OREGON STATE RAIL PLAN

An Element of the Oregon Transportation Plan

Adopted September 18, 2014

THE OREGON DEPARTMENT OF TRANSPORTATION

Plan development was supported by five Technical Memorandums that served as background for the document. The Technical Memorandums, which reflect the latest information at the time of their development, can also be accessed at the *Project Website* and include:

- Freight and Passenger System Inventory
- Needs Assessment: Oregon's Economy
- Needs Assessment: Passenger Rail
- Needs Assessment: Freight Rail
- Investment Program Technical Report

A copy of the 2014 Oregon State Rail Plan is available on the Project Website at: *https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OSRP*.

To obtain additional copies of this document contact:
Oregon Department of Transportation (ODOT)
Transportation Development Division, Planning Section
555 13th Street NE, Suite 2
Salem, OR 97301-4178
(503) 986-4121

Copyright 2015 by the Oregon Department of Transportation

Permission is given to quote and reproduce parts of this document if credit is given to the source.

A copy of the draft as the Oregon Transportation Commission adopted is on file at the Oregon Department of Transportation. Limited editorial changes for consistency and formatting have been made in this document.

Oregon Transportation Commission

Catherine Mater, *Chair*

Tammy Baney

David Lohman

Susan Morgan

Alando Simpson

Other Elements of the State Transportation Plan

- Aviation System Plan
- Bicycle and Pedestrian Plan
- Freight Plan
- Highway Plan
- Public Transportation Plan
- Transportation Options Plan
- Transportation Safety Action Plan

OREGON STATE RAIL PLAN

Development of the *Oregon State Rail Plan* was a joint effort between Oregon Department of Transportation Rail and Public Transit Division and the Transportation Development Division.

Produced by:

RAIL AND PUBLIC TRANSIT DIVISION

H.A. (Hal) Gard, Division Administrator

TRANSPORTATION DEVELOPMENT DIVISION

Jerri Bohard, Division Administrator

Rail Section

Stacy Snider, *Rail Operations Manager*

Bob Melbo, *State Rail Planner*

Planning Section

Erik Having, *Planning Section Manager*

Amanda Pietz, *Transportation Planning Unit Manager*

Michael Rock, *Oregon State Rail Plan Manager*

Cambridge Systematics, Inc.

Mike Fischer, *Project Manager*

With JLA and Associates *and*

HDR Engineering

Photos provided by the Oregon Department of Transportation, David Astle and the Port of Coos Bay.

This project was funded in part by the Federal Railroad Administration, U.S. D.O.T.

Graphic design provided by Cathy Sattergren, Oregon Department of Transportation, Business Services.

OREGON STATE RAIL PLAN

AN ELEMENT OF THE OREGON TRANSPORTATION PLAN

Adopted by the Oregon Transportation Commission

September 18, 2014

Oregon Department of Transportation

This page intentionally left blank.

TABLE OF CONTENTS

EXECUTIVE SUMMARY **1**

1 The Role of Rail in Statewide Transportation **19**

Oregon's Multimodal Transportation Goals 19

The Role of Rail in Oregon's Multimodal Transportation System 22

Institutional Structure of Rail Programs in Oregon 22

Oregon's Funding and Financing Authority 26

2 The Existing Rail System in Oregon **31**

Description and Inventory 31

Passenger Rail Service Objectives and Evaluation 53

Current Rail Funding 61

3 Rail System Issues and Opportunities **67**

Trends and Forecasts 67

Rail Service Needs and Opportunities 84

4 The State's Rail Service and Investment Program **107**

State Rail Plan Vision Statement and Goals 107

Decision-Making Framework 109

Benefits of Rail Project Types 116

Rail Policies and Strategies 119

Passenger and Freight Rail Investment 129

5 Coordination, Review and Next Steps **137**

Project Public Involvement Plan 137

Public Agency Coordination 139

Rail Plan Steering Committee 140

Public Review and Comments 141

Steps Following Plan Adoption 141

Appendix A — Passenger Rail Definitions **145**

Appendix B — Oregon State Rail Plan Steering Committee Members **147**

Appendix C — Example Projects by Type **149**

Appendix D — Findings of Compliance with Oregon's Statewide Planning Goals **153**

LIST OF TABLES AND FIGURES

Tables

Table 1: Rail Investment Decision-Making Framework....13
Table 2: Snapshot of Oregon's Multimodal Transportation System....22
Table 3: *Connect*Oregon Rail Funding History....26
Table 4: Freight Railroads Serving Oregon....33
Table 5: Class I Railroad Operating Characteristics in Oregon....37
Table 6: Non-Class I Railroads in Oregon, Ranked by Revenue, 2011....39
Table 7: Major Rail Yards and Terminals in Oregon....42
Table 8: Oregon Amtrak Stations and Services....52
Table 9: WES Ridership, System Characteristics and Performance, FY2009- 2012....53
Table 10: Amtrak Cascades On-Time Performance by Quarter (October 2011 to December 2012)....56
Table 11: Recent Oregon Rail Program Funding, FY 2013-2015....62
Table 12: Statewide Commodity Flows by Mode....77
Table 13: Summary of Non-Class I Railroad Conditions....88
Table 14: Rail Lines At-Risk for Abandonment 2013-2020....92
Table 15: Rail Investment Decision-Making Framework....112
Table 16: Quantitative Evaluation Factors....113

Figures

Figure 1: Rail System in Oregon....4
Figure 2: Intercity Rail Service in Oregon....7
Figure 3: Oregon's Integrated Transportation Planning Process....20
Figure 4: Rail System in Oregon....36
Figure 5: Freight Railroad Vertical Clearance Restrictions....46
Figure 6: Intercity Rail Service in Oregon....50
Figure 7: Amtrak Cascades Ridership, 1994-2012....55
Figure 8: Amtrak Cascades On-Time Performance in Oregon (July 2012-April 2013)....57
Figure 9: Empire Builder and Coast Starlight Ridership, 1981-2011....59
Figure 10: GDP Growth Index, Oregon Compared to the United States, 1997-2011....68
Figure 11: Oregon Population Growth, 1970-2040....69
Figure 12: Net Population Growth by County, 2010-2035....70
Figure 13: Oregon Merchandise Exports and Imports, 2003-2012....71

Figure 14: Oregon Merchandise Exports and Imports by Weight, 2003-2012 72
Figure 15: Oregon Rail Flows by Direction, 2010 and 2035.....78
Figure 16: Oregon Rail Flows by Commodity, 2010 and 2035.....79
Figure 17: Train Volumes in Oregon, 2035.....81
Figure 18: Future Amtrak Cascades Passenger Rail Ridership: Eugene-Portland, 2030 83
Figure 19: Potential Passenger Rail Network Opportunities with County Population Characteristics 104
Figure 20: State Rail Plan Decision-Making Structure.....139

This page intentionally left blank.

EXECUTIVE SUMMARY

This page intentionally left blank.

EXECUTIVE SUMMARY

Rail's Importance to Oregon

The rail system in Oregon is predominantly owned by private railroads, yet freight and passenger rail services are critical components of the state's multimodal transportation network. Oregon recognizes the unique opportunities public- and private-sector collaboration presents and has a vested interest in proactively planning for the rail system's future so that Oregon's residents and businesses can capitalize on the many benefits freight and passenger rail services provide:

- **The rail system is a significant conduit for economic and job activity.** The 2011 Oregon Freight Plan estimates that 31 percent of Oregon's economy is based on goods movement dependent industries, including those served by rail such as timber, wood products and paper; agriculture and food; manufacturing; construction; and wholesale and retail trade. Efficient and accessible intercity passenger rail connects job markets, recreation and tourism centers throughout the state to support local economies.
- **The rail system improves connections for people and goods.** Passenger and freight rail systems in Oregon connect people and goods within the state, across the U.S. and to Canada. The freight rail system connects to ports in Oregon which import and export goods between international markets.
- **The rail system provides mode choice and relieves congestion.** Both freight and passenger rail systems provide modal options for users. By offering travel options, transportation costs of residents and businesses are lowered. Likewise, removing vehicles from the road brings positive impacts including congestion mitigation, reduced safety concerns and decreased wear and tear on other parts of the system.
- **Use of rail contributes positively to the environment.** In general, rail is a more efficient mode in terms of fuel consumption, as compared to passenger vehicles and trucks, for moving both people and goods. This reduction in fuel consumption also leads to a reduction in emissions.
- **When coordinated, rail enhances community quality of life.** Through integration of rail systems and land use planning, community quality of life is enhanced. Passenger and commuter rail supports the development of livable communities, provides travel options and spurs economic opportunities at station locations. Preservation of rail corridors ensures that economic development opportunities can be realized in the future.

In order to realize the full spectrum of benefits a transportation system that integrates passenger and freight rail provides, the State of Oregon will take an active role and partner with regional and local governments and private rail companies to proactively plan and explore investments to make the rail system in Oregon better by working together.

Oregon State Rail Plan Vision Statement and Goals

The Oregon State Rail Plan establishes a Vision Statement that is forward-looking to shape the future of the rail system in Oregon and ensure the beneficial outcomes of rail are realized.

> ***Oregon will have a safe, efficient and commercially viable rail system that serves its businesses, travelers and communities through private resources leveraged, as needed, by strategic public investments.***

The vision is carried out through the State Rail Plan's goals, policies and strategies. Seven goals have been developed for the Oregon State Rail Plan, they are:

- ***Goal 1 - Partnership, Collaboration and Communication***

  Goal statement: Partner, collaborate and communicate with rail system operators and other stakeholders to maximize benefits, align interests, remove barriers and bring innovative solutions to the rail system and foster public understanding of rail's importance.

- ***Goal 2 - Connected System***

  Goal statement: Promote, preserve and enhance an efficient rail system that is accessible and integrated with Oregon's overall multimodal transportation system.

- ***Goal 3 - System Investments and Preservation***

  Goal statement: Enhance transportation system reliability, capacity, frequency and travel times through investments that preserve and improve freight and passenger rail assets and infrastructure.

- ***Goal 4 - Funding, Finance and Investment Principles***

  Goal statement: Establish funding that meets the critical needs of the rail system in Oregon and achieves the objectives of this State Rail Plan.

- ***Goal 5 - System Safety***

  Goal statement: Plan, construct, operate, maintain and coordinate the rail system in Oregon with safety and security for all users and communities as a top priority.

- ***Goal 6 - Preserving and Enhancing Quality of Life***

  Goal statement: Increase use and investment in freight and passenger rail systems to conserve and improve Oregon's environment and community cohesion.

- ***Goal 7 - Economic Development***

  Goal statement: Increase opportunity and investment in freight and passenger rail assets to grow Oregon's economy.

Freight and Passenger Rail System in Oregon

Freight Rail System

The freight rail system in Oregon is part of a nationwide, interconnected system of rail infrastructure and services that link the state and local regions to the rest of North America, as well as the world, through international marine gateways. The infrastructure supporting these services in Oregon is substantial and includes various carload and intermodal facilities, along with tunnels and bridges that are necessary to surmount the state's rugged topography.

At present, freight railroads in Oregon consist of two Class I railroads and 20 non-Class I railroads (one regional railroad and 19 local and switching railroads) (Figure 1). Class I railroads in Oregon, Union Pacific (UP) and BNSF Railway, together operate 47 percent of all active rail mileage in the state. On these lines, they handle the vast majority of freight traffic, including virtually all interstate shipments and all Amtrak passenger service. Combined, in 2010, the two railroads employed approximately 1,880 people and handled over 670,000 carloads that had either an origin or destination in the state. In addition, the two railroads handled a considerable volume of through traffic.

While the Class I railroads provide the primary arteries for the movement of goods throughout the state, non-Class I railroads provide important collector/distributor services for the larger railroads and local rail services for shippers. In Oregon, non-Class I rail lines were primarily built to support the extraction of forest products in the western part of the state along what is now the I-5 corridor. Notably, these include what are now the third and fourth largest railroads in Oregon in terms of mileage and gross revenues, the Portland & Western and subsidiary Willamette & Pacific and the Central Oregon & Pacific. Together, these railroads operate 56 percent of total non-Class I railroad mileage and generate about 80 percent of non-Class I total revenue.

Rail Line Abandonments

In the wake of deregulation in 1980, railroads moved to improve their financial performance by selling or abandoning lines with poor prospects. While the most marginal lines were abandoned, many were sold or leased to non-Class I 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 have been filed by non-Class I lines.

In Oregon, line abandonments have been driven by multiple factors, including high capital costs, lack of customer diversity and changing economies. Coupled with the recession of 2009, long term systemic deferred maintenance and operating deficits have left some non-Class I line corridors at-risk of closing.[1] In the most recent decade from 2000 to 2010, 126 miles were abandoned. The abandonment of rail lines often results in the permanent loss of important transportation assets which could provide future benefits as part of an overall economic development strategy targeted at rail-served industries or services. Preservation of rail infrastructure and right-of-way is a major issue addressed in this Plan.

[1] Oregon Rail Study, 2010.

Figure 1: Rail System in Oregon

Source: Oak Ridge National Laboratory Rail GIS Data, FRA, ODOT.

Passenger Rail System

Passenger rail serves a variety of mobility needs. In Oregon, these include urban transit in the Portland metropolitan region, intercity services linking the metropolitan regions in the Pacific Northwest, and long distance services connecting the state with other U.S. regions. In the Portland region, urban transit service is provided through a network of electrically operated MAX light rail and streetcar lines and a single commuter line. The light rail and streetcar lines operate separately from the mainline rail network and are not directly addressed through this State Rail Plan. Commuter, intercity and long distance services all operate over the national rail network. This includes Portland's Westside Express Service commuter line, along with Amtrak intercity and long distance services serving the state. These services (commuter, intercity and long distance) are the focus of this State Rail Plan.[2]

Current federal legislation classifies intercity passenger rail services operating in Oregon into two types: routes exceeding 750 miles in length are long distance, while those less than 750 miles in length are short distance corridors.[3] For the long distance services, Amtrak bears full responsibility for their operation, with costs covered by a combination of fare revenues and federal support. However, states and local communities, including Oregon, do have some involvement with these services, particularly with stations. For shorter corridor train services, Section 209 of Passenger Rail Investment and Improvement Act of 2008 (PRIIA) fully shifted financial responsibility to states (or other sponsors) as of October 2013. Developing a long term funding strategy in Oregon to meet this expanded financial responsibility, while continuing to improve and expand passenger rail services, is another critical issue addressed in this Plan.

Amtrak operates three routes in Oregon (shown in Figure 2):

- **Empire Builder: an Amtrak long distance train that links Chicago with Portland and Seattle.** Operating daily, the most heavily used Amtrak long distance train splits in Spokane with separate trains operating to the route's two western termini. Portland is the only stop for the Empire Builder in Oregon, although stops along the north bank of the Columbia River also provide access to nearby Oregon residents. Along its route, the Empire Builder operates over four host railways: BNSF owns and maintains the track within Oregon.
- **Coast Starlight: an Amtrak long distance train that links Los Angeles with Seattle via Oakland, Sacramento and Portland on a daily basis.** This train, which travels over 1,300 miles from Los Angeles to Seattle, is the second most popular long distance train in the Amtrak system. In Oregon, the Coast Starlight stops in Klamath Falls, Chemult, Eugene, Albany, Salem and Portland. Within Oregon, UP owns and maintains the tracks and right-of-way, except for the BNSF-owned segment between Portland Union Station and the Washington state line.

[2] In addition to regularly scheduled services, Oregon hosts several passenger operations whose primary purpose is preservation of historic railroad artifacts and recreation. Typically, these tourist services operate seasonally and on weekends over dedicated or branch lines with modest freight traffic. These railroads are classified in the context of their freight operations in this Plan.

[3] Section 24102(5)(C) and (D) of 49 USC.

- **Amtrak Cascades: a multi-frequency daily intercity service, which travels about 465 miles along the Eugene to Vancouver, BC corridor.** In Oregon, Amtrak Cascades serves the Willamette Valley with stops at Eugene, Albany, Salem, Oregon City and Portland. The Amtrak Cascades travels along the Pacific Northwest Rail Corridor (PNWRC), which is one of ten federally-designated high-speed rail (HSR) corridors.

Supporting the passenger trains are dedicated bus services contracted by Amtrak and ODOT. Operating as Cascades POINT *Thruway*, these bus services enhance train service frequencies and provide access to communities not directly served by rail, thereby improving transportation access and boosting the overall utility of passenger rail service in Oregon.

Figure 2: Intercity Rail Service in Oregon

Source: Cambridge Systematics and ODOT Rail and Public Transit Division, 2013.

Rail System Needs and Opportunities

Class I Needs

Today's Class I rail network in Oregon is arguably in the best condition since the dawn of the highway era. Both BNSF and UP have very robust investment programs to maintain and improve their infrastructure throughout the state. All Class I trackage in Oregon is capable of carrying the standard 286,000 (286K) pound freight rail cars, and all but the Oregon Trunk Line, through Central Oregon, have Centralized Traffic Control (CTC) and are cleared for double-stacked containers. However, as demand for rail services grows in the future, the freight rail system will require further investments to accommodate that growth. This Plan identified three types of improvements for increasing capacity and eliminating bottlenecks on the mainline network in Oregon:

- Siding and Mainline Track Upgrades
- Signal System Upgrades
- Other Upgrades, Including Increasing Speed

Eight line segments or locations where track capacity improvements are likely to be required were identified. With most main lines already being managed by CTC, the only opportunities for signal system upgrades on the mainline network are along BNSF's Oregon Trunk Line and on UP's Portland division. Speed improvements were found to be beneficial in six segments on both BNSF and UP. Among all of the potential improvements identified, these are likely to be the most complex to implement, as they will require construction and/or modification of bridges and potential alignment changes. However, in spite of their potential cost, the potential benefits in terms of improvements in throughput and travel time may be significant.

In general, responsibility for adapting to increasing freight traffic falls on the railroads. Railroads take a variety of actions to respond to changing freight demand that include operational changes, marketing adjustments and capital improvements. If growth is expected to be sustainable, then physical improvements will be considered, with the improvements having the lowest cost typically implemented first.

Non-Class I Railroad Needs

Traditionally the major operational issues facing railroads include speed restrictions, weight restrictions and vertical clearance restrictions often caused by bridges and tunnels. These issues are most prominent with non-Class I railroads in Oregon, and often their inability to accommodate heavier and/or larger equipment affects their financial performance, limits their growth and sometimes threatens their existence. For example, over 250 miles of non-Class I rail mileage cannot accommodate 286K loads, placing the shippers on those lines at an economic disadvantage due to the fact that they are unable to fully exploit many of the efficiencies of rail.

Several elements characterize and differentiate the needs of smaller railroads from their Class I brethren. Some key indicators of need include:

- **Percent of Mileage that is 286K-Capable.** Rail lines that are not 286K compliant limit a railroad's ability to serve certain types of loads and connect to Class I railroads (as all Class I railroads in Oregon are 286K compliant).

- **Percent of Mileage that is FRA Class 2+.**[4] Track class impacts a railroad's ability to serve certain types of loads and to achieve higher speed delivery. Portions of mainlines that do not meet FRA track Class 2 standards (25 mph operating speed) can be costly to operate and not market competitive, particularly in attracting new business.
- **Percent of Mileage that uses 110+lb Rail.** Rail with a weight of at least 110 pounds per yard is considered the minimum weight under which loaded 286K railcars can be sustainably accommodated. While lighter weight rail can handle 286K railcars, it is at the cost of greatly increased maintenance and impaired operations.
- **Number of Bridges in Poor Condition.** The overall condition and suitability of a rail line to carry loads directly relates to the ability of bridges on the line to carry loads. Should these bridges not be improved, they will eventually impair the lines' long-term viability.
- **Number of Carloads.** Traffic volumes provide an indication of a railroad's utility under present conditions and insight into future needs and impacts of potential investments or other changes.
- **At-Risk Segments.** At-risk rail lines were identified as part of the 2010 Oregon Rail Study by linking information about system condition, volume and vulnerability of a line to determine if future investments are warranted.

It is important to recognize that the challenges faced by the smaller railroads are not homogeneous. Larger non-Class I railroads, such as Portland & Western Railroad (PNWR), Willamette & Pacific Railroad (WPRR), Central Oregon & Pacific Railroad (CORP) and Coos Bay Rail Link (CBR), in general, have better track conditions than other non-Class I railroads, with the majority of the track mileage at ideal weight and speed standards (286K-capable, FRA Class 2+, 110+lb.). Many smaller railroads, however, face far greater challenges with some lines having deficient infrastructure.

Rail line condition is closely linked to the number of carloads on the line; lines in better condition are likely to attract more customers, and the revenue in turn can justify investments to improve the lines. Lines that are in poor condition also suffer from low carload volumes, or no volumes in some cases.

Abandonment Risks and Impacts

Understanding the potential of at-risk rail lines to be abandoned is critical for several reasons. The first is loss of transportation options to current and potential industries. Once abandoned, a rail line is very difficult to reconstruct, and thus rail service may be lost forever. Not only is rail line construction physically intensive, right-of-way encroachment that happens while the line is in a state of disrepair may also seriously impede re-establishment of service. Interim conversions to trail use, which may have valid multimodal benefits, can be difficult to convert back to active rail use and must be evaluated appropriately.

It is very difficult to calculate the economic impact of abandonments. The impacts may be small if there are no existing industries that are served by the line, or if there are competitive options from other modes. However, in other cases, the impacts may be severe and result in significantly higher transportation costs. Rail preservation projects should take into consideration the full cost and benefit

[4] Track class is specified by the FRA in the Code of Federal Regulations. Track classes associate physical conditions (condition of rail, ballast, ties, etc.) with maximum operating speeds for freight and passenger trains on a segment of track. *https://www.gpo.gov/fdsys/pkg/CFR-2011-title49-vol4/xml/CFR-2011-title49-vol4-sec213-9.xml.*

of preserving a rail line. This Plan reviews at-risk lines identified in the 2010 Oregon Rail Study and assessed the degree to which the closure of an at-risk rail line is likely to impact overall rail service in that county.

Passenger Service Needs

Challenges to Improving Amtrak Cascades Service

Achieving the full potential for the Amtrak Cascades corridor will require addressing three key constraints: travel times and reliability, frequency and connectivity.

- **Travel times and reliability.** Increased traffic congestion on the I-5 corridor and/or improved travel times that are at least as fast as travel by private automobile will make passenger rail more competitive. Reliability is equally important; if the trains operate on-schedule, travelers are more likely to use them.
- **Frequency.** The present two round-trips (three including the Coast Starlight) between Eugene and Portland do not provide sufficient schedule flexibility for many travelers.
- **Connectivity.** Improving access to stations and public transportation system connectivity can lower the overall time and effort required to use the Amtrak Cascades service and expand transportation options for travelers.

Oregon's Funding and Financing Authority

Rail projects, programs and operations are funded by a variety of federal and state sources. The two primary federal funders are the Federal Railroad Administration (FRA) for the freight rail system, and the Federal Transit Administration (FTA) for the passenger rail system. Other federal sources, such as the Transportation Investment Generating Economic Recovery (TIGER) discretionary grant program and the Transportation Infrastructure Finance and Innovation Act (TIFIA), have provided significant dollars towards rail projects in the past.

Rail Funding Shortfall and Challenges

While there are a number of funding sources that may be used to fund different types of rail projects, Oregon currently lacks enough *dedicated*, *sustainable* funding for passenger and freight rail investments in the state. Without increases in funding, Oregon does not have revenue available, nor does it have the required federal match, to improve, maintain and operate passenger rail services. Federal programs changes, such as new requirements for the Transit Safety Oversight Program and shifting of cost for the operation of the Amtrak Cascades service from Amtrak to the states, impacts current funding status. Significant funds are also needed to maintain and improve the freight rail systems.

Oregon's Rail Service and Investment Program

Consistent with the way Oregon treats decision-making in all of its other statewide long range transportation plans, this Plan does not specify or prioritize individual projects. However, future investment decisions about specific projects need to be informed by a clearly defined framework with evaluation factors that are consistent with the vision, goals and objectives laid out in the Plan.

Oregon has established investment guidance in the Oregon Transportation Plan (OTP) and detailed implementation processes in the *Connect*Oregon program, which is an importance source for rail improvements. Oregon also uses other methods to make decisions such as criteria and processes used during development of the State Transportation Improvement Program (STIP) and considered by Area Commissions on Transportation (ACTs). The decision-making framework and evaluation factors in this Plan must be consistent with the other methods and processes Oregon uses for making investment decisions, and must take into consideration and be consistent with any statutory requirements or regulations that are specified for the sources of funding that will be used to pay for the investments.

Rail Investment Decision-Making Framework

The rail investment decision-making framework (shown in Table 1) established in this State Rail Plan has several advantages:

- The framework recognizes that Oregon will make investments in partnership with other parties.
- The framework provides Oregon guidance on when projects have a compelling public interest.
- The framework provides Oregon guidance on what level of participation from the state and other stakeholders is appropriate (and the nature of that participation).
- The framework enables Oregon to prioritize investments based on an evaluation of benefits.
- The framework provides flexibility for Oregon to customize evaluation factors based on the project, funding program and involved stakeholders.
- This framework utilizes a common "scoring" system so that projects of different types can be compared to each other as much as possible. For example, the framework scores projects based on whether they have high, medium, or low benefits regardless of the specific metric.

The rail investment framework will enable Oregon to identify projects that benefit the public interest, prioritize those projects and consider funding responsibility of other rail stakeholders in consideration to the benefits that they receive. The framework will also be one tool to help demonstrate consistency with the goals and needs identified in this State Rail Plan in future funding opportunities.

