



# FREIGHT AND PASSENGER RAIL

LPRO: LEGISLATIVE POLICY AND RESEARCH OFFICE

## BACKGROUND BRIEF

### OVERVIEW

Oregon's first north-south rail line broke ground in 1869, financed by federal land grants. The first east-west transcontinental connection in Oregon traversed the Columbia River Gorge in 1883. Rail mileage in Oregon peaked in the 1930s at nearly 4,350 miles, more than 90 percent of which hosted both freight and passenger traffic.

Today, Oregon has 2,344 route miles of track, over half of which is operated by Union Pacific Railroad Co. (UP) and BNSF Railway Co. (BNSF). The remainder is operated by a mix of regional, local, and switching and terminal railroads. The state's two longest short line railroads today are the Portland & Western (PNWR) and the Central Oregon & Pacific (CORP). Three companies — UP, BNSF, and the Genesee & Wyoming, which owns CORP and PNWR — control 77 percent of the state's rail network (Table 1).

According to the Association of American Railroads (AAR), total Oregon rail freight tonnage in 2017 was 64.8 million tons, up from 54.4 million tons in 2012. The AAR indicated that railroads employed 2,026 Oregonians in 2015 and that those employees earned \$214.8 million in wages and benefits that year. Principal commodities carried by trains are wood and paper products, farm-related products, and chemicals (largely soda ash or potash). Other products included transportation equipment, petroleum, metal products, stone, scrap materials, and varied wholesale and retail shipments. For 2015, Oregon led the country in originated rail tons of lumber and wood products. Exports, including large amounts of grain and fertilizers, accounted for 42 percent of rail traffic terminating in Oregon during 2015.

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**Table 1: Oregon Rail Providers and Miles**

<b>Class I Railroads</b>	<b>Miles</b>	<b>% State</b>
Union Pacific Railroad	1,085	37.576%
BNSF Railway	336	9.813%
<b>Regional Railroads</b>		
Portland & Western Railroad Co.	558	19.067%
Central Oregon & Pacific Railroad	251	10.525%
<b>Short Line Railroads</b>		
Coos Bay Rail Line	137	5.691%
Albany & Eastern Railroad	74	3.061%
Wallowa Union Railroad	63	2.691%
Oregon Coast Scenic Railroad	49	2.075%
Willamette Valley Railway	33	1.416%
Palouse River & Coulee City Railroad	32	1.357%
Oregon Eastern Railroad	25	1.054%
Mount Hood Railroad	22	0.905%
Idaho Northern & Pacific Railroad	20	0.853%
City of Prineville Railway	18	0.782%
Goose Lake Railway	15	0.625%
Rogue Valley Terminal Railroad	14	0.520%
Oregon Pacific Railroad	13	0.561%
Klamath Northern Railway	11	0.448%
Sumpter Valley Railroad	6	0.256%
Hampton Railway	5	0.222%
Longview Portland & Northern Railway	3	0.145%
Portland Terminal Railraod	3	0.023%
City of Astoria Trackage	3	0.116%
Clackamas Valley Railway	2	0.068%
Former Newberg Paper Mill Spur (inactive)	1	0.064%
Peninsula Terminal Company	1	0.043%
Port of Tillamook Bay Railroad	1	0.043%

Source: Legislative Policy and Research Office

Data: Oregon Department of Transportation

The condition of mainline track in Oregon is generally good, but the number of trains that can be safely and efficiently carried depends on several factors, such as the presence and complexity of a signal system and the length of and intervals between sidings. Sidings are parallel sections of track where trains pull off to allow other trains to pass in the same or opposite direction. These additional lengths of track are critical because the majority of Oregon's mainlines are single-track (Figure 1). Some tunnels in Oregon won't allow passage of double-stacked domestic containers, which are larger than containers utilized for international trade.

Until the onset of the economic recession in 2008, traffic on short lines had grown substantially as operators improved service, upgraded track and equipment, and attracted new customers. However, some segments of Oregon's short line network are now deficient and will not allow freight speeds of more than 25 miles per hour, the state's

minimum goal for secondary line operation. Track conditions on a few short line segments necessitate lighter loads in addition to slower speeds. New rail cars can weigh up to 286,000 pounds (286K) when fully loaded, so track that is incapable of hosting heavier vehicles discourages customers if they must load cars below capacity. The Oregon Department of Transportation (ODOT) estimates the cost of upgrading deficient lines in the state to accommodate 286K-pound cars to be \$125 to \$150 million.

