331	CTC	Single and double	Scenic, Columbia River
		Seattle-Portland, Oregon (OR) <sup>a</sup>	177	CTC	Double	Seattle
		Portland, OR-Pasco	233	CTC	Mostly single	Fallbridge
		Auburn-Pasco	227	TWC with CTC segments	Mostly single	Stampede, Yakima Valley
		Pasco-Spokane	149	CTC	Mostly single	Lakeside
		Spokane-Sandpoint, Idaho (ID)	69	CTC	Double	Kootenai River
		Everett-Vancouver, British Columbia (B.C.) <sup>a</sup>	152	CTC	Single	Bellingham, New Westminster
		Spokane-Plummer	40	TWC		
	Low Density Corridors	Tukwila-Snohomish	51	TWC		Woodinville
		Woodinville-Redmond		TWC		Woodinville
		Burlington-Sumas		TWC		Sumas
		Sumas-Lynden				Sumas
		Burlington-Anacortes	124			Bellingham
		Intalco-Cherry Point		TWC		Cherry Point
		Marysville-Arlington				Bellingham
Lakeview-Roy					Lakeview	
Spokane-Chewelah		TWC		Kettle Falls		
UP	Strategic Corridors	Hinkle, OR-Spokane	171	TWS/ABS, CTC		Ayer
		Spokane-Eastport, ID		TWC	Single	Spokane
		Tacoma-Seattle				
	Low Density Corridors	Spokane-Plummer, ID; Manito-Fairfield	58			Wallace
		Ayer Junction-Riparia	11			Riparia
		Wallula-Kennewick	19			

<sup>a</sup> These corridors are also part of the Pacific Northwest Rail Corridor, the most important passenger rail corridor in Washington. It is used by Amtrak Cascades passenger trains between Eugene, OR and Vancouver, B.C.

Source: 2010 – 2030 Freight Rail Plan and the FMSIB Updated Strategic Network, 2012.

Figure 2.3 Major Rail Corridors in Washington



Source: Compiled using information from 2010 – 2030 Freight Rail Plan, Appendix 3B, and the FMSIB Updated Strategic Network, 2012.

## 2.4 SHORT-LINE RAILROADS

While the Class I main line railroads provide the primary arteries for the movement of goods throughout the state, short-line railroads provide important collector/distributor services for the larger railroads and local rail services for state shippers. While some lines carry high volumes of freight, others have struggled as the industries they serve decline, move, shift their reliance to other transportation modes, or disappear altogether (more details about volumes and commodities carried by short lines will be in a subsequent technical note). Some of the short lines serve the state's agriculture industries that would otherwise be inaccessible by rail. Because of this, public entities have justified assuming the ownership of some short lines to keep them in operation.

This section inventories all of the active short-line railroads in Washington through a thorough review of previous published reports, review of railroad websites, as well as feedback from WSDOT staff.

As Table 2.3 and Figure 2.4 show, there is one regional (Class II) and 25 short-line (Class III) railroads in Washington.<sup>26</sup> Of the 25 short-line railroads, there are 18 local railroads and seven switching and terminal railroads. The only regional railroad, Montana Rail Link, offers limited service in the state and only enters Washington on a short segment running from the Idaho border to Spokane using trackage rights on the BNSF main line. Local railroads mainly serve local industries, such as agriculture and forestry, while the switching and terminal railroads serve several of the state's ports, where they service ocean terminals handling carload and containerized goods, as well as nearby industries.

Even though short lines carry a small share of total rail traffic in the state, they make up about 40 percent of all railroad mileage in the state. Combined, the state's short lines have over 1,400 miles of track, compared to the over 2,100 miles of Class I-owned track (a statewide total of over 3,600 total miles). Mileage of each individual short line varies from one mile to over 100 miles. Some of the largest short lines by mileage are the Cascade and Columbia River Railroad, Kettle Falls International Railway, Palouse River and Coulee City Railroad and the three divisions of Tacoma Rail.<sup>27</sup>

Short-line rail ownership also varies. Ten out of the 25 short-line railroads are owned by a holding company, such as Genesee & Wyoming Company and Temple Industries. These companies own and manage more than one short line. There are also eight railroads in Washington where the public sector owns the

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<sup>26</sup> Twenty-four out of 25 short-line railroads are active. The Royal Slope Line is currently not in operation.

<sup>27</sup> More details about commodity types and volumes carried by short-line railroads will be included in a subsequent technical note.

tracks where the short line operates (see Public ROW Ownership column in Table 2.3 below). Thus, they are considered public railroads. In some cases, the state has purchased the rail lines and they are operated by a short-line rail operator, some of which are privately owned. The remaining short lines are owned independently and one of them is owned by a Class I parent.

**Table 2.3 Characteristics of Active Regional and Short-Line Railroads in Washington**

Class	Name	SCAC*	Parent Company	Public ROW Ownership	Miles Operated in Washington
Regional	Montana Rail Link	MRL	Washington Companies		16
Local	Cascade and Columbia River Railroad	CSCD	Genesee & Wyoming Company		148
Local	Central Washington Railroad	CW	Temple Ind.		80
Local	Chehalis-Centralia Railroad	POCH	Port of Chehalis	Port of Chehalis	10
Local	Columbia and Cowlitz Railway	CLC	Patriot Rail Company, LLC		9
Local	Columbia Basin Railroad	CBRC	Temple Ind.		86
Local	Eastern Washington Gateway	EWG	Independent	Washington	108
Local	Eastside Rail	EAST	Port of Seattle	Port of Seattle	11
Local	Great Northwest Railroad	GRNW	Watco Co.		69
Local	Kettle Falls International Railway	KFR	Omnitrax		142
Local	Palouse River and Coulee City Railroad	PCC	Independent	Various	169
Local	Patriot Woods Railroad	PAW	Patriot Rail Company, LLC		29
Local	Pend Oreille Valley Railroad	POVA	Port of Pend Oreille	Port of Pend Oreille	61
Local	Portland-Vancouver Junction Railroad	PVJR	Temple Industries	Clark County	33
Local	Puget Sound and Pacific Railroad	PSAP	Genesee & Wyoming Company		108
Local	Royal Slope Line <sup>a</sup>	RS		Washington	26
Local	Washington and Idaho Railroad	WIR	Washington, tracks only	Washington	87
Local	Western Washington Railroad, LLC	WWR	Independent	City of Tacoma	18
Local	Yakima Central Railroad	YCR	Public	Yakima County	21
Switching/Terminal	Ballard Terminal Railroad	BDTL	Independent		3
Switching/Terminal	Longview Switching Company	LVSW	Class I (UP and BNSF)		17

Class	Name	SCAC*	Parent Company	Public ROW Ownership	Miles Operated in Washington
Switching/ Terminal	Meeker Southern Railroad	MSN	Independent		5
Switching/ Terminal	Mount Vernon Terminal Railway	MVT	Independent		1
Switching/ Terminal	Tacoma Rail	TMBL/ TRMW	Tacoma Public Utilities	City of Tacoma	185
Switching/ Terminal	Tri-City and Olympia Railroad	TCRY	Independent	Port of Benton	31
<b>Total</b>					<b>1,473</b>

\* Standard Carrier Alpha Code

<sup>a</sup> Line currently not in operation.

Source: WSDOT Railroads GIS Data; short-line railroad websites; 2010 – 2030 Freight Rail Plan

Figure 2.4 Class II and Class III Railroads in Washington



Source: WSDOT; short-line railroads websites; 2010 – 2030 Freight Rail Plan. The Western Washington Railroad is new and is not shown on the map.

## 2.5 ABANDONED RAIL LINES

The previous sections described existing rail infrastructure that is currently in operation. This section identifies rail infrastructure that has been abandoned, and provides a historical account of rail abandonment in Washington. More detailed discussion of the effect of abandonment, as well as rail preservation strategies, can be found in Technical Note 4c: *Statewide Freight and Passenger Rail Needs and Opportunities*.

### Overview of Abandonments

Rail lines are abandoned when a rail carrier has filed for abandonment with the federal STB, and subsequently ended its obligation to operate service. In general, abandonments reached their peak in the mid-1980s, after the Staggers Rail Act deregulation, which allowed Class I railroads to dispose of underperforming lines more easily. In order to improve their financial performance, the railroads sold some of their lines, which had low traffic density. While the most marginal lines were abandoned, many were sold or leased to short-line operators. Subsequently, these operators either succeeded in improving the lines' financial performance through lower operating costs and improved service, or were eventually forced to cease operations. Thus, where abandonment applications were once primarily a Class I phenomenon, in recent years, a growing portion of line abandonments has been filed by short lines.<sup>28</sup>

According to the STB, most abandonment applications are filed by the rail carrier who is the owner of the track in question. The most frequent type of abandonment requests the STB receives is from a railroad stating that the track has not been used for two years or more ("Notice of Exemption") or that the track has so little traffic on it that it is clear that the carrier could not be making a profit on it ("Petition for Exemption").<sup>29</sup>

In Washington, a total of 1,975 miles of rail lines were abandoned between 1953 to 1998. Between 1998 to 2011 a total of 74.8 miles of railroad right of way were filed for abandonment, of which 59.3 miles (79 percent) are currently rail banked.<sup>30</sup> Throughout this latter time period, there were more filings by short lines than by the Class I railroads, with 52 miles filed by various short-line railroads and only 22.8 miles of rail right-of-way abandonments by BNSF. Figure 2.5 shows abandonments and rail banked lines through 2011.

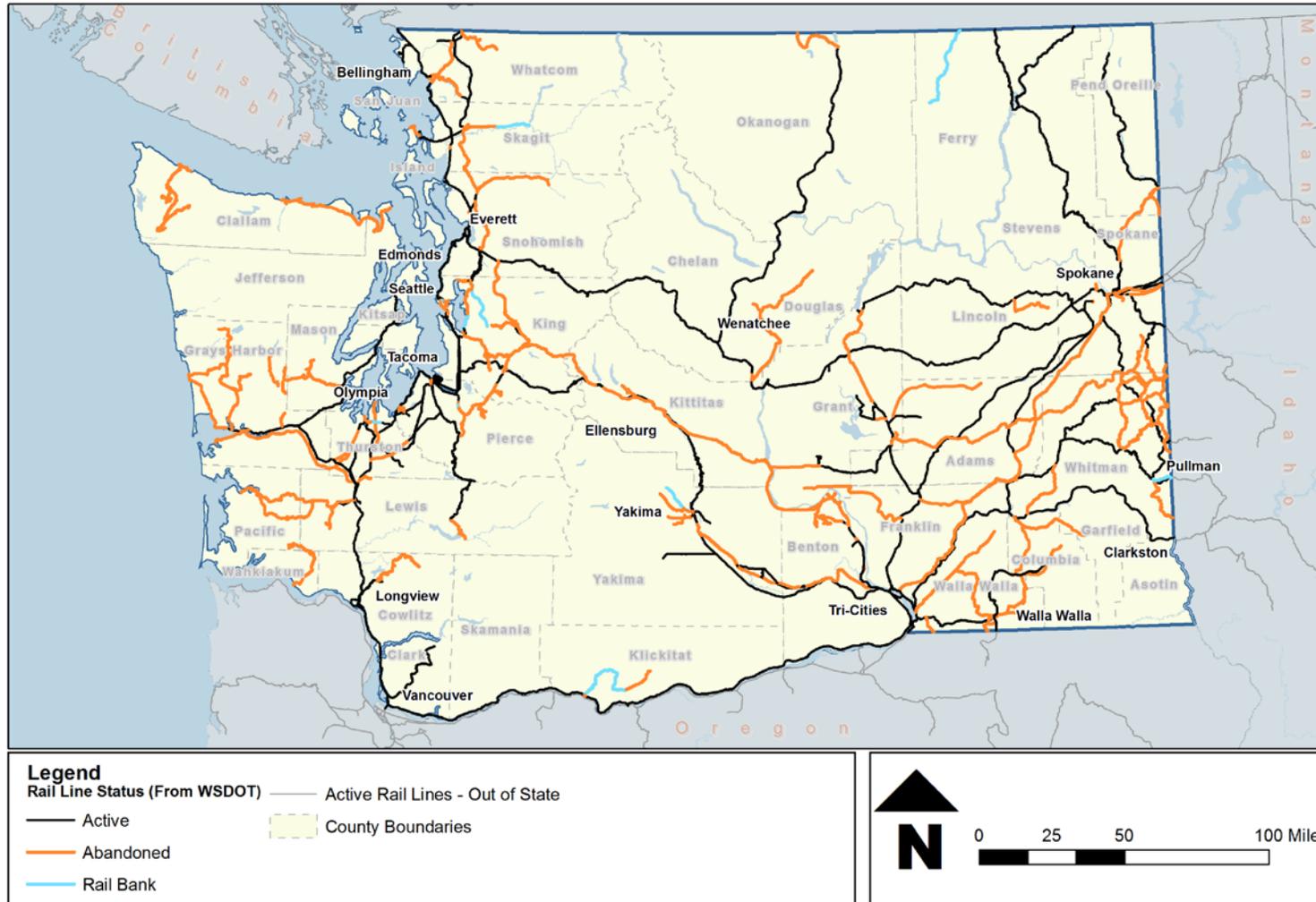
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<sup>28</sup> Cambridge Systematics; Reworded text from *Washington State Freight Rail Plan*, 2010.

<sup>29</sup> [www.stb.dot.gov/stb/public/resources\\_abandonment.html](http://www.stb.dot.gov/stb/public/resources_abandonment.html).

<sup>30</sup> This data source is the 2012 WSDOT Railroad GIS layer. The term "rail banking" is a method by which lines proposed for abandonment can be preserved for future rail use through interim conversion to trail use. It is discussed more in Technical Note 4c.