Evaluation Factors

The framework for rail investment decision-making also has evaluation factors, customized to what is important to Oregon. There are numerous evaluation factors that can be considered when making rail investment decisions; the focus of factors in this Plan are those that articulate the various rail stakeholder perspectives, but most importantly best represent public benefit so that a determination of level of program or project partnership (whether financial or non-financial) can be made. The identified evaluation factors have been selected for several reasons:

- The evaluation factors are aligned with key themes identified in this Plan, including achieving
    - mobility benefits
    - economic benefits
    - environmental benefits
    - community/safety benefits

- The evaluation factors reflect those aspects of system performance most critical to each of the public- and private-sector rail stakeholders, including the State of Oregon, shippers, ports, railroads, passengers and communities.
- The evaluation factors are both quantitative and qualitative:
    - The quantitative variables are provided so that public benefit can be evaluated in a simple manner and input into benefit-cost type consideration.
    - The qualitative factors are meant to help with "fatal flaw" analysis, such as a review to ensure that proposed projects are practical and fit within Oregon's goals.

This Plan recommends that a mix of different types of factors be used to provide maximum flexibility. The factors used during evaluations may, out of necessity, be different for different types of projects. However, each stakeholder should have just a "few good measures" that represent their perspective during evaluation.

Table 1: Rail Investment Decision-Making Framework

Proposed Action	State	Shippers	Passengers	Railroads	Ports	Community	Likely Recommendation	Level of Action	Example
A	H	H	H	H	H	H	State should participate, but only if other beneficiaries contribute appropriate share	Consider direct investment and supporting legal and institutional mechanisms	Consider sources such as additional dedicated state freight rail funds, federal funding sources through MAP-21, TIGER and other state matching sources
B	H	L	L	L	L	H	State should participate and be prepared to contribute more than other groups	Consider direct investment and supporting legal and institutional mechanisms	Consider sources such as additional dedicated state freight rail funds, federal funding sources through MAP-21, TIGER and other state matching sources
C	M	M	M	M	M	M	State should participate with caution and only if costs to do so are low	Consider tax exempt financing loans or other methods that have limited costs to the state, but benefit private industry	Consider public-private partnerships, tax credits and other non-financing incentives
D	L	H	H	H	H	L	State should probably not participate	State should probably not participate with financial, institutional or legal mechanisms	No state role is anticipated
E	L	L	L	L	L	L	State should probably not participate	State should probably not participate with financial, institutional or legal mechanisms	No state role is anticipated

Source: Cambridge Systematics.

H = High; M = Medium; and L = Low Benefits.

The rail system investment framework provides a means for Oregon to determine when and how much they should partner with other rail stakeholders on rail investments that implement the vision and goals of this Plan.

Unfortunately, there is uncertainty to the level of funding that may be available in the future – whether 5 years or 25 years. This situation requires a creative approach to rail system investment, and a plan that provides flexibility as the funding picture changes. To incorporate flexibility into investment decision-making, three funding scenarios (developed as part of the OTP) were used to inform which types of projects and programs should be priorities based on available funding.

These OTP scenarios make specific recommendations for types of projects that should be pursued, given level of funding, and provide insight into the anticipated outcomes of those investments. Based on the information produced in this State Rail Plan, and Steering Committee feedback, refinements to the OTP scenarios have been made so they can be directly linked to this Plan.

Response to Flat Funding Scenario

The OTP "Response to Flat Funding Scenario" represents no additional transportation funds available. In this scenario, it is anticipated that purchasing power will decline 40 to 50 percent over the 25-year OTP plan period due to inflation. In this situation there are minimal investments that Oregon can make; however, operating, maintaining and preserving the system at the highest level possible is the focus of this scenario.

As funds are scarce, this State Rail Plan recommends that Oregon collaborate with rail system stakeholders to identify areas of mutual benefit and select those projects that could be an opportunity for leveraging private and public sector funds. Additionally, no matter what the funding picture, rail service and corridor preservation should also be included as an option for Oregon.

Funding Increases to Keep up with Inflation Scenario

The "Funding Increases to Keep up with Inflation Scenario" represents new transportation dollars to keep up with inflation. In this scenario, Oregon preserves existing facilities and services and keeps up with costs from inflation. While this scenario may avoid severe economic consequences of the previous scenario, it does not create a competitive advantage for Oregon businesses. In this scenario there are similarly minimal investments for Oregon to make; however, the focus should be on continuing to operate, maintain and preserve the system at the highest level possible, while gradually expanding the system.

This State Rail Plan recommends emphasizing projects that benefit shared freight and passenger corridor operations, including capital projects, as well as those projects that promote modal options and efficiencies, providing congestion relief and lower maintenance needs for other parts of the system.

Expanding Facilities and Services Scenario

The "Expanding Facilities and Services Scenario" allows respective modes to take care of their feasible needs over the next 25 years. In this scenario, Oregon makes significant investments in new infrastructure, and as such, has a very positive impact on Oregon's economy through contributions to congestion relief, improved rail services and market connectivity.

This State Rail Plan agrees with the OTP scenarios' goal of expanding the system. However, this State Rail Plan notes that in recent years since the OTP was developed the need for system expansion has increased substantially. On the passenger side, options for investments are being discussed in the Amtrak Cascades Corridor. Also, this Plan reviewed that in the long term there may be need to further evaluate passenger rail service in other corridors in Oregon.

Related to freight rail, the strategies in this State Rail Plan refine those in the OTP, primarily due to the fact that the investment framework notes that Oregon should primarily provide financial support commensurate with the benefits the state (public) receives. This could alter the investments made in various parts of the system. For example, removing mainline system bottlenecks should be pursued by the State when the benefit-cost deems it a worthy investment of state funds.

Conclusion

Investing in the transportation system at levels described in the "Flat Funding" and "Funding Increases with Inflation" scenarios is inadequate to meet Oregonians' needs, with the "Flat Funding" scenario not even maintaining existing infrastructure. While the "Expanding Funding" scenario allows Oregon to be competitive and provides businesses and residents the transportation infrastructure and services that allow them to operate efficiently; that scenario is not a probable future in the short run.

This State Rail Plan and the investment framework presents an opportunity for Oregon to take a refined approach to its long term transportation future. This Plan provides the guidance to enable the State to collaborate with the private sector and other jurisdictions on rail projects and helps provide guidance on how much contribution is appropriate for each rail stakeholder, given general circumstances. This presents a great opportunity for Oregon to better leverage private dollars, and move forward with those rail projects and programs that are most critical to Oregon.

This page intentionally left blank.

The Role of Rail in Statewide Transportation

This page intentionally left blank.

1 The Role of Rail in Statewide Transportation

Chapter 1 provides an overview of Oregon's multimodal transportation system and planning framework, and highlights the critical role that rail serves for businesses and residents in the state. This Chapter also summarizes the various federal, state and local stakeholders that have roles in advocating, planning and funding the rail system in Oregon. Background used to develop this Chapter can be found in the Investment Program Technical Memorandum.

Oregon's Multimodal Transportation Goals

The Oregon Transportation Plan (OTP), a document required by Oregon and federal statutes, is a primary component of the State of Oregon's long range transportation plan. The current OTP was last updated in 2006 and has a 25-year horizon. The OTP provides multimodal goals and policies, and a framework for prioritizing transportation programs, improvements and funding; but it does not identify specific projects for development. Specifically, for the multimodal transportation system, the OTP establishes:

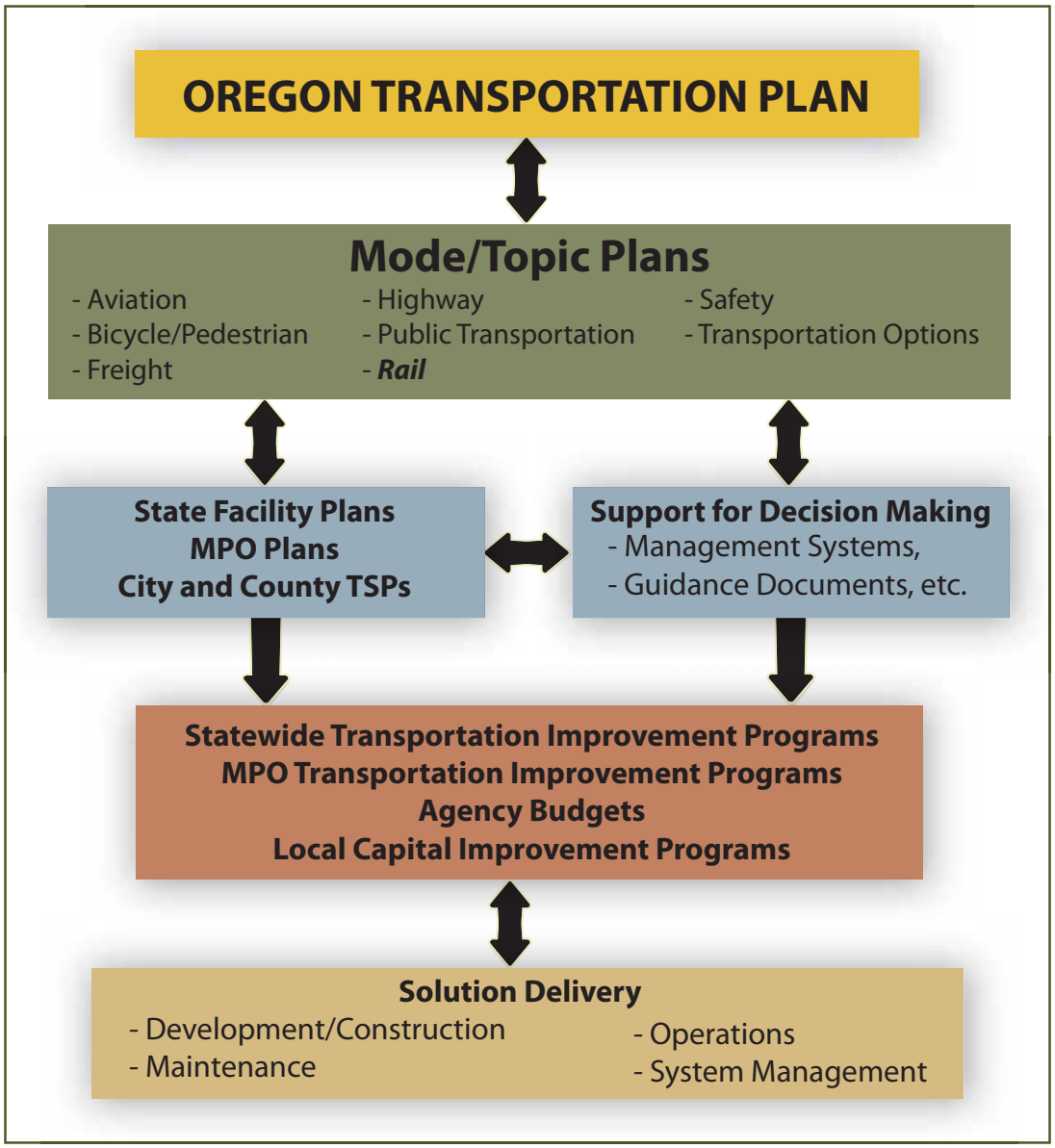
- A vision;
- Goals, policies and strategies to address core challenges and opportunities for transportation;
- A decision and implementation framework; and
- Investment scenarios and priorities.

In establishing these elements, the OTP provides guidance for modal and topic plans, as shown in Figure 3. Modal plans, such as this State Rail Plan refine and provide more detail specific to their respective parts of system. In general, the OTP recommends that modal plans:

- Refine broad policy;
- Refine/define state role;
- Inventory the modal system; and
- Outline implementation/priorities.

This State Rail Plan has been developed to address the elements of the OTP guidance and ensure that rail policy and planning is in sync with the foundation provided by the OTP.

Figure 3: Oregon's Integrated Transportation Planning Process



Source: Adapted from Oregon Transportation Plan, 2006.

This State Rail Plan sets forth a vision, goals, policies and strategies (presented in Chapter 4) expanding upon the OTP guidance. While the State Rail Plan was developed with thoughtful feedback from an independent Steering Committee, the goals determined for this Plan closely match and build on those found in the OTP. The OTP goals are:

- **Goal 1 - Mobility and Accessibility.** To enhance Oregon's quality of life and economic vitality by providing a balanced, efficient, cost-effective and integrated multimodal transportation system that ensures appropriate access to all areas of the state, the nation and the world, with connectivity among modes and places.

- **Goal 2 - Management of the System.** To improve the efficiency of the transportation system by optimizing the existing transportation infrastructure capacity with improved operations and management.
- **Goal 3 - Economic Vitality.** To promote the expansion and diversification of Oregon's economy through the efficient and effective movement of people, goods, services and information in a safe, energy efficient and environmentally sound manner.
- **Goal 4 - Sustainability.** To provide a transportation system that meets present needs without compromising the ability of future generations to meet their needs from the joint perspective of environmental, economic and community objectives. This system is consistent with, yet recognizes differences in, local and regional land use and economic development plans. It is efficient and offers choices among transportation modes. It distributes benefits and burdens fairly and is operated, maintained and improved to be sensitive to both the natural and built environments.
- **Goal 5 - Safety and Security.** To plan, build, operate and maintain the transportation system so that it is safe and secure.
- **Goal 6 - Funding the Transportation System.** To create a transportation funding structure that will support a viable transportation system to achieve state and local goals today and in the future.
- **Goal 7 - Coordination, Communication and Cooperation.** To pursue coordination, communication and cooperation among transportation users, providers and those most affected by transportation activities to align interests, remove barriers and bring innovative solutions so the transportation system functions as one system.

The Role of Rail in Oregon's Multimodal Transportation System

As shown in Table 2, Oregon has an extensive multimodal transportation system that serves residents, travelers and businesses. The rail system in Oregon plays a critical role in the "multimodal big picture" as it is one of the modes that provides service to both freight and passengers, but also because in order for the rail system to operate most effectively it must have seamless connectivity with each of the other modes.

Table 2: Snapshot of Oregon's Multimodal Transportation System

Mode	Extent of System in Oregon	Serves Freight	Serves Passengers
Road/Highway System	8,029 miles of state highways, 33,072 miles of county roads; 10,067 miles of city streets; 22,540 miles of "other" roads under state and federal jurisdiction	X	X
Public Transit System	More than 230 public transportation providers, providing over 120 million trips during a one-year period spanning 2002-03, using about 1,558 vehicles for light rail, fixed route bus, demand response, special needs transportation and intercity bus services		X
Railroad System	Twenty-two active railroads with nearly 2,400 track miles. Track owned by a combinatoin of public and private sector stakeholders Amtrak operates three routes in Oregon, Empire Builder, Coast Starlight and Amtrak Cascades	X	X
Aviation System	97 public-use airports and over 300 private use airports	X	X
Marine/Port System	23 port districts, nine ports have intermodal freight marine terminals	X	X

Source: Adapted from OTP (2006), Oregon Freight Plan (2011) and 2012 State of the System Report.

Institutional Structure of Rail Programs in Oregon

There are numerous departments and agencies involved in rail-related matters at the federal, state and local levels. The U.S. Department of Transportation (U.S. DOT) has the most extensive involvement, both directly with the carriers and indirectly in conjunction with the state and regional jurisdictions. The following section contains brief descriptions of these agencies.

Federal Agencies

Federal Railroad Administration (FRA). As one of the modal agencies within the U.S. DOT, FRA holds responsibility for developing and enforcing railroad safety rules, managing the Railroad Rehabilitation and Improvement Financing (RRIF) program, providing oversight of Amtrak for U.S.

DOT, and managing a small research program. With the passage of the Passenger Rail Investment and Improvement Act (PRIIA) in 2008, and the subsequent provision of capital funding for intercity passenger rail in the American Recovery and Reinvestment Act (ARRA), FRA was tasked with managing expanded programs. Traditionally, the vast majority of FRA personnel and financial resources have been devoted to safety enforcement activities.

The Office of Railroad Safety promotes and regulates safety throughout the nation's railroad industry. It employs more than 415 federal safety inspectors, who operate out of eight regional offices nationally. FRA inspectors specialize in five safety disciplines and numerous grade crossing and trespass prevention initiatives: Track, Signal and Train Control, Motive Power and Equipment, Operating Practices, Hazardous Materials and Highway-Rail Grade Crossing Safety. This office also collects and compiles accident/incident data from the railroads.

Federal Highway Administration (FHWA). A modal agency within U.S. DOT, the FHWA's Section 130 program provides dedicated funding for rail/highway grade crossing safety improvements and assigns state DOTs the task of disbursing these funds within their jurisdiction. This includes determining the locations where active crossing devices will be installed, and assembling the funding necessary for the improvements. Costs associated with installation, upgrading, or replacement of an active device are, generally, the responsibility of public agencies, with the operation and maintenance of the device the responsibility of the railroad.

Federal Transit Administration (FTA). A modal agency within U.S. DOT, FTA provides financial and technical assistance to state and local commuter rail providers (as well as other local public transit modes). FTA oversees grants to transit providers, ensuring that grant recipients are managing their programs in accordance with federal, statutory and administrative requirements. Whereas, rolling stock is typically a state cost for intercity passenger rail service, FTA can provide financial support to commuter railroads for rolling stock.

Surface Transportation Board (STB). Established in 1996 as the successor to the long-lived Interstate Commerce Commission (ICC), the STB adjudicates disputes over rates and services between shippers and carriers, and has administrative authority over rail restructuring transactions, including oversight of mergers and acquisitions, new line construction, rail line abandonment and use of rail lines as recreational trails; railroad rate regulation; and rate and service disputes involving shippers and railroads. In 2008, PRIIA expanded the STB's role to mediate conflicts between passenger rail operators with freight rail owners. The STB functions as an independent agency, but is administratively affiliated with the U.S. DOT.

National Transportation Safety Board (NTSB). The NTSB is an independent agency responsible for investigating the cause of transportation accidents (all modes) and promoting transportation safety. With respect to rail, it is charged with investigating all railroad accidents involving passenger trains or any accident that results in at least one fatality or major property damage. While the NTSB can make recommendations aimed at preventing future accidents, it has no funding or regulatory enforcement authority.

Pipeline and Hazardous Material Safety Administration (PHMSA). The PHMSA under the U.S. DOT regulates the rail transportation of poison inhalation hazard (PIH) materials for tank cars. A 2009 rule mandates commodity specific improvements in safety features and design standards

for newly manufactured DOT specification tank cars. The rule also imposes a 50 mph maximum speed restriction on all loaded PIH tank cars and allows for increase in gross weight of tank cars to accommodate enhanced safety measures.

Transportation Security Administration (TSA). TSA, housed within the Department of Homeland Security (DHS) and in cooperation with the U.S. DOT, is responsible for strengthening the security of the nation's transportation systems while ensuring the freedom of movement for people and commerce. As a result of the increased transportation security following the September 11, 2001 terrorist attacks, the Implementing Recommendations of the 9/11 Commission Act of 2007 established requirements for conducting a nationwide risk assessment of a terrorist attack on railroad carriers and the identification of risks to passenger and cargo security. The Act also required the TSA, in coordination with the U.S. DOT and other federal agencies, to develop a national strategy for railroad transportation security. As part of this role, the TSA funds security initiatives for freight rail carriers that transport security sensitive materials through high threat urban areas.

State and Local Entities

There are also several state and local entities involved in rail-related matters.

Oregon Transportation Commission (OTC). The OTC is a five-member Governor appointed commission. The members are appointed ensuring that different geographic regions of the state and political perspectives are represented. The OTC establishes policy and oversees federal and state transportation fund management and distribution. The OTC is responsible for preparing the Oregon Transportation Plan and oversees OTP implementation within the Oregon Department of Transportation, but it has no direct authority over many of the other agencies and jurisdictions responsible for implementing the Plan. The OTC is the adopting body for all elements of the state's long range transportation plan, including the OTP, modal and topic plans and state facility plans.

Oregon Department of Transportation (ODOT). ODOT manages the state owned elements and programs in Oregon's multimodal transportation system, including the highway system, passenger rail, public transportation and bicycle and pedestrian facilities, and has overall responsibility for statewide transportation planning.

The ODOT Rail and Public Transit Division has primary responsibility for ensuring compliance with state rail-related regulations, managing intercity passenger rail operations and managing publicly funded railroad improvement projects. Other rail specific responsibilities of the ODOT Rail and Public Transit Division include:[5]

- Crossing safety authority over all public highway-railroad crossings;
- Managing 155 miles of state owned railroad right-of-way along the Astoria Line and the Oregon Electric Line;
- Acting as an agent for the FRA by inspecting track, railroad equipment and cars, hazardous materials and operating practices;
- Regulating clearances between railroad tracks and structures to ensure the safety of railroad employees;

[5] *https://www.oregon.gov/ODOT/RPTD/pages/index.aspx*.

- Inspecting tracks, including industrial spurs and sidings for compliance with ODOT regulations; and
- Responsibility for state safety oversight of transit agencies with rail-fixed guideway systems; including street cars and trolleys operated by other government bodies.
- Staff provides technical expertise to communities interested in developing rail opportunities and participates in federal proceedings related to railroad mergers and line abandonments.

Area Commissions on Transportation (ACTs). ACTs are advisory bodies chartered by the OTC. ACTs address all aspects of transportation (surface, marine, air and transportation safety) with primary focus on the state transportation system in the area. ACTs consider regional and local transportation issues as they affect the state system. They work with other local organizations dealing with transportation related issues and have a prominent role in review, prioritization and recommendations of investments through the State Transportation Improvement Program (STIP). There are currently 11 ACTs in Oregon.[6]

Metropolitan Planning Organizations (MPOs). There are eight MPOs in Oregon covering the Albany, Bend, Corvallis, Eugene/Springfield, Grants Pass, Medford (Rogue Valley), Portland and Salem/Keizer regions. MPOs develop regional transportation plans and select roadway and transit projects for their areas.

Additionally, **local governments, transit agencies, railroads and the private sector** all have responsibilities for portions of the multimodal transportation system in Oregon, including rail.

Compliance Statement

Consistent with the intentions of Congress as expressed in PRIIA, the State of Oregon hereby sets forth its 2014 State Rail Plan (SRP) as state policy. The SRP reflects the State's leadership, with public and private transport providers at the state, regional, and local levels, to expand and enhance passenger and freight rail and better integrate rail into the broader multimodal transportation system. This SRP:

- Plans for freight, passenger and commuter rail transportation in the state;
- Describes intended strategies to enhance rail service in the state that benefits the public;
- Establishes an investment framework to be utilized over the period covered by this Plan; and
- Serves as the basis for federal and state rail investments within Oregon.

The SRP was prepared by the Oregon Department of Transportation, the State rail transportation authority, that will also maintain, coordinate and administer the Plan. The SRP was approved by the Oregon Transportation Commission, on September 18, 2014 as official state policy.

This State Rail Plan is in compliance with 49 U.S.C. § 22102 which stipulates eligibility requirements for a long established FRA rail freight grant assistance program pertaining to state planning and administration.

[6] *https://www.oregon.gov/ODOT/Get-Involved/Pages/Area_Commissions.aspx*.

Oregon's Funding and Financing Authority

Rail projects, programs and operations are funded by a variety of federal and state sources. The two primary federal funders are FRA for the freight rail system, and FTA for the passenger rail system; the sources they each provide are described in the supporting Investment Program Technical Memorandum. Other federal sources, such as the Transportation Investment Generating Economic Recovery (TIGER) discretionary grant program and the Transportation Infrastructure Finance and Innovation Act (TIFIA), have provided significant dollars towards rail projects, are also described there.

State of Oregon Funding Programs

The State of Oregon has used legislative opportunities to provide funds for rail improvements, and has also leveraged private dollars to move essential capital rail projects forward, most notably through the *Connect*Oregon program. That funding program, as well as other state sources for rail funds, is briefly described below. Additional information on Oregon's funding programs can be found in the supporting Investment Program Technical Memorandum.

*Connect*Oregon

*Connect*Oregon is a competitive grant program created by the Oregon Legislature in 2005, designed to improve connections between the highway system and other modes of transportation. The program was initially funded by $100 million in bonds backed by lottery proceeds, and 39 projects were selected by the Oregon Transportation Commission for funding. Public and private sector entities are eligible to apply for grants or loans, and must match at least 20 percent of the project cost if applying for grants. This program, now in its fifth round, has provided over $300 million for non-highway projects, including numerous rail projects.

Rail projects received $148 million of the $335 million awarded under *Connect*Oregon, 44 percent of the total, as shown in Table 3. Example rail projects included:[7]

- $3.7 million improvements in Union Pacific Railroads Hinkle Yard, reducing average terminal dwell time for Oregon shippers from 4.2 hours in 2007 to 2.7 hours in 2011.
- $7.7 million for City of Prineville Rail Depot transloading and warehousing facility.

Table 3: *Connect*Oregon Rail Funding History

	Total CO Available Funding	Submitted Rail Applications	Submitted Rail Requests	Rail Projects Awarded	Rail Amount Funded	Percent of CO Funding Awarded to Rail
CO I	$100,000,000	45	$148,722,167	17	$39,115,790	39%
CO II	$100,000,000	38	$77,356,689	13	$56,625,094	57%
CO III	$95,000,000	21	$87,921,145	16	$40,421,535	43%
CO IV	$40,000,000	20	$28,292,727	10	$12,671,158	32%
Total	**$335,000,000**	**124**	**$342,292,728**	**56**	**$148,833,577**	**44%**

Source: ODOT Rail and Public Transit Division Update, Presented to Oregon Transportation Commission, February 20, 2013.