**Figure 1: Oregon Rail Map**



Source: Association of American Railroads

Additionally, a number of bridges and tunnels on the state's short line system are aging. Most of Oregon's short line bridges are timber trestles built between 1930 and 1950. Of the 34 tunnels on the short line system, all but one were dug between 1883 and 1916, and many retain significant portions of their original timber rib lining. Structural concerns within the tunnels of CORP's Coquille-Eugene line were cited as the reason for the embargo of that line beginning in September 2007. The CORP embargo evolved into an abandonment application that was eventually resolved when the Surface Transportation Board ordered CORP to sell the line to the Oregon International Port of Coos Bay. Coos Bay Rail Link was hired to resume commercial freight train service over the line in October

2011. The Port of Tillamook Bay's rail line was severely damaged by a storm in December 2007 and was abandoned in 2016 because the estimated cost of repairs wasn't justifiable.

Most Oregon businesses that ship by rail, whether on a major railroad or short line, have access to only one of the state's two interstate railroads. This lack of competition is of concern to shippers and the short lines.

## COAL AND OIL TRAFFIC

Since 1975, the only coal trains in Oregon were those destined to Portland General Electric's Boardman generating plant, which is targeted for closure in 2020. While Oregon works to shut its only coal-fired generating station, and while utilities elsewhere in the U.S. have been switching from coal to natural gas, mining companies have sought to increase exports of coal through Pacific Northwest ports. In the fall of 2012 there were three active proposals for coal export terminals in Oregon, but by the end of 2014 all three had reached a dead end. A proposal for a coal terminal in southwest Washington was denied by the Washington Department of Ecology, ending an initiative that would have resulted in an increased number of coal trains moving through the Columbia River Gorge.

The North American oil boom that began in 2008 relies heavily upon freight trains to move crude oil to refineries on the East and West Coasts. In the U.S., rail shipments of crude oil saw a dramatic increase from 2008 through 2014, after which falling crude oil prices began to dampen demand. In Oregon, crude oil carloads increased fourteen-fold over seven years, from 1,685 in 2008 to 24,199 in 2014. The number of carloads then dropped to 9,034 in 2017 due to market dynamics. One major factor driving Oregon's increase in crude oil carloads was the establishment, in late 2012, of an oil transfer terminal at Port Westward near Clatskanie that was previously created as an ethanol production plant. Crude oil arriving by train was pumped into tanks and then transloaded to barges for movement to domestic refineries. Of the 24,199 oil carloads moved through Oregon in 2014, 14,227 terminated their trips in Oregon, 75 percent of which arrived at Port Westward. However, beginning in the spring of 2016, the Port Westward facility was converted back to ethanol production, ending its short-lived existence as a crude oil transfer.

Starting in July 2013, there were several high-profile derailments in North America involving crude oil trains, resulting in explosions, fires and, in Canada, loss of life and destruction of a downtown area. Those events resulted in nationwide attention to various aspects of shipping crude oil by rail, including tank car design, train speeds and routes, and processes for notification of significant crude oil shipments to emergency agencies.



Source: Flickr

Chemical analysis of crude oil produced from the Bakken shale formation on the central Canadian border suggests its volatility is higher than other crude oils<sup>1</sup>. A major derailment event occurred in June 2016, when a 96-car Union Pacific train carrying Bakken crude oil derailed in Mosier, Oregon, in the Columbia River Gorge. Sixteen of the oil cars derailed, resulting in a fire that burned for 14 hours and required evacuation of about 100 nearby residents. Approximately 47,000 gallons of crude oil were released during the derailment; however, even though it occurred 600 feet from the Columbia River, only trace amounts of crude oil were discharged into the river. Most burned off, was absorbed into the soil, or was released into the town's wastewater treatment facility. The probable cause for the derailment was determined by UP to be worn or damaged track infrastructure.