Figure 2.5 Abandoned and Rail Banked Rail Lines



Source: WSDOT.

## Effects of Rail Line Abandonments

There are two main issues of abandonments. The first is loss of transportation options to current and potential industries. The loss of a rail line (similar to the loss of any transportation resource) means less connectivity to the transportation system, which is counter to the vision of Washington's freight transportation system. The loss is not limited only to existing industries, but also potential new industries. Thus, a well-designed regional economic development strategy will often try to capture business from new industries.<sup>31</sup>

The second issue is that once abandoned, a rail line is very difficult to reconstruct. For one, the line is often physically removed, meaning that it would have to be rebuilt to be used. In addition, right-of-way encroachments have often worsened to the point that rail service would be seriously impeded by the encroachments (uses such as houses or other sensitive land uses have grown closer to the rail right of way, making the conversion back to active rail service a potential source of community opposition). Finally, alternative uses such as rail-to-trail have very strong political constituencies, which can make it very difficult to convert the right of way back to active use.<sup>32</sup>

It is very difficult to calculate the economic impact of these abandonments. In some cases, the impacts may be small—for example, if businesses are easily able to switch to a different transportation mode. In other cases, the impacts may be severe, and result in significantly higher transportation costs and accompanying rising costs of business. Some states have conducted rail abandonment impact studies to quantify the effect of short-line rail abandonments through a benefit-cost analysis. For instance, Kansas Department of Transportation (DOT) estimated that abandonment of short-line railroads in the state resulted in \$58 million in road damage costs, \$20 million in transportation and handling costs, and \$1.3 million in incremental highway safety costs. If Kansas farmers were to absorb these costs, the farm income would decline by \$20.5 million. Based on such figures, different recommendations are proposed to avoid such costs and save short-line railroads in a systematic manner.<sup>33</sup>

## 2.6 INTERMODAL CONNECTIONS

Rail yards, or rail transfer facilities, are an integral part of the state's rail network. They help switch trains to different destinations, help to classify or de-classify

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<sup>31</sup> See for example the Pennsylvania Joint Rail Authority's Study: [www.sedacograil.org/Pages/Home.aspx](http://www.sedacograil.org/Pages/Home.aspx).

<sup>32</sup> Reworded from *Washington State Freight Rail Plan*, 2010.

<sup>33</sup> [www.ksdot.org/burrrail/rail/publications/Impact2003.pdf](http://www.ksdot.org/burrrail/rail/publications/Impact2003.pdf).

railcars, and help move railcars from one mode on to another, thus providing versatility and connectivity to the rail system.

There are several types of rail transfer facilities, each suited for a different purpose. These facilities include:

- Carload facilities support traditional bulk car services. As the car travels across the rail network from origin to destination, it goes through a series of rail yards, where each train is separated into railcars or blocks of railcars and reclassified into other trains to other destinations. There is no transfer of modes.
- Bulk transfer facilities are used for transloading bulk goods between rail and other modes, typically highway and water, and entail transferring the commodity from one mode-specific vehicle to another.
- Specialized yards are used for automobile loading/unloading facilities and other commodities that require special handling.
- Intermodal terminals handle the transfer of trailers or containers between highway, rail and water. Ships carrying international and domestic containers can be loaded directly onto railcars at on-dock intermodal facilities, or containers can be drayed by trucks and then loaded onto railcars at near-dock or off-dock facilities.

Intermodal container trade has been a growing business for the Puget Sound region, and container cargo business is the most promising market segment for Washington ports.<sup>34</sup> In fact, container cargo is expected to be the fastest growing rail sector in the future, growing at a rate of 5 percent annually from 2010 to 2035. This translates to a growth from 16.6 million tons of cargo in 2010 to 55.9 million tons in 2035.<sup>35</sup> Because of the importance of intermodal facilities on Washington's rail system, this section focuses on the discussion of intermodal terminals, which includes on-dock rail terminals, near-dock terminals, off-dock terminals and inland ports. Carload facilities, bulk transfer and specialized yards are discussed in the *2010–2030 Freight Rail Plan*.

## Intermodal Terminals

Intermodal terminals in Washington perform several key functions: they facilitate the movement of international cargo from the seaport to inland destinations, connect Washington and domestic products to seaports via waterways and rail, and connect domestic cargo within the nation. There are several different types of intermodal terminals that serve different purposes. On-

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<sup>34</sup> *Washington Transportation Plan Update Freight Movement*, September 2008.

<sup>35</sup> Analysis of STB Waybill Data by Cambridge Systematics, presented in Technical Notes 3a: *Freight Rail Demand, Commodity Flows, and Volumes*, and 4a: *Freight Forecasts and Capacity Analysis*.

dock rail terminals and near-dock terminals handle international container traffic movement from ship to rail or ship to truck to rail, while off-dock terminals facilitate domestic container movements between truck and rail. Inland ports allow containers to be transferred between river barges or rail to ship for export.

Table 2.4 lists all of the intermodal terminals in Washington that have container-carrying capacity and involve the rail mode. The two common types of intermodal freight are Container on Flat Car (COFC) and Trailer on Flat Car (TOFC). Figure 2.6 also maps them out in conjunction with other multimodal infrastructure. Airports, though not supported by rail intermodal transfer, are included for reference.

**Table 2.4 COFC/TOFC Facilities in Washington**

Name	Type	Rail Service Provider
Port of Seattle Intermodal Terminals	On-Dock	BNSF/UP
Port of Tacoma Intermodal Terminals	On-Dock	BNSF/UP
Tacoma South Intermodal Facility	Near-Dock	UP
Seattle International Gateway	Near-Dock	BNSF
Argo Intermodal Facility	Near-Dock	UP
South Seattle Intermodal Facility	Off-Dock	BNSF
Yardley Yard	Off-Dock	BNSF
Port of Quincy Intermodal Terminal	Inland Port	Port of Quincy
Port of Pasco Intermodal Terminal	Inland Port	BNSF

Source: WSDOT Rail Division, Cambridge Systematics analysis.

### *On-dock and Near-dock Intermodal Facilities*

On-dock rail terminals are intermodal facilities that are located adjacent to a ship berth, thereby offering the potential to move containers between ships and rail directly without “grounding” them. There are a total of six on-dock intermodal facilities in Washington, with three situated at the Port of Seattle, and three at the Port of Tacoma. Through their elimination of truck drayage<sup>36</sup> between port and terminal, on-dock terminals provide an efficient means for handling trainloads of traffic to large inland markets, such as is the case between Seattle and Chicago. However, expansions of these terminals are limited because of geographic constraints.

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<sup>36</sup>Drayage is the transport of goods over a short distance; often as a part of a longer overall move. For instance, a long-distance rail move may have two drayage trips by truck from origin to rail terminal and from another rail terminal to destination.

Figure 2.6 Multimodal Rail Infrastructure in Washington



Source: Cambridge Systematics Mapping of WSDOT and Self-Compiled Data.

Near-docks are terminals that are located within a 5-mile radius of the port terminal. They are essential for providing additional container handling capacity, and often serve international and domestic traffic.

### **Port of Seattle**

#### *On-Dock Facilities*

The Port of Seattle has four container terminals, Terminals 5, 18, 30 and 46. Three of these terminals (Terminals 5, 18, and 46) have on-dock intermodal facilities within the terminal footprint that are served by both BNSF and UP:

- **Terminal 5 Intermodal Yard** is a 30-acre property with six working tracks. It has a loading capacity of 54 double-stack railcars, and direct access to the UP and BNSF.
- **Terminal 18 Intermodal Yard** has a loading capacity of 54 double-stack railcars, and adjacent storage for 54 additional double-stack railcars.
- **Terminal 46 Intermodal Yard** has a loading capacity of 54 double-stack railcars, and adjacent storage for 54 additional double-stack railcars.

There are a total of 27 container cranes servicing these four terminals, which combined cover more than 500 acres of land.<sup>37</sup> In 2011, the Port of Seattle handled more than two million TEUs (20-foot equivalent units) of containers, of which 45 percent were imports, 38 percent were exports, and 16 percent were domestic.<sup>38</sup> Figure 2.7 shows the location of these terminals, as well as railroad access.

#### *Near-Dock Facilities*

Seattle has two near-dock intermodal facilities:

- The BNSF's **Seattle International Gateway** (visible in Figure 2.7, and indicated as BNSF Intermodal Yard (SIG)).
- 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 main lines for each railroad.

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<sup>37</sup>[www.portseattle.org/Cargo/SeaCargo/Facilities/Container-Terminals/Pages/default.aspx](http://www.portseattle.org/Cargo/SeaCargo/Facilities/Container-Terminals/Pages/default.aspx).

<sup>38</sup>[www.portseattle.org/About/Publications/Statistics/Seaport/Documents/mcps.pdf](http://www.portseattle.org/About/Publications/Statistics/Seaport/Documents/mcps.pdf).

Figure 2.7 Port of Seattle’s On-Dock and Near-Dock Rail Intermodal Terminals



Source: Port of Seattle Website, Accessed Jan 2014, [www.portseattle.org/Cargo/SeaCargo/Facilities/Container-Terminals/Documents/HalfHarborPage.pdf](http://www.portseattle.org/Cargo/SeaCargo/Facilities/Container-Terminals/Documents/HalfHarborPage.pdf).

Note: The map is rotated from a typical orientation: a north arrow would point to page-left.

## Port of Tacoma

The Port of Tacoma has six container terminals served by four intermodal yards; three on-dock and one near-dock (Figure 2.8):

### *On-Dock Facilities*

- Husky Terminal and Olympic Container Terminal are served by the on-dock **North Intermodal Yard**, which has a capacity for 76 double-stack container railcars.
- Pierce County Terminal is served by the on-dock **PCT Intermodal Yard**, which has a capacity of 78 double-stack container railcars.
- Washington United Terminals is served by the on-dock **Hyundai Intermodal Yard** that has a 52 double-stack container railcar capacity.
- **Totem Ocean Trailer Express Terminal** is a specialized terminal that operates between Anchorage and Tacoma for transportation on specialized equipment, including trailers, flatbeds, insulated and refrigerated containers.

### *Near-Dock Facilities*

- **South Intermodal Yard** in the Port of Tacoma is a near-dock intermodal facility near the entrance of the APM terminal. It is owned by UP and it is capable of handling 150,000 annual lifts.<sup>39</sup>

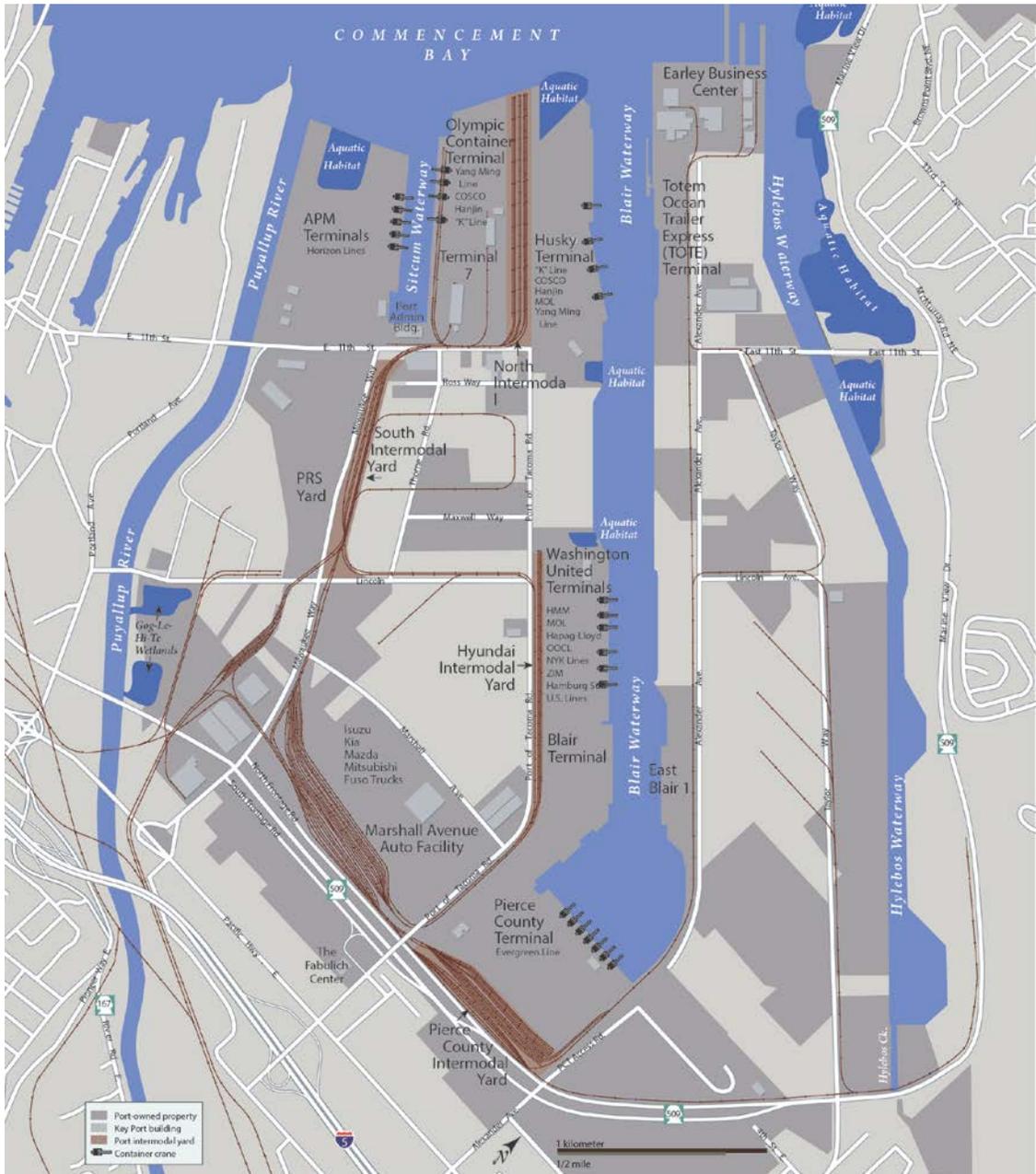
The Tacoma Municipal Belt Line, the short-line service in the Tacoma Tideflats area, provides switching at these four intermodal rail yards. In 2011, the port handled nearly 1.4 million TEUs of containers, of which 69 percent were international and 31 percent domestic.<sup>40</sup>

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<sup>39</sup> [www.uprr.com/customers/intermodal/featured/tacoma.shtml](http://www.uprr.com/customers/intermodal/featured/tacoma.shtml).