[7] *Connect*Oregon Report, ODOT, February 2013, as required by a budget note to Senate Bill 5701, found at *https://www.oregon.gov/ODOT/Programs/Pages/ConnectOregon.aspx.*

Grade Crossing Protection Account

The Grade Crossing Protection Account (GCPA) is funded through state highway funds. Each year this account shall be accredited $300,000 plus an amount equal to 50 percent of the cost of carrying out the duties, functions and powers imposed on ODOT by Oregon Revised Statute (ORS) 824.200 through 824.256.[8]

Short Line Credit Premium Account Program

This is a program established as an account in the Oregon Transportation Infrastructure Fund. Funds in the Short Line Credit Premium Account are continuously appropriated to ODOT to provide funding in the form of grants for short line operators to enable them to receive a loan under Railroad Rehabilitation and Improvement Financing Program (RRIF).[9]

Transportation Operating Funds

The ODOT Rail and Public Transit Division currently receives approximately $3 million, annually, from Transportation Operating Funds (TOF) used for passenger rail operations and planning. There are questions about the availability of this fund in future biennia.

Custom Vehicle License Plate Fees

The ODOT Rail and Public Transit Division currently receives approximately $7 million, annually, from Driver and Motor Vehicle Services Division (DMV) Custom Vehicle License Plate Fees. These funds are used for the passenger rail operations and planning.

Industrial Rail Spur Fund

In 2003, the Oregon Legislature authorized $8 million for the issuance of lottery bonds for the purpose of financing grants and loans to fund industrial rail spurs. No further funding has been authorized for the program. Funding may become available as loans are repaid. This authorized program could be a mechanism for future rail funding, should the Oregon Legislature recapitalize the fund.[10]

State Rail Rehabilitation Fund

In 1985, the Oregon Legislature authorized the state rail rehabilitation fund for the purposes of rail line acquisition, rehabilitation, or improvement of rail properties, planning, or other methods of reducing the costs of lost rail service. The Oregon Legislature has not appropriated funding for this program or identified a revenue stream to capitalize the fund.

[8] The GCPA is directly addressed in ORS 824.018.

[9] *https://www.oregonlaws.org/ors/367.067.*

[10] *https://www.oregonlaws.org/ors/367.070.*

Other Freight and Passenger Rail Initiatives and Plans

In addition to Oregon's statewide long range transportation system plan discussed earlier in this Chapter, Oregon has a history of planning and improving various aspects of both the freight and passenger rail systems in the state.

Some of the most significant efforts are currently on-going and being conducted in parallel to development of this State Rail Plan. ODOT is conducting the Oregon Passenger Rail Project as the next step in improving passenger rail service in the Oregon segment of the federally designated Pacific Northwest Rail Corridor between Eugene, Oregon and Vancouver, British Columbia. The project will develop a Corridor Investment Plan (CIP) that has two components: a Tier 1 Environmental Impact Statement (EIS),[11] which will select a preferred alternative for future improvements, and a Service Development Plan, which will describe in detail how the preferred alternative will be implemented. FRA requires a CIP to be eligible to apply for future federal funding for design and construction of improvements. The CIP project will consider alternatives for improving intercity passenger rail service in the Willamette Valley. Major decisions in the CIP include the corridor in which improvements will be made; the cities of stops; the energy used to power the trains (electric or diesel-electric); and service characteristics like the number of daily trips, on-time performance and travel time objectives.

Preliminary engineering and environmental work (PE/NEPA) is also underway for infrastructure improvements in the Willamette Valley Corridor including the Willbridge Crossovers Project, North Portland and Peninsula Junction Connections, and Eugene Station Layover tracks and Portland Union Station building and tracks.

[11] Given the scope and complexity of the project, a "tiered" approach to the environmental review process was chosen. A Tier 1 EIS assesses broad, corridor-wide impacts of the project, and will identify project purpose and need, alternatives considered, affected environment and environmental consequences, and strategies to minimize or mitigate unavoidable impacts. A more detailed, "Tier 2" EIS may be conducted after the "Tier 1" alternative is selected.

The Existing Rail System in Oregon

This page intentionally left blank.

2 The Existing Rail System in Oregon

Chapter 2 provides an overview of the existing freight and passenger rail systems and services in Oregon. This chapter also presents the current state of rail funding in Oregon. Combined, these elements serve as a baseline for rail planning and decision-making in the state and inform other sections of the State Rail Plan. Supporting information for this Chapter can be found in the Freight and Passenger Rail System Inventory Technical Memorandum.

Description and Inventory

Freight Rail System

The freight rail system in Oregon is part of a nationwide, interconnected system of rail infrastructure and services that link the state and local regions to the rest of North America, as well as the world, through international marine gateways. These marine gateways include the Port of Portland, other Columbia River ports and coastal ports. The infrastructure supporting rail services in Oregon is substantial, and includes various carload and intermodal facilities, along with significant tunnels and bridges that are necessary to surmount the state's rugged topography.

This section presents a brief overview of the history and evolution of freight railroads, the business structure of rail industry and concludes with a discussion of the key physical attributes of the rail network in Oregon.

Oregon's Freight Railroads

The history of freight railroads in Oregon parallels that of the country as whole. Many of the original rail lines were built in the late 1800s and early 1900s to efficiently export the state's vast natural resources to eastern markets. Rail mileage in Oregon peaked in the 1930s at nearly 4,350 miles. Following World War II, rail started losing market share to trucks. This rapidly increasing competition, an outdated and unresponsive regulatory regime and management challenges led to a steady decline of most railroads. As traffic disappeared and financial losses grew, the railroads moved to abandon poorly performing lines, shed passenger operations to the federal government with the formation of Amtrak, and gain efficiencies through consolidation.

In the west, large-scale consolidation kicked off in 1970, when three large railroads and their subsidiaries merged to become the Burlington Northern (BN), of which the Northern Pacific (NP) and Spokane, Portland and Seattle served Oregon. The ongoing consolidation culminated in 1996, when BN combined with the Atchison, Topeka and Santa Fe Railway to form BNSF. Union Pacific (UP) followed in 1997 with its acquisition of the long struggling Southern Pacific (SP). Both SP and UP had extensive operations in Oregon, with the SP owning lines connecting California with Portland, and UP providing a transcontinental connection with the historic overland route through Utah, Wyoming and Nebraska.

Concurrent with the mergers, railroads moved to spin off and abandon underperforming lines. Non-Class I operators could carry out operations at lower cost and be more responsive to customer needs. In some instances, the new operators succeeded in revitalizing these marginal lines by building up traffic, while in others they simply staved off abandonment for some period of time.

At present, freight railroads in Oregon consist of the two large Class I railroads, one regional railroad, and 19 local and switching railroads (see Table 4 for an overview of these systems; map figure 4). The Association of American Railroads (AAR) classifies railroads based on both annual operating revenue and mileage as follows:[12]

- **Class I Railroad -** A railroad with annual operating revenues in excess of $433.2 million. Six out of seven Class I railroads operate west of the Mississippi River, of which the BNSF and the UP are the two largest.
- **Regional Railroad -** A non-Class I line-haul railroad that has annual revenues of at least $40 million (in 2009 dollars), or that operates at least 350 miles of road and revenues of at least $20 million (in 2009 dollars). Also sometimes referred to as Class II railroads, there is one operating in Oregon at present.
- **Local Railroad -** A railroad which is neither a Class I nor a Regional Railroad, and which is engaged primarily in line-haul service.[13] Commonly referred to as a Class III or short line railroad.
- **Switching and Terminal Railroad -** A non-Class I railroad engaged primarily in switching and/or terminal services for other railroads, irrespective of gross revenues. Local and switching and terminal railroads are typically grouped together with short lines.

Table 4 lists each of the railroads in Oregon, their classification by type, parent company and route miles. Of the 23 railroads listed, the Longview, Portland & Northern Railway (LPN) is currently inactive. In addition to owned trackage, some railroads also operate over tracks owned by other railroads through contractual agreements. Under such trackage rights arrangements, UP operates on 205 additional route miles, while BNSF operates over 151 additional route miles.

In addition to providing freight service, several of the non-Class I railroads in Oregon also host passenger excursion service. All of the mainline passenger rail services in Oregon, consisting of Amtrak and Portland's Westside Express Service, operate over lines owned by the freight railroads.

[12] AAR website on Industry Information; *https://www.aar.org/aboutus/Pages/Industry-Information.aspx* (last accessed on January 18, 2013).

[13] 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.

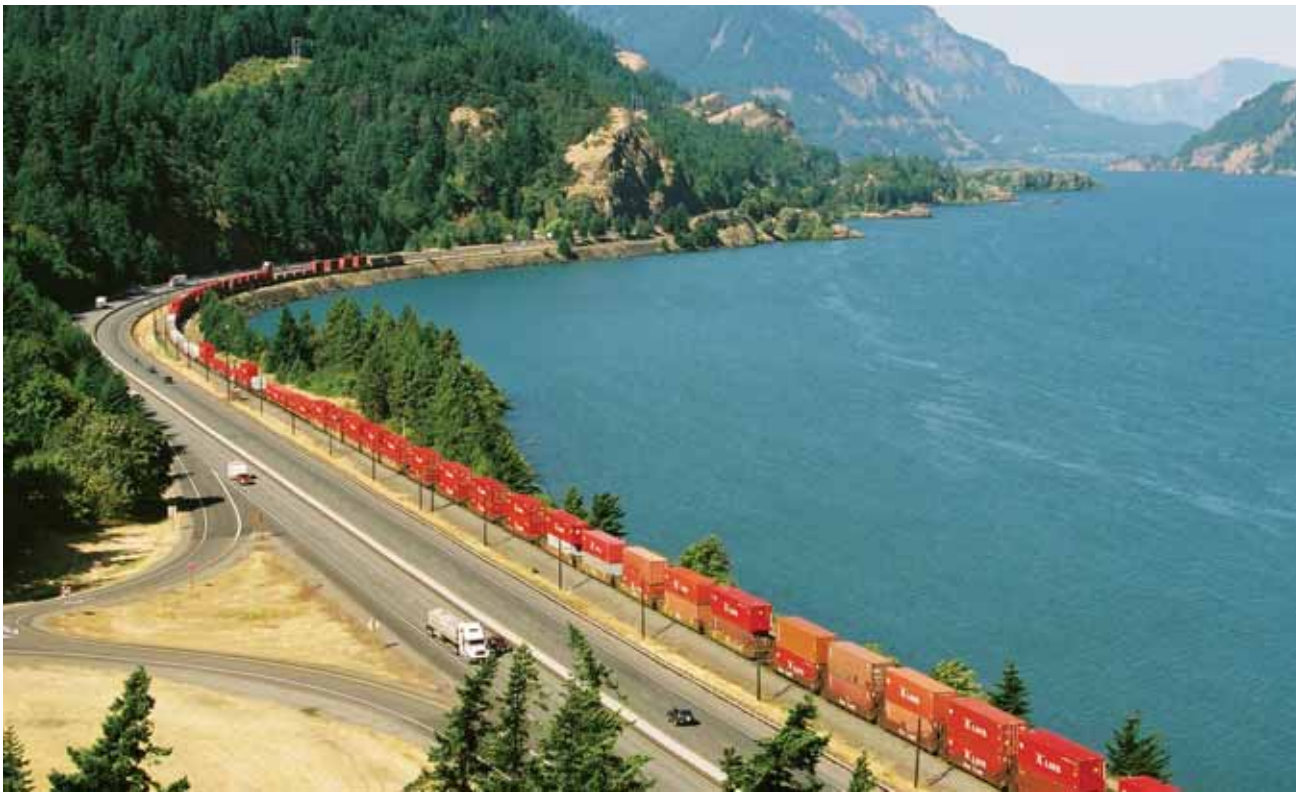
Table 4: Freight Railroads Serving Oregon

Name of Railroad	Standard Carrier Alpha Code (SCAC)	Route Miles in Oregon[a]	AAR Classification	Ownership	Parent
BNSF Railway	BNSF	230	Class I	Class I	Berkshire Hathaway Inc.
Union Pacific Railroad	UP	881	Class I	Class I	
Albany & Eastern Railroad Co.	AERC	72	Local	Independent	
Central Oregon & Pacific Railroad	CORP	247	Local	Holding Company	Genesee & Wyoming Inc.
City of Prineville Railway	COP	18	Local	Public	City of Prineville
Coos Bay Rail Link	CBR	133	Local	Public	Oregon International Port of Coos Bay
Hampton Railway, Inc.	HLSC	5	Local	Industry	Hampton Lumber Sales Co.–Willamina
Idaho Northern & Pacific Railroad	INPR	20	Local	Holding Company	Rio Grande Pacific Corp.
Klamath Northern Railway Co.	KNOR	11	Local	Industry	International Forest Products Ltd.
Lake Railway (LRY LLC)	LRY	15	Local	Public	Lake County
Longview Portland & Northern Railway	LPN	3.3 (Inactive)	Local	Industry	International Paper Co.
Mount Hood Railroad Co.	MH	21	Local	Holding Company	Iowa Pacific Industries
Oregon Pacific Railroad Co.	OPR	13	Switching & Terminal	Independent	

Table 4 Continued

Name of Railroad	Standard Carrier Alpha Code (SCAC)	Route Miles in Oregon[a]	AAR Classification	Ownership	Parent
Palouse River & Coulee City Railroad[b]	PCC	32	Local	Holding Company	Watco Companies
Peninsula Terminal Co.	PT	1	Switching & Terminal	Independent	
Port of Tillamook Bay Railroad	POTB	84	Switching & Terminal	Public	Port of Tillamook Bay
Portland & Western Railroad	PNWR	447	Regional (Jointly with WPRR)	Holding Company	Genesee & Wyoming Inc.
Portland Terminal Railroad Co.	PTRC	0.5	Switching & Terminal	Class I	BNSF and UP
Rogue Valley Terminal Railroad[c]	RVT	12	Switching & Terminal	Independent	CCT Rail System Corp.
Wallowa Union Railroad	WURR	63	Local	Public	Wallowa & Union Counties
Willamette & Pacific Railroad	WPRR	Mileage included in PNWR	Regional (Jointly with PNWR)	Holding Company	Genesee & Wyoming Inc.
Willamette Valley Railway Co.	WVR	33	Local	Independent	
Wyoming & Colorado Railroad	WYCO	25	Local	Holding Company	Western Group
Class I Railroad Miles		**1,111**			
Non - Class I Railroad Miles		**1,258**			
TOTAL MILES		**2,369**			

Source: 2011 Surface Transportation Board Annual Reports for BNSF and UP; 2011 U.S. Securities and Exchange Commission Form 10-K Filings for BNSF and UP; Oregon Rail Study: Appendix A Oregon Freight Rail System, Oregon.



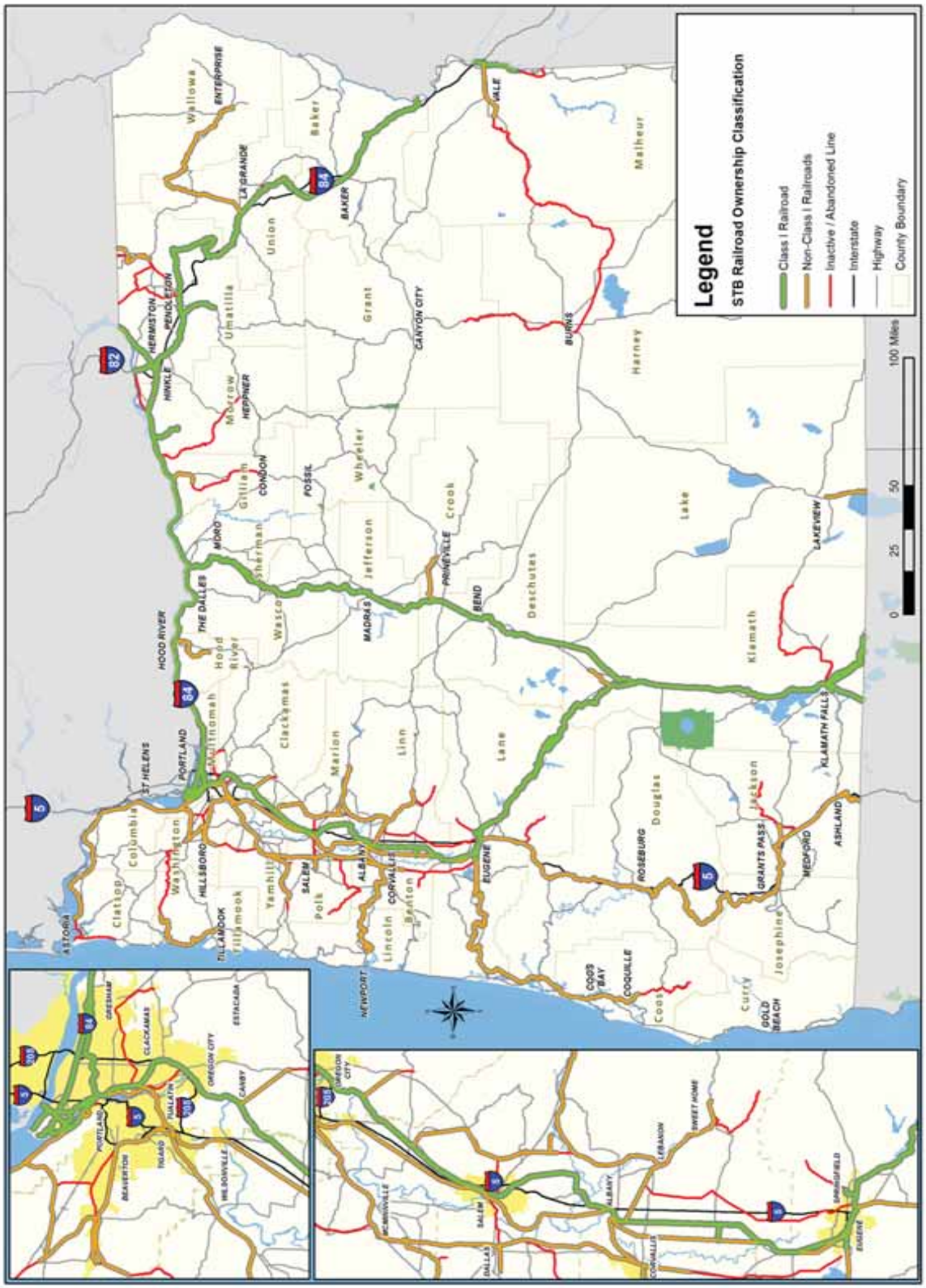
Department of Transportation, Rail Division, 2011; Association of American Railroads State Facts, Oregon, 2010, Cambridge Systematics edits of ODOT Railroad GIS Data.

[a] Route miles are miles of track not including portions of second or higher mainline tracks, sidings, and yard trackage. Data shown for route miles comes from Cambridge Systematics edits of the ODOT GIS layer. All information are verified and updated to current year (2013).

[b] The Palouse River & Coulee City Railroad mainly operates in Washington, however, there is a portion that terminates in Weston, OR from Walla Walla, WA.

[c] Formerly the WCTU Railway Co., a subsidiary of Marmon Transportation Services L.L.C, a Berkshire Hathaway Inc. company. The Surface Transportation Board had required Marmon to divest two short lines when Berkshire acquired BNSF Railway Co. in 2010. See Progressive Railroading, 4/1/2013, and *https://www.railinc.com/rportal/alf_docs/MergersAcq/RVT9000.pdf.*

Figure 4: Rail System in Oregon



Source: Oak Ridge National Laboratory Rail GIS Data, FRA, ODOT.

Class I Railroads

Class I railroads in Oregon, UP and BNSF together operate 47 percent of all active rail mileage in the state. On these lines, they handle the vast majority of freight traffic, including virtually all interstate shipments and all Amtrak passenger service. In 2010, combined, the two railroads employed approximately 1,880 people and handled over 670,000 carloads that had either an origin or destination in the state. In addition, the two railroads also handled a considerable volume of through traffic.

Table 5: Class I Railroad Operating Characteristics in Oregon

Name	Employees	Payroll (Millions of Dollars)	Miles Operated	Originating Carloads	Terminating Carloads
UP	1,592	$126.6	881	175,303	260,701
BNSF	290	$19.5	230	79,726	157,213

Source: UP statistics from UP Factsheet for Oregon, 2011; BNSF statistics from BNSF Factsheet for Oregon, 2010.

Union Pacific Railroad

Omaha based Union Pacific Railroad is the largest rail operator in Oregon by mileage and traffic volume. In 2011 the firm operated 881 miles of track in Oregon, with a staff of 1,592 and a $126.6 million payroll. UP's Oregon network consists of two primary corridors: an east-west transcontinental route, and a north-south route that generally follows I-5. The transcontinental route runs between Portland and Hinkle along the southern bank of the Columbia River. Hinkle is a junction point, and the location of UP's primary carload classification yard in the Pacific Northwest. The route continues southeast from Hinkle to Granger, Wyoming and Ogden, Utah, connecting to UP's historic Central Corridor that links the San Francisco Bay Area with Salt Lake City, Omaha and Chicago. The north-south route is the former Southern Pacific line that connects Portland, Eugene and Klamath Falls, and is used by through trains from Washington and Canada to destinations in California and the Southwest. Beyond the mainline network, UP operates very few lines in the state; what remains of predecessor SP's once extensive branch line network has either been abandoned or is being operated by various non-Class I railroads.

UP's network in Oregon is predominantly single track with passing sidings. Top inbound commodities include mixed freight handled in containers and trailers, recyclables/waste, fertilizers, soda ash and coal. Top outbound commodities were dominated by mixed freight handled in intermodal service and lumber/building materials.

BNSF Railway

The second largest operator in Oregon, BNSF's presence in the state utilizes 230 miles of owned track, and 151 miles of trackage rights. In 2010 BNSF employed 290 people in Oregon, with a payroll of $19.5 million. In addition to extensive operations in the Portland region, approximately 313 miles comprise a north-south corridor that forms part of BNSF's through route along the West Coast between California's Central Valley and the Pacific Northwest. Often referred to as the Oregon Trunk Line, the Oregon portion links Sherman (Wishram, WA) on the Columbia River with Bend and Chemult (in Central Oregon), and Klamath Falls to Malin on Oregon's southern border with California. Although beyond Oregon's borders, critical to BNSF's service to the state is its main line along the north bank of the Columbia River between Pasco, Wallula, Wishram and Vancouver, Washington.

Top inbound commodities consisted of mixed freight moving in intermodal service, agriculture products, industrial products and coal. Top outbound commodities were dominated by mixed freight and industrial products. Almost all of BNSF's network in Oregon consists of single track mainline.

Non-Class I Railroads

Non-Class I railroads in Oregon primarily serve 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.

While the Class I mainline railroads provide the primary arteries for the movement of goods throughout the state, non-Class I railroads provide important collector/distributor services for the larger railroads and local rail services for rural shippers. In Oregon, non-Class I rail lines were primarily built to support the extraction of forest products in the western part of the state along what is now the I-5 corridor. As noted previously, most of the present non-Class I railroads in Oregon were created in the 1980s and 1990s as spin-offs from the SP and BN. Notably, these include what are now the third and fourth largest railroads in Oregon in terms of mileage and gross revenues, the Portland & Western and subsidiary Willamette & Pacific, and the Central Oregon & Pacific. Both are now owned by Genesee and Wyoming, the largest non-Class I rail holding company. Together, these railroads operate 56 percent of total non-Class I railroad mileage and generate about 80 percent of total non-Class I revenue.

Table 6 lists non-Class I railroads in Oregon by revenue per mile, and indicates segments that have been identified as being at-risk for abandonment. From the table, it is evident that non-Class I railroads in Oregon vary greatly in length and carload volumes. Also evident are great variations in revenue, ranging from $100,000 to more than $20 million. In terms of revenue per mile, the highest ranked line is the Peninsula Terminal Co. which provides local switching in Portland. Revenue/mile is a useful indicator of non-Class I railroad health, since the miles of track that must be maintained directly correlate with maintenance needs. Thus, higher revenue per mile offers the potential to reinvest a greater portion of revenues into the physical plant.