## **RAIL SAFETY AND OVERSIGHT**

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The federal government is primarily responsible for regulation of railroad operations. A brief review by the Office of Legislative Counsel found that state and local governments are preempted from regulating railroads. There is a narrow exception for laws of general applicability that are intended to protect public health and safety, such as fire and building codes. While there are several federal agencies and boards that have a regulatory role, the Federal Railroad Administration (FRA), a branch of the U.S. Department of Transportation (USDOT), has primary responsibility for railroad operations. The FRA has delegated some of its authority to ODOT's Rail and Public Transit Division.

ODOT's Rail Safety Unit has responded to the growth in crude oil transport by focusing on increasing safety through prevention. ODOT's inspectors regularly monitor train speeds, track conditions, train car placement, and tank car worthiness. Members of the unit also walk track, inspect cars, review operating procedures, evaluate safety at crossings, and check hazardous materials shipping documents for accuracy. ODOT is also reviewing and revising Oregon Administrative Rules pertaining to requirements for railroads to report the types and quantities of dangerous commodities moving through Oregon communities. The emphasis on safety by prevention appears to have been successful: from 2004 through 2013, Oregon experienced an 81 percent reduction in derailments. This trend has generally continued, with derailments dropping from 20 in 2013 to 16 in 2017.

## **FUNDING IMPROVEMENTS**

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Except for two of five publicly owned short lines, Oregon's railroads are run by private companies that pay federal, state, and local income taxes, as well as property taxes assessed on their individual rights-of-way, buildings, and locomotives. All railroads, whether public or private, maintain their own equipment, track, and rights-of-way. They pay annual fees based on gross revenue for state track and equipment safety inspections and for facilitating the regulation of public rail crossings. Both federal and state highway funds support rail crossing improvements, but very little federal money has been allocated to the states for other track improvements. The exception is a federal loan program, the Railroad Rehabilitation and Improvement Financing Program, and a capital grants Rail

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<sup>1</sup> [http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1\\_2\\_14%20Rail\\_Safety\\_Alert.pdf](http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1_2_14%20Rail_Safety_Alert.pdf)

Line Relocation and Improvement Program. Both programs are administered by the FRA. In 2016, the latter program was inactive due to lack of funding.

Although federal rail programs are included in six-year transportation authorization bills, some significant Oregon rail projects have been accomplished in past years by congressional earmarks. Earmarks stipulated in the 2004 federal appropriation measure included \$8 million for continued rehabilitation of the railroad draw span over the Coos Bay harbor entrance; \$7.5 million for replacing the trestle on the north approach to the Willamette River rail bridge at Albany; \$7.1 million for new rail yard capacity in Portland's Rivergate District; \$1 million for enhancements at Eugene's rail passenger station; and \$700,000 for upgrading a branch line serving Willamina. The Coos Bay drawbridge money later was redirected toward the Oregon International Port of Coos Bay's 2009 acquisition of the Eugene-Coquille rail line.

In 2001, Oregon started a \$2 million Short Line Credit Premium Account with lottery bond proceeds to fund short line infrastructure improvements and to pay the credit risk premium required for federal loans. Nine projects were funded, and the Mount Hood Railroad obtained a \$2.6 million federal loan with state dollars paying the credit premium. The nine projects entailed replacement of ties and track, placement of ballast rock, and repair of bridges. The short lines provided an average 67 percent match for the improvements. The Legislative Assembly authorized another \$2 million in 2003 for the short line rehabilitation program and funded a new \$8 million Industrial Rail Spur program to create or improve rail access to industrial sites.

## CONNECT OREGON

In 2005, the Legislative Assembly created the first of several successive multimodal Connect Oregon programs, authorizing \$100 million in lottery-backed bonds during each of the 2005, 2007, and 2009 sessions; \$40 million in the 2011 session; \$42 million in the 2013 session; and \$45 million in the 2015 session (Table 2). Connect Oregon provides grants and loans for non-highway transportation projects, including aviation, marine, rail passenger and rail freight, and bicycle/pedestrian projects. The program previously provided grants to public transit projects. ODOT administers a competitive application process for Connect Oregon, and the Oregon Transportation Commission selects projects for funding with input from modal and regional advisory committees and a final review committee.