<sup>40</sup> [www.portoftacoma.com/Page.aspx?nid=155](http://www.portoftacoma.com/Page.aspx?nid=155).

Figure 2.8 Port of Tacoma Overview Map



Source: Port of Tacoma

### *Off-Dock Terminals*

Off-dock intermodal facilities are rail yards located more than five miles from deep-water ports. They primarily handle domestic containers and trailers as well as provide additional capacity for handling port-related (international) containers.

Both BNSF and UP have intermodal yards in the Puget Sound that cater to domestic intermodal cargo. BNSF's South Seattle yard, located near the south end of Boeing field, processes only domestic intermodal traffic. BNSF operates a domestic yard in Spokane (Yardley Yard), which processes cars to and from local industries and is a block swap location for intermodal trains. Traffic consists of a mixture of originating, terminating, and through trains, including through trains that stop for block swapping as well as set-out or pickup.<sup>41</sup>

### *Inland Ports*

Another type of intermodal facility is inland ports, which can accommodate both bulk and container traffic. Intermodal containers are moved between inland port and seaport by a variety of modes, including river barge, rail or truck. In effect, the inland port serves as an extension of the seaport and therefore can reach out to customers that are located further inland, such as farmers or other rural industries. Note that despite its name, an inland port may not have water access. It can be a "dry" port as long as final connections are made to a larger seaport. A good inland port should be located in a place that can intercept major container traffic and provide easy access to rail and highway, as well as waterway.

Washington has several active inland ports. For example, the **Port of Quincy Intermodal Terminal** is located in the town of Quincy in Central Washington on BNSF's key east-west line connecting to Chicago. It includes 10,000 feet of track and over one million square feet of cold storage warehousing. Both domestic and international containers can be processed and stored at the site. One of the key services it provides is refrigerated intermodal service that operates between the Pacific Northwest and the Midwest (Chicago/Indianapolis/Ohio Valley). The inland port is now acting as a key distributing hub for the Yakima Valley, the Columbia Basin and the Wenatchee Valley.<sup>42</sup>

Another example of an inland port is the **Port of Pasco Intermodal Facility**, located in southeast Washington along the Columbia River. The Port was originally formed to provide facilities for barge shipments of grain from the area around Columbia River to the seacoast terminals. Over the years, the port has

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<sup>41</sup> 2010–2030 Freight Rail Plan: [www.wsdot.wa.gov/Freight/Rail/Plan.htm](http://www.wsdot.wa.gov/Freight/Rail/Plan.htm).

<sup>42</sup> [www.portofquincy.org/news-and-media-coverage/118-port-of-quincy-intermodal-terminal-officially-listed-on-bnsf-railways-new-national-rail-intermodal-map](http://www.portofquincy.org/news-and-media-coverage/118-port-of-quincy-intermodal-terminal-officially-listed-on-bnsf-railways-new-national-rail-intermodal-map).

added intermodal service as well as a large industry center with railroad connection. The container barge terminal averages over 2,700 containers each year, with most of the containers used in exporting local products. Main line railroad service is provided by BNSF, which also operates a system carload yard in Pasco.<sup>43</sup>

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<sup>43</sup> <http://www.portofpasco.org/inside-the-port/what-is-a-port>.

## 3.0 Washington's Passenger Rail System

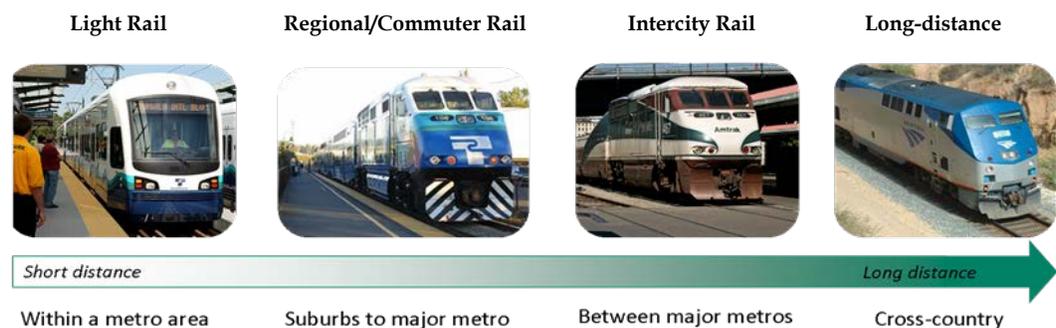
Washington's passenger rail services link cities and regions throughout the state, supporting people's business and leisure needs as well as promoting economic activity. In addition to the local, regional and statewide importance of these services, the Pacific Northwest Rail Corridor (PNWRC), on which the Amtrak Cascades travel, is one of 11 federally-designated high-speed rail corridors in the country.

Typical passenger rail systems fall into one of four categories:

- 1) Long-distance service connecting communities across state lines.
- 2) Intercity rail service connecting metropolitan and rural areas in a single or multi-state region.
- 3) Regional, or commuter, rail service providing connections between central cities and their suburbs or between metropolitan areas and operate over the main line railroad network.
- 4) Urban systems, which provide service within metropolitan regions on their own dedicated infrastructure. In the Seattle region, urban rail service is represented in the form of light rail and monorail. However, this plan covers only long-distance, intercity and commuter rail services.

These four types of rail systems are shown in Figure 3.1.

Figure 3.1 Passenger Rail Service Types



Source: WSDOT, October 2012. Labels modified by Cambridge Systematics.

Washington also has several active tourist trains, which generally provide scenic rides, often in rural areas of the state and often showcasing historical trains or routes. Section 3.5 does discuss the tourist and historical services. However, the focus of this technical note is the state's long-distance, intercity and commuter rail services.

In Section 3.1, the institutional structure and funding information for long-distance, intercity and commuter rail are presented. In Section 3.2, the following topics are presented for these three types of rail: operating characteristics, fleet information, station information, and connectivity with other transportation infrastructure.

## **3.1 INSTITUTIONAL STRUCTURE AND OPERATIONS**

### **Long-Distance Passenger Rail Service**

#### *Empire Builder*

The Empire Builder, a long-distance east-west train that travels from Chicago to Seattle and Portland, is operated by Amtrak and uses tracks owned by multiple host railways including the BNSF Railway (BNSF), Minnesota Commercial, Canadian Pacific and Metra. Unlike Amtrak Cascades, this route is funded only by ridership revenue and federal subsidies; the Washington State Department of Transportation (WSDOT) does not play a role in funding this service.

#### *Coast Starlight*

The Coast Starlight, a long-distance north-south train that travels from Seattle to Los Angeles, is operated by Amtrak and uses tracks owned by multiple host railways including BNSF, Southern California Regional Rail Authority, and Union Pacific Railroad (UP). Similar to Empire Builder, this route is funded only by ridership revenue and federal subsidies. WSDOT does not play a role in funding this service.

### **Intercity Passenger Rail Service**

#### *Amtrak Cascades*

#### **Funding**

Amtrak Cascades is an intercity train that operates on the PNWRC, which runs from Vancouver, British Columbia (B.C.) to Eugene, Oregon (OR). The Amtrak Cascades is currently funded by the states of Washington and Oregon and Amtrak. However, this will change due to the passage of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA). Beginning October 1, 2013, states will stop receiving federal support for intercity passenger rail service. Currently, WSDOT and the Oregon Department of Transportation (ODOT) contribute a combined share of 80 percent toward Amtrak Cascades' operating costs. Between 2011 and 2013, Washington paid approximately 50 percent, Oregon contributed approximately 30 percent, and Amtrak contributed

approximately 20 percent. With the removal of federal funding support, WSDOT and ODOT will be required to fund 100 percent of the operating costs.<sup>44</sup>

Currently, ticket revenues fund approximately two-thirds of Amtrak Cascades' operating costs; the remaining share comes from public subsidies provided by WSDOT, ODOT and Amtrak. Although the changes effected by PRIIA will require states to provide more funding, they also allow states greater control over operational and business decisions, costs and revenues.<sup>45</sup>

WSDOT and ODOT have committed funding toward specific capital improvements to support Amtrak Cascades as well. WSDOT received a federal grant for approximately \$800 million, which it is using to support more frequent and reliable Amtrak Cascades service. This grant will fund 20 projects that focus on adding rail line capacity and upgrading many types of facilities including tracks, roadway facilities, utilities, stations, train equipment and advanced warning systems. Along with this funding, WSDOT will be required to achieve the following performance targets related to Amtrak Cascades, beginning in 2017: add two round trips between Seattle and Portland; improve on-time performance to 88 percent; and achieve a time savings of 10 minutes between Portland and Seattle.<sup>46</sup>

### **Management and Partnerships**

Operating an intercity train, such as Amtrak Cascades, involves a number of public and private entities in the United States and Canada including: WSDOT, ODOT, the British Columbia Ministry of Transportation and Infrastructure, Amtrak, BNSF, UP, customs and border control agencies, and Talgo, a train manufacturer. To ensure that Amtrak Cascades operates smoothly, these entities are involved in partnerships and agreements with one another. While the *Cascades Rail Corridor Management Workplan* (January 2013) provides the complete details on all corridor partnerships, the partnerships most relevant to WSDOT and this State Rail Plan are summarized below.

First, to provide context, WSDOT's Rail Division is responsible for the following roles related to Amtrak Cascades: management of Amtrak Cascades' service operations, planning and program development for passenger rail service, management of WSDOT-owned trainsets, management of station assets and leases, and completion of projects funded with federal high-speed rail dollars.<sup>47</sup>

WSDOT also oversees the following areas: operations management and reporting; budgeting; performance tracking; management and reporting of

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<sup>44</sup> WSDOT and ODOT. (2013). *Cascades Rail Corridor Management Workplan: January 2013*.

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

<sup>47</sup> Ibid.

construction projects; program coordination among local, regional, state and federal parties; freight rail; public outreach; and marketing.<sup>48</sup>

WSDOT's current agreements are described below, listed by partner:

- **Amtrak** – WSDOT has an agreement with Amtrak to operate Amtrak Cascades in Washington. Service includes four daily round trips between Seattle and Portland and two daily round trips between Seattle and Vancouver, B.C.
- **BNSF** – BNSF owns the rail lines used by Amtrak Cascades between Portland, OR and Vancouver, B.C.; WSDOT pays BNSF for the rights to operate on its rail lines between these two locations. WSDOT is also involved in an agreement with BNSF for the design, right of way and construction of program investments from the American Recovery and Reinvestment Act of 2009 (ARRA). Pursuant to an ARRA requirement, WSDOT and BNSF are responsible for corridor maintenance from Vancouver, B.C. to the Canadian border.
- **Canada** – The United States and Canadian governments jointly fund border security.
- **Talgo** – WSDOT pays Talgo, the original equipment manufacturer of Amtrak Cascades trains, to maintain and upgrade the Talgo trainsets.

In 2012, WSDOT signed an agreement with ODOT to facilitate an integrated corridor management approach, allowing both parties to jointly develop a plan for the PNWRC, with the intention of adding British Columbia as another partner.<sup>49</sup>

In concept, the entire PNWRC would be operated as one integrated corridor rather than operating Amtrak Cascades service in separate segments according to jurisdiction, as is current practice. A set of common goals will be developed with an aim to share resources across the entire corridor. Potential benefits include financial and labor efficiencies gained by pooling resources, the strengthening of the corridor's position in negotiations with contractors and in its work with federal agencies, improved service, and reduced taxpayer subsidies.<sup>50</sup>

The State Rail Plan focuses on the Washington portion of Amtrak Cascades' service. However, it will be developed in the context of, and in coordination with, the larger corridor planning underway by WSDOT and ODOT.

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<sup>48</sup> WSDOT. (2012). *Passenger Train Operations*. [www.wsdot.wa.gov/Rail/Operations.htm](http://www.wsdot.wa.gov/Rail/Operations.htm).

<sup>49</sup> WSDOT and ODOT. (2013). *Cascades Rail Corridor Management Workplan: January 2013*.

<sup>50</sup> Ibid.

## Commuter Rail

The Central Puget Sound Regional Transit Authority (Sound Transit) was created in 1993 to develop and deliver a high-capacity transportation system through King, Pierce and Snohomish Counties.<sup>51</sup> Sound Transit operates bus, light rail, and commuter rail services in these three counties. The agency is governed by an 18-member Board of Directors consisting of local mayors, city and county council members, and the Secretary of WSDOT.<sup>52</sup> Members are appointed by the legislative authority of each county based on nominations from the respective county executives. Each county has one representative for each 164,000 residents within the transit district. Currently, there are three members from Snohomish County, four from Pierce County, and ten from King County.