Table 6: Non-Class I Railroads in Oregon, Ranked by Revenue, 2011

Name of Railroad	Route Miles	No. of Carloads	Revenue	Revenue/ Mile	% Total Non-Class I Line Revenue	At-Risk Segments[a]
Portland & Western Railroad[b]	447	39,511	$20,348,641	$ 75,293	35%	Astoria District – no customer; Forest Grove District – poor condition
Willamette & Pacific Railroad	Mileage included in PNWR	24,327	$13,300,020	-	23%	Bailey District – Abandoned in 2011; Dallas District – no customer
Central Oregon & Pacific Railroad	247	16,113	$13,184,446	$54,443	23%	Ashland to Montague, CA – pricing actions
Mount Hood Railroad Co.	21	448	$2,479,176	$117,496	4%	
Albany & Eastern Railroad Co.	72	3,011	$1,765,426	$24,622	3%	Sweet Home Branch – little traffic
Peninsula Terminal Co.	1	2,694	$1,346,328	$1,346,328	2%	
Idaho Northern & Pacific Railroad	20	2,367	$1,005,900	$50,295	2%	
Palouse River & Coulee City Railroad	32	20,816	$923,528	$29,042	2%	
Lake Railway (LRY LLC)[c]	54 (15 in Oregon)	1,501	$826,459	$15,178	1%	Entire line – little traffic
Klamath Northern Railway Co.	11	2,354	$794,228	$72,865	1%	
Willamette Valley Railway Co.	33	923	$602,054	$18,244	1%	Entire line – little traffic
City of Prineville Railway	18	899	$436,287	$23,841	1%	
Wyoming & Colorado Railroad	25	1,156	$396,050	$16,034	1%	Entire line – little traffic

Table 6 Continued

Name of Railroad	Route Miles	No. of Carloads	Revenue	Revenue/ Mile	% Total Non-Class I Line Revenue	At-Risk Segments[a]
Oregon Pacific Railroad Co.	13	1,038	$355,680	$27,360	1%	Liberal to Molalla – track removed
Wallowa Union Railroad	63	-	$213,724	$3,371	0%	Entire line – little traffic
Rogue Valley Terminal Railroad[d]	12	557	$202,677	$16,613	0%	
Port of Tillamook Bay Railroad	84	362	$186,483	$2,223	0%	Part of line discontinued – storm damage
Coos Bay Rail Link	133	194	$101,847	$763	0%	Operation began 10/11/11
Portland Terminal Railroad Co.	0.5	N/A	$52,000	$104,000	0%	
Hampton Railway, Inc.	5	-	-	-	-	Entire line – little traffic, operated by PNWR
Longview Portland & Northern Railway	3.3	-	-	-	-	Dormant – no traffic
Total	**1,258 (in Oregon)**	**118,271**	**$58,520,954**	**$46,975**	**100%**	

Source: Oregon Department of Transportation – Rail and Public Transit Division, 2011 Oregon Short Line Ranking Data; At-Risk Corridor Information from 2010 Oregon Rail Study.

[a] At-Risk Corridor Information from the 2010 Oregon Rail Study evaluates lines that were at-risk of abandonment as a result of the recent recession. This table provides updated information since the 2010 study.

[b] Revenue/Mile for the Portland & Western Railroad is based on revenue of both the PNWR and WPRR, divided by the PNWR mileage (which includes WPRR mileage).

[c] Revenue/Mile for the Lake Railway is reported for the entire 55 mile system, even though only 15 miles are in Oregon.

[d] The WCTU Railway recently changed its name to Rogue Valley Terminal Railroad Corp (RVT). In addition, the non-Class I line's holding company has been renamed CCT Rail System Corp. In December, RVTR Rail Holdings L.L.C. acquired the WCTU Railway from Berkshire Hathaway Inc. subsidiary Marmon Transportation Services L.L.C. The Surface Transportation Board had required Marmon to divest two short lines that Berkshire obtained in 2010 when it acquired BNSF Railway Co. Progressive Railroading, 4/1/2013.

Key Railroad Facilities

Rail yards and terminals form an integral component of every rail network and serve different functions as follows:

- **Terminals provide access to the rail system, typically through a transfer between highway or water and rail.** 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 (e.g. transloading) the contents from a truck or vessel to a railcar. Common commodities that are transferred in this manner include bulk goods such as grain, cement and plastic pellets, 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.

- **System, local and industry yards serve various functions in the handling of carload rail traffic.** As a rail car travels across the rail network from origin to destination, it goes through a series of rail yards, where trains are separated into single railcars or blocks of cars and sorted by subsequent destination, which could range from a train serving nearby industry to a yard thousands of miles away.

Oregon is home to one or more yards and terminals of each of these types. Over the years, BNSF and UP has concentrated their operations in fewer locations than was once the case. This consolidation has occurred as a result of operational efficiency, technology improvements and the railroad industry's evolving traffic mix. For example, declining carload traffic and increased unit train volumes, which bypass intermediate yards, has reduced the need for carload service yards. Today, the Pacific Northwest is served by two primary system yards, Hinkle on the UP, and Pasco, Washington on the BNSF. For example, a train coming from Kansas City to the Pacific Northwest with cars destined for Portland, Seattle and Eugene will be sorted at Hinkle and combined with the traffic from other trains into new sections destined for the three respective cities.

Intermodal terminals are key links in supply chains that utilize Oregon's ports. There are several different types of intermodal terminals, each serving a different purpose. On-dock rail terminals handle international containers moving from ship to rail and vice versa, while near-dock terminals

can handle both port-related and highway traffic. Inland terminals generally handle the transfer of containers and highway trailers between truck and rail. Table 7 lists the key rail yards and terminals in Oregon.

Table 7: Major Rail Yards and Terminals in Oregon

Railroad	Name	Location	Type	Description
BNSF	Guilds Lake Yard	Portland	Intermodal and Carload	Regional carload yard and intermodal terminal for BNSF
BNSF/ UP	Terminal 6 Intermodal Yard	Port of Portland	On-Dock Intermodal	On dock terminal with connection to BNSF and UP mainlines
BNSF	Willbridge Yard	Portland	Carload	Chemical and petroleum products
PNWR	Albany/ Millersburg Yard	Albany	Switching	Switching, transloading and storing rail cars (BNSF, UP)
PNWR	Tigard Yard	Tigard	Switching	Switching, transloading and storing rail cars (UP)
UP	Albina Yard	Port of Portland	Carload	Regional carload yard and locomotive servicing facility
UP	Barnes Yard	Portland	Carload	Support Port of Portland and Rivergate industrial area
UP	Brooklyn Yard	Portland	Intermodal	UP Portland intermodal traffic
UP	Hinkle Yard	Hinkle	Carload/ Service	UP's Pacific Northwest system yard for staging transcontinental traffic
BNSF/ UP	Klamath Falls Yard	Klamath Falls	Switching	Switching, storing rail cars and locomotive repair (BNSF and UP have adjacent yards)

Source: Oregon Rail Study, 2010; Port of Portland Website; BNSF and UP Oregon Factsheets; ODOT Rail and Public Transit Division.

Rail Line Abandonments

In the wake of deregulation in 1980, railroads moved to improve their financial performance by selling or abandoning lines with poor prospects. While the most marginal lines were abandoned, many were sold or leased to non-Class I 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 non-Class I lines.

In Oregon, line abandonments have been driven by multiple factors, including high capital costs, lack of customer diversity and changing economies. Coupled with the recession of 2009, long term systemic deferred maintenance and operating deficits have left some non-Class I line corridors at-risk of closing.[14] In the most recent decade from 2000 to 2010, 126 miles were abandoned, with the largest single abandonment in terms of mileage being the Coos Bay Branch Line owned by the Central Oregon & Pacific (CORP). This line was later purchased by the Port of Coos Bay and subsequently re-opened as the Coos Bay Rail Link (CBR).

[14] Oregon Rail Study, 2010.

The abandonment and subsequent re-opening on the Coos Bay Branch line presents an opportunity to understand the importance of rail preservation. In 2007, the Coos Bay rail line was embargoed by CORP due to safety concerns in three tunnels, which resulted from a backlog of deferred maintenance. This forced shippers on the line to seek alternative transportation options. The Port of Coos Bay, acting in the interests of south coast communities, acquired the 111 mile line in 2009. Since then, a combination of $26 million in federal and $7.8 million in *Connect*Oregon[15] III funding have allowed the Port to rehabilitate the tunnels and repair the infrastructure and resume efficient operation over the line.[16] An additional $10 million in revenue was obtained in the 2013 Legislative Session.

The 2010 Oregon Rail Study also documented all at-risk non-Class I lines in Oregon, based on several factors including carloads per mile, revenues per mile and specific rail operator actions. This information is summarized in Table 6. Most lines that are at-risk of abandonment have little or no volume on the lines and no known planned change in strategy or conditions to attract additional business.

Physical Conditions and Operating Characteristics

Existing conditions and key operating characteristics of rail lines in Oregon were reviewed as part of this Plan and include items such as maximum speeds (track class), number of tracks, weight limits, double-stack capability, traffic control systems, grade crossings, tunnels and bridge conditions. Together, these affect the performance of the rail system significantly and form the basis for existing and future infrastructure needs and improvements.

Weight Limits

Throughout the history of the railroad industry, equipment has gained in size and capacity as guideway and rolling stock technology has advanced. In the 1970s, the industry moved from a standard 70 ton to 100 ton (263,000 pound) capacity car. Standard weight limits increased again in 1995 to 286,000 pounds (typically referred to as 286k). Although this increase produced significant productivity benefits for the industry, it also required upgrading of infrastructure in some instances. While the Class I railroads were able to complete these improvements, for non-Class I lines the situation was often quite different, due to the deteriorated state and sometimes functional obsolescence of their tracks, bridges and other infrastructure. As a result, many non-Class I lines restricted the heavier cars from their networks for safety concerns until improvements could be made.

More recently, there has been some movement to further increase the standard weight limit to 315,000 pounds, but this higher weight is far from becoming an accepted standard. Increasing the weight limit to 315K requires considerably more costly improvements to infrastructure, particularly with bridges, than was the case with the increase to 286K.

As the railroad industry has shifted to 286k capacity equipment, it has become a necessity for all operators to accommodate the heavier cars. For some non-Class I lines, this is a competitive issue, as an inability to accommodate this equipment impairs their long term viability. A regularly updated

[15] This is a funding program created by the Oregon Legislature in 2005, and subsequently renewed, to fund multimodal transportation projects.

[16] *https://www.portofcoosbay.com/.*

survey of 286K capacity conducted by ODOT found that all Class I mileage could accommodate the heavier cars, but only 78 percent of non-Class I line mileage could do so. However, it is not necessarily best to conclude that 84 percent of the rail network can sustainably handle the heavier equipment. Competitive market pressures have caused some carriers to move 286K cars over track considered too light for the task. The railroad either accepts the maintenance impacts of heavier cars or risks losing the business altogether.[17]

Better indicators of Oregon railroad health are miles of track maintained to FRA Class 2 or better, and miles laid with 110 lb. or heavier rail.[18] FRA Class 2 track permits maximum speeds of up to 25 mph for freight and 30 mph for passenger. Branch and secondary mainlines often fall into this class, and it is commonly viewed that this is the minimum speed needed for non-Class I lines of any length to operate efficiently and be competitive.[19] About 35 percent, around 500 miles, of non-Class I mileage in Oregon is not up to FRA Class 2 standards.

In addition, railroad track needs to be constructed with sufficiently heavy rail to withstand the stresses from higher weights and speeds in an economically efficient manner. About 34 percent, or nearly 500 miles, of the network in Oregon is comprised of rail lighter than 110 lbs. per yard, the minimum weight at which 286K operations can be conducted economically over the long run. Eventually, this rail must be replaced.

Bridges

A further critical factor affecting general conditions and ability to efficiently handle 286K equipment is the condition of bridges and other civil works. The 2010 Oregon Rail Study included a bridge condition assessment that was conducted on 332 bridges located on 15 non-Class I railroads. Bridges were evaluated to determine their load capacity and remaining service life, and cost estimates to upgrade or repair them were produced. The estimates were based on the ability to carry 286K rail cars at 10 mph and at 25 mph. The study found investment needs ranging from $124 million for repairs necessary to achieve 10 mph, $147 million for 25 mph, and $1.436 billion for complete replacement. Since the assessment was completed, several rail lines have received *Connect*Oregon funds to rehabilitate bridges. These include the Phase II Coos Bay Railroad Bridge Long Term Rehabilitation, funded by *Connect*Oregon at $4 million; the Mt. Hood Railroad Bridges Fortification, funded by *Connect*Oregon at $247,000; and the Albany and Eastern Railroad – Mill City Branch Bridge Rehab and 286K Rail upgrade, funded by *Connect*Oregon at $4 million.[20]

[17] Oregon Department of Transportation Rail Division –286K Survey, 2006.

[18] Ibid.

[19] *https://trn.trains.com/railroads/abcs-of-railroading/2006/05/track-classifications.*

[20] *https://www.oregon.gov/ODOT/Programs/TDD%20Documents/ConnectOregon-Funded-Projects-List.pdf*

Horizontal and Vertical Clearances

Since rail lines were first constructed, the dimensions of rolling stock have increased, sometimes necessitating changes in bridges, tunnels and other infrastructure to accommodate them. Since the 1970s, the growth in the movement of intermodal containers, assembled motor vehicles, and specialty cargoes such as windmill parts and machinery have increased requirements for vertical and horizontal clearances. This is particularly the case with containers, which are most efficiently handled when they are stacked two high, a configuration that requires vertical clearances to be at least 18' 6" for two stacked international (each 8' 6") containers, 19' 6" for a combination international and domestic, and 20' 8" inches for two domestic containers (each 9'6" in height). Tri-level auto-rack cars require 19' 6" clearance. Primarily by greatly reducing line-haul costs and improving ride quality, the application of this technology substantially contributed to the rapid growth in domestic and international intermodal volumes in North America since the mid-1980s.

Except for BNSF's Oregon Trunk Line, the mainline network in the state has been adapted to accommodate double stack operations (see Figure 5). Some non-Class I lines have no known clearance limitations, while others do not have sufficient clearance to accommodate double stacking. For many of these railroads, the nature of the traffic handled does not require clearance for double stack service, but expanded vertical and horizontal clearances may be beneficial for the handling of other types of large loads.

As part of the 2010 Oregon Rail Study, a Rail Tunnel Assessment was completed that evaluated 24 out of 34 tunnels on non-Class I routes. The 24 tunnels, which range in length from 128 to 4,202 feet, are distributed on three railroads: CORP (11), PNWR (4), and CBR (9). Individual cost estimates were developed for repairing each of the 24 tunnels to achieve a 20-year life expectancy, and to provide sufficient clearances to accommodate double-stack rail cars. Repair costs for all tunnels were projected to total $32 million if clearances were not increased, and $92 million with increased clearances. The locations of the tunnels, their length, and their condition figure highly in the rehabilitation costs and risk to the system.[21]

[21] Oregon Rail Study, 2010.

Figure 5: Freight Railroad Vertical Clearance Restrictions

Source: Oak Ridge National Laboratory Rail Network; Class I Railroads Websites; Oregon Rail Study, Appendix C, 2010.

Traffic Control Systems

Systems for controlling rail traffic serve two primary purposes: preventing trains from colliding with each other and efficiently managing the flow of traffic. There are several different types of systems which differ in their sophistication and complexity. The most basic method for controlling operations is Track Warrant Control (TWC), whereby train crews are given permission to operate within specified segments by dispatchers via radio. TWC, which does not require any wayside equipment, is best suited for lines with low traffic volumes. More advanced control methods – that also permit higher speeds - include Automatic Block Signaling (ABS), which controls train spacing by dividing a line into segments or blocks, with wayside (or in-cab) signals automatically indicating occupancy status of subsequent blocks, and Centralized Traffic Control (CTC), where a dispatcher remotely controls signals and sets train paths from a central location. Centralized Traffic Control systems improve efficiencies by consolidating operations management, improve safety and increase capacity on lines with higher volumes.

In Oregon, the majority of Class I railroad mileage is operated under CTC, with freight train speeds up to 60 mph, and passenger speeds up to 79 mph. This includes UP's transcontinental and I-5 corridor mainlines. The Oregon Trunk Line utilizes ABS and TWC control types; as does the Central Oregon & Pacific. The Portland & Western utilizes cab signals along the route of TriMet's Westside Express Service between Beaverton and Wilsonville. The remaining railroads, all of which are non-Class I lines, utilize TWC or other methods of manual control.

The Railway Safety Improvement Act (RSIA) of 2008 mandated that the railroad industry implement a new traffic control technology called Positive Train Control (PTC). As currently conceived, PTC is being implemented as an "overlay" over existing signal systems, for the express goals of preventing overspeed derailments and collisions between trains and other authorized track occupants. PTC must be implemented by December 2015 on most lines handling regularly scheduled passenger trains or toxic-by-inhalation hazardous (TIH) materials, or lines with freight volumes that are greater than five million gross ton miles annually. In Oregon, PTC will be implemented along several mainlines of UP and BNSF.[22]

PTC implementation has proven to be expensive and technically challenging, and is unlikely to be completed by December 2015. Currently, the industry is pursuing congressional action to push back the deadlines, an issue that has yet to be resolved.

At-Grade Crossings

At-grade crossings are the most common locations where the general population interacts with railroads. Incidents occurring at at-grade crossings, and more so from trespassing on railroad property, are the primary causes of injuries and fatalities. Population growth, along with increased rail, vehicular and pedestrian traffic is expected to increase interactions at public at-grade crossings, which will have implications for safety, delays for vehicles and pedestrians and associated impacts.

[22] BNSF currently has no plans to implement PTC on the either the Oregon Trunk or Gateway subdivisions.

In Oregon, there are 1,889 public at-grade rail crossings, with the greatest number situated in Linn, Marion, Multnomah and Lane Counties. The most typical warning signs are cross bucks and stop signs, with 71 crossings having flashing lights, and 804 (43 percent) having any kind of gates. Railroads with the most crossings include Portland & Western Railroad (573), UP (447), Central Oregon & Pacific (170) and BNSF (129).[23]

Trespassing on a railroad's private property and along railroad rights-of-way is the leading cause of rail-related fatalities in the U.S. Since 1997, more people have been fatally injured each year by trespassing than in motor vehicle collisions with trains at highway-rail grade crossings. In Oregon, between 2009 and 2012 there were 52 trespassing incidents that resulted in death or injury.[24]

Passenger Rail System

Passenger rail serves a variety of mobility needs. In Oregon, these include urban transit in the Portland metropolitan region, intercity services linking the metropolitan regions in the Pacific Northwest and long distance services connecting the state with other U.S. regions. In the Portland region, urban transit service is provided through a network of electrically operated MAX light rail and streetcar lines and a single commuter line. The light rail and streetcar lines operate separately and apart from the mainline rail network and are not directly addressed through this State Rail Plan. Commuter, intercity and long distance services all operate over the national rail network. This includes Portland's Westside Express Service commuter line, along with Amtrak intercity and long distance services serving the state. These services (commuter, intercity and long distance) are the focus of this Plan and discussed further in the following section. [25]

Current federal legislation classifies intercity passenger rail services operating in Oregon into two types: routes exceeding 750 miles in length are long distance, while those less than 750 miles in length are short distance corridors.[26] For the long distance services, Amtrak bears full responsibility for their operation, with costs covered by a combination of fare revenues and federal support. However, states and local communities, including Oregon, do have some involvement with these services, particularly with stations. For corridor train services, Section 209 of PRIIA fully shifted financial responsibility to states (or other sponsors) as of October 2013.

Amtrak operates three routes in Oregon, which are shown in Figure 6:

- **Empire Builder*:*** an Amtrak long distance train that links Chicago with Portland and Seattle via Milwaukee, St. Paul/Minneapolis, Fargo and Spokane. Operating daily, the most heavily used Amtrak long distance train splits in Spokane with separate trains operating to the route's two western termini. Portland is the only stop for the Empire Builder in Oregon, although stops along the north bank of the Columbia River at Wishram and Bingham-White Salmon in Washington also provide access to nearby Oregon residents. Along its route, the Empire Builder operates over four host railways, from west to east: BNSF, Minnesota Commercial, Canadian Pacific (CP) and Metra (Chicago-area commuter rail). BNSF owns and maintains the track within Oregon.

[23] Data extract from ODOT Rail and Public Transit Division.

[24] Data extract from FRA, Office of Safety Analysis Online Public Crossing Inventory by State.

[25] In addition to regularly scheduled services, Oregon hosts several passenger operations whose primary purpose is preservation of historic railroad artifacts and recreation. Typically, these tourist services operate seasonally and on weekends over dedicated or branch lines with modest freight traffic. These are classified in the context of their freight operations in this Plan.

[26] Section 24102(5)(C) and (D) of 49 USC.

- **Coast Starlight:** an Amtrak long distance train that links Los Angeles with Seattle via Oakland, Sacramento and Portland on a daily basis. This train, which travels over 1,300 miles from Los Angeles to Seattle, is the second most popular long distance train in the Amtrak system. In Oregon, the Coast Starlight stops in Klamath Falls, Chemult, Eugene, Albany, Salem and Portland. Along its route, the Coast Starlight uses tracks owned by Metrolink (Los Angeles), UP and BNSF. Within Oregon, UP owns and maintains the tracks and right-of-way, except for the BNSF-owned segment between Portland Union Station and the Washington state line.
- **Amtrak Cascades:** a multi-frequency daily intercity service, which travels about 465 miles, along the Eugene to Vancouver, B.C. corridor. In Oregon, Amtrak Cascades serves the Willamette Valley with stops in Eugene, Albany, Salem, Oregon City and Portland. The Amtrak Cascades travels along the Pacific Northwest Rail Corridor (PNWRC), which is one of ten federally-designated high-speed rail (HSR) corridors.

Supporting the passenger trains are dedicated bus services contracted by Amtrak and ODOT. Operating as Cascades POINT *Thruway*, these bus services enhance train service frequencies and provide access to communities not directly served by rail, thereby improving transportation access and boosting the overall utility of passenger rail service in Oregon. Most of these services are operated by private carriers under contract with the state, although some are privately operated.

The following sections describe Amtrak Cascades, Westside Express Service and the intercity station facilities in more detail.

Figure 6: Intercity Rail Service in Oregon

Source: Cambridge Systematics and ODOT Rail and Public Transit Division, 2013.

Amtrak Cascades

Amtrak Cascades is an intercity rail service that extends 467 miles from Eugene, Oregon to Vancouver, British Columbia. In Oregon, Amtrak Cascades service operates on the same corridor as the Coast Starlight, using tracks and right-of-way that are owned by UP between Portland and Eugene, and BNSF between Portland Union Station and the Washington state line.

The frequency of Amtrak Cascades service varies by segment. Between Portland and Eugene, there are two round trips daily; between Portland and Seattle, four round trips; and between Seattle and Vancouver, two round trips. Most trains traverse only part of the corridor, with schedules designed to serve key markets at attractive times, ensure service reliability, optimize equipment utilization and meet host railroad needs. With a scheduled travel time of two hours and 35 minutes for the 124 miles between Portland and Eugene, the average speed amounts to 42 miles per hour (mph).

Operating the Amtrak Cascades service involves a number of public and private entities in the U.S. and Canada. In addition to ODOT, key entities involved in providing the service include:

- **Amtrak -** operates the service and holds the contractual rights to operate over BNSF and UP
- **UP** and **BNSF -** the two Class I railroads which host the Amtrak Cascades service
- **Portland Development Commission -** owns Portland Union Station
- **Talgo -** manufactured and maintains of the two recently acquired Amtrak Cascades trainsets
- **Washington State Department of Transportation (WSDOT) -** primary partner and co-sponsor of Amtrak Cascades

Amtrak Cascades is funded by Washington and Oregon. In Oregon, ticket revenues fund approximately 62 percent of Amtrak Cascades' corridor-wide operating costs, with 38 percent provided by the states. Although the changes effected by PRIIA require states to provide more funding, they also allow states greater control over operational and business decisions, costs and revenues. Washington and Oregon have committed funding toward specific capital improvements to support Amtrak Cascades. One example of such investments is the recent acquisition of the two new trainsets from Talgo, which entered regular service in early 2014.

In 2012, WSDOT executed 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 in the future. In concept, the entire PNWRC will be operated as one integrated corridor rather than operating Amtrak Cascades service in separate segments according to jurisdiction, as was past practice. A set of common goals are being developed with an aim to maximize the utility and efficiency of the service along the entire corridor. Potential benefits include financial and labor efficiencies gained by pooling resources, the strengthening of the corridor's relationship with contractors and in its work with federal agencies, improved service and reduced taxpayer subsidies.

Intercity Rail Station Facilities

The Empire Builder, Coast Starlight and Amtrak Cascades serve seven stations in Oregon. Table 8 shows the Amtrak routes that serve each station, along with parking, Cascades POINT *Thruway* dedicated intercity bus connections and local public transit connections. Local public transit is only indicated where there is direct access at the station around the hours of train operation.

Portland Union Station forms the hub for Oregon's intercity passenger rail services, with the Empire Builder, Coast Starlight and Amtrak Cascades all calling at the station. In addition to Portland, local public transit services are also available at Salem and Eugene.

Table 8: Oregon Amtrak Stations and Services

Stations	Empire Builder	Coast Starlight	Amtrak Cascades	Parking	Cascades POINT *Thruway* Bus Services	Other Transit Connections
Portland Union Station	✓	✓	✓	200 long-term 25 short-term	Cascades POINT Thruway Bus, Portland-Albany-Corvallis-Newport (Valley Retriever), Northwest POINT Thruway Bus	TriMet, MAX Green Line, MAX Yellow Line, Greyhound, Caravan Airport Shuttle, Tillamook Bus
Oregon City Platform (No Shelter)			✓	50 long-term	Cascades POINT Thruway Bus	TriMet
Salem Station		✓	✓	30 long-term 30 short-term	Cascades POINT Thruway Bus	Salem-Keizer Transit, Greyhound, Tillamook Bus
Albany Station		✓	✓	50 long-term 20 short-term	Cascades POINT Thruway Bus, Portland-Albany-Corvallis-Newport (Valley Retriever)	Albany Transit System, Greyhound, Bolt Bus, Coast to Valley Express, Linn Shuttle
Eugene Station		✓	✓	25 long-term 8 short-term	Cascades POINT Thruway Bus, Eugene-Bend (Porter Stage)	Lane Transit District, Greyhound, Diamond Express
Chemult Platform (With Shelter)		✓		25 long-term 25 short-term	Redmond-Bend-Chemult (High Desert POINT Thruway Bus)	
Klamath Falls Station		✓		60 long-term 20 short-term	Brookings-Medford-Klamath Falls (South-West POINT)	Basin Transit Service, Klamath Tribe, Sage Stage

Sources: *www.amtrak.com,* transit agency web sites.