During its six iterations as a grant program, Connect Oregon has funded 68 rail projects:

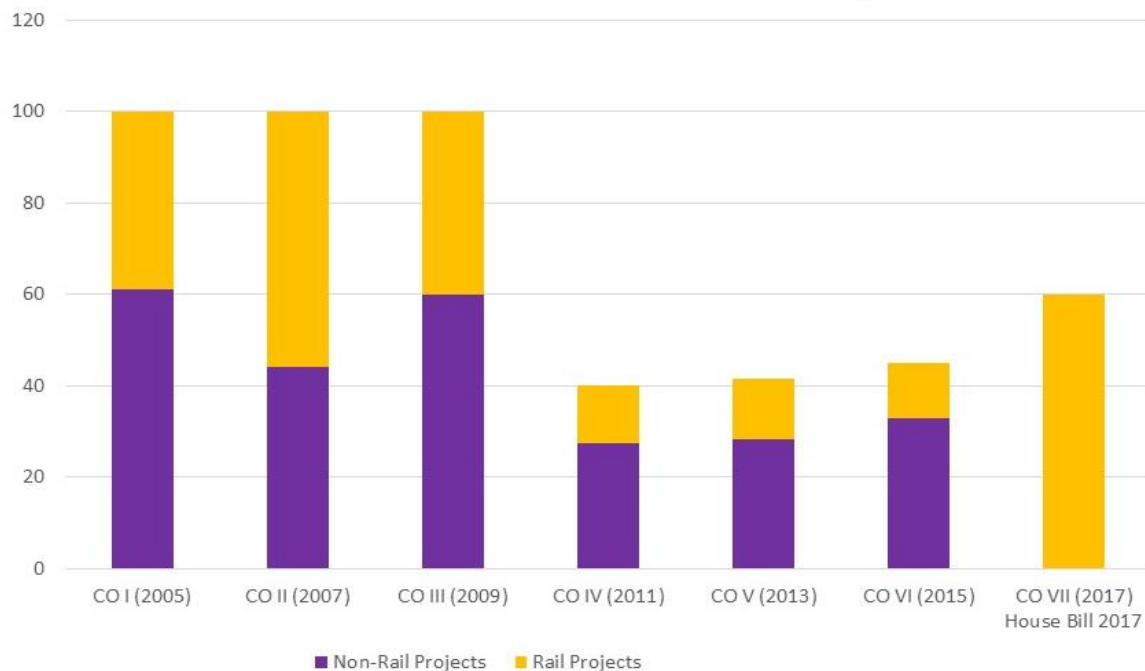
- *Connect Oregon I (2005)* – 15 projects, \$39 million
- *Connect Oregon II (2007)* – 13 projects, \$56 million
- *Connect Oregon III (2009)* – 16 projects, \$40 million
- *Connect Oregon IV (2011)* – 10 projects, \$12.6 million
- *Connect Oregon V (2013)* – 7 projects, \$13.2 million
- *Connect Oregon VI (2015)* – 7 projects, \$12.2 million

House Bill 2017 (2017) made significant revisions to the Connect Oregon program. The measure instituted a vehicle privilege tax of 0.5 percent on the sale price of new cars sold by vehicle dealers; \$12 million from the privilege tax pay for an electric vehicle rebate

program, with the remainder (estimated at approximately \$15 million per year) deposited into the Connect Oregon Fund. The measure also bifurcated the program into two parts; the existing program is retained as Part I, while a new statewide, strategic program was created as Part II, a separate grant program for projects of statewide significance. In lieu of a competitive grant program under Connect Oregon VII, House Bill 2017 funded four named rail projects, for a total of \$60 million:

- a Mid-Willamette Valley intermodal rail facility (\$25 million);
- a Treasure Valley intermodal rail facility (\$26 million);
- a rail extension at the Port of Morrow (\$6.55 million); and
- extension of a rail siding at Brooks (\$2.6 million).