Board structure is defined in the Revised Code of Washington (RCW 81.112) and is designed to provide linkages to other governmental entities including WSDOT, local transit systems, and the largest city within each member county. Of the county appointees, one must be an elected official from the county's largest city, and at least half the appointees shall be members of the legislative authority of a local transit system.<sup>53</sup>

Sound Transit's commuter rail service is called Sounder. Sounder operates between Everett and Lakewood, using BNSF's track through a contract with BNSF. Railcars and locomotives are maintained under a contract with Amtrak. Four other transit agencies operate public transit services within the Sound Transit District—King County Metro, Pierce Transit, Community Transit, and Everett Transit. Sound Transit has contracted with King County Metro to operate the initial segment of the Link light-rail system.<sup>54</sup> This is a 14-mile stretch with a northern terminus in the Pine Street Stub Tunnel, with service from Westlake Station serving downtown Seattle, the SoDo (South of Downtown) industrial area, Beacon Hill, Rainier Valley, Tukwila and Sea-Tac Airport.

Several different committees help to guide and oversee the Sounder system. These include: executive, capital, operations and administration, and audit and reporting committees.<sup>55</sup> Sound Transit is accountable to the public through external oversight groups including a Citizen Oversight Panel, Diversity Oversight Committee and a Citizens Accessibility Advisory Committee.

The Sound Transit district boundary generally follows the urban growth boundaries created by each county in accordance with the state Growth

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<sup>51</sup>Sound Transit, Long Range Plan.

<sup>52</sup>Sound Transit, Financial Plan.

<sup>53</sup>ibid.

<sup>54</sup>ibid.

<sup>55</sup>ibid.

Management Act. This includes the most populated/congested areas of King, Pierce and Snohomish Counties known as the Central Puget Sound Region. Voters within the district boundary voted to approve up to nine-tenths of one percent sales tax and an employer tax of \$2 per employee. Any second phase capital program that relies on continued local taxes will require voter approval within the district. Citizens in areas that may be annexed into the Sound Transit district are permitted to vote on annexation and imposition of taxes at rates already imposed within district boundaries.<sup>56</sup>

According to Sound Transit's 2012 Financial Plan, agency operations are funded primarily by local taxes. The law that created Sound Transit also authorized the agency to levy and collect voter-approved local option taxes to pay for building and operating a regional mass transit system. These options include an employer tax, a special motor vehicle excise tax (MVET), and a sales and use tax. Presently, the tax is comprised of 0.3 percent MVET, an employer tax of up to \$2.50 per employee, a 0.9 percent sales tax approved by voters of Central Puget Sound, and a 0.8 percent sales and use tax on taxable retail car rentals. The first three of these can be levied based on a simple majority vote within the district. The car rental tax may only be implemented by board action if voters have already approved an MVET. The maximum level of a car rental tax is equal to the level of the approved MVET, up to a maximum of 2.172 percent. The MVET is collected by Washington State Department of Licensing as part of vehicle license renewals for both private and commercial vehicles.<sup>57</sup>

Other sources of revenue include ridership and fare revenues, federal grants, interest earning, state and local assistance, and debt financing. Federal funding is typically secured through Federal Transit Administration (FTA), Federal Highway Administration, and Federal Railroad Administration (FRA) programs.

Sound Transit has been particularly successful in attracting FTA funding. Grant funding of \$1.4 billion from the FTA is expected over the 2009 through 2023 time period. This is from two discretionary grants provided by the FTA: one for \$813 million for the University Link light-rail segment and the remainder for the Northgate to Lynnwood light-rail segment. University Link represents the final segment of the Central Link light-rail system, connecting downtown Seattle to the University of Washington via a 3.1-mile long tunnel. Service is planned to begin in 2016. The Northgate to Lynnwood light-rail segment represents a future expansion of Central Link approved by voters in 2008. This will add 36 miles of double track to the Central Link light-rail system, extending north from the University of Washington through Northgate and on to Lynnwood. The agency has also assumed another \$600 million of FTA discretionary funding for their

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<sup>56</sup> Sound Transit, Long Range Plan.

<sup>57</sup> Sound Transit, Financial Plan.

Sound Transit 2 program. Grant funds dedicated specifically to Sounder commuter rail are presently unavailable.

## 3.2 LONG-DISTANCE PASSENGER SERVICES

This section provides information on the Amtrak long-distance passenger rail services in Washington: Empire Builder and Coast Starlight. Details include operating statistics, station information and connectivity with other transportation facilities. General information for these lines is discussed below, and Figure 3.2 illustrates location of these lines in Washington.

- **Empire Builder (Chicago - Milwaukee - St. Paul/Minneapolis - Spokane - Portland/Seattle).** This long-distance train, operated by Amtrak, travels over 2,000 miles from the Midwest to the Pacific Northwest. In the westbound direction, the route splits in Spokane and offers two termini: one in Portland and one in Seattle. Ridership was approximately 467,300 in calendar year 2011 and current service includes one daily round-trip train.
- **Coast Starlight (Seattle - Portland - Los Angeles).** This long-distance train, operated by Amtrak, travels over 1,300 miles from Seattle to Los Angeles. The portion of the route that travels through Washington shares the Amtrak Cascades route along the PNWRC to Seattle. Ridership was approximately 427,800 in calendar year 2011 and current service includes one daily round-trip train.<sup>58</sup>

Two measures are used to assess a route's on-time performance (OTP): endpoint OTP and all-stations OTP. Definitions are:

- **Endpoint OTP.** Measures whether or not a train arrives at its endpoint on time. An "on-time arrival" is dependent upon trip length. For example, for trips that are 250 miles or less, a train is considered "on-time" if it arrives within 10 minutes of its scheduled arrival time. Table 3.1 indicates the allowable extra time allowed according to trip length.
- **All-Stations OTP.** Compares a train's actual performance to its published schedule, including all stations beginning with the origin and ending with the destination station. The actual departure and actual arrival times are used in this measurement for the specified period. Each departure or arrival constitutes one "instance." A train is considered "on-time" if each instance is within 15 minutes of the schedule. In the case that no time is recorded at a station, that instance is excluded.

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<sup>58</sup>More detailed discussion about rail ridership will be the focus of Technical Note 4b. Information is provided here for context only.

Endpoint OTP and All-Stations OTP for the Empire Builder are defined by PRIIA Section 207 as:

- As of FY 2010, Endpoint OTP must be at least 80 percent.
- By FY 2014, Endpoint OTP must be at least 85 percent.
- Effective FY 2012, All-Stations OTP must be at least 80 percent.
- By FY 2014, All-Stations OTP must be at least 85 percent.

**Table 3.1 Endpoint OTP On-Time Arrival Standards**

Trip Length	Time Allowed (After Scheduled Arrival)
250 miles or less	10 minutes
251-350 miles	15 minutes
351-450 miles	20 minutes
451-550 miles	25 minutes
551 or more miles	30 minutes

Source: FRA. (2012). *Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations*, June 2012.

Figure 3.2 Passenger Rail in Washington



Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Washington, D.C. (2010). National Transportation Atlas Database 2010.

## Empire Builder

The purpose of this section is to describe the Empire Builder's services, recent performance and facilities. Amtrak operates Empire Builder, a long-distance train from Chicago in the east to its two western termini: Seattle and Portland. The route divides in Spokane, Washington and the northern segment travels northwest through eastern Washington and the Cascade Range to Seattle, while the southern segment travels through southeastern Washington and the Columbia River Gorge west to Portland. The Chicago to Spokane segment spans 1,879 miles; the Seattle to Spokane segment spans 326 miles; and the Portland to Spokane segment spans 376 miles. Service includes one daily round-trip train.

### *Fare Structure*

The reserved coach fare from Seattle to Chicago ranges from \$159 to \$410.<sup>59</sup> The lower fare is often available, but increases during holiday and other popular travel periods. The Empire Builder's farebox recovery rate for FY 2012 was approximately 56 percent.<sup>60</sup>

### *Operating Statistics and Performance*

#### **On-Time Performance**

At different points in time, Empire Builder service has been affected by weather-related events such as flooding and landslides, which caused service to be truncated and thus negatively affected performance. Table 3.2 displays the Empire Builder's on-time performance information for the first three quarters of FY 2012. Between October 2011 and June 2012, the Empire Builder generally performed below the standard on the Endpoint OTP and All-Stations OTP metrics. All-Stations OTP did not achieve the standard at any point between October 2011 and June 2012, while Endpoint OTP met the standard only once—during the second quarter of FY 2012. Performance improved significantly during the second quarter from 66 percent to 82 percent for Endpoint OTP and from 44 percent to 78 percent for All-Stations OTP. However, the third quarter saw another decrease.

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<sup>59</sup> Amtrak. (2012).

<sup>60</sup> The farebox recovery rate was determined by dividing Total Revenue by Total Costs (excluding Other Post-Employment Benefits (OPEB), Capital Charge, and Other Costs). This source of this information was Amtrak's *Monthly Performance Report for September 2012, Appendix C: Route Performance Report*.

**Table 3.2 Empire Builder On-Time Performance by Quarter  
 (October 2011 to June 2012)**

Month	Endpoint OTP	All-Stations OTP
October-December 2011 (Q1)	66.2%	43.9%
January-March 2012 (Q2)	82.4%	78.3%
April-June 2012 (Q3)	69.0%	45.4%

Source: FRA, *Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations*. Multiple reports were consulted: Quarter ended December 31, 2011 – Quarter Ended June 30, 2012. Accessed October 2012 from [www.fra.dot.gov/rpd/passenger/2165.shtml](http://www.fra.dot.gov/rpd/passenger/2165.shtml).

Note: Values that do not meet standard defined by Section 207 of PRIIA (80 percent) are italicized.

### Delay

In addition to on-time performance, delay information is an important performance measure for passenger rail services. To determine this measure for each train route, Amtrak calculates the total train delays per 10,000 train miles.<sup>61</sup> Additionally, Amtrak provides the top two causes of delay. These data are then presented by train route on a quarterly basis and compared to the delay standards. These standards from PRIIA Section 207 state that host-responsible delays must be no greater than 900 minutes per 10,000 train-miles and Amtrak-responsible delays must be no greater than 325 minutes per 10,000 train-miles. Delay information for the Empire Builder is summarized in Table 3.3.

The Empire Builder performs well with regard to delays, meeting the standard in all but three instances, two of which were host-responsible delay information on the Canadian Pacific track and one was on the Metra track. The route met the Amtrak-responsible delay standard for all of the quarters displayed in Table 3.3. Freight train interference is the most frequent type of delay on host railroads during this time. Signal delays and slow order delays also occurred frequently. The most frequent Amtrak-responsible delays include passenger-related delays, such as checked baggage and large groups, as well as locomotive failure.

### Stations

The Empire Builder serves 11 stations in Washington. Table 3.4 describes characteristics of these stations, including physical location, ADA accessibility, parking and transit connections.

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<sup>61</sup> Amtrak reports these data to the FRA. The host railroads are not involved in this process. Amtrak reports delays regardless of whether or not the train is able to make up time for these delays in other areas of the route.

**Table 3.3 Delay Information for Amtrak Empire Builder (October 2011 to June 2012)**

Quarter	Host-Responsible Delays			Top Two Reasons for Delay			Amtrak-Responsible Delays	Top Two Reasons for Delay
	Host Railroad			Host Railroad				
	BNSF	CP	Metra	BNSF	CP	Metra		
October-December 2011 (Q1)	818	976	867	Delays from freight trains, temporary slow orders	Delays from freight trains, signal delays	Delays for meeting or following commuter trains, delays from freight trains	313	Passenger-related (all passengers – checked baggage, etc.), holding for connections from other trains or buses
January-March 2012 (Q2)	657	702	892	Delays from freight trains, temporary slow orders	Delays from freight trains, signal delays	Delays for meeting or following commuter trains, signal delays	272	Passenger-related (all passengers – checked baggage, etc.), holding for connections from other trains or buses
April-June 2012 (Q3)	706	1,294	1,371	Temporary slow orders, delays from freight trains	Delays for meeting or following commuter trains, delays for meeting or following other passenger trains	Delays for meeting or following other passenger trains, signal delays	307	Passenger-related (all passengers – checked baggage, etc.), holding for connections from other trains or buses

Source: FRA, *Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations*. Multiple reports were consulted: Quarter ended December 31, 2011 – Quarter Ended June 30, 2012. Accessed October 2012 from [www.fra.dot.gov/rpd/passenger/2165.shtml](http://www.fra.dot.gov/rpd/passenger/2165.shtml).

Notes: Values that do not meet the standards defined by Section 207 of PRIA are italicized.

**Table 3.4 Amtrak Empire Builder Station Characteristics**

Station	Location	Meets ADA Requirements?	Parking Supply	Transit Connections	Population Served				
					Within 5 Miles	Within 10 Miles	Within 15 Miles	Within 25 Miles <sup>a</sup>	Within 50 Miles <sup>a</sup>
Spokane	221 West First Avenue	Yes	60 short-term and 60 long-term spaces <sup>b</sup>	Spokane Transit Authority, Northwestern Trailways	*	*	*	458,067	586,763
Pasco	535 North First Avenue	Restrooms, ticket office, and pay phones are accessible	35 short-term and 10 long-term spaces <sup>b</sup>	Greyhound, Ben Franklin Transit, Grape Line	*	*	*	185,242	387,303
Wishram	1 Railroad Avenue	Partially; waiting room not accessible	10 long-term spaces <sup>b</sup>		*	*	*	34,090	77,841
Bingen/White Salmon	Highway 14 and Walnut Street	Yes	5 short-term and 5 long-term spaces <sup>b</sup>		*	*	*	57,224	260,195
Vancouver	1301 West 11 <sup>th</sup> Street	Yes	40 short-term and 40 long-term spaces	Amtrak Cascades, Amtrak Coast Starlight, C-TRAN (Clark County Transportation Benefit Area)	175,000	596,000	820,000	*	*
Ephrata	90 Alder Street NW	Partially; no accessible water fountain or dedicated parking	5 short-term and 5 long-term spaces <sup>b</sup>		*	*	*	58,396	186,866
Wenatchee	Kittitas and South Columbia Streets	Partially; no accessible waiting room	5 short-term and 5 long-term spaces <sup>b</sup>	Link Transit, Apple Line	*	*	*	81,820	163,363

<sup>a</sup> These data came from the [www.amtrak.com](http://www.amtrak.com).