Commuter Rail – Westside Express Service

Commuter rail systems primarily serve recurring travel demand associated with work, school and other activities within a metropolitan region. The Westside Express Service (WES), Oregon's only commuter rail service, has served the Portland metropolitan area since February 2009. WES operates weekday service over a 14.7 mile route, serving five stations: Beaverton, Hall/Nimbus, Tigard, Tualatin and Wilsonville. Weekday frequencies consist of sixteen round trips, with eight round trips during the morning and evening commute periods. Trains run every thirty minutes during rush hour, and the travel time between Beaverton and Wilsonville is just under 30 minutes.

WES is operated by the Portland & Western Railroad through a purchase of service agreement with Portland's TriMet (regional transit agency), which funds the service, sets schedules and other standards, and owns the fleet of five self-propelled rail diesel cars and one trailer coach.

WES provides direct connections to Portland's MAX light rail service. Passengers can transfer from WES commuter rail service to the MAX Red and Blue Lines at the Beaverton Transit Center. Table 9 shows boardings, passenger miles and farebox recovery ratio since WES operations began.

Table 9: WES Ridership, System Characteristics and Performance, FY2009-2012

Fiscal Year[1]	Originating Rides	Boarding Rides	Passenger Miles	Fare Recovery Ratio[3]
2009[2]	97,180	124,346	1,073,106	4.6%
2010	239,519	305,844	2,553,797	5.2%
2011	289,980	370,800	3,103,596	6.6%
2012	326,910	418,090	3,428,338	7.4%
2013	345,510	442,120	3,625,384	7.1%

Source: TriMet, Annual Performance Report, FY1999-FY2013.

[1] Based on Fiscal Year (July-June) reported in TriMet's Annual Performance Report.
[2] WES service began in February 2009.
[3] Operations Costs.

Passenger Rail Service Objectives and Evaluation

The discussion that follows summarizes recent performance and key challenges facing Amtrak Cascades, the Empire Builder and the Coast Starlight. Utilizing available data, key measures such as ridership, on-time performance and causes of delay are examined. A far more detailed analysis of Amtrak Cascades service is underway as part of the Oregon Passenger Rail (OPR) Project, which will produce current passenger volume forecasts and a set of specific recommendations for improving passenger rail service between Portland and the Eugene-Springfield urban areas.

Passenger Rail Usage in Oregon

During FY 2012, nearly 16 percent of the total Amtrak intercity rail trips in the state were intrastate trips in which both the traveler's origin and destination were in Oregon. The state's top three intrastate Amtrak travel markets were:

1. **Portland-Eugene:** 54.3 percent of total boardings in Eugene were bound for Portland; and 7.5 percent of total boardings in Portland alighted in Eugene.
2. **Portland-Salem:** 46.7 percent of total boardings in Salem were headed to Portland; and just over 3.5 percent of total boardings in Portland alighted in Salem.
3. **Portland-Albany:** 43.7 percent of total boardings in Albany were bound for Portland; and just below 1.7 percent of total boardings in Portland alighted in Albany.

Travel between cities in Oregon for which Portland was neither an origin nor destination represented a small share of Oregon's total interstate and intrastate trips. The largest travel markets between cities other than Portland were Salem-Eugene (0.6 percent of total boardings and alightings), Albany-Salem (0.4 percent), Eugene-Klamath Falls (0.4 percent) and Eugene to Oregon City (0.4 percent). Detailed travel characteristics are shown in the Passenger Rail Needs Assessment Technical Memorandum.

Nearly 85 percent of Amtrak trips with an origin or destination in Oregon were interstate during FY 2012, with the vast majority associated with Washington's Puget Sound region. Portland featured the largest share of boardings for trips with destinations outside the state (86 percent). At 55 percent of all trips, the most popular market for travelers accessing Amtrak in Oregon is Seattle, which is served by Amtrak Cascades and the Coast Starlight. Intrastate travel within Oregon represented the next busiest market (15.8 percent). The corridor to the Bay Area and Sacramento, which is served by the Coast Starlight, and destinations along the Empire Builder corridor followed with 8.4 percent and 5.8 percent of total ridership, respectively.

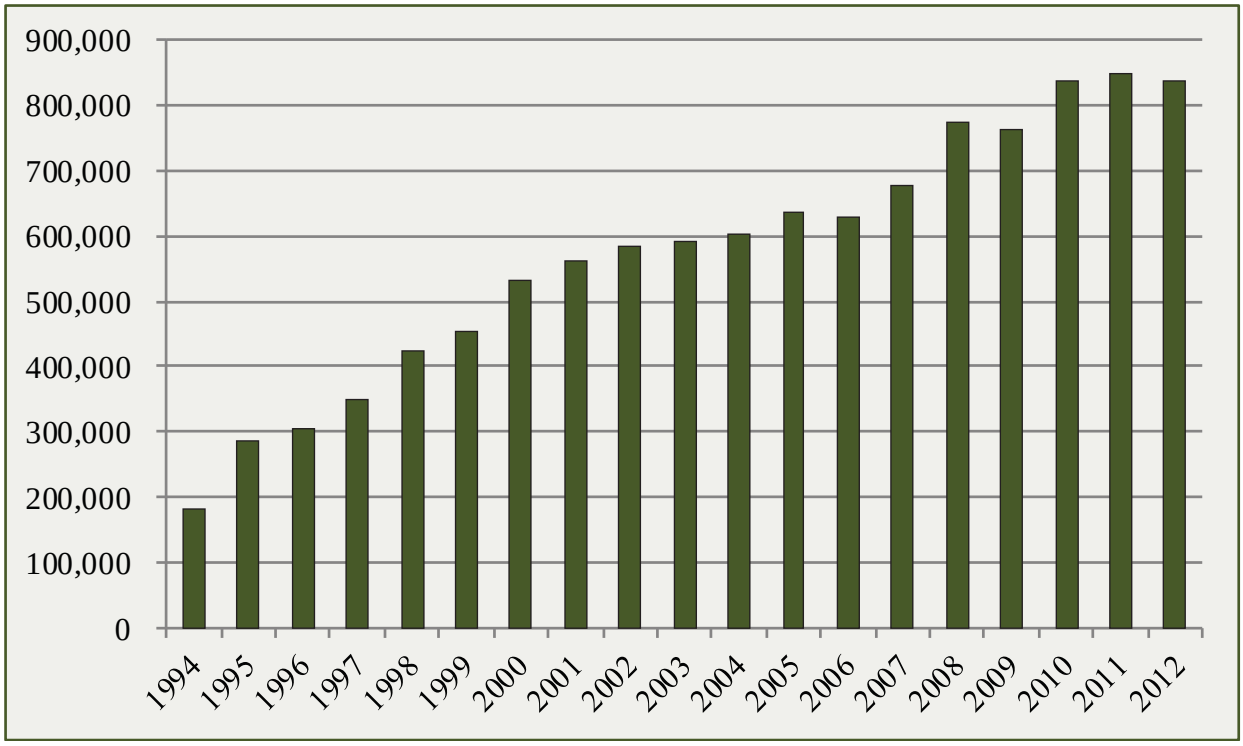
Amtrak Cascades

Ridership

Overall ridership on Amtrak Cascades has grown consistently since operations began in 1995, as Figure 7 indicates. The 2006 Oregon Transportation Plan forecasted public transportation ridership to increase by an annual rate of 3.2 percent between 2005 and 2030, and passenger rail ridership to grow by 3.6 percent annually during the same period. Actual intercity passenger rail ridership along the Amtrak Cascades corridor increased at a compound average annual rate of 4.0 percent between 2005 and 2012. In comparison, the Oregon Transportation Plan forecasted highway vehicle miles traveled to grow by a lower annual rate of 1.4 percent between 2004 and 2030. Additionally, annual Amtrak Cascades ridership growth exceeded average annual statewide population growth (1.0 percent)[27] between 2005 and 2012, which suggests that intercity passenger rail's market share is likely increasing relative to other modes. Overall, these trends indicate a steadily growing demand for intercity passenger rail services.

[27] Population Research Center, Portland State University, *Population and Components of Population Change for Oregon: 1960 to 2012*, *https://www.pdx.edu/prc/annual-oregon-population-report*, accessed June 5, 2013.

Figure 7: Amtrak Cascades Ridership, 1994-2012



Source: Washington Department of Transportation Rail Division.

On-Time Performance

Reliable, on-time service is essential for attracting and retaining passengers. To ensure that the Amtrak Cascades Corridor provides this type of service, ODOT and Amtrak have agreed to measure endpoint on time performance (OTP)[28] with a goal of achieving this at least 80 percent of the time.

Table 10 displays on-time performance of Amtrak Cascades for FY 2012. Despite a decline in OTP between January and March 2012, measures of OTP throughout the Amtrak Cascades corridor improved slightly between October 2011 and December 2012. October through December 2012 was the only quarter during which Endpoint OTP exceeded the target of 80 percent.

[28] Endpoint OTP measures whether or not a train arrives at its endpoint on time. An "on-time arrival" is dependent upon trip length. As described in more detail in the Freight and Passenger System Inventory Technical Memorandum, longer trips are allowed additional delay time.

Table 10: Amtrak Cascades On-Time Performance by Quarter (October 2011 to December 2012)

Month	Endpoint OTP
October-December 2011 (Q1)	77.6%
January-March 2012 (Q2)	69.3%
April-June 2012 (Q3)	75.8%
July-September 2012 (Q4)	73.4%
October-December 2012 (Q1)	81.2%

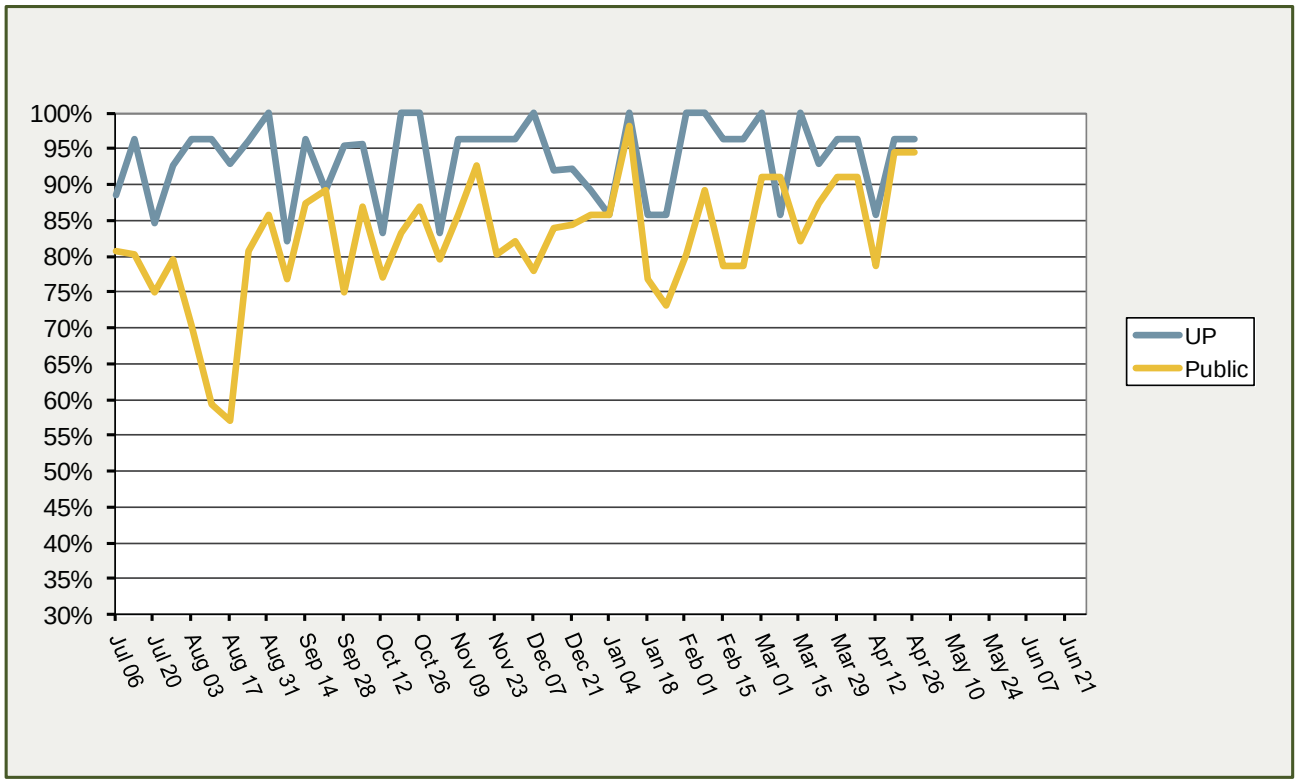
Source: FRA, Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations. Multiple reports were consulted: Quarter Ended December 2012 – Quarter Ended December 2013. Accessed May 2013 from *https://www.fra.dot.gov/Page/P0532*.

To provide a picture of Amtrak Cascades performance specifically within Oregon, ODOT separately measures OTP for the Portland-Eugene corridor segment using the following two metrics:

- UP OTP - measures the percentage of trains that run within 10 minutes of the scheduled travel time between Portland and Eugene (2 hours and 35 minutes).
- Public OTP - measures the percent of trains that arrive within 10 minutes of the time printed on the public schedule.

Recent performance by week from July 2012 through April 2013 for UP and Public OTP is shown in Figure 8. For most of the reported period, OTP within Oregon exceeded corridor-wide OTP, but failed to meet Oregon's goal of 95 percent OTP. For the portion between Portland and Eugene, UP OTP generally ranged between 85 and 100 percent. Public OTP along this section of the Amtrak Cascades largely ranged between 75 and 90 percent.

Figure 8: Amtrak Cascades On-Time Performance in Oregon (July 2012-April 2013)



Source: ODOT, 2013.

Delays

During calendar year 2012, Amtrak Cascades performed well with regard to Amtrak responsible delays, meeting PRIIA recommended standards for reportable delays.[29] Likewise, UP met the PRIIA standards for host-reportable delays each quarter, except the second, while BNSF generally did not meet PRIIA standards for host-responsible delays. For the host railroads, delays were most commonly caused by freight train interference, signal problems and slow orders related to temporary track conditions. Delays caused by Amtrak were most commonly caused by locomotive failures, heavy/slow passenger loading and crew issues.

Travel Time and Train Speed

Travel times that significantly exceed alternative options such as private automobile and air are a primary impediment to attracting additional ridership. For Portland - Eugene, the present travel time of two hours and 35 minutes compares unfavorably with the approximately two hour driving time between the cities during off-peak hours. ODOT's goal is to reduce the trip time to two hours.

Although the current route can support speeds of up to 79 mph, the overall speed is only 42 miles per hour. Reasons for this slow average speed are several, but are primarily caused by track geometry, speed restrictions through heavily populated areas and accommodation for freight traffic. At present, the line has little reserve capacity and is configured to handle only the modest traffic volumes that

[29] Section 207 of PRIIA states 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. While this is no longer enforceable through PRIIA, ODOT continues to track delay with these thresholds.

now utilize it. Thus, reducing travel time will require significant improvements to the infrastructure of the current UP route, or establishment of a new route connecting these markets. These issues are being examined in the ongoing Oregon Passenger Rail EIS project.

Challenges

Distances between markets, population and limited highway capacity make the Amtrak Cascades corridor, including the Eugene-Portland segment, well suited for successful passenger rail service. However, achieving the full potential will require addressing three key constraints: travel times and reliability, frequency and connectivity. A fourth element, service quality (amenities, comfort, access to Wi-Fi, mobile phone connectivity, on-board food, etc.) also plays a significant role. In the case of the Amtrak Cascades, service quality is perceived to be good (and will improve even more with the new train sets) and thus is not a constraint to growth.

- **Travel times and reliability:** The scheduled end-to-end passenger rail travel time between Eugene and Portland's Union Station averaged 2 hours and 35 minutes (not including any delays) in 2012, approximately 35 minutes longer than the time it takes to travel the same distance in a private passenger vehicle. Increased traffic congestion on the I-5 corridor and/or improved travel times that are at least as fast as travel by private automobile will make passenger rail more competitive. Reliability is equally important; if the trains operate on-schedule, travelers are more likely to use them.
- **Frequency:** The present two round-trips (three including the Coast Starlight) between Eugene and Portland do not provide sufficient schedule flexibility for many travelers who are constrained for time, which is particularly the case for business travelers. Cascades POINT *Thruway* buses fill in schedule gaps and provide high quality bus service with AC outlets and Wi-Fi, but do not provide the same level of comfort and amenities that are available on the train.
- **Connectivity:** Improving access to stations and public transportation system connectivity can lower the overall time and effort required to use the Amtrak Cascades service and expand transportation options for travelers.

Capacity and operational needs of the freight rail system place the greatest constraints on improving Amtrak Cascades. Coordinated planning with UP and BNSF is a necessity to ensure efficient and reliable passenger rail service and significant questions and challenges remain for infrastructure in the future.

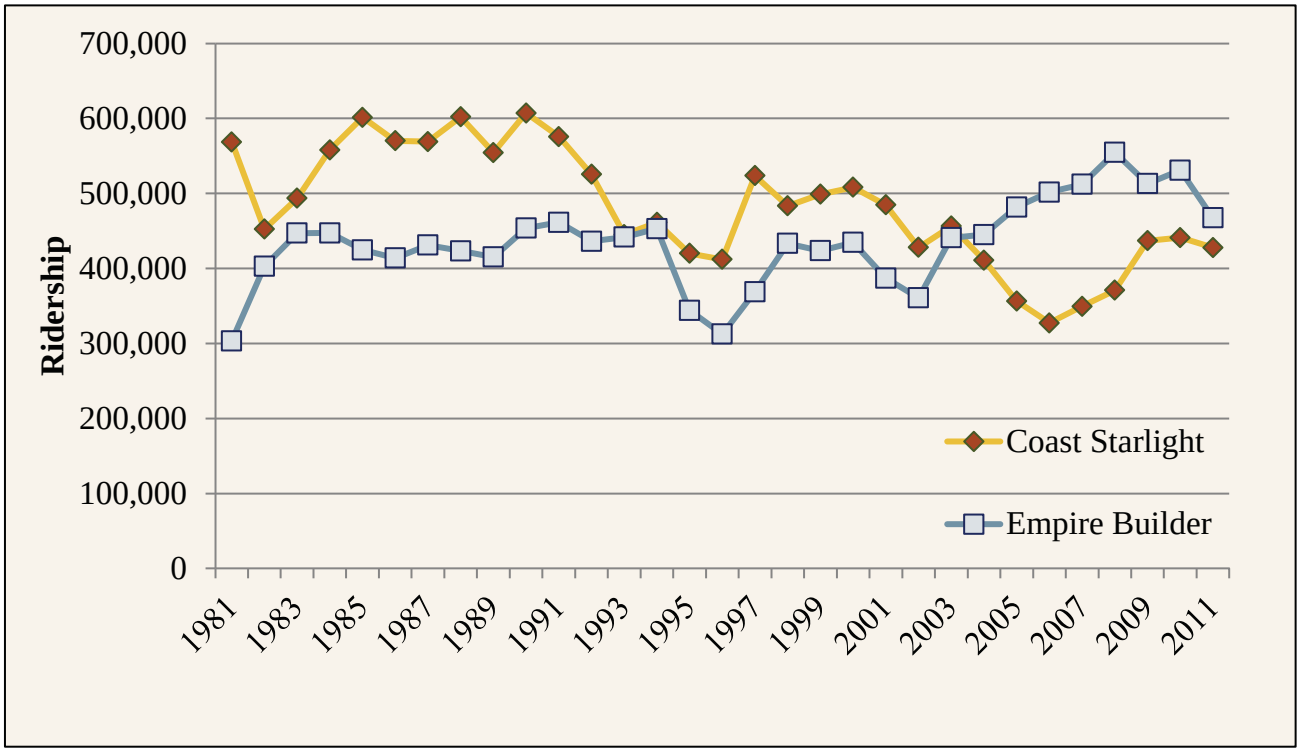
Amtrak Cascades passenger rail service faces competition from other modes of passenger transportation, particularly private motor vehicles and intercity buses. Commercial air services are present in Portland, Eugene, Seattle-Tacoma and Bellingham, Washington and Vancouver, B.C., Canada. The vast majority of trips along the corridor are taken by private automobile, with air playing a much smaller role except in the Vancouver, B.C. market.

Amtrak Coast Starlight and Empire Builder

Ridership

Ridership for the Empire Builder and Coast Starlight are shown in Figure 9 for years 1981 through 2011. Overall volume trends have been somewhat erratic for both trains. The Coast Starlight's ridership peaked in 1990 with approximately 607,000 passengers; Empire Builder's ridership peaked in 2008 with approximately 555,000 passengers.

Figure 9: Empire Builder and Coast Starlight Ridership, 1981-2011



Source: Amtrak (2012).

While some of the variations in ridership can be attributed to general macroeconomic conditions (including the recent recession), demographic trends and other exogenous factors, other specific issues have had an equal or greater influence on the performance of both trains. These include:

- Weather-related delays and suspensions, such as mudslides (both routes at various times), flooding and extreme cold (Empire Builder);
- Host railroad operational reliability, with the Empire Builder's major service interruptions in late 2013, and the Coast Starlight ranking among the worst trains for on-time performance prior to the 2008 recession;
- Changes in schedules and frequency, such as when the Empire Builder ran four times per week west of St. Paul, MN from 1995 to 1997;
- Passenger capacity, which is driven by the availability of equipment and Amtrak's equipment deployment strategy; and
- Marketing strategy, which allocates capacity, sets pricing and positions Amtrak's product in the multiple markets served by these and other trains.

On-Time Performance

The Coast Starlight only met the 80 percent standard for End-Point OTP once during the five calendar quarters from October 2011 through December 2012. During the other four quarters, End-Point OTP fell in the range of 72 to 79 percent.

The Empire Builder failed to meet End-Point OTP standards during the same period. End Point OTP ranged from a low of 33 percent to a high of 74 percent. During FY 2012, the train had been

affected by weather-related events including flooding and mudslides, which caused severe delays and truncation of service. Another factor in declining OTP has been the rapidly increasing freight traffic arising from the shale oil fields development in North Dakota.

Delays

In FY 2012, the Coast Starlight failed to meet PRIIA recommended service delay performance targets for both UP host-railroad 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 were passenger-related delays.

Service delay performance for the Empire Builder in FY 2012 for BNSF and Amtrak was mixed. Delay minutes attributed to BNSF exceeded the PRIIA recommended threshold only during the July to September period, the same quarter during which Amtrak exceeded its PRIIA recommended threshold. Freight train interference and temporary slow orders were the most frequent types of host-responsible delays during this time. The most frequent Amtrak-responsible delays included passenger-related delays (e.g., checked baggage and large groups) and delays resulting from holding the train for connections from other trains or buses.

Challenges

Long distance train services like the Empire Builder and the Coast Starlight are the responsibility of Amtrak and the federal Government. Therefore, Oregon involvement and influence in the provision of these services is quite limited. Nevertheless, their presence forms an important part of the passenger rail system in Oregon and nationwide. These trains provide national connectivity and associated long distance travel benefits and bring ridership to the state supported Amtrak Cascades service. Furthermore, the Coast Starlight provides an additional frequency along the Amtrak Cascades Corridor at no cost to the state, which makes the overall service along the corridor more attractive.

The immediate concern affecting both the Empire Builder and the Coast Starlight has been service reliability, which directly impacts the utility and financial performance of the trains. Since 2011, this has particularly been the case with the Empire Builder, which has gone from being one of the most consistently reliable trains to one of the least, due primarily to a boom in freight traffic along its route in North Dakota. Longer term, several issues will limit potential growth and viability. The single daily frequencies limit travel options and thus the pool of potential users. Amtrak's fleet of long distance cars has been static and aging, with the original Superliner fleet dating to the late 1970s, due for replacement in the next decade.

Safety and Security of Passenger Rail

Ensuring the safety and security of the passenger rail system is of the highest priority. In addition to providing for passengers' welfare, a safe and secure system has the added benefit of retaining ridership and ensuring efficient operations. Rail-related incidents resulting in injuries and fatalities – which often result in substantial delays to passenger trains - are most commonly associated with grade crossing conflicts and trespassing on railroad property. In passenger operations, most injuries are associated with slips and falls at stations and on moving equipment. In most instances, these are minor.

Most typically, issues with safety are addressed through a combination of physical improvements and education. Physical improvements include crossing gates and active warning systems, installation of fencing and other barriers to prevent incursions on the right-of-way, track and signal improvements and grade separations that eliminate at-grade crossings of rail lines and roadways. The rail industry has had a long-standing educational campaign through Operation Lifesaver which is designed to educate the public about the risks of trespassing on railroad property and the importance of using caution around railroad tracks and trains.

In 2012, thirty-two accidents/incidents involving Amtrak and commuter railroads in Oregon were reported to the FRA, which represented 1.8 percent of the national total. Nationwide, there were 29 passenger train accidents in 2012, one of which occurred in Oregon (3.4 percent). Between 2008 and 2012, an average of 28.6 casualties occurred each year with an average of 2.8 fatalities and 25.8 injuries. In 2012, highway-rail and trespassing incidents accounted for all of the fatalities.

Current Rail Funding

Federal and State Rail Funding

The Investment Program Technical Memorandum provides a detailed summary of current, available freight and passenger funding resources for planning, operations and maintenance and places them in two global categories: federal and state funding.

The two primary federal funders are the Federal Railroad Administration for the freight rail system, and the Federal Transit Administration for the passenger rail system; the sources they each provide are described in the technical memorandum. Other federal sources, such as the Transportation Investment Generating Economic Recovery (TIGER) discretionary grant program and the Transportation Infrastructure Finance and Innovation Act (TIFIA), which have provided significant dollars towards rail projects are also described.