**Table 2: Connect Oregon Funding of Rail Projects**



Source: Legislative Policy and Research Office

## RAIL FUNDING TASK FORCE

Oregon's lack of dedicated, sustainable funding for rail investments is one of the primary challenges to maintaining a viable rail system for both passengers and freight in Oregon. Oregon has historically lacked a dedicated revenue stream available to provide the required match for federal funds to improve passenger rail service or to maintain or operate infrastructure.

In 2011, ODOT convened a Rail Funding Task Force made up of 14 diverse representatives of Oregon industries, passenger rail advocates, local governments, and community leaders to identify a long-term sustainable funding source for passenger and freight rail in Oregon. The task force submitted its final report to the Oregon Transportation Commission in December 2011. The funding recommendation described in the report includes five components: the creation of a special district; allocation of lottery proceeds to rail; reallocation of railroad property taxes to rail; a telephone access fee; and a rail investment tax credit. These sources would generate an estimated \$75 - \$80 million annually for rail. To date, none of these funding strategies have been pursued.

## TODAY'S PASSENGER SYSTEM

Oregon is currently served with passenger train service by the daily Amtrak *Coast Starlight* that runs between Seattle and Los Angeles, and by Amtrak's daily *Empire Builder* between Portland and Chicago. The states of Oregon and Washington cooperate to sponsor a regional passenger train service between Eugene and Vancouver, B.C., branded as Amtrak *Cascades* (Figure 2). Washington State supports two daily round trips between Vancouver, B.C. and Seattle, and four daily round trips between Seattle and Portland. ODOT contracts with Amtrak to operate two daily round trips between Portland and Eugene.

**Figure 2: Amtrak Cascades Map**



Source: Amtrak

Washington State supports two daily round trips between Vancouver, B.C. and Seattle, and four daily round trips between Seattle and Portland. ODOT contracts with Amtrak to operate two daily round trips between Portland and Eugene.

ODOT also contracts with Oregon bus companies to operate intercity rail service that operates under Amtrak's *Thruway* brand as well as a state-created Public Oregon Intercity Transit (POINT) service. The program provides bus schedules that supplement Amtrak *Cascades* train service and includes routes connecting points in southwestern, central, eastern, and north coast Oregon with Amtrak train service at Portland, Eugene, Chemult, and Klamath Falls. Early in 2014, service frequencies in the Willamette Valley were increased to seven daily round trips between Salem and Portland and six daily round trips between Eugene and Portland. Two round trips are scheduled daily between Portland and Astoria via Seaside. Some of the *Thruway* buses in the



Willamette Valley are designed as extensions of more frequent train service available between Portland and Seattle, and to generally offer Oregonians more options when making travel plans.

Early in 2012, Oregon and Washington recognized that continuation of the region's unique intercity Amtrak *Cascades* service faced significant future hurdles, especially with respect to funding. Forming a closer partnership, with the goal of eventually including British Columbia, was seen as important to success of the corridor. As a first step, ODOT and the Washington State Department of Transportation (WSDOT) signed a Memorandum of Understanding on March 7, 2012, which committed the two agencies to the concept of joint operation of the service as a single rail corridor. WSDOT and ODOT developed a Corridor Management work plan signed by the two agencies' directors on January 31, 2013.