<sup>b</sup> Information about parking cost not available.

\* Data not available.

Station	Location	Meets ADA Requirements?	Parking Supply	Transit Connections	Population Served				
					Within 5 Miles	Within 10 Miles	Within 15 Miles	Within 25 Miles <sup>a</sup>	Within 50 Miles <sup>a</sup>
Leavenworth	11645 North Road	Partially; no accessible waiting room, water fountain or dedicated parking	No short-term or long-term spaces	Link Transit	*	*	*	*	*
Everett	3201 Smith Avenue	Yes	200 short-term and 25 long-term spaces	Amtrak Cascades, Greyhound, Northwestern Trailways, Sound Transit, Community Transit	100,000	240,000	395,000	*	*
Edmonds	211 Railroad Avenue	Yes	No short-term or long-term spaces	Amtrak Cascades, Sound Transit, Community Transit, Washington State Ferries	136,000	505,000	994,000	*	*
Seattle	303 South Jackson Street	Yes	No short-term or long-term spaces	Amtrak Cascades, Amtrak Coast Starlight, Sound Transit, Northwestern Trailways and Olympic Bus Lines intercity buses, King County Metro, Community Transit, Washington State Ferries (0.5 miles)	378,000	886,000	1,381,000	*	*

Sources: (1) WSDOT. (2006). *Long Range Plan for Amtrak Cascades*. 2) Amtrak. Station information was gathered from the Amtrak website's station pages. The search feature is located here: [www.amtrak.com/northwest-train-bus-stations](http://www.amtrak.com/northwest-train-bus-stations). 3) National Association of Railroad Passengers. 2008 fact sheets.

<sup>a</sup> These data came from the National Association of Railroad Passengers 2008 fact sheets.

<sup>b</sup> Information about parking cost not available.

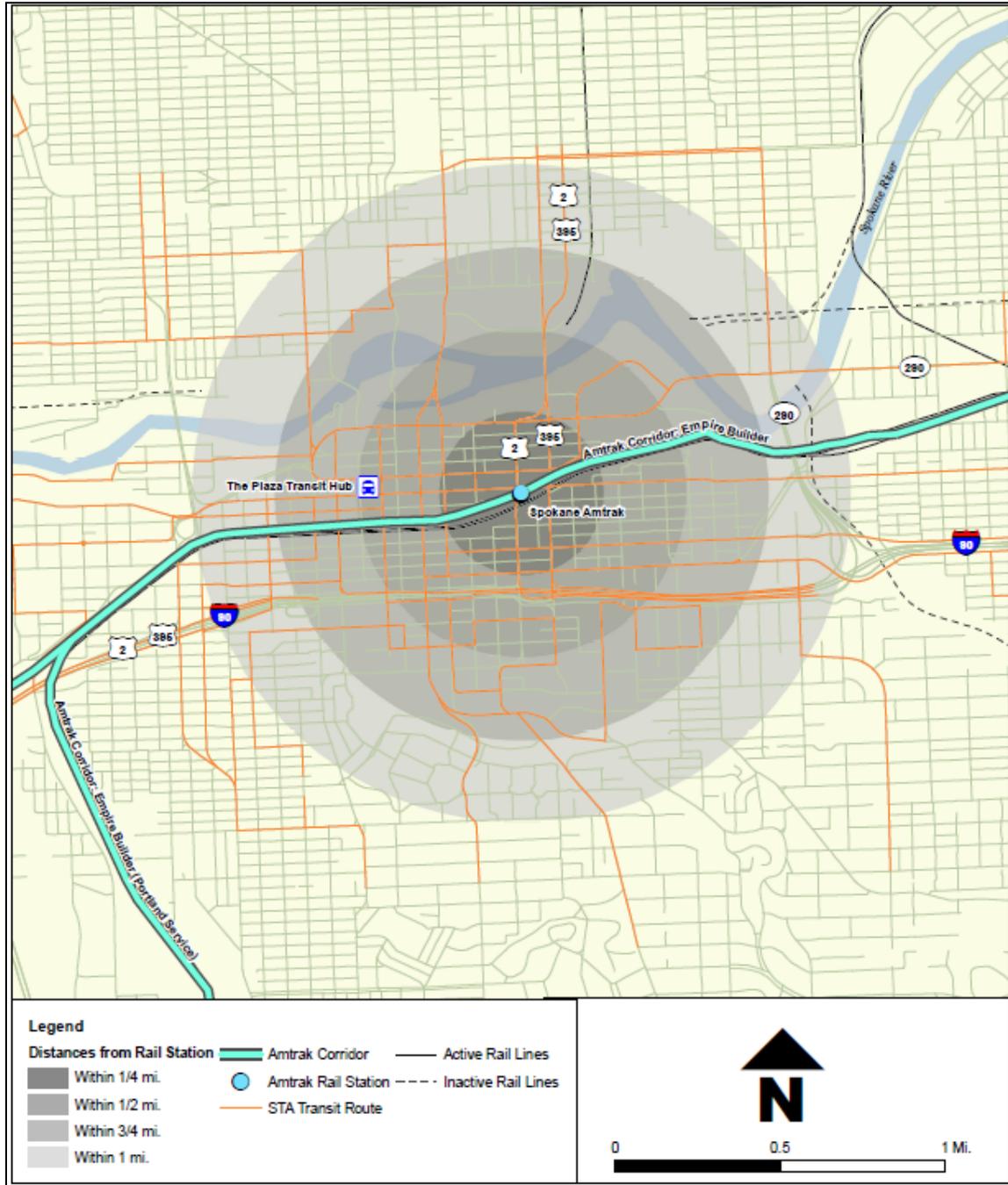
\* Data not available.

General note: When possible, station information was collected from the "Station Profiles" section of the *Long Range Plan for Amtrak Cascades*. Otherwise, information was collected from Amtrak's station information pages or the National Association of Railroad Passengers fact sheets.

### *Transit Connections*

To provide a visual representation of transit connections available at rail stations along Washington's long-distance routes, the Spokane rail station was selected. This is one of the route's major stops and the point at which the route diverges: one train travels to Seattle; the other travels to Portland. As shown in Figure 3.3, there is one transit connection within one-half mile of this station. The Plaza Transit Hub provides a connection to Spokane Transit, which provides bus and vanpool services in Spokane and surrounding cities.

Figure 3.3 Transit Connections Around Spokane Rail Station



Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Washington, D.C. (2010). *National Transportation Atlas Database 2010*.

## Coast Starlight

The purpose of this section is to describe the Coast Starlight's services, recent performance and facilities. The Coast Starlight travels for 1,377 miles from Los Angeles in the south to Seattle in the north, with major stops in Oakland, Sacramento, Klamath Falls, Eugene-Springfield, Portland and Tacoma. Service includes one daily round-trip train.

### *Fare Structure*

The reserved coach fare from Seattle to Los Angeles ranges from \$133 to \$166.<sup>62</sup> The lower fare is often available, while the more expensive tickets are sold during holiday and other popular travel periods. The Coast Starlight's farebox recovery rate for FY 2012 was approximately 46 percent.<sup>63</sup>

### *Operating Statistics and Performance*

#### **On-Time Performance**

Table 3.5 displays the Coast Starlight's on-time performance information for the first three quarters of FY 2012. In all but one instance, the Coast Starlight did not meet the standards for Endpoint OTP and All-Stations OTP during the first three quarters of FY 2012: Quarter 1 of FY 2012. The service degraded in Quarter 2: Endpoint OTP dropped roughly eight percentage points and All-Stations OTP dropped roughly 11 percentage points.

**Table 3.5 Coast Starlight On-Time Performance by Quarter  
(October 2011 to June 2012)**

Month	Endpoint OTP	All-Stations OTP
October-December 2011 (Q1)	85.9%	71.8%
January-March 2012 (Q2)	78.0%	61.0%
April-June 2012 (Q3)	79.7%	61.7%

Source: FRA, *Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations*. Multiple reports were consulted: Quarter ended December 31, 2011 – Quarter Ended June 30, 2012. Accessed October 2012 from [www.fra.dot.gov/rpd/passenger/2165.shtml](http://www.fra.dot.gov/rpd/passenger/2165.shtml).

Note: Values that do not meet standard defined by Section 207 of PRIIA (80 percent) are italicized.

<sup>62</sup> Amtrak. (2012).

<sup>63</sup> The farebox recovery rate was determined by dividing Total Revenue by Total Costs (excluding OPEB's, Capital Charge, and Other Costs). This source of this information is Amtrak's *Monthly Performance Report for September 2012, Appendix C: Route Performance Report*.

## **Delay**

Delay information for the Coast Starlight is summarized in Table 3.6.

The Coast Starlight performed below the standard during the first three quarters of FY 2012 with regard to host-responsible delays and Amtrak-responsible delays. The top causes of host-responsible delays were passenger train interference, which includes meeting or following other passenger trains; commuter train interference, which involves meeting or following commuter trains; and signal delays. The most frequent Amtrak-responsible delays are passenger-related delays and locomotive failures.

## *Stations*

The Coast Starlight serves six stations in Washington: Seattle, Tacoma, Olympia/Lacey, Centralia, Kelso/Longview and Vancouver. All of these stations are described in Table 3.7.

**Table 3.6 Delay Information for Coast Starlight**

Quarter	Host-Responsible Delays			Top Two Reasons for Delay			Amtrak-Responsible Delays	Top Two Reasons for Delay
	Host Railroad			Host Railroad				
Coast Starlight	BNSF	SCRRA	UP	BNSF	SCRRA	UP		
October-December 2011 (Q1)	<i>952</i>	<i>1,809</i>	<i>908</i>	Routing-dispatching delays (including diversions, late track bulletins), delays from freight trains	Delays for meeting or following commuter trains, delays for meeting or following other passenger trains	Delays for meeting or following other passenger trains, signal delays	<i>494</i>	Crew and system-related (lateness, lone-engineer delays), passenger-related (all passengers – checked baggage, etc.)
January-March 2012 (Q2)	<i>1,058</i>	<i>1,303</i>	<i>1,027</i>	Temporary slow orders, routing-dispatching delays (including diversions, late track bulletins)	Delays for meeting or following commuter trains, delays for meeting or following other passenger trains	Delays for meeting or following other passenger trains, signal delays	<i>496</i>	Crew and system-related (lateness, lone-engineer delays), locomotive failure
April-June 2012 (Q3)	<i>920</i>	<i>2,132</i>	<i>1,014</i>	Temporary slow orders, routing-dispatching delays (including diversions, late track bulletins)	Delays for meeting or following commuter trains, delays for meeting or following other passenger trains	Delays for meeting or following other passenger trains, signal delays	<i>505</i>	Passenger-related (all passengers – checked baggage, etc.), all switching and service delays

<sup>a</sup> Delay is displayed in minutes of delay per 10,000 train-miles.

Source: FRA, *Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations*. Multiple reports were consulted: Quarter ended December 31, 2011 – Quarter Ended June 30, 2012. Accessed October 2012 from [www.fra.dot.gov/rpd/passenger/2165.shtml](http://www.fra.dot.gov/rpd/passenger/2165.shtml).

Notes: Values that do not meet the standards defined by Section 207 of PRIIA are italicized.

**Table 3.7 Coast Starlight Station Characteristics**  
*Includes Stations in Washington Only, Listed in Order from South to North*

Station	Location	Meets ADA Requirements?	Parking Supply	Transit Connections	Residents within 5 Miles	Residents within 10 Miles	Residents within 15 Miles
Vancouver Station, Vancouver <sup>a</sup>	1301 West 11 <sup>th</sup> Street	Yes	40 short-term and 40 long-term spaces	Amtrak Cascades, Amtrak Empire Builder, C-TRAN (Clark County Transportation Benefit Area, ¼-mile)	175,000	596,000	820,000
Kelso Multimodal Transportation Center, Kelso <sup>a</sup>	501 South First Avenue	Yes	11 short-term and 11 long-term spaces	Amtrak Cascades, River Cities Transit	60,000	74,000	82,000
Union Depot, Centralia <sup>a</sup>	210 Railroad Avenue	Yes	25 short-term and 25 long-term spaces	Amtrak Cascades, Twin City Transit, regional buses	25,000	40,000	58,000
Centennial Station, Olympia/Lacey <sup>a</sup>	6600 Yelm Highway	Yes	98 short-term and 98 long-term parking spaces	Amtrak Cascades, Intercity Transit	74,000	133,000	161,000
Tacoma Amtrak Station, Tacoma <sup>a</sup>	1001 Puyallup Avenue	Yes	80 long-term spaces at station; 2,400 free spaces at Tacoma Dome (3 blocks)	Amtrak Cascades, Pierce Transit, Northwestern Trailways; Tacoma Dome connects to Greyhound, Sound Transit, regional express buses, Intercity Transit	210,000	553,000	820,000
King Street Station, Seattle <sup>a</sup>	303 South Jackson Street	Yes	No short-term or long-term spaces	Amtrak Cascades, Amtrak Empire Builder, Sound Transit, Northwestern Trailways and Olympic Bus Lines intercity buses, King County Metro, Community Transit, Washington State Ferries (0.5 miles)	378,000	886,000	1,381,000

<sup>a</sup> All these stations serve Amtrak Cascades and Coast Starlight trains.

Source: WSDOT, 2006, *Long Range Plan for Amtrak Cascades* and [www.amtrak.com](http://www.amtrak.com).