The State of Oregon has used legislative opportunities to provide funds for rail improvements. These include sources such as *Connect*Oregon, the Industrial Rail Spur Fund, the State Rail Rehabilitation Fund and Custom Vehicle License Plate Fees. Programs established by prior legislation, as well as other state sources, are also described in the Investment Program Technical Memorandum.

Rail Funding Shortfall and Challenges

While the supporting Investment Program Technical Memorandum presents a number of funding sources that may be used to fund different types of rail projects, Oregon currently lacks a *dedicated*, *sustainable* funding source for passenger and freight rail investments in the state. Without funding, Oregon does not have revenue available, nor does it have the required federal match, to improve, maintain and operate passenger rail services. Significant funds are also needed to leverage, maintain and improve the freight rail system.

Table 11 highlights recent Oregon rail program funding. It is anticipated that there will be a shortfall of more than $25 million in the 2015-17 Passenger Operations and Planning budget due to lack of permanent funds and the potential that the Transportation Operating Fund may not be available in the next biennium.

Table 11: Recent Oregon Rail Program Funding, FY 2013-2015

Program	Funding	Source	Notes
Rail Safety Section	$2.7M	Gross Revenue Fee (GRF) paid by the railroads and a Transit Oversight Fee	ODOT program aligned with available funds
Crossing Safety & Employee Safety Section	$5.1M	GRF paid by the railroads[1] Grade Crossing Protection Account of ODOT Highway Fund	ODOT program aligned with available funds
Passenger Operations and Planning	$19.3M	DMV Custom Plates - $7M Transportation Operating Fund - $3M, when available FTA 5307 - $9.3M (current biennium only)	Amtrak expenses - $16M Trainsets Maintenance - $6M Other Operations expenses - $6.8M
Other Projects	$35M	ARRA funds and TIGER grants, when available	ODOT program aligned with available funds

Source: Adapted from Rail Division Update, Presented to Oregon Transportation Commission, February 20, 2013.

[1] Due to changes to FTA MAP-21 in September 2014, Transit Oversight Fee funds can no longer be used to match the federal funds. Future funds will have to come out of the Transportation Operating Fund.

Note: It is anticipated that the 2015-17 Passenger Operations and Planning shortfall may increase to more than $25 million, due to lack of permanent funds and potentially the Transportation Operating Fund may not be available in the next biennium.

In addition to the shortfall, there are other concerns on Oregon's rail program funding. For example, the Transit Oversight Fee pays for the Transit Safety Oversight Program which oversees safety programs for Portland Streetcar, TriMet's MAX service, Astoria Trolley and Willamette Shore Trolley. ODOT assessed operators based on ODOT's costs to oversee the program, until July 1, 2014 when FTA's MAP-21 guidance on this program required a significantly increased level of effort and more staff dedicated to the program. Do to the implementation of MAP-21, funding for this program also changed on July 1, 2014. The ODOT Rail and Public Transit Division will no longer be allowed to assess light rail operators. The federal government will reimburse 80 percent of the expenses incurred for Rail's Transit Safety Oversight program, and ODOT must fund the remaining 20 percent. The 20 percent must be non-federal sources, and contributions from regulated transit providers are not allowed to be used for match. At this time, this funding will have to be replaced with Transportation Operating Funds, which as mentioned earlier, may not be available in the next biennium.

Another challenge to Oregon's rail funding picture came from the Passenger Rail Investment and Improvement Act's Section 209. In this section, Amtrak routes of not more than 750 miles between endpoints (intercity passenger rail) became state supported services and states must pay proportional costs associated with their respective corridor routes. Implementation began in October 2013. ODOT is currently working with Washington State and British Columbia to leverage resources to achieve the best results for the least cost, as well as be more competitive through the partnership for scarce grant funding and other funding opportunities.

Oregon's Efforts to Secure Future Rail Funding

Oregon has undertaken two significant efforts to evaluate a permanent funding source for rail projects, programs and operations in the state. More detailed information in the Investment Program Technical Memorandum summarizes those efforts.

Oregon Rail Funding Task Force

In 2011, ODOT's Director asked a group of 14 stakeholders representing industries, passenger rail advocates, local governments and community leaders to serve on the Oregon Rail Funding Task Force (ORFTF) for the purpose of developing long term, sustainable funding programs to support rail investments in the state. Using information from the 2010 *Oregon Rail Study* to determine the scope of the 30 year funding needs for rail in Oregon, the ORFTF examined a series of options for raising necessary revenues to fund rail investments. The revenue packages that were investigated by the ORFTF were designed to address the following categories of need:

Freight Rail

- Maintaining and upgrading deteriorating rail infrastructure, especially for short line railroads;
- Investments in new rail facilities, especially for rail traffic consolidation;
- Investments in new rail equipment to ensure access by Oregon shippers and/or to provide incentives for "greening" the locomotive fleet; and
- Capacity enhancements, especially the removal of bottlenecks in cooperation with the Class I railroads.

Passenger Rail

- Funding gaps for operating the existing Amtrak Cascades service; and
- Capital improvements to the Amtrak Cascades service to improve reliability, frequency and trip time between Eugene and Portland.

In the evaluation of potential revenue options, the ORFTF examined the nexus between the revenue source and expenditure needs as a major criterion for selecting revenue options.

Oregon Non-Highway Transportation Funding Working Group

At about the same time that the ORFTF was completing its work, Governor Kitzhaber convened the Oregon Non-Highway Transportation Funding Working Group to look more broadly at non-highway transportation funding needs in the state. The Working Group considered many of the same funding options that were reviewed by the ORFTF, among other options. In their May 2012 report to the Governor, the Working Group recommended "Priority Funding and Financing Options for Further Consideration."

The work of the ORFTF and the Oregon Non-Highway Transportation Funding Working Group represent significant steps to identify workable proposals for raising funds needed to support the rail investment needs in Oregon. The next step may be for state agencies and/or the Governor's Office to work with the legislature to develop a specific funding package program and then to create the legislative authority to establish this funding program as a permanent and sustainable long term program to support rail investment in Oregon and contribute to achieving objectives in this State Rail Plan.

This page intentionally left blank.

Rail System Issues and Opportunities

This page intentionally left blank.

3 Rail System Issues and Opportunities

Chapter 3 reviews the factors that drive the demand for rail services in Oregon, identifies key trends regarding population, employment, output (Gross Domestic Product), international trade and important freight-intensive industries. The chapter then presents how these trends may impact demand on both the freight and passenger rail systems, and finally, what that may mean for future rail system issues and opportunities. Supporting information for this Chapter can be found in the series of needs assessment technical memorandums covering Oregon's economy, passenger rail and freight rail.

Trends and Forecasts

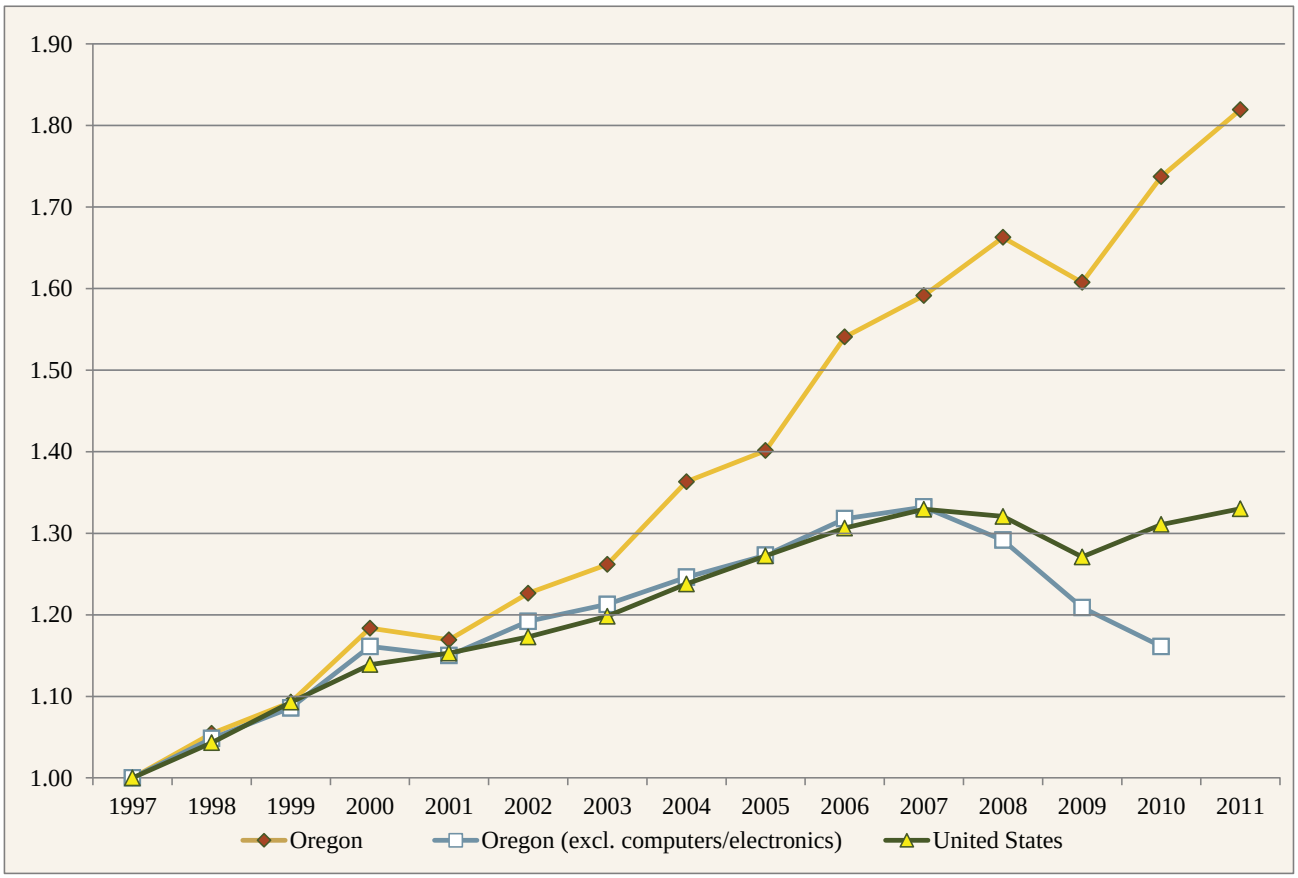
Oregon's ability to compete, both nationally and globally, goes beyond its diverse base of natural resources, recognized quality of life and world-leading technologies, but also demands an efficient transportation system that can deliver products reliably and on time. As a crossroads and a gateway for the U.S. Pacific Coast and western region, the efficiency and capacity of the rail system in Oregon is fundamental to the state's agriculture, manufacturing, timber and wood products and logistics and distribution industries. The ability of the freight rail network in Oregon and services to accommodate growth and adapt to change will help position Oregon to continue prospering into the future.

Macroeconomic Trends

The pace of Oregon's economic growth, as measured by Gross Domestic Product (GDP), will be a key determinant of overall freight demand in future decades. Oregon's economy as measured by GDP, the value of goods and services produced by a state, region or country and a universal measure of economic size and activity, grew by 54 percent between 2000 and 2011 (adjusted for inflation), three times as quickly as the 17 percent increase in U.S. GDP recorded over the same period (see Figure 10). Oregon's higher economic growth is almost entirely due to robust growth in the computers and electronics industry and its cluster of activity in the Portland region. Without

this industry, Oregon would have underperformed the U.S. in terms of GDP. During this period, Oregon's productivity (GDP per job) rose to $48,100 in 2011 (the 9th highest in the U.S.), up from $35,400 in 2000 (34th highest in the U.S.).

Figure 10: GDP Growth Index, Oregon Compared to the United States, 1997-2011



Source: Bureau of Economic Analysis.

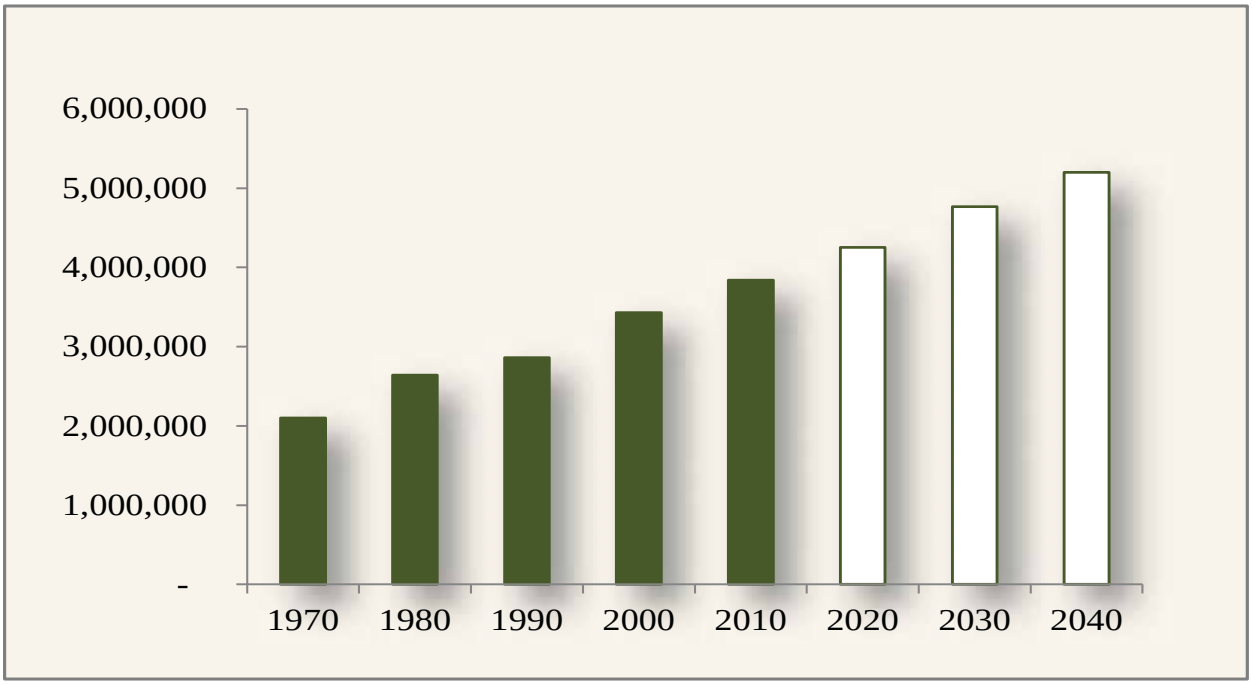
Unlike GDP growth, Oregon's employment levels have been slow to recover following the 2008 recession. As of 2012, total employment stood at 1.6 million, which included a recovery of about 36,000 of the 129,000 jobs lost between 2008 and 2010. Particularly hard hit were the construction, transportation, retail trade and tourism industries. According to Oregon's Office of Economic Analysis (OEA), the state is expected to regain employment levels last experienced in 2007 by 2015, with total employment expected to reach 1.9 million in 2021, a post-2012 annual growth rate of 1.7 percent.

While the expansion of GDP and employment are valid measures of overall economic growth, people ultimately need higher income levels to justify increased consumption, one of the primary drivers of transportation demand. Overall, per-capita income growth has lagged the U.S., in spite of the rapid growth in productivity; per-capita personal income reached $38,786 in 2012, ranking Oregon 33rd in the U.S.

Historically, Oregon and the entire Pacific Northwest region (Washington and Oregon) has had more rapid population growth than the U.S. overall. In 2012, Oregon's population reached 3.9 million,

placing it as the 27th most populous state in the U.S. Between 2000 and 2010 population grew by 11.9 percent, and according to OEA's projections, Oregon is expected to add about 1.3 million residents through 2040, reaching a population of 5.2 million (see Figure 11).

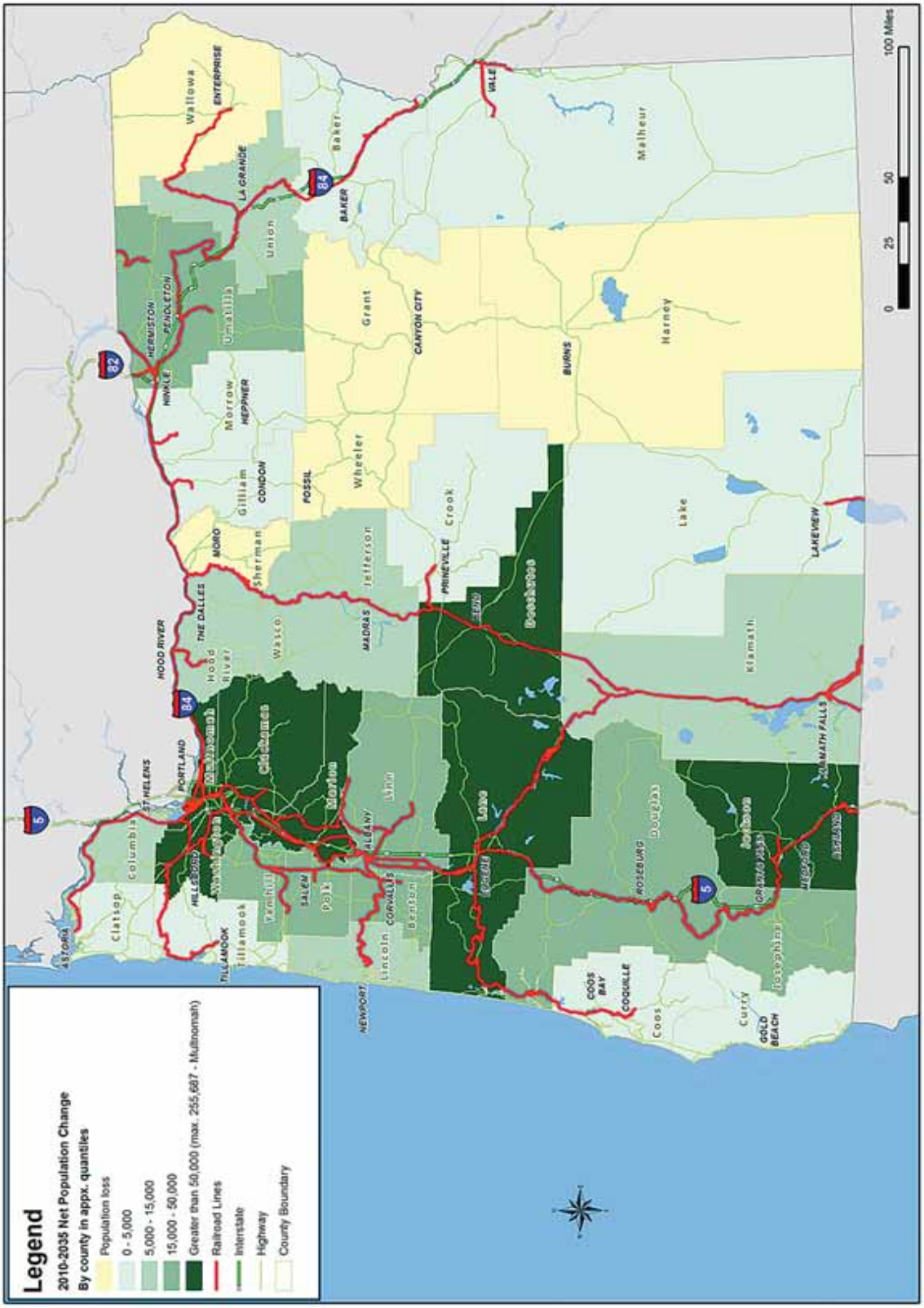
Figure 11: Oregon Population Growth, 1970-2040



Source: U.S. Census Bureau and Oregon Office of Economic Analysis (December 2012 draft forecast).

Geographically, the state's projected growth in total numbers through 2035 will be concentrated in the western region, particularly along the I-5 corridor (see Figure 12). Four counties within the Greater Portland area, Multnomah, Washington, Yamhill and Clackamas will account for over half of this growth. In percentage terms, the fastest growing counties are expected to be Polk, Washington, Deschutes and Yamhill, with growth projected just below 50 percent. This will lead to continued growth in travel demand along the I-5 corridor and nearby regions.

Figure 12: Net Population Growth by County, 2010-2035



Source: Oregon Department of Administrative Services, Office of Economic Analysis.

International Trade

A significant portion of freight rail volumes in Oregon are associated with the transport of overseas, North American Free Trade Agreement (NAFTA), domestic, and Oregon-produced products, notably to and from the Port of Portland. Oregon is a key node within a global production, trade and transportation network that has been redefining how business is conducted and how goods are produced. The trend towards cross-border production, services and transportation is expected to continue into the future.

In 2012, the value of Oregon's exports equaled $17.5 billion, approximately 9 percent of Oregon's GDP, slightly lower than the 10 percent average for the U.S. overall. Longer term, international trade is expected to continue to account for a growing share of the economy. As a major manufacturing, forest products and agricultural state, Oregon will be impacted by this trend.

The total value of merchandise imports and exports through Oregon gateways exceeded $17 billion in 2012 (see Figure 13). Oregon's imports, based on dollar value are consistently higher than the state's merchandise exports. When measured by tonnage, the picture is rather different, with exports far exceeding imports (see Figure 14). This is indicative of the large volumes of bulk commodities, such as cereals, oil seeds, fertilizer, iron and steel that are exported primarily through the Port of Portland. All of these commodities are handled by rail to varying degrees.

Figure 13: Oregon Merchandise Exports and Imports, 2003-2012 (Billions of Dollars)

Source: WISERTrade.

Figure 14: Oregon Merchandise Exports and Imports by Weight, 2003-2012 (Billions of Kilograms)

Source: WISERTrade.

The selection of gateways for overseas trade is a very competitive business, and Oregon produced exports can leave the U.S. from any gateway, not just those located in the state. Ports compete heavily for traffic and minor changes in container vessel operating strategies, port costs and inland service offerings can drive traffic from one port to another. This was evident in losses in container volumes handled by the Port of Portland to other ports in the Pacific Northwest, as well as the keen competition for handling bulk exports between Columbia River, coastal ports in Oregon and Washington and Puget Sound ports.

Freight-Oriented Industry Trends

A defining economic characteristic of Oregon compared to the nation and most other states is the relative size of its manufacturing sector, primarily due to the size of its computers/electronics industry. In 2011, the manufacturing sector accounted for some 29 percent of the Oregon economy, compared to less than 13 percent for the nation. However, once the outsized importance of the computer/electronics sector – which accounted for over one-fifth of Oregon's GDP – is removed, the remaining manufacturing industries make a smaller relative contribution to the Oregon economy. These industries, comprised of forest products, agriculture and food, manufacturing, logistics and distribution and energy and mining, all rely to varying degrees on rail to receive and ship goods.

Timber, Wood Products and Paper: Oregon is at the center of North America's most productive forest areas, stretching from northern California to British Columbia. The state's timber, wood products and paper industries are economic legacies of the state and still form an important pillar of the Oregon economy, particularly in the rural western regions. These industries shipped $2.5 billion in wood products and paper in 2010, and accounted for 43,000 jobs in 2011. Since 2000, the timber harvest volume has fluctuated at around 4 billion board feet, with variations in volume driven by domestic housing construction and exports to Asia. Timber and wood production for domestic consumption is largely based on general population growth in the U.S., so long term demand can

be expected to perform similarly, subject to competition from other U.S. sources and Canadian pulp and timber. Asian exports may increase at a higher rate, in part due to poor forestry management practices in Southeast Asia.

Rail is a key mode for shipping wood and paper products to many U.S. markets in the Midwest, South and Southwest. Illinois is the destination for over one-third of wood products carried by rail from Oregon, followed by California and Texas. Due to the relative bulkiness and heavy weight of construction lumber, rail is the most cost-effective mode of transportation, particularly for long distance trips. The majority of freight tonnage moved on non-Class I railroads in Oregon is related to the forest products industry. This has made the forest products industry sensitive to the challenges faced by non-Class I Railroads, including the use of 286K rail cars, poor service and institutional issues between these lines and their Class I connections. As a result, forest products are increasingly being shipped by motor carrier where rail could be a competitive option.

Agriculture and Food: Oregon's agriculture industry is the 28th largest in the country, producing crops and livestock valued at $4.6 billion in 2011. While livestock sales comprised $1.3 billion of the total, Oregon's agricultural sector is particularly distinguished by its crop production (led by wheat, hay, nursery products, tree fruit, etc.), which amounted to $3.3 billion in 2011. Although agricultural production has been rising slowly over the years, national trends have outpaced the state's growth. Notably, approximately half of Oregon origin agricultural production is exported, primarily to China, Japan and South Korea.

Oregon's food products output reached $2.1 billion in 2010, ranking 28th among states, with particular strengths in fruit and frozen foods, as well as alcoholic beverages. The sector accounts for over 4 percent of the state's manufacturing output, and employed 28,000 in 2010. In real terms, food production has been flat since 2005, with shifts occurring from food to beverage production.

Rail plays a diminishing, but still important, role in Oregon's agricultural sector. Land-side transportation of exports of Oregon-produced agricultural products from the Port of Portland are primarily supported by truck, due to the short hauls from Oregon production centers. Some exports of grains from eastern Oregon are shipped through the Port by rail, in addition to barging along the Columbia River. Nevertheless, rail is critical to the Port of Portland's position as the largest grain exporting port on the west coast, with much of its volume coming from the upper Midwest by rail in unit trains. Packaged foods, once a common box car commodity, have largely shifted to trailers and containers, sometimes necessitating controlled climates. Within North America, they are commonly shipped in intermodal service over long distances.