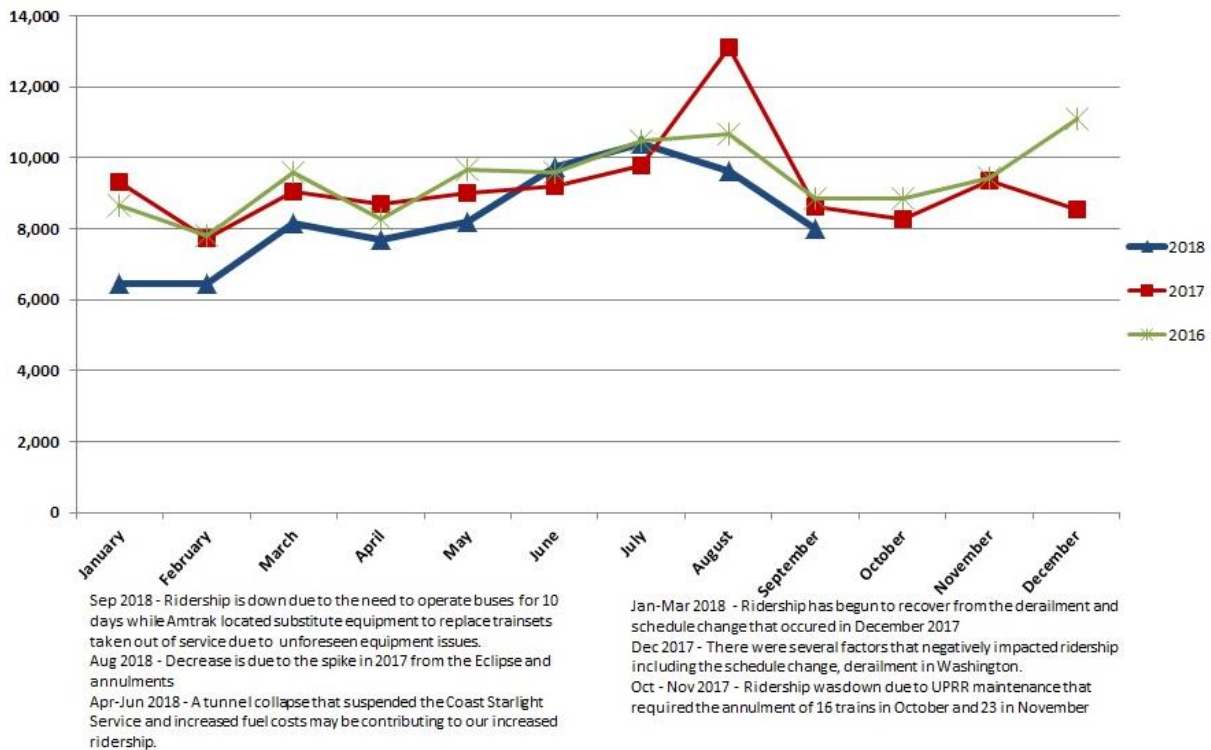
The Oregon Department of Transportation recently completed an analysis for improving passenger rail service between Eugene and Portland. The analysis considered three alternatives: Alternative 1 calls for following the existing route for Amtrak *Cascades* with proposed track, signal, and communication improvements; Alternative 2 creates a new alignment between Oregon City and Springfield, separate from the UP main line; and a No Build Alternative, following the existing Amtrak route with no additional service or improvements. Both ODOT and the Federal Rail Administration have identified Alternative 1 as the preferred alternative. With the completion of the [Draft Environmental Impact Statement \(DEIS\)](#), the Department will begin holding open house events to answer questions and take public input.

The Vancouver, B.C.-to-Eugene rail corridor is one of 10 federally designated high-speed rail corridors. The FRA defines "high-speed" as speeds reasonably expected to achieve 110 miles per hour or more, though top speeds on the line today are 79 miles per hour. The locomotives and Talgo cars in operation today are designed to run at higher speeds, but the current track and signal system is not. The strategy to reduce run time, increase daily round trips and improve on-time performance between Eugene and Portland on the current freight system is estimated to cost approximately \$2 billion. The Pacific Northwest Rail Corridor received more than \$800 million out of \$8 billion allocated for "high-speed" rail as part of the federal American Recovery and Reinvestment Act (ARRA) of 2009. Oregon's share was \$10.5 million to replace the roof at Portland's Union Station and to conduct preliminary engineering for two rail projects in north Portland and another in Eugene. Another \$8.9 million in federal high-speed rail funds were allocated to Oregon for further planning and environmental work at Union Station, to help fund an update of the [Oregon State Rail Plan](#), and to assist creation of a Corridor Investment Plan (CIP) for Willamette Valley passenger service.

Expansion of service through the corridor involved investments by both states. Oregon purchased two new 13-car Talgo passenger train sets in late 2013 using ARRA funds left over once highway projects came in under bid. The purchase gave Oregon a greater stake in the corridor, and also freed up the older trains operating on the corridor to allow Washington to add two additional round trips from Portland to Seattle, as the existing train sets had been stretched to their limits. The purchase has also given ODOT the ability to implement schedule changes on the route from Portland to Eugene.