### 3.3 INTERCITY PASSENGER SERVICES

Amtrak Cascades travels 467 miles from Eugene, OR to Vancouver, B.C., and generally runs parallel to I-5, including nine counties in Washington as well as sections of Oregon and British Columbia.<sup>64</sup> In late 2013, ODOT will be adding two trainsets. As of the writing of this plan, Amtrak Cascades daily service includes:

- Three daily trains between Seattle and Eugene, OR (Trains 500, 507 and 509).
- Three daily trains between Seattle and Portland, OR (Trains 501, 506 and 508).
- Two daily trains between Portland, OR and Vancouver, B.C. (Trains 513 and 516).
- Two daily trains between Seattle and Vancouver, B.C. (Trains 510 and 517).
- One daily train between Portland, OR and Eugene, OR (Train 504).

Table 3.8 provides part of the Amtrak Cascades current schedule information and Figure 3.4 shows the Amtrak Cascades rail lines, stations and connections with other lines.

**Table 3.8 Amtrak Cascades Daily Schedule**

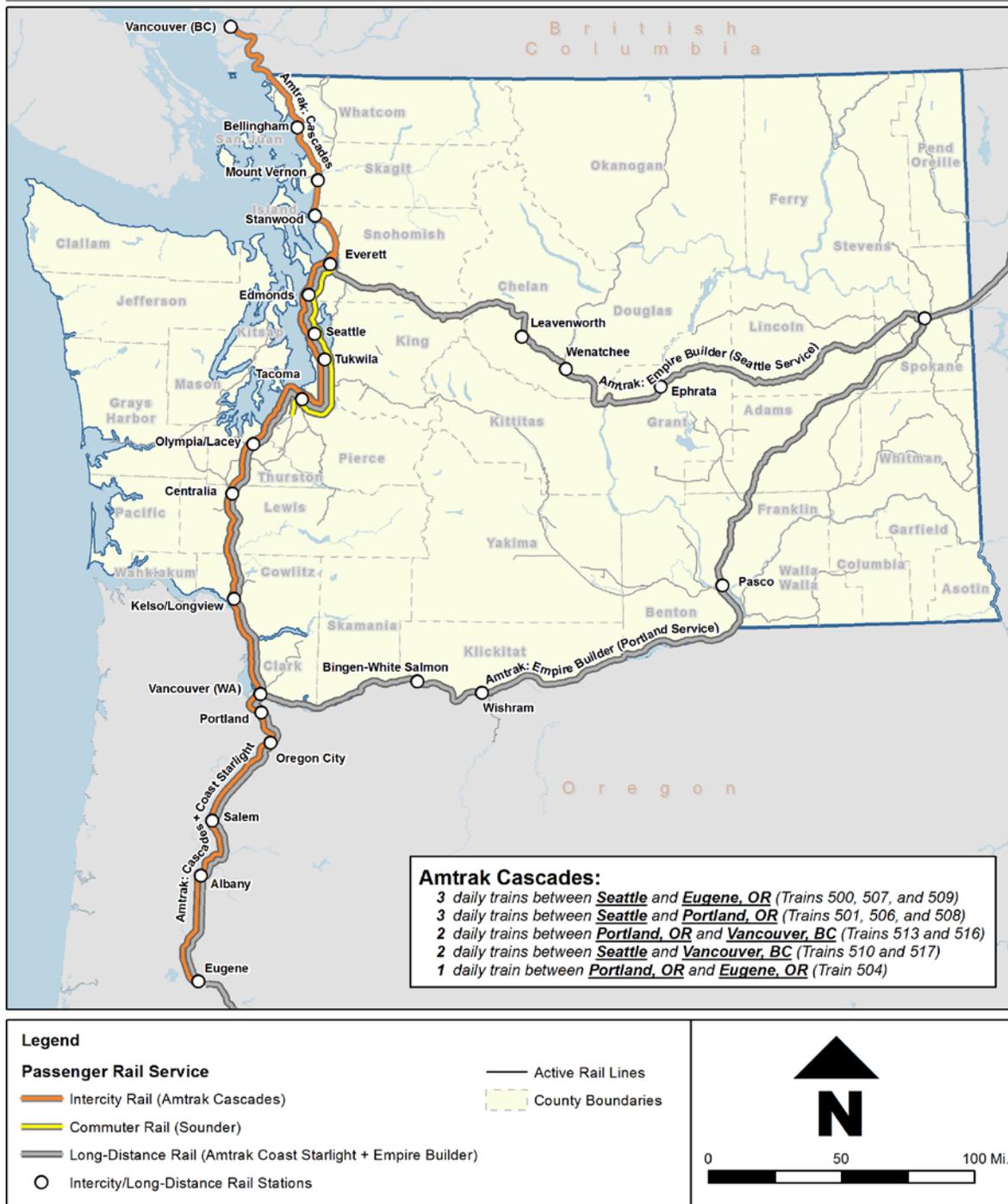
Northbound		Eugene	Portland	Olympia/Lacey	Seattle	Everett	Bellingham	Vancouver, B.C.
500	Ar Dp	5:30 a.m.	8:05 a.m. 8:30 a.m.	10:22 a.m.	12:20 p.m.			
510					7:40 a.m.	8:31 a.m.	9:52 a.m.	11:40 a.m.
504		9:00 a.m.	11:35 a.m.					
506			12:15 p.m.	2:07 p.m.	4:05 p.m.			
516	Ar Dp		2:45 p.m.	4:37 p.m.	6:35 p.m. 6:60 p.m.	7:42 p.m.	9:00 p.m.	10:50 p.m.
508			6:15 p.m.	8:07 p.m.	10:05 p.m.			
Southbound		Vancouver, B.C.	Bellingham	Everett	Seattle	Olympia/Lacey	Portland	Eugene
513	Ar Dp	6:40 a.m.	8:45 a.m.	10:02 a.m.	11:05 a.m. 11:25 a.m.	12:45 p.m.	3:15 p.m.	
501					7:30 a.m.	8:50 a.m.	11:20 a.m.	
507	Ar Dp				2:00 p.m.	3:20 p.m.	5:50 p.m. 6:05 p.m.	8:40 p.m.
509	Ar Dp				5:30 p.m.	6:50 p.m.	9:20 p.m. 9:30 p.m.	12:05 a.m.
517		5:45 p.m.	7:49 p.m.	9:09 p.m.	10:10 p.m.			

Source: Amtrak: Amtrak Cascades Schedule Effective September 10, 2013.

Note: This schedule includes train service only. Thruway bus service is not included.

<sup>64</sup>WSDOT, 2006, *Washington State Long-Range Plan for Amtrak Cascades*.

Figure 3.4 Amtrak Cascades Service



Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Washington, D.C., 2010, *National Transportation Atlas Database 2010*.

### *Fare Structure*

The reserved coach fare from Seattle to Portland ranges from \$32 to \$56. The lower fares are often available, but fares increase during popular, high-demand travel periods such as major holidays.

Amtrak Cascades' farebox recovery rate for FY 2011 was almost 66 percent; it has risen steadily since FY 2006, when it was approximately 48 percent.<sup>65</sup>

### *Operating Statistics and Performance*

The performance metrics for the Amtrak Cascades service are different from Empire Builder and Coast Starlight. As part of a federal High-Speed Intercity Passenger Rail grant, by 2017, WSDOT will achieve the following:

- A 10-minute reduction in the run time shown in the public schedule for the Amtrak Cascades service operating between Seattle, WA and Portland, OR.
- Two additional daily round-trip Amtrak Cascades intercity passenger trains operating between Seattle, WA and Portland, OR.
- Improvement in Amtrak Cascades service reliability to 88 percent.

In the 47<sup>th</sup> edition of the Gray Notebook,<sup>66</sup> WSDOT's quarterly performance report, it was reported that 71 percent<sup>67</sup> of Amtrak Cascades trains were on-time during the third quarter of 2012. The on-time performance goal is 80 percent.

In addition to the statistics WSDOT tracks in the Gray Notebook, Amtrak also tracks performance data related to delay. Table 3.9 summarizes delay information for Amtrak Cascades.

In summary, more often than not, the Amtrak Cascades route does not meet the delay standard. The most frequent host railroad-related delay is freight trains and the most common Amtrak-related delays are locomotive failure and crew and system-related delays.

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<sup>65</sup> WSDOT Rail Division. (2013). [www.wsdot.wa.gov/Rail/PerformanceReports.htm](http://www.wsdot.wa.gov/Rail/PerformanceReports.htm), accessed February 26, 2013.

<sup>66</sup> [http://www.wsdot.wa.gov/Accountability/GrayNotebook/gnb\\_archives.htm](http://www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm), accessed January 15, 2014.

<sup>67</sup> This statistic refers to the performance of Washington-funded trains. It also assumes that a Seattle to Portland train is on time if it arrives up to 10 minutes beyond its scheduled arrival time and a Portland to Vancouver, B.C. train is on time if it arrives up to 15 minutes beyond its scheduled arrival time.

**Table 3.9 Delay Information for Amtrak Cascades (FY 2012)**  
*Delay is displayed in minutes of delay per 10,000 train-miles*

Quarter	Host-Responsible Delays		Top Two Reasons for Delay		Amtrak-Responsible Delays	Top Two Reasons for Delay
	Host Railroad		Host Railroad			
Amtrak Cascades	BNSF	UP	BNSF	UP		
October-December 2011 (Q1)	1,045	712	Delays from freight trains, delays for meeting or following other passenger trains	Delays from freight trains, signal delays	232	Locomotive failure, passenger-related (disabled passengers)
January-March 2012 (Q2)	1,270	993	Temporary slow orders, delays from freight trains	Delays from freight trains, signal delays	224	Crew and system-related (lateness, lone-engineer delays), locomotive failure
April-June 2012 (Q3)	1,162	784	Temporary slow orders, delays from freight trains	Delays from freight trains, signal delays	227	Passenger-related (all passengers – checked baggage, etc.), crew and system-related (lateness, lone-engineer delays)

Source: FRA, *Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations*. Multiple reports were consulted: Quarter ended December 31, 2011 – Quarter Ended June 30, 2012. Accessed October 2012 from [www.fra.dot.gov/rpd/passenger/2165.shtml](http://www.fra.dot.gov/rpd/passenger/2165.shtml).

Note: Values that do not meet the standards defined by Section 207 of PRIIA are italicized.

### *Fleet*

Approximately two percent of the 467-mile Amtrak Cascades route, which runs along the PNWRC, is comprised of curved track segments. This poses a challenge for conventional equipment, which must decrease speeds in order to handle the curvy terrain. Amtrak Cascades uses specialized trainsets that allow the cars to handle the challenging terrain along the route and increase train frequencies.<sup>68</sup>

In the early 1990s, WSDOT approached the challenge of running trains on PNWRC’s terrain by conducting train research. An alternative approach—using “tilting” rail passenger equipment—was identified. After testing tilting rail trainsets in the mid-1990s, WSDOT selected Patentes Talgo, S.A. of Madrid, Spain (Talgo), to manufacture the equipment. Talgo trainsets were solidly constructed, lighter in weight, have a low center of gravity and tilting technology, which helped them perform well in the Pacific Northwest environment.<sup>69</sup>

<sup>68</sup> WSDOT. (2006). *Long Range Plan for Amtrak Cascades*.

<sup>69</sup> *Ibid.*

Currently, the Amtrak Cascades fleet includes five trainsets, each holds approximately 250 passengers. WSDOT owns three trainsets; Amtrak owns two. Additionally, ODOT recently purchased two Talgo trainsets, which are scheduled to enter revenue service in 2014.<sup>70</sup> Because federal funding for intercity trains will cease in October 2013 due to the PRIIA Section 209 regulations, WSDOT, ODOT and Amtrak are currently in negotiations regarding usage of the Amtrak-owned Talgo trainsets.

### *Stations*

Amtrak Cascades has 12 stations in Washington. Table 3.10 lists these stations and characteristics including physical location, ADA accessibility, parking and transit connections.

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<sup>70</sup> WSDOT and ODOT. (2013). *Cascades Rail Corridor Management Workplan: January 2013*.

**Table 3.10 Amtrak Cascades Stations in Washington State**

Station	Location	Meets ADA Requirements?	Parking Supply	Transit Connections	Residents within 5 Miles	Residents within 10 Miles	Residents within 15 Miles
Vancouver Station, Vancouver	1301 West 11 <sup>th</sup> Street	Yes	40 short-term and 40 long-term spaces	Amtrak Coast Starlight, C-TRAN (Clark County Transportation Benefit Area, ¼-mile), “Taxi” nearby	175,000	596,000	820,000
Kelso Multimodal Transportation Center, Kels	501 South First Avenue	Yes	11 short-term and 11 long-term spaces	Amtrak Coast Starlight, River Cities Transit, “Taxi”	60,000	74,000	82,000
Union Depot, Centralia	210 North Railroad Avenue	Yes	25 short-term and 25 long-term spaces	Amtrak Coast Starlight, Twin City Transit, regional buses	25,000	40,000	58,000
Centennial Station, Olympia/Lacey	6600 Yelm Highway	Yes	98 short-term and 98 long-term parking spaces	Amtrak Coast Starlight, Intercity Transit	74,000	133,000	161,000
Tacoma Amtrak Station, Tacoma	1001 Puyallup Avenue	Yes	80 long-term spaces at station; 2,400 free spaces at Tacoma Dome (3 blocks)	Amtrak Coast Starlight, Pierce Transit, Northwestern Trailways; Tacoma Dome connects to Greyhound, Sound Transit, regional express buses, Intercity Transit	210,000	553,000	820,000
Tukwila Station, Tukwila <sup>a</sup>	7301 South 158 <sup>th</sup> Street	Yes	233 short-term and no long-term spaces	Sound Transit, Metro, “Taxi”	223,000	608,000	1,112,000
King Street Station, Seattle	303 South Jackson Street	Yes	No short-term or long-term spaces	Amtrak Coast Starlight and Empire Builder, Sound Transit, Northwestern Trailways and Olympic Bus Lines intercity buses, King County Metro, Community Transit, Washington State Ferries (0.5 miles)	378,000	886,000	1,381,000

<sup>a</sup> Indicates stations not served by Coast Starlight trains.