Manufacturing: As noted previously, Oregon's manufacturing sector is dominated by the computer and electronics industry, which is not a significant user of rail service. Other manufacturing sectors, which do use rail to some extent, include production of wood and paper products, food, machinery and chemicals. Notably, the Pacific Northwest and Oregon are home to one of the greatest concentrations of transportation equipment manufacturers in the U.S., including Freightliner (trucks), Gunderson (railcars and barges) in Oregon, and Boeing (aircraft) and Paccar (trucks) in Washington. Suppliers that support these industries, including primary metal producers, are located throughout the region. Rail service is particularly important for inbound shipments of chemicals, components and heavy castings, some of which is transported as over-dimensional loads.

Oregon's manufacturing industry relies heavily on the full range of the state's multimodal infrastructure, including highways, water and air, in addition to rail. For the state's high technology industries, air takes on particular importance to transport components and finished goods to foreign markets. Metals manufacturing relies primarily on highway and rail, with short distance shipments moving by highway and long distance by rail. It is possible that current trends of "on-shoring" manufacturing back to the NAFTA region may increase the demand for freight transportation, including rail at a higher rate in Oregon; however, these rail-served industries have not demonstrated a particularly robust performance in Oregon in recent years.

Logistics and Distribution: Consisting of wholesale trade, and transportation and warehousing, these sectors employ over 124,000 people in Oregon (7.2 percent of the state's jobs), and accounted for 8 percent and $15.1 billion of Oregon's GDP in 2011. In recent years, this sector has been fairly steady, tracking overall GDP growth in the state. The Portland region has long been a natural warehousing and distribution center due to its unique geographic advantages, which include efficient access to the U.S. interior along the Columbia River, the north-south corridor along the Willamette Valley and the Pacific for global trade.

While trucking is the leading mode for the movement of merchandise to and from wholesalers as well as retailers, intermodal rail provides critical access to far away distribution hubs such as Chicago, New York and Los Angeles, which provide as well as receive goods from Oregon and elsewhere in the region. This access is particularly important to the sizable number of firms active in the distribution of apparel, footwear and recreational equipment, and other fast-moving consumer products which primarily originate in Asia and must be distributed to customers across the U.S. and the world. These distributors rely on truck, water and rail and place particular importance on timely and reliable service.

Energy and Mining: Energy production, primarily in the form of coal, and mining in the form of aggregates, sand, stone and various ores, are a significant source of rail tonnage. Oregon's mining industry is small, but railroads in the state carry significant volumes of stone for construction and coal for electricity generation. Transportation demand for mined products related to construction closely follows the performance of that sector. Electricity needs in the region have traditionally driven the demand for energy, but Oregon, due to its plentiful supply of hydropower, has only one coal-fired power plant. Combined with a decline in the state's traditional energy intensive aluminum smelting industry, electricity consumption actually declined between 2000 and 2010.

Although coal ranks among the leading commodities by tonnage carried into the state by rail, the state's largest coal-fired utility in Boardman is slated for closure in 2021. However, potential development of Asian markets for Powder River Basin coal could result in new export moves through Oregon ports. Should new Pacific terminals be built for exporting coal to Asia, gateway locations throughout the region and British Columbia are under consideration. In addition to coal, there is also the potential for export of oil shale from the Bakken region in North Dakota and Saskatchewan. As with potential coal exports to Asia, gateway port(s) could be located in any state in the Pacific Northwest or in British Columbia.

Other Factors

Energy Use and Emissions

In general, rail is the most efficient form of ground transportation from the standpoint of fuel consumption and energy use. On a per-ton basis, rail is the most efficient way to move large, heavy loads – in fact rail fuel efficiency ranges from 156 to 512 ton-miles per gallon, while truck fuel efficiency ranges from 68 to 133 ton-miles per gallon.[30] Since the primary driver of emissions is fuel consumption, the reduced use of fuel associated with freight and passenger rail can lead to reduced emissions of carbon monoxide (CO), particulates (PM) and other pollutants, including NOx.

Lower unit energy consumption also results in lower greenhouse gas (GHG) emissions, which are linked with climate change. Indeed, passenger and freight rail are the least polluting ground transport mode per-unit of CO2, with emissions below 100g of CO2 per passenger mile traveled, compared with about 300g for passenger vehicles, and 260g per light-duty trucks. Likewise, freight rail averages 28g of CO2 per ton-mile, compared to 313g for trucks and 1,472g for domestic aircraft.

Though freight and passenger rail offer a lower-emission way to transport goods and people, they still emit pollutants that contribute to air quality concerns. This is particularly the case in communities where substantial rail operations take place; the activities of idling, switching or slow moving trains in rail yards can increase localized emissions. Limiting the impacts of freight land uses on surrounding communities is one of the driving forces behind the freight and land use integration considerations discussed later in this section.

Climate Change

Climate change will have extensive impacts on the Pacific Northwest, as described most recently in the 2009 U.S. Global Change Research Program's *Global Climate Change Impacts in the United States*.[31] According to this report, temperature is projected to increase 3 to 10° Fahrenheit by the year 2100 in the Northwest. Railroads in Oregon will face not only the physical effects of climate change on their own infrastructure, but more importantly, that of their customer base, which could change rather rapidly. The State of Oregon has developed a multi-pronged approach to understand and mitigate the effects of climate change that includes interagency collaboration, legislation, regulation, policy initiatives and partnerships with non-profits and other western states. This work also recognizes the benefits rail can bring to mitigating climate change concerns.

Transportation Fuels

Railroads are unique among transportation modes in their flexibility in choice of fuels available. Across the world, a broad variety of fuels are used either on-board or through stationary electricity generation and electric operation. Most urban rail systems throughout the world rely on electric propulsion (including Portland MAX and streetcar), while mainline systems in North America utilize diesel-fueled locomotives. The advent of lower cost natural gas in recent years has produced considerable interest in its use for transportation purposes. Although natural gas has been used for many years in highway applications, it is only now being evaluated for heavy trucking. Likewise,

[30] ICF International, U.S. Department of Transportation, Federal Railroad Administration, *Comparative Evaluation of Rail and Truck Fuel EfficiencyonCompetitiveCorridors*, November 2009. *https://www.fra.dot.gov/eLib/details/L04317.*

[31] U.S. Global Change Research Program (USGCRP) (2009), *Global Climate Change Impacts in the United States*, T. R. Karl, J. M. Melillo, and T. C. Peterson, (eds.), Cambridge University Press, New York.

while it has been considered for use in rail in the past (particularly by BNSF predecessor BN in the 1980s), the massive infrastructure requirements for fueling and transport have thus far prevented this development. However, the major difference in cost (approximately one-third the price of diesel fuel on an energy-delivered basis), and upcoming diesel emissions regulations (EPA Tier IV), have encouraged several railroads, including BNSF and CN, to evaluate natural gas for adoption in line-haul operations.

Land Use and Community Impacts

Passenger and freight rail brings both positive and negative impacts to communities and the natural environment. On the positive side, rail helps to link residents and industries together, and can contribute to community livability and safety goals, as well as increased transportation mobility and efficiency. On the negative side, there can be undesirable impacts from rail operations, including congestion and connectivity concerns at at-grade crossings, noise, light pollution and other impacts to surrounding local communities. Finally, there are issues such as encroachment and incompatible land uses that can impact rail operations, but also the communities through which they travel. In all cases, well-coordinated land use and transportation planning can help to maximize the positive benefits of rail, while minimizing the negative impacts.

Other potential benefits of freight rail include providing an alternate modal choice for shippers, an action which can positively benefit the shipper and the public as a whole. By offering a modal alternative, transportation costs may be lowered and other positive impacts realized, including congestion mitigation, alleviation of safety concerns and decreased wear and tear on other parts of the system.

Rail grade crossings are one of the main sources of rail noise, from rail warning whistles as they approach the crossing. In fact, the Federal Railroad Administration train horn rule requires locomotive engineers to sound train horns at least 15 seconds in advance of all public grade crossings. The maximum volume for the train horn is 110 decibels (with a minimum of 96 decibels). Though this regulation is targeted to improving the safety of the rail system, FRA also recognizes the potentially disruptive nature of train whistles. It allows the establishment of new “quiet zones,” though only in cases where the locality mitigates the increased risk caused by the absence of a horn.

Future Freight Rail Demand

General Freight Demand

The freight handled by Oregon’s transportation system reflects the economic structure of the state, its demographics, domestic and international trade flow through the state, and its geography. As is typical in most states, motor carriage is the dominant mode of transportation in Oregon, handling 80 percent of freight by tons, and 75 percent by value in 2011 (See Table 12) for all types of traffic – through, local, inbound and outbound. Rail, which is comprised of carload and unit train traffic, comes in second at 13 percent by tonnage but 4 percent by value in 2011. Multiple modes and mail, which includes containerized traffic handled by water, highway and/or rail, accounted for 6 percent by tons, but 18 percent by value.

From the perspective of freight system usage and rail’s future in Oregon, the trends in Oregon’s economy and the greater North American economy as it influences trade flows through the region become quite evident. While tonnage is expected to grow by 80 percent, commodity value is

expected to grow at over 119 percent by 2035. Higher value commodities favor faster and more reliable modes, which will induce higher growth in modes with those characteristics. Thus, the value of shipments by air is projected to increase five-fold in value and almost three-fold in tons. Multiple modes and mail, i.e. intermodal, come in second with a projected increase of over 180 percent by value and 100 percent in tonnage.

Non-containerized rail is anticipated to grow roughly 80 percent in both tonnage and value, reflecting more modest growth in bulk commodities, which are dominated by grain, coal, chemicals and non-metallic minerals.

Table 12: Statewide Commodity Flows by Mode

Mode[1]	2011	2035	CAGR[2] (2011-2035)	Mode Split (2011)	Mode Split (2035)
Tonnage (kTons)[3]					
Truck	221,046	399,853	2.5%	80%	80%
Rail	34,840	59,282	2.2%	13%	12%
Water	3,950	7,251	2.6%	1%	1%
Air	68	194	4.5%	0.02%	0.04%
Multiple modes & mail	16,782	33,388	2.9%	6%	7%
Total	**276,686**	**499,968**	**2.5%**	**100%**	**100%**
Value (Millions of 2007 Dollars)					
Truck	$ 212,247	$ 425,701	2.9%	75%	68%
Rail	$ 12,549	$ 20,582	2.1%	4%	3%
Water	$ 1,116	$ 1,251	0.5%	0.4%	0.2%
Air	$ 6,401	$ 32,863	7.1%	2%	5%
Multiple modes & mail	$ 49,430	$ 141,375	4.5%	18%	23%
Total	**$ 281,743**	**$ 621,772**	**3.3%**	**100%**	**100%**

Source: Freight Analysis Framework (FAF) 3.4.

[1] Excludes Pipeline, Other and Unknown categories.
[2] Compound Annual Growth Rate.
[3] kTons is thousands of tons.

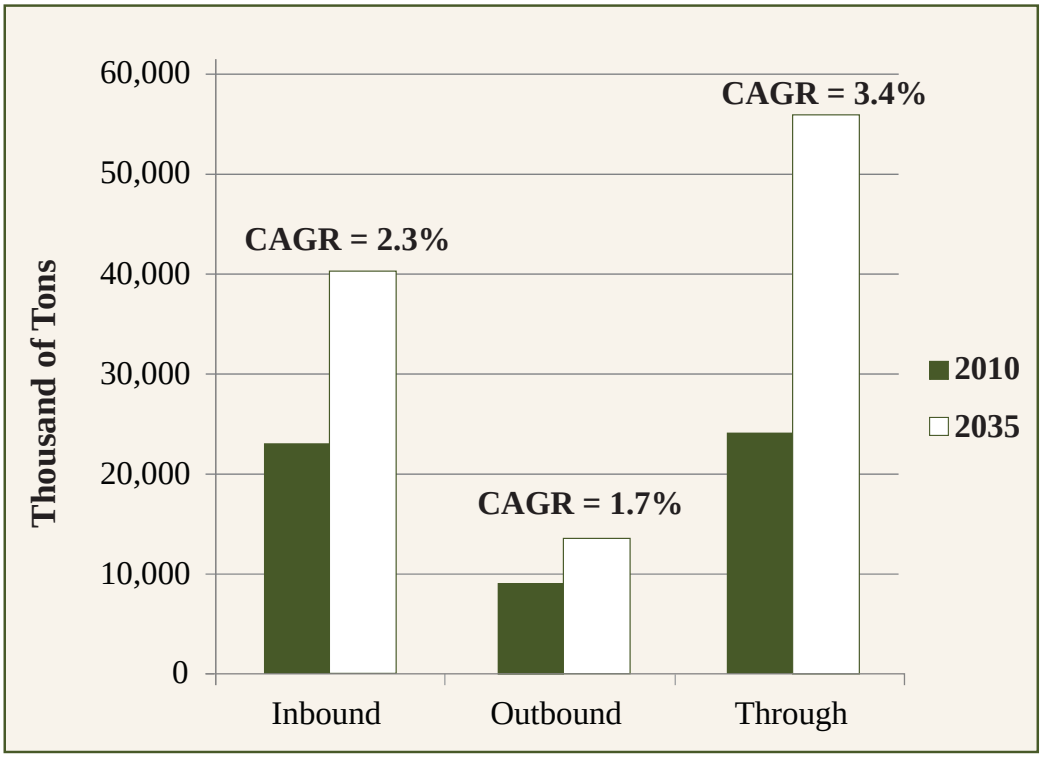
Rail Demand

Consistent with Oregon's geography and economy are the flows by direction of travel, shown in Figure 15, and commodity, shown in Figure 16. At 42 percent of total tonnage, through traffic was the primary flow in 2010; by 2035, it is projected to account for the majority of all rail traffic in Oregon. Much of this volume is associated with Washington, utilizing UP's transcontinental route through Oregon to enter or leave the region (see following discussion and Figure 17).[32]

Traffic volumes with an Oregon destination in 2010 were similar to through traffic, accounting for 22 million tons and 40 percent of total volume. The majority was general merchandise, including chemicals, waste and scrap and prepared foodstuffs. Bulk commodities, including field crops, coal and fertilizers are generally handled in unit trains, traveling long distances from the Mountain West (coal and potash) and the Midwest (grains). Of this group, the strongest growth is expected to occur with grains destined for export.

Outbound volume, which accounted for less than 20 percent of traffic in 2010, is expected to grow more slowly than through and inbound traffic. This reflects the tepid growth in the traditional rail-oriented forest products sector (53 percent of outbound traffic in 2010), along with more rapid growth in mixed freight, e.g. intermodal and other commodities, which includes manufactured goods such as transportation equipment.

Figure 15: Oregon Rail Flows by Direction, 2010 and 2035



Source: STB Waybill Sample for Oregon; FAF 3.4 Growth Factors.

[32] Missing from Figure 15 is intrastate traffic. In 2010, total intrastate volume stood at 363,000 tons, a negligible amount for which a statistically valid forecast could not be produced. While this figure appears low for a state of Oregon's size, the geographic concentration of economic activity that is suitable for rail shipment results in very short hauls that makes rail uneconomical for intrastate shipment in many instances.

Figure 16: Oregon Rail Flows by Commodity, 2010 and 2035

Source: STB Waybill Sample for Oregon; FAF3.4 Growth Factors.

Overall, and across the three categories of traffic, the commodity with the highest projected increase by 2035 is mixed freight (intermodal). In terms of tonnage this growth will move intermodal from sixth place to fourth, exceeded only by grains, other commodities and wood products. In terms of units, intermodal will become the dominant service by 2035.

Future Freight Train Volumes

The degree to which a rail network is used can be characterized by the volume of trains over each segment. Train volumes have a direct bearing on line capacity, as trains comprise the physical unit of movement that must be moved efficiently and safely and in concert with all other trains. Figure 17 shows projected total train volumes in 2035 assuming no change in passenger services.

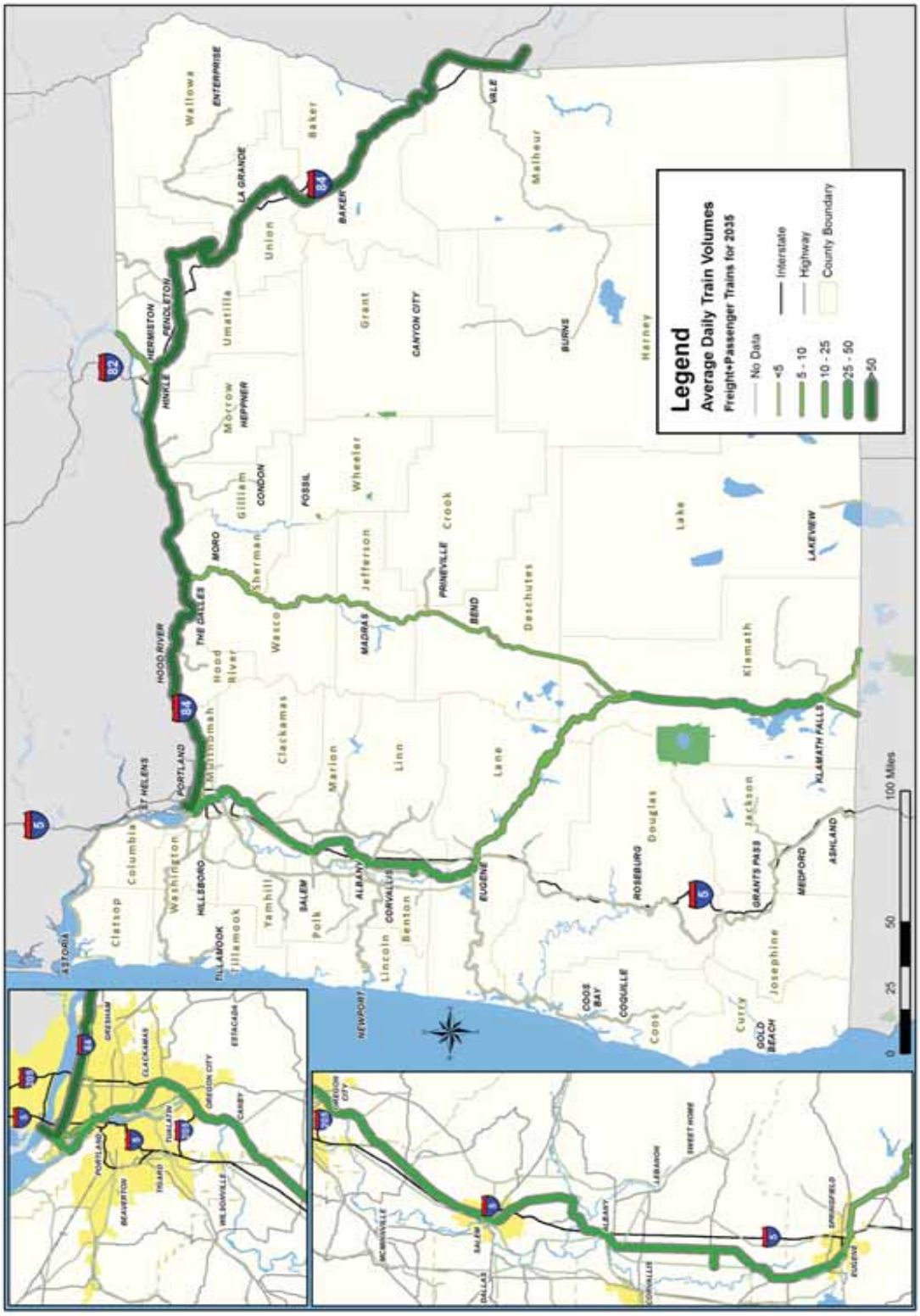
From the map, it is evident that UP's east-west transcontinental corridor and segments of the "Portland Triangle" are the busiest in terms of rail traffic. Traffic on the transcontinental corridor is expected to grow by approximately 140 percent between 2010 and 2035. Most of this growth will be associated with intermodal traffic, which will increase from approximately 50 percent of train volumes in 2010 to 70 percent by 2035.

Growth along UP's Pacific Northwest corridor between Portland and Oregon's southern border is expected to be in the range of 40-50 percent by 2035. The mix of carload traffic will remain at around 40-50 percent, with intermodal increasing from about 20 to 26 percent. Along the Chemult to Klamath Falls segment, that is shared with BNSF, traffic growth is expected to be stronger, at 60 percent.

The BNSF route between North Portland Junction and Vancouver, Washington, which handles UP as well as BNSF traffic, is expected to experience a 100 percent increase in volume. The share of intermodal traffic (again assuming no change in the passenger train service) will rise from about 40 percent to 60 percent. BNSF's Oregon Trunk Line carries the least volume, all of which is presently carload. This ranking is expected to be unchanged in 2035, even with a projected increase in volume of 60 percent.

If these projected increases in train volume are realized, then considerable increases in capacity will be necessary to maintain existing service performance.

Figure 17: Train Volumes in Oregon, 2035



Note: The freight rail train volumes are a snapshot of 2035 rail volumes estimated based on STB Carload Waybill Sample and other available data sources. Actual volumes are dynamic and may change as a result of changing customers, changing demand, or Class I operational needs. The passenger rail train volumes are according to passenger rail no-build scenario.

Future Passenger Rail Demand

Amtrak Cascades

Ridership along the Amtrak Cascades corridor increased at a compound average annual rate of 4.0 percent between 2005 and 2012. Thus, despite the economic recession that occurred during this period, actual ridership growth outpaced the average annual growth rate of 3.6 percent forecasted in the 2006 Oregon Transportation Plan. Additionally, annual Amtrak Cascades ridership growth exceeded average annual statewide population growth (1.0 percent[33]) between 2005 and 2012, which suggests that intercity passenger rail's market share is likely increasing relative to other modes. Overall, these trends indicate a steadily growing demand for intercity passenger rail services.

New ridership forecasts for the Amtrak Cascades corridor are being developed as part of the Oregon Passenger Rail Project that is currently underway. Thus, the ridership forecasts provided in Figure 18 are drawn from the 2006 Washington State Long Range Plan for Amtrak Cascades (a shared state corridor), and the 2010 Oregon Rail Study as a placeholder for the more refined corridor forecast. These two reports provide forecasts for Portland to Seattle and Vancouver, B.C., and Portland to Eugene, respectively.

The 2006 Washington State Long-Range Plan for Amtrak Cascades offers the most recent ridership forecast for the Portland-Seattle corridor. The forecast assumed specific physical and operational improvements by 2023 that would permit thirteen round trips between Seattle and Portland, and travel times of 2:30 instead of 3:30 hours. With these improvements, ridership was projected to increase from 374,008 passengers in 2005 to 1,916,400 passengers by 2023, an annual growth rate of approximately 9.5 percent.[34] This growth rates compares to the actual 4.0 percent compound annual growth rate (CAGR) that has occurred over the past two decades. In part, the plan envisioned a more aggressive schedule of investments than has actually occurred thus far, even with the $800 million in improvements that are currently underway.

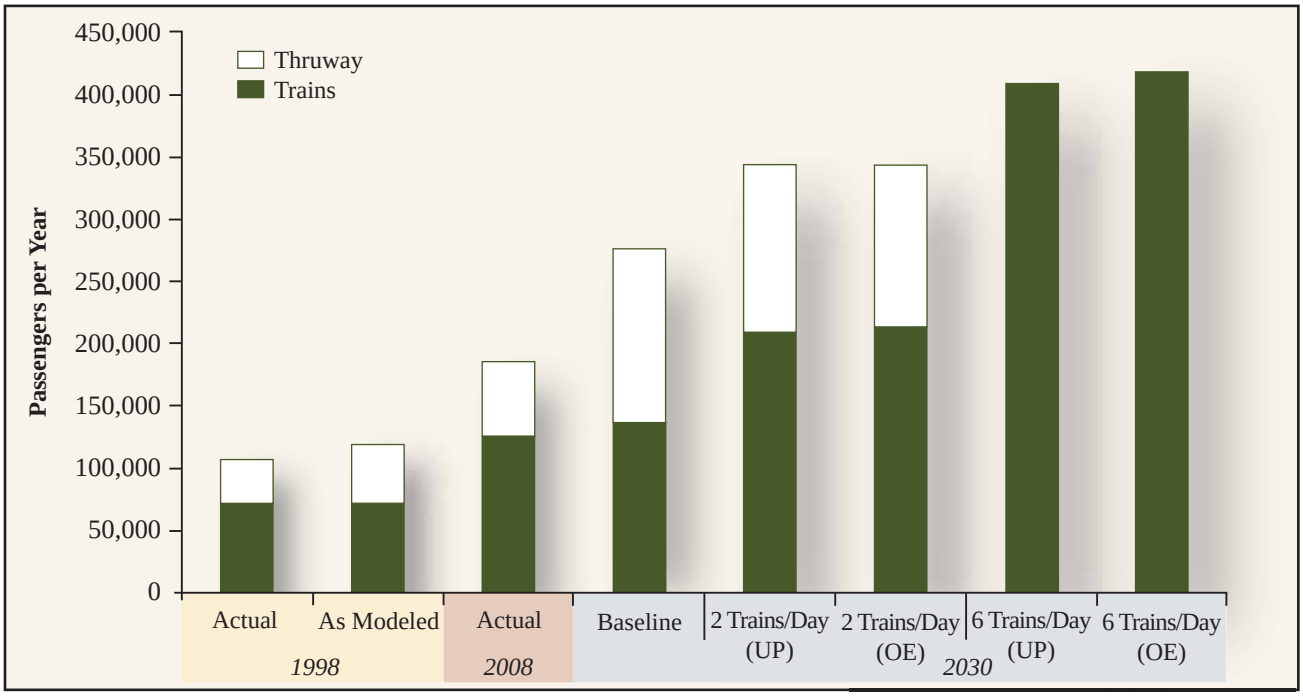
For Portland to Eugene, the 2010 Oregon Rail Study provided forecasts based on a range of planning alternatives and estimated service mixes. The analysis showed that should goals be met, ridership could expect to more than double (increasing by 120-124 percent) by 2030, or about 3.7 percent annually. If service levels remain the same, but with a concurrent train speed increase resulting from track improvements, ridership is estimated to grow by 84-85 percent by 2030, or about 2.8 percent annually.