In calendar year 2017, total combined ridership on the Oregon-funded Amtrak *Cascades* trains and the Portland-Eugene segment of the *Coast Starlight* was 183,632 passengers. Another 83,164 persons traveled the Portland-Eugene corridor in 2017 aboard Amtrak *Thruway* ODOT POINT buses. From 1996 to 2012, the Oregon passenger rail system and its allied bus network showed sustained annual ridership growth with the exception of 2009, a year hard-hit by the recession. In 2013, ridership began to decline. A recent schedule change, improvements in on-time performance, completion of construction activities, and marketing efforts have resulted in a nine percent ridership increase on the Amtrak *Cascades* service for first quarter of 2016 as compared to the first quarter of 2015.

**Table 3: Amtrak *Cascades* Ridership in the Eugene-Portland Corridor – Trains Operated Under Contract for the Oregon Department of Transportation**



Source: Oregon Department of Transportation

There was a major derailment on the Amtrak *Cascades* route on December 18, 2017, on the inaugural southbound run of a new alignment for the route near DuPont, Washington. The train, carrying six crew and 77 passengers, was traversing a rail bridge over Interstate 5 when the locomotive and six rail cars derailed, resulting in three fatalities, 92 injuries, and closure of both the rail line and Interstate 5. An investigation by the National Transportation Safety Board (NTSB) determined that the train was traveling at a speed well above the 30-mph limit on the curve leading to the overpass and was unable to slow in time to make the turn, resulting in derailment. In response, WSDOT announced that

service would not resume on the new route alignment until positive train control has been implemented.

## **AMTRAK, PRIIA, AND FUTURE FUNDING**

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Passenger rail funding discussions in Congress are inevitably tied to the discussion of Amtrak's future. In 2002, Amtrak was on the brink of closing lines. Missing congressional deadlines to be operationally self-sufficient, Amtrak reorganized and, in 2011, overhauled its accounting processes. Except for the Northeast Corridor, Amtrak's ticket revenue does not cover operating costs. The company's cross-country trains show the highest losses. Affected communities and states are urging Congress to more fully support the system and provide alternatives to crowded highways and airports.

Meanwhile, Congress put in motion changes to significantly shift the burden of funding regional services – those covering distances of less than 750 miles – to the states in which the services operate. Provisions of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) set a deadline of October 2013 for states to begin paying fully allocated costs of state-supported passenger service run by Amtrak. During 2010 and 2011, representatives of the states and Amtrak worked to devise a fair method for apportioning costs between parties. At the same time, Oregon and Washington reevaluated how to equitably share the cost of the Amtrak *Cascades* service. The net result of these congressionally mandated actions has been to substantially increase annual costs for both Oregon and Washington.

Funding sources used historically by Oregon to fund passenger rail do not generate sufficient revenue to cover the new and higher costs imposed by the federal government. As a result, several states, including Oregon, have been required to make funding decisions regarding continuation of intercity passenger rail service. In 2015, the Legislative Assembly approved \$10.4 million in operating funds to continue passenger rail in Oregon; for the 2017-19 biennium, ODOT paid Amtrak approximately \$20.6 million for passenger rail service.

## **COMMUTER RAIL**

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In February 2009, the Tri-County Metropolitan Transportation District (TriMet) began commuter rail service between Beaverton and Wilsonville, with three intermediate stations in Beaverton, Tigard, and Tualatin. The service operates over upgraded freight rail tracks belonging to PNWR. The Westside Express Service (WES) uses three self-propelled diesel multiple-unit vehicles (DMUs) plus one non-powered trailer car. Early in 2010, TriMet acquired two used self-propelled rail diesel cars (RDCs) from the Alaska Railroad and overhauled them as standbys for the newer DMUs. WES trains average 37 miles per hour over the route and travel up to 60 miles per hour; they run every 30 minutes during the morning and afternoon rush hours on weekdays. Annual ridership peaked at 500,676 in 2014, and has decreased each year since, totaling 432,890 riders in 2017. WES connects with TriMet's Westside MAX (light rail) and buses at the Beaverton Transit Center. At Wilsonville, the service interfaces with South Metro Area Regional Transit (SMART) transit buses and buses operated by the Salem-Keizer transit district.

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