Station	Location	Meets ADA Requirements?	Parking Supply	Transit Connections	Residents within 5 Miles	Residents within 10 Miles	Residents within 15 Miles
Edmonds Station, Edmonds <sup>a</sup>	210 Railroad Avenue	Yes	No short-term or long-term spaces	Amtrak Empire Builder, Sound Transit, Community Transit, Washington State Ferries	136,000	505,000	994,000
Everett Station, Everett <sup>a</sup>	3201 Smith Avenue	Yes	200 short-term and 25 long-term spaces	Amtrak Empire Builder, Greyhound, Northwestern Trailways, Sound Transit, Community Transit	100,000	240,000	395,000
Stanwood Station, Stanwood <sup>a</sup>	27111 Florence Way	Partially; no accessible waiting room or water fountain	10 short-term spaces, and 10 long-term spaces (free of charge)	Island Transit			
Skagit Station, Mt. Vernon <sup>a</sup>	105 East Kincaid Street	Yes	Short-term and 50 long-term spaces	Skagit Transit, Greyhound “Taxi”	36,000	62,000	95,000
Fairhaven Station, Bellingham <sup>a</sup>	401 Harris Street	Yes	52 short-term and 117 long-term spaces	Whatcom Transportation Authority, Greyhound, San Juan Island Commuter, Alaska Marine Highway System “Taxi”	62,000	91,000	113,000

<sup>a</sup> Indicates stations not served by Coast Starlight trains.

Source: WSDOT, 2006, *Long-Range Plan for Amtrak Cascades, Appendix D. Station Profiles* and [www.amtrak.com](http://www.amtrak.com).

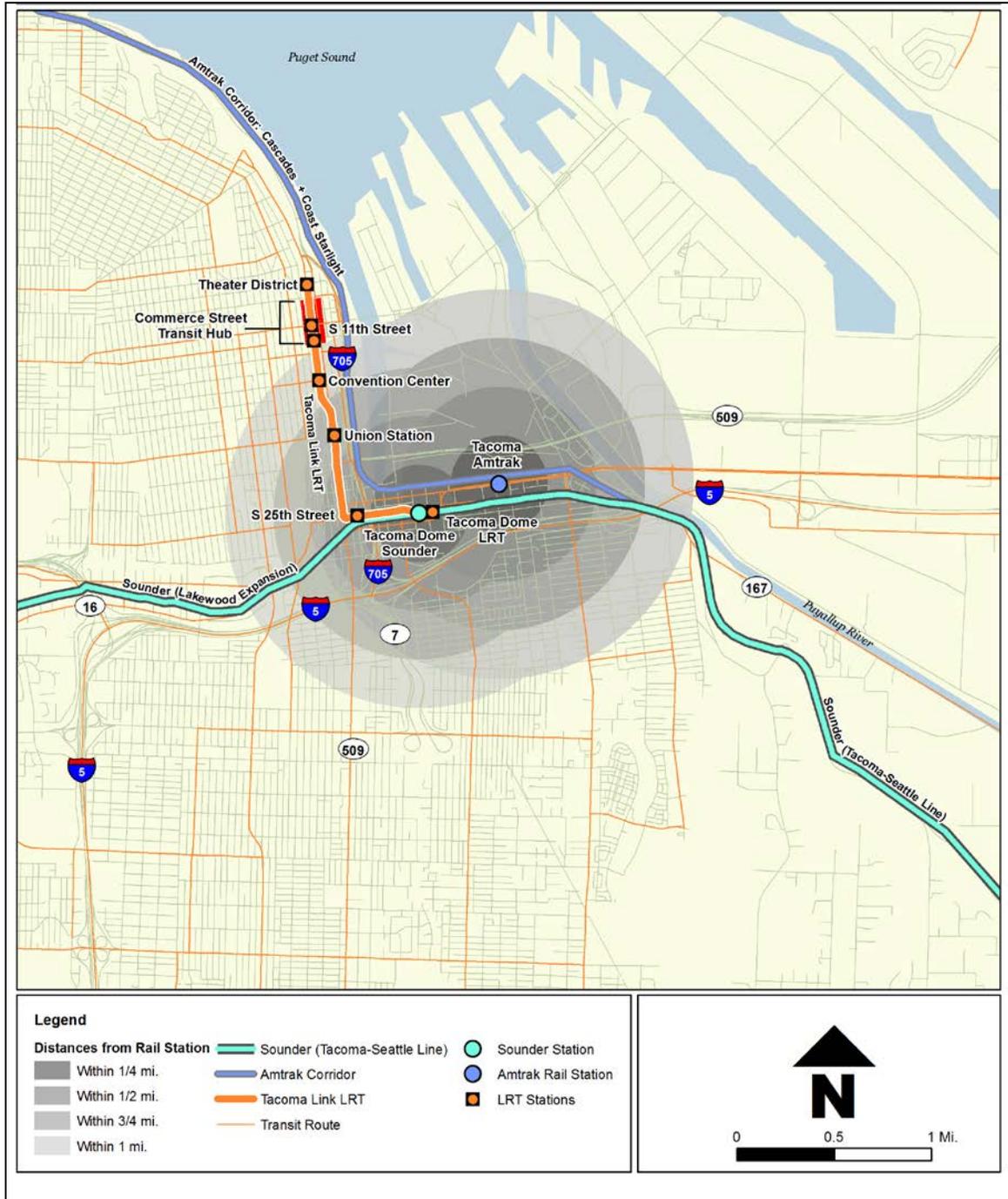
### *Transit Connections*

Connections between Amtrak Cascades and other transit modes are included in Table 3.10. Figure 3.5 and Figure 3.6 provide detailed visual representations of the transit connectivity of two major stations that serve Amtrak Cascades: Tacoma and Seattle.

Figure 3.5 shows transit access from both the Tacoma Amtrak station and the Sounder station. Within a mile of each station, there are stops on Sound Transit's Link light rail system.

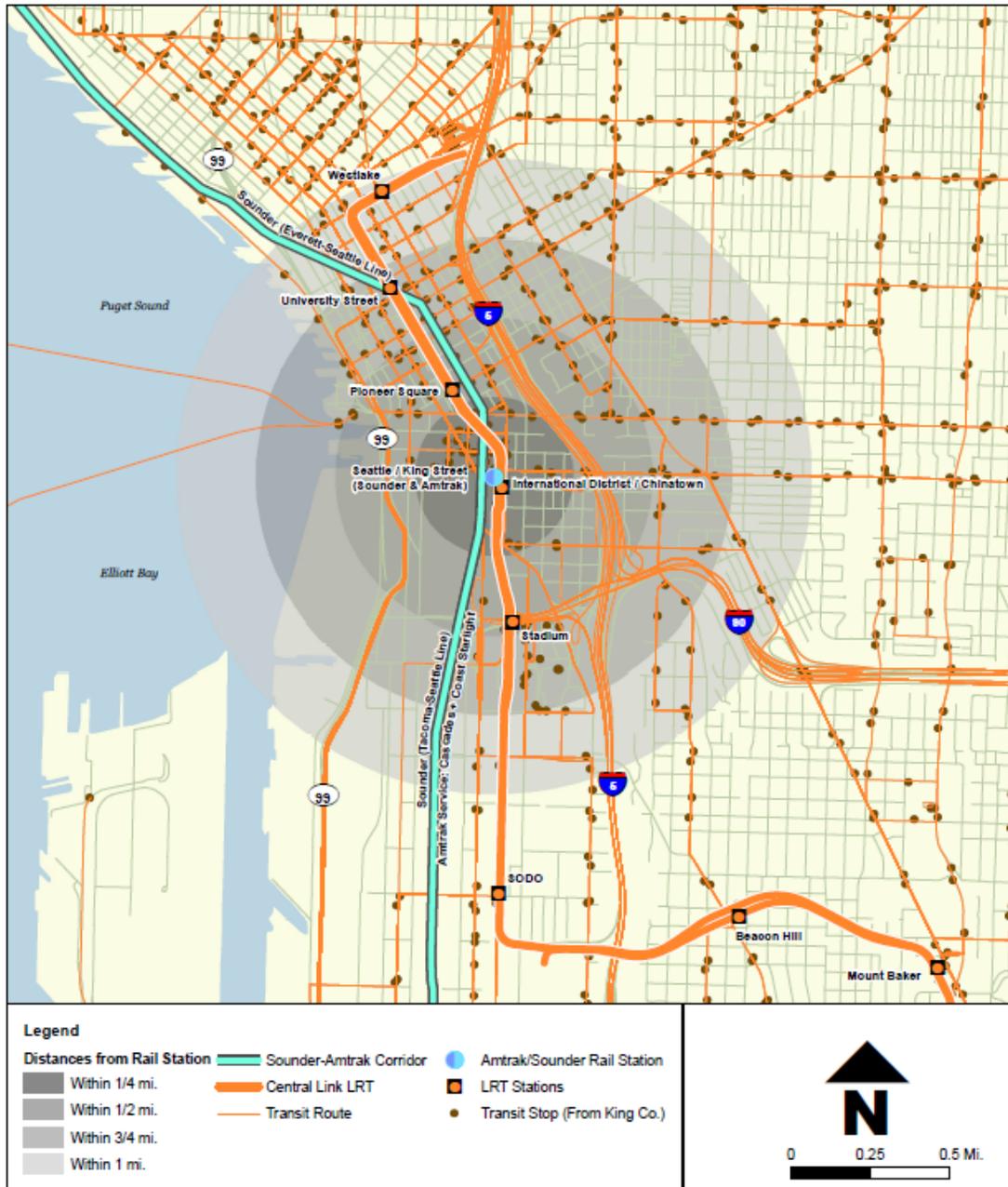
Figure 3.6 illustrates the numerous connections from Seattle's Amtrak station, which also serves as a Sounder rail station. From the station, passengers have access to Sounder's Everett-Seattle line as well as the Lakewood-Seattle line. Within one-quarter mile of the station, there are more than a dozen King County Metro transit stops. Within one mile, dozens more are accessible.

Figure 3.5 Transit Connections around Tacoma Amtrak Station



Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Washington, D.C. (2010). *National Transportation Atlas Database 2010*; Pierce County Transit. Puget Sound Regional Council's 2008 Regional Transportation Network.

Figure 3.6 Transit Connections around King Street Station in Seattle



Sources: U.S. Department of Transportation, Bureau of Transportation Statistics, Washington, D.C. (2010). *National Transportation Atlas Database 2010*; King County GIS Center, Seattle, WA. [www5.kingcounty.gov/sdc/Metadata.aspx?Layer=routes](http://www5.kingcounty.gov/sdc/Metadata.aspx?Layer=routes).

## 3.4 COMMUTER RAIL SERVICES

Commuter rail systems typically offer passenger service within a single region, and occasionally between regions. In Washington, commuter rail service is provided in the northwest area of the state, supporting the cities of Lakewood, Tacoma, Seattle and Everett. This service is called the Sounder. The Sounder operates on an 82-mile route between Everett in the north and Lakewood in the south, providing a.m. and p.m. peak hour service during the week, with occasional weekend service for special events.

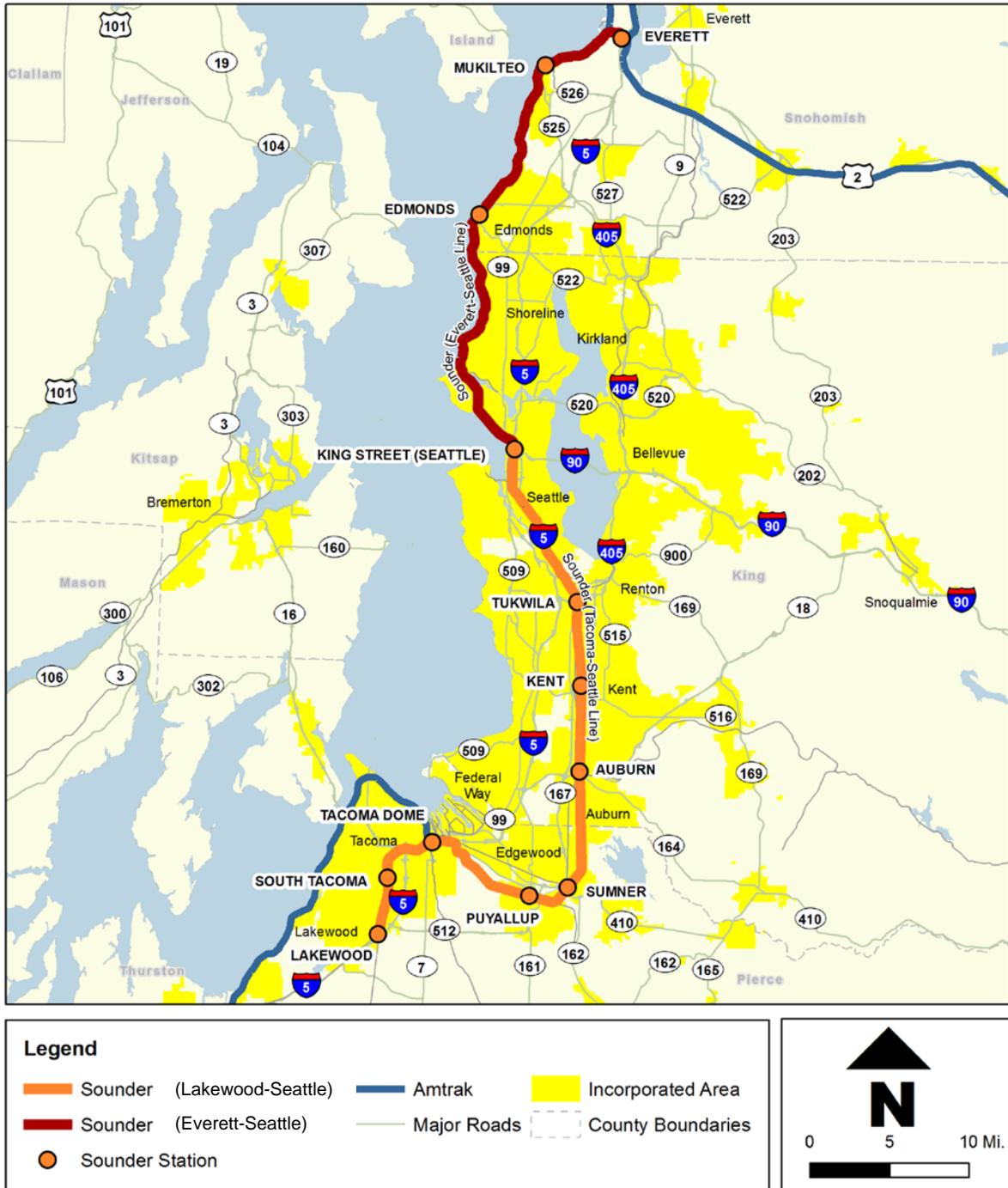
In addition to Sounder, Washington is also home to Tacoma Link and Central Link light rails as well as the Seattle Center Monorail. Light rail and monorail are not heavy rail and are not analyzed in this plan, aside from a short clarification at the beginning of this section.

### Sound Transit's Sounder Line

Sound Transit operates its commuter rail line, Sounder, to destinations in King, Pierce and Snohomish Counties. Trains run along the 82-mile route between Everett and Lakewood Monday through Friday during peak hours (6:30 a.m. to 8:30 a.m., and 3:30 p.m. to 6:30 p.m.). There is no weekend service with the exception of select Mariners, Sounders Football Club (FC), Seahawks, and University of Washington (UW) Husky football games and matches.

Sounder is divided into two routes—a North Line between Everett and Seattle and a South Line between Lakewood and Seattle. Figure 3.7 shows the routes and station locations.

Figure 3.7 Sounder Rail Map



Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Washington, D.C. (2010). *National Transportation Atlas Database 2010*.

### Stations

The North Line has stops in Everett, Mukilteo, Edmonds and Seattle. The South Line has stops in Lakewood, South Tacoma, Tacoma, Puyallup, Sumner, Auburn, Kent, Tukwila and Seattle. An overview of the transit connectivity and parking availability at each station is provided in Table 3.11.

Parking at facilities is only for bus, light rail or commuter rail customers. Parking is free and is limited to 24 hours. Stations also have bicycle lockers and/or racks, weather protection for passengers waiting for trains and ticket vending machines.

**Table 3.11 Local Transit Connections and Parking Supply**

Station	Location	Parking Spaces	Connecting Services
<b>North</b>			
Everett	3201 Smith Avenue	1,107	ST Express; Community Transit; Everett Transit; Island Transit; Skagit Transit; Amtrak; Greyhound; Trailways.
Mukilteo	920 First St.	63	Community Transit; Everett Transit; Washington State Ferries to Clinton/Whidbey Island.
Edmonds	210 Railroad Avenue	179	Community Transit; Amtrak; Washington State Ferries to Kingston/Kitsap Peninsula.
Seattle (King St. Station)	303 S. Jackson St.	None	Various bus connections; Central Link light rail; Amtrak; Trailways; Central Washington Airporter buses; Bolt Bus.
<b>South (Northern terminus at Seattle)</b>			
Tukwila	7301 S. 158 <sup>th</sup> St.	208	Metro routes; Amtrak.
Kent	301 Railroad Avenue N.	1,101	ST Express; Metro.
Auburn	23 "A" St. S.W.	676	ST Express routes; Metro routes; Pierce Transit.
Sumner	810 Maple St.	339 <sup>a</sup>	ST Express routes.
Puyallup	131 W. Main St	640 <sup>b</sup>	ST Express Route; Pierce Transit.
Tacoma (Dome)	424 E. 25th St.	2,410	ST Express Routes; Pierce Transit; Intercity Transit; Greyhound buses; Amtrak.
South Tacoma	5650 S. Washington St.	220	Pierce Transit.
Lakewood	11424 Pacific Highway S.W.	600	ST Express; Pierce Transit; Intercity Transit.

<sup>a</sup> 41 of these spaces are overflow spaces located adjacent to the stations.

<sup>b</sup> 276 of these spaces are overflow located at both the Eagles Lot and Puyallup Fair Red lot.

Source: Sound Transit, Ride the Wave Transit Guide – Route Maps and Schedules, October 2012 to 2013.

Note: Information on ADA compliance is unavailable for Sounder stations.

### *Schedule*

Every day, four Sounder trains and two Amtrak Cascades trains operate in each direction between Everett and Seattle, while nine Sounder trains and four Amtrak Cascades trains operate in each direction between Tacoma/Lakewood and Seattle. Amtrak Cascades runs RailPlus Trains 510, 513, 516 and 517, which only serve Seattle, Edmonds and Everett stations. The RailPlus program was established in 2004 under an agreement between Sound Transit and Amtrak. Under the program, commuters with full-fare passes may have access to Amtrak Cascades between Seattle and Everett.

Sound Transit runs four trains and Amtrak Cascades runs one train southbound between Everett and Seattle between 5:45 a.m. and 10:02 a.m., serving the morning peak. All Sounder trains originate in Everett and terminate in Seattle. Four Sounder trains and one Amtrak Cascades train are run between 4:05 p.m. and 6:50 p.m. during the northbound p.m. peak. Service is limited in the off peak with one Amtrak Cascades train operating northbound morning service and one operating southbound in the evening. During the peak Sounder service is provided approximately every 30 minutes.<sup>71</sup>

Between Lakewood and Seattle, Sound Transit runs seven trains northbound in the morning, between 4:42 a.m. and 8:00 a.m. Trains originate from Lakewood or Tacoma Dome and terminate in Seattle. Southbound, seven trains serve the p.m. peak, between 3:15 p.m. and 6:15 p.m. All of these originate in Seattle, with routes continuing on to Tacoma Dome or Lakewood. Service is limited in the off peak, with two trains running northbound in the evening, and two running southbound in the morning. Trains run every 25 to 40 minutes in the peak, and 35 to 40 minutes in the off-peak.<sup>72</sup>

### *Fare Structure*

The fare structure on Sounder was revised in June 2007 from a zone system to a station-by-station fare system.

The base fare is \$2.55 plus 5.5 cents per mile, rounded to the nearest 25 cents. Regular adult fares range from \$2.75 to \$5.25 for the longest ride between Everett and Lakewood. Monthly passes range from \$99 to \$189. Senior and disabled fares are approximately 50 percent of the adult fare and youth fares are discounted by approximately 25 percent from the adult fare. The average fare per boarding in 2012 was estimated to be \$3.20.<sup>73</sup>

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<sup>71</sup> Sound Transit.

<sup>72</sup> Ibid.

<sup>73</sup> Sound Transit, 2012 Service Implementation Plan.

Riders can also use an ORCA (One Regional Card for All) card to pay. ORCA cards can be purchased for \$10 and users can add between \$5 and \$300 on the card's E-Purse or purchase a monthly pass. Cards are good on Sound Transit buses and trains. As an alternative, riders can buy a monthly regional pass, which is good on buses on Community Transit, Everett Transit, King County Metro Transit, Kitsap Transit, and Pierce Transit, and Sound Transit buses and trains.

For the RailPlus program on Amtrak Cascades trains, riders must have an ORCA Pass, ORCA Passport Card or pay regular Amtrak fares.

### *Fleet*

The Sounder fleet consists of 11 General Motors locomotives, 18 Bombardier Cab Cars, and 40 Bombardier Coach Cars. These are projected to remain part of the fleet at least through 2017. Locomotives are diesel-electric and have been upgraded in an effort to minimize diesel emissions and lessen negative air quality impacts. Sound Transit has installed auto-engine start/stop systems in all locomotives to reduce idling in an effort to reach sustainability targets.<sup>74</sup> Starting in 2013, Sound Transit plans to add additional locomotives and cars to their fleets. Current peak requirements demand 10 of the 11 locomotives be in use during peak hours, and 51 of the 58 passenger cars be in use in peak hours.<sup>75</sup>

### *Current Operations*

Sound Transit releases quarterly performance reports profiling the performance of their services. In 2012 Sounder commuter rail continued to rebound from a decline in ridership observed in 2010 through 2011. Overall, there has been a 13 percent increase in total boardings from 2009 to 2012 and a 10.5 percent increase from 2011 to 2012 alone. In 2011 the boardings were 2,543,955 and in 2012 they were 2,811,889. The average weekday boardings have increased 11 percent during this same period. In 2011 the average weekday boardings were 9,495; in 2012 they were 10,571.<sup>76</sup> Ridership on the South Line accounts for nearly 90 percent of all ridership on Sounder. OTP through September 2012 was 95.9 percent, with 98.9 percent of scheduled trips operated. Annual OTP for 2012 is not yet available. Information for both the North and South Lines is provided in Table 3.12.

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<sup>74</sup> Sound Transit, Sound Transit Sustainability Plan, 2011.

<sup>75</sup> Sound Transit, 2012 Service Implementation Plan.

<sup>76</sup> Annual average weekday boarding values were not yet available at an aggregate level and thus represent an average of quarterly and monthly reports published by Sound Transit.

**Table 3.12 Sound Transit Boardings**

Line	2009	2010	2011	2012*	Difference (2009 to 2012)
North Line	321,000	303,800	281,600	322,700	0.5%
South Line	2,171,400	2,060,600	2,262,300	2,489,000	14.6%
Total Boardings	2,492,400	2,365,000	2,544,000	2,813,000	12.8%

Source: Sound Transit, *Service Delivery Quarterly Performance Reports and Monthly Ridership Summaries* for October through December 2012

\*Boardings by corridor for 2012 are approximated based on historical ridership distributions and published data on total boardings. Data was not yet available at the corridor level.

Through the third quarter of 2012, Sounder Commuter Rail has experienced a significant decrease in complaints per 100,000 boardings relative to last year. Table 3.13 shows values for both customer complaints and OTP on Sounder. Sounder has also reported zero preventable accidents from 2010 to present day.

**Table 3.13 Sounder On-Time Performance and Complaints**

Line	2009	2010	2011	2012 (through Sept. 2012)	Budget
On-Time Performance	97.33%	97.28%	97.30%	95.9%	≥95.0%
Customer Complaints per 100K Boardings	11.52	12.49	13.68	6.7	<15

Source: Sound Transit, *Service Delivery Quarterly Performance Reports*.

Additional information on ridership trends and past and projected performance will be discussed in Technical Note 3b: *Passenger Rail Usage and Impacts of the Rail System in Washington State*.

### 3.5 TOURIST AND HISTORICAL SERVICES

In addition to long-distance, intercity and commuter rail service, Washington has six active local or tourist rail lines that should be included in the Washington State Rail Plan. These rail lines are:

- **Lake Whatcom Railway (LWRR).** Located near Bellingham, Washington, this scenic railway offers a 1.5-hour round trip beginning in Wickersham, following Route 9 for a short time, then traveling through the forest with a stop that allows passengers to disembark and hike to a waterfall. The railway operates four cars that date to the 1920s with a capacity of 200 people. Fares are \$20 for adults and \$10 for children. A maximum of two rides are offered per day by reservation only.
- **Snoqualmie Valley Railroad (SNVX).** The Northwest Railway Museum operates an interpretive, 5-mile ride through the Upper Snoqualmie Valley. Rides are offered on Saturdays and Sundays between April and October. The

railroad also offers many special events such as holiday-themed rides and others. Round-trip fares are \$15 for adults and \$10 for children.

- **Yakima Valley Trolleys (YVT).** This service operates on the tracks formerly used by the Yakima Valley Transportation Company in Yakima, Washington. The YVT, part of the National Register of Historic Places, is the last original turn-of-the century interurban electric railroad in the country. Five miles of the original track remain, connecting Yakima with Selah, Washington. The track was built between 1907 and 1913. YVT operates on Saturdays, Sundays and holidays from Memorial Day through Labor Day. Fares are \$4 for adults and \$3 for children.
- **Mt. Rainier Scenic Railroad (MRSR).** This railroad is the longest, continuously running steam train in the Pacific Northwest and offers a scenic ride around Mt. Rainier National Park for up to 500 passengers per day. Trips on this railroad depart from Elbe, Washington on Saturdays and Sundays year round. Charter trains are available as well. Regular adult fares are \$21 and child fares are \$16.
- **Chelatchie Prairie Railroad (BYCX).** This railroad offers a 10-mile round trip ride through North Clark County from Yacolt to Lucia, providing waterfall views. Rides are offered from May through December on weekends and select holidays. Fares are \$15 for adults and \$10 for children.
- **Chehalis-Centralia Railroad (POCH).** This railroad offers a scenic, 10-mile ride on a steam-powered passenger train. Rides are offered between May and September. The ride begins in Chehalis, passes through Adna and Milburn (with the option to disembark) and ends in Ruth. Fares are \$17 for adults and \$14 for children to the end of the line (in Ruth), and \$14 (adults) and \$11 (children) to Milburn. Dinner trains are also available for \$43 (adults) and \$20 (children).