[33] Population Research Center, Portland State University, *Population and Components of Population Change for Oregon: 1960 to 2012*, *https://www.pdx.edu/prc/annual-oregon-population-report*, accessed June 5, 2013.

[34] The WSDOT Ridership Model applies multivariate linear regression to estimate corridor- and station-level ridership through 2035.

Assuming the same service levels as 2008 and no additional improvements to the line, travel times are expected to degrade to over three hours per trip. At the same time, traffic congestion on I-5 will slow speeds for Cascade POINT Thruway buses and limit the growth of ridership on those buses between 2008 and 2030 (Figure 18).

Figure 18: Future Amtrak Cascades Passenger Rail Ridership: Eugene-Portland, 2030



Source: 2010 Oregon Rail Study. UP – Union Pacific; OE – Oregon Electric (operated by PNWR).

Amtrak Empire Builder and Coast Starlight

Although no formal forecasts have been performed for Amtrak's Empire Builder and Coast Starlight, Amtrak's own published assumptions about growth in long distance train volumes are typically around 2 percent annually, if no substantive changes are made to the trains in their schedules, equipment, frequency or marketing.[35] Under these scenarios, by 2035 ridership would be expected to increase by over 60 percent. Thus, using a recent annual average of 450,000 riders for the Coast Starlight would result in overall volumes increasing to 738,000 riders by 2035. For the Empire Builder, starting at a base of 500,000 riders, volume would increase to 820,000 riders. Actually handling these volumes will likely require substantial changes to the current operations.

[35] Amtrak Fleet Strategy Plan, Version 3.1, p.11.

Rail Service Needs and Opportunities

The railroad system in Oregon is primarily a private enterprise, reliant on private capital to provide service, maintain its infrastructure, all while returning a profit to its investors. This system is a valuable asset to the public in that it helps sustain Oregon's economy, provides resilience and transportation options, and avoids public expenditures that would otherwise be necessary to provide transportation infrastructure. The public also benefits in that present day intercity passenger rail service provided by Amtrak relies on infrastructure that is largely maintained at private expense.

Ensuring the vitality and future capability of the rail system is of public interest. Within this context, it is beneficial to understand current issues, constraints and opportunities, so as to identify which issues may be of broader public interest and thus warrant a potential policy response, and which should be addressed by the involved participants.

Key Needs for Freight

Primary freight rail needs can be divided into four categories, each of which are discussed below.

- **Physical:** Capacity needs and bottlenecks derived from system inventory information. It also includes needs identified directly by BNSF and UP.
- **Service Needs and Connectivity Gaps:** How well does the rail system serve the state from a geographic perspective, and how might it be better utilized?
- **Operational Needs:** Includes considerations for freight system planning and operations including planning passenger service on shared freight corridors, the benefits of maintaining and improving rail system safety, and the role of freight rail in maintaining transportation system resiliency in the face of manmade and natural disasters.
- **Institutional Needs:** An examination of the evolving role of the non-Class I railroads in a changing rail industry.

Class I Needs

Today's Class I rail network in Oregon is arguably in the best condition since the dawn of the highway era. Both BNSF and UP have very robust investment programs to maintain and improve their infrastructure throughout the state. All Class I trackage in Oregon is capable of carrying the standard 286,000 (286K) pound freight rail cars, and all but the Oregon Trunk and Gateway subdivisions have Centralized Traffic Control (CTC) and are cleared for double-stacked containers. However, as demand for rail services grows in the future, the freight rail system will require further investments to accommodate that growth.

Using information collected through the inventory task, an assessment of potential bottlenecks that may occur as a result of continued growth in traffic was completed. The assessment examined three types of improvements for increasing capacity and eliminating bottlenecks on the mainline network in Oregon:

- **Siding and Mainline Track Upgrades:** These are locations where projected train volumes are such that existing track configuration – commonly single track with passing sidings – will require additional track capacity to accommodate demand.

- **Signal System Upgrades:** For each rail segment, the adequacy of the existing signal control system for operating current and future daily total train volumes was qualitatively assessed. CTC is the standard control system technology for high-volume lines, and therefore, the need for signal system upgrades was assessed for only those locations not already using CTC. The opportunities for eliminating the bottlenecks (if any) based on signal control system were identified.
- **Other Upgrades, Including Increasing Speed:** For each rail segment, data on train speed-related restrictions were collected to identify potential opportunities for improving train velocity and capacity by eliminating speed-based bottlenecks.

The analysis, for which results are detailed in the Freight Rail Needs Assessment Technical Memorandum, identified eight line segments or locations where track capacity improvements are likely to be required. With most mainlines already being managed by CTC, the only opportunities for signal system upgrades on the mainline network are along BNSF's Oregon Trunk route and on UP's Portland division. Speed improvements were found to be beneficial in six segments on both BNSF and UP. Among all of the potential improvements identified, these are likely to be the most complex to implement, as they will require construction and/or modification of civil works such as bridges and potential alignment changes. However, in spite of their potential cost, the potential benefits in terms of improvements in throughput and travel time may be disproportionate as well.

In addition, BNSF and UP both provided listings of potential or planned projects in Oregon:

- BNSF's listing encompasses projects where a supporting role by the public sector may be beneficial. BNSF also strongly supports Oregon's participation in the Great Northern Coalition, an initiative that is pursuing corridor-level improvements to the BNSF's route along the northern tier states between the Pacific Northwest and Chicago. This initiative is being funded by two federal Multi-State Planning and Development Study grants and is now underway.
- UP identified a set of improvements that are included in their 5-year capital plan. The specific timing and funding commitments are confidential and will be subject to market conditions.

In general, responsibility for adapting to increasing freight traffic falls on the railroads themselves. As private entities, they are most attuned to market conditions, and can respond to changing demand in multiple ways, of which physical improvements are only one option. Railroads take a variety of actions to respond to changing freight demand that include operational changes, marketing adjustments and capital improvements. Operational changes that optimize use of existing infrastructure are usually the first step, along with marketing adjustments. These can take the form of adjustments to pricing, availability of equipment and frequency of service. If the growth is expected to be sustainable, then physical improvements will be considered, with the improvements having the lowest cost implemented first.

Non-Class I Railroad Needs

Traditionally the major operational issues facing railroads include speed restrictions, weight restrictions, and vertical clearance restrictions often caused by bridges and tunnels. As discussed previously, these issues are most prominent with non-Class I railroads in Oregon, and often their inability to accommodate heavier and/or larger equipment affects their financial performance, limits their growth and sometimes threatens their existence. For example, over 250 miles of non-Class I

rail mileage cannot accommodate 286K loads, placing the shippers on those lines at an economic disadvantage due to the fact that they are unable to fully exploit the efficiencies of rail.

Several elements characterize and differentiate the needs of smaller railroads from their Class I brethren. Physical needs consisting of weight limits, track condition and bridge conditions indicate whether the infrastructure can meet current and future requirements for freight rail service. The number of carloads and assessments of viability provides an indication of the continued function of a line. Each of the factors examined is shown in Table 13 and discussed below.

- **Percent of Mileage that is 286K-Capable:** Rail lines that are not 286K compliant limit a railroad's ability to serve certain types of loads and connect to Class I railroads (as all Class I railroads in Oregon are 286K compliant). Data on 286K capacity was obtained from a survey, initially conducted by ODOT in 2006, and updated regularly since then.
- **Percent of Mileage that is FRA Class 2+[36]:** Track class impacts a railroad's ability to serve certain types of loads and to achieve higher speed delivery. Portions of lines that do not meet FRA track Class 2 standards (25 mph operating speed) can be costly to operate and not market competitive, particularly in attracting new business. It is ODOT's practice, whenever possible, to upgrade track to FRA Class 2 when ODOT is a funding partner of an improvement project. Information on track class was also determined from the 2006 survey carried out by ODOT, updated with the most recent data.
- **Percent of Mileage that uses 110+lb Rail:** Rail with a weight of at least 110 pounds per yard is considered the minimum weight under which loaded 286K railcars can be sustainably accommodated. While lighter weight rail can handle 286K railcars, it is at the cost of greatly increased maintenance and impaired operations.
- **Number of Bridges in Poor Condition:** The existing conditions of bridges located on 15 non-Class I lines were assessed in 2008 as part of the 2010 Oregon Rail Study. The evaluation looked at load capacity and life spans of the bridges. The overall condition and suitability of a rail line to carry loads directly relates to the ability of bridges on the line to carry loads. Should these bridges not be improved, they will eventually impair the lines' long-term viability.
- **Number of Carloads:** Traffic volumes provide an indication of a railroad's utility under present conditions and insight into future needs and impacts of potential investments or other changes.
- **At-Risk Segments:** At-risk rail lines were identified as part of the 2010 Oregon Rail Study that assessed the vulnerability of non-Class I rail lines at the peak of the economic recession. Though conditions may have improved since 2009, this information helps link system condition, volume and vulnerability of a line and to determine if future investments are warranted. These are discussed further in this section.

[36] Track class is specified by the FRA in the Code of Federal Regulations. Track classes associate physical conditions (condition of rail, ballast, ties, etc.) with maximum operating speeds for freight and passenger trains on a segment of track. *https://www.gpo.gov/fdsys/pkg/CFR-2011-title49-vol4/xml/CFR-2011-title49-vol4-sec213-9.xml.*

It is important to recognize that the challenges faced by the smaller railroads are not homogeneous. Larger non-Class I railroads, such as Portland & Western Railroad (PNWR), Willamette & Pacific Railroad (WPRR), Central Oregon & Pacific Railroad (CORP) and Coos Bay Rail Link (CBR), in general, have better track conditions than other non-Class I railroads, with the majority of the track mileage at ideal weight and speed standards (286K-capable, FRA Class 2+, 110+lb.). Many smaller railroads, however, face far greater challenges, with some lines having deficient infrastructure. Examples of non-Class I lines that do not meet any of the conditions criteria for any portion of the line include Lake Railway (LRY), Wyoming & Colorado Railroad (WYCO), Hampton Railway, Inc. (HLSC) and Longview Portland & Northern Railway (LPN).

Table 13: Summary of Non-Class I Railroad Conditions

Railroad	Standard Carrier Alpha Code (SCAC)	Route Miles in Oregon	% Mileage that is 286K-Capable	% Mileage that is FRA Class 2+	% Mileage that uses 110+ lb. Rail	# Bridges in Poor Condition (2008)	Carloads (2011)	At-Risk Segments
Albany & Eastern Railroad	AERC	72	100%	0%	50%	3	3,011	Sweet Home Branch - little traffic
Central Oregon & Pacific Railroad	CORP	247	100%	98%	80%	21	16,113	Ashland to Montague, CA - little traffic
City of Prineville Railway	COP	18	100%	100%	94%	0	899	
Coos Bay Rail Link	CBR	133	100%	88%	98%	70	194	Began operations in October 2011
Hampton Railway[a]	HLSC	5	0%	0%	0%	0	0	Entire Line - little traffic
Idaho Northern & Pacific Railroad	INPR	20	0%	100%	96%	1	2,367	
Klamath Northern Railway	KNOR	11	100%	0%	0%	0	2,354	
Lake Railway (miles in OR only)	LRY	15	0%	0%	0%	0	1,501	Entire line - little traffic
Longview Portland & Northern Railway	LPN	3.3	0%	0%	0%	N/A	0	Entire line - inactive
Mount Hood Railroad	MH	21	100%	100%	1%	0	448	
Oregon Pacific Railroad[a]	OPR	13	100%	0%	4%	2	1,038	Liberal to Molalla - track removed
Palouse River & Coulee City Railroad[a]	PCC	32	36%	36%	36%	1	20,816	
Peninsula Terminal Company	PT	1	100%	0%	0%	N/A	2,694	
Port of Tillamook Bay Railroad[a]	POTB	84	0%	0%	94%	N/A	362	Out of service - storm damage

Table 13 Continued

Railroad	Standard Carrier Alpha Code (SCAC)	Route Miles in Oregon	% Mileage that is 286K-Capable	% Mileage that is FRA Class 2+	% Mileage that uses 110+ lb. Rail	# Bridges in Poor Condition (2008)	Carloads (2011)	At-Risk Segments
Portland & Western Railroad [a]	PNWR	447	98%	89%	72%	11	39,511	Astoria District - no customer; Forest Grove District – poor condition
Portland Terminal Railroad	PTRC	0.5	100%	0%	100%	N/A	N/A	
Rogue Valley Terminal Railroad[b]	RTV	12	33%	0%	0%	N/A	557	
Wallowa Union Railroad	WURR	63	0%	0%	20%	0	0	Entire line - little traffic
Willamette & Pacific Railroad	WPRR	Mileage included in PNWR	90%	78%	72%	44	24,327	Bailey District - abandoned in 2011; Dallas District - no customer
Willamette Valley Railway[a]	WVR	33	50%	0%	13%	4	923	Entire line - little traffic
Wyoming & Colorado Railroad	WYCO	25	0%	0%	0%	0	1,156	Entire line - little traffic

a Denotes a railroad with line segments "at-risk" by ODOT in their 2013 assessment.

b The WCTU Railway recently changed its name to Rogue Valley Terminal Railroad Corp (RVTR). In addition, the non-Class I's holding company has been renamed CCT Rail System Corp. In December, RVTR Rail Holdings L.L.C. acquired the WCTU Railway from Berkshire Hathaway Inc. subsidiary Marmon Transportation Services L.L.C.

Source: ORNL Network with Cambridge Systematics Analysis; Oregon Department of Transportation - Rail and Public Transit Division; 2010 Oregon Rail Study.

Rail line condition is closely linked to the number of carloads on the line; lines in better condition are likely to attract more customers, and the revenue in turn can justify investments to improve the lines. Examples of lines that have good conditions and high carload volumes include PNWR, WPRR and CORP. Lines that are in poor condition also suffer from low carload volumes, or no volumes in some cases.

Additional needs of specific smaller railroads include:

- **Portland & Western Railroad:** The PNWR was the largest non-Class I railroad in Oregon from a carload traffic perspective in 2011 (33 percent). PNWR's many branch lines carry commodities including aggregates, bricks and cement, chemicals, construction and demolition debris, food, forest products, metallic ores and minerals, steel and scrap. While the line is mostly 286K-capable, 11 percent of trackage is under 25 mph, and 28 percent of trackage contains rail that is 110 lb. and lighter. Out of its 125 bridges, 11 are in poor condition. Portions of the rail line from Hillsboro to Forest Grove are in poor condition and low traffic volumes on this branch currently do not justify reinvestment. Another portion, the Astoria District, has no active customers located on the last 25 miles; however, the Port of Astoria has taken control of Tongue Point and continues to pursue industrial development opportunities.
- **Willamette & Pacific Railroad:** The WPRR connects with UP's Pacific Northwest Corridor and traffic consists primarily of forest/paper products, scrap and steel. The line is mostly in good condition with weight varying between 75 lbs. and 136 lbs. A portion of the Bailey District was approved for abandonment in 2013, and the Dallas District is currently used for car storage after the last lumber mill on the line closed in 2009. WPRR also suffers from under-maintained bridges, as 44 out of its 158 bridges are in poor condition.
- **Central Oregon & Pacific:** CORP operates between Eugene and Northern California, providing north-south service moving lumber, logs and plywood of national account lumber companies. The line is fairly well maintained at FRA Track Class 2, and can handle 286K cars, but it also has a high number of bridges in poor condition. A portion of the line, from Ashland to Montague that has not operated since 2009, is expected to reopen in 2014 following receipt of a federal TIGER grant.
- **Rogue Valley Terminal Railroad:** This railroad was known as the WCTU Railway prior to April 2013. While the line currently transports wood products, asphalt and fly ash; under its new name and ownership, it may upgrade existing track infrastructure to heavier rail and try to attract other potential customers, such as Boise Cascade and other area plywood manufacturers. The future of this line may be very different from what it is currently.
- **Coos Bay Rail Link:** The CBR was reopened in October 2011 after several years of closure due to deferred maintenance, including 70 bridges in poor condition. The line received significant funding for repairs and maintenance from sources such as TIGER, *Connect*Oregon, ODOT and others. When fully restored, the line will have a mix of FRA Class 2 and 3 track.
- **All other non-Class I railroads with poor conditions and little to no traffic:** The remaining rail lines that are in poor condition also suffer from having little to no traffic. It is hard to say whether one caused the other, but some of the decreases in traffic are due to the decreased activity by traditional rail-oriented industries. For instance, the Hampton Railway was built to support the lumber industry, but with the decline of harvest, especially after the housing

slump, many lumber mills closed. In general, reliance on one shipper or one type of industry creates substantial risks and thus strategies to diversify the customer base may be needed before investments to upgrade the lines can be realized or justified.

Abandonment Risks and Impacts

Understanding the potential of at-risk rail lines to be abandoned is critical for several reasons. The first is loss of transportation options to current and potential industries. Once abandoned, a rail line is very difficult to reconstruct, and thus rail service may be lost forever. Not only is rail line construction physically intensive, right-of-way encroachment that happens while the line is in a state of disrepair may also seriously impede re-establishment of service. Interim conversions to trail use, which may have valid multimodal benefits, can be difficult to convert back to active rail use and must be appropriately evaluated.

It is very difficult to calculate the economic impact of abandonments. The impacts may be small if there are no existing industries that are served by the line, or if there are competitive options from other modes. However, in other cases, the impacts may be severe, and result in significantly higher transportation costs. 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 DOT estimated that abandonment of non-Class I railroads in the state resulted in $58 million road damage costs, $20 million 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. Rail preservation projects should take into consideration the full cost and benefit of preserving a rail line.

For the purpose of this analysis, at-risk lines are those lines that were identified in the 2010 Oregon Rail Study as being at-risk (either wholly, or in part), as well as from stakeholder comments. Apart from situations where a county is served exclusively by an at-risk rail line, this assessment does not permit assessing the degree to which the closure of an at-risk rail line is likely to impact overall rail service in that county. The commodity flow forecast (CFF) county level data does not provide the geographic resolution necessary to examine the future development of traffic volumes among the industries that are specifically served by an at-risk rail line. This requires additional research, including a more detailed examination of the rail-oriented industrial sectors that exist at present, or might develop in the future, in the affected counties.

Lake, Tillamook, Wallowa, Clatsop and Umatilla are counties in Oregon that each have rail mileage contributed by a single at-risk railroad. The impact of losing the service of any of these at-risk railroads in these counties can result in about 3 million tons of movements by other modes by 2035 that could have “potentially” been moved by rail. This is roughly equivalent to about 500 truckloads a day. In 2013, ODOT estimated which lines in the state have the greatest risk for abandonment, as shown in Table 14.

Table 14: Rail Lines At-Risk for Abandonment 2013-2020

Line Segment	Miles	County	Operator	Owner	Remarks
Reith to Pilot Rock	14.25	Umatilla	UP	UP	In Sept. 2013 UP advised that abandonment of this line was under consideration., Boise Cascade operates a ponderosa pine mill at Pilot Rock where there are several hundred acres of land zoned for industrial development. This line segment conceivably could be a candidate for a new non-Class I operation.
Silverton to Stayton	21	Marion	WVR	UP	Owner UP and lessee Willamette Valley Railway propose filing for abandonment after 2016, which will mark 4 full years with no traffic south of Silverton. Point of abandonment could be north of Silverton at Abiqua Creek, 8.9 miles from Woodburn.
Spofford to Weston	19	Umatilla	PCC	UP	In Nov. 2012, officials of Watco Cos., parent of short line Palouse River & Coulee City Railroad, said they were considering abandoning this line from Spofford, 4 miles north of Milton-Freewater, to Weston, 15 miles south of Milton-Freewater, because of low traffic volume. Principal user is Smith Frozen Foods at Weston. Spofford is approximately 2 miles south of the Oregon/Washington state line. The branch starts at Walla Walla, WA.
Gerlinger to Dallas	5.2	Polk	PNWR	UP	This branch serving the Polk County seat of Dallas has no active customers although there are suitable sites and buildings in Dallas for potential new industrial development. However as a business, the railroads do not have infinite patience to await new customers. Portland & Western has been the lessee since 1993.
Wauna to Tongue Point	23.2	Clatsop	PNWR	PNWR ODOT	Portland & Western owns the track and ODOT owns the corridor real estate. PNWR continues to show patience and keep this line even though there has been no revenue freight traffic west of Wauna for 20 years. The line did host a summer tourist train for 3 years, 2003-2005. There continues to be hope that new industry will locate at the site of the former naval base at Tongue Point and generate new rail business.

Table 14 Continued

Line Segment	Miles	County	Operator	Owner	Remarks
Hillsboro to Forest Grove	5.4	Washington	PNWR	PNWR ODOT	This line is lightly trafficked and operated only once or twice weekly. It doesn't produce enough revenue to justify capitalized maintenance programs so abandonment is inevitable absent other funding sources. PNWR owns the track and appurtenances and ODOT owns the right-of-way. The corridor could host an extension of Westside MAX or other rail/transit services at some point in the future.
Willamina to Fort Hill	5.3	Polk	PNWR	HLSC	Hampton Railway is a subsidiary of Hampton Lumber Co. PNWR provides service when necessary. There are no active customers on the line in 2013 so it is a vulnerable abandonment candidate.
Banks to Enright	37	Washington & Tillamook	POTB	POTB	Except for Banks Lumber Co. at Banks, which is switched by PNWR on behalf of the Port of Tillamook Bay Railroad, there are no customers or operations on this 37 mile segment of out-of-service track in the Coast Range. The line was heavily damaged by a storm in Dec. 2007 and not repaired. Another 45 miles of railroad, from Enright to Tillamook, has been leased to the Oregon Coast Scenic Railroad for tourist train use.
East Portland to Milwaukie	4	Multnomah & Clackamas	OPR	OPR	This segment of Oregon Pacific Railroad serves the Milwaukie Industrial Park where rail freight volumes have declined in recent years. If this trend continues the railroad may become uneconomical and go out of business. Most of the right of way real estate is publicly owned. This line is important to the Oregon Rail Heritage Foundation because it hosts ORHF's annual Christmas train fund-raising excursions. Therefore, ORHF is a possible successor to OPR if the line succumbs. OPR also has a 9 mile line between Canby and Liberal that enjoys a more robust business level.

Source: ODOT Rail and Public Transit Division.

Service Needs and Connectivity Gaps

The rail system in Oregon is more extensive in some areas of the state than in others, largely a reflection of development patterns in the late nineteenth and early twentieth centuries. Later, lines were abandoned where business was insufficient to sustain operations. This remaining network connects primary markets and corridors and a set of secondary and branch lines that continue to provide access to industry away from the main corridors. While the major markets are well served, the question arises as to how well rail service is geographically accessible to Oregon's evolving economy; conversely, what opportunities are available to better leverage existing rail infrastructure for purposes of economic development.

For this purpose, recent and projected (2035) freight volumes for rail suitable commodities were examined at the county level. Overlaid onto the rail network in Oregon, this data provided a perspective on the carload freight rail market and provides an indication as to whether projected 2035 volumes would be sufficient to sustain rail operations in the future, and where particular opportunities may lie. Initial findings indicated that there is a significant untapped market for rail, but that achieving traffic gains will require a range of actions. These include targeted investments, concentrating shipping activity around specific locations to boost traffic density and pursuing some non-traditional markets with a relatively short length-of-haul (150 to 500 miles). One approach to building the market for rail in areas where commodity movements would appear to support rail activity is to provide funds to build industrial spurs to critical locations that lack current access to the rail network. Oregon recognized this opportunity in the past and created the Industrial Rail Spur Fund, but at the present time the legislature has not provided any budget for this fund. Providing an ongoing authorization of money for this fund would help businesses who have an interest in rail but do not have sufficient capital to build these expensive spurs.

The analysis also examined the impact of port connectivity to freight rail. Many of Oregon's coast and Columbia River ports are served by rail. Assessing the freight-related traffic potential for rail-served ports poses a challenge, in that they typically compete for a range of cargoes with other ports located throughout the Pacific Northwest. These cargoes often have little or no association with Oregon industry, or the region where the port is located, and thus macroeconomic forecasts do not serve as a useful guide to projecting potential activity. Thus, for the port that secures a particular export or import flow, the rail carrier serving the port effectively gains a traffic windfall that is impossible to predict without an understanding of the situational specifics. Additional information on the analysis described in this section is available in the Freight Rail Needs Assessment Technical Memorandum.

Operational Needs

This section presents a number of considerations for freight system planning and operations including, planning passenger service on shared freight corridors, the relationship between Class I and non-Class I operators for local freight service, the importance of maintaining and improving rail system safety, and the role of freight rail in maintaining transportation system resiliency in the face of manmade and natural disasters.

Class I Requirements for New Passenger Service

In recent years, BNSF, UP and the other Class I railroads have defined a set of requirements that any public or private third party contemplating use of their lines for passenger service must meet. In essence, proposed new operations should offset any operational, financial, market, or liability and safety impacts on the carriers. They further demand that where higher passenger train speeds are anticipated, that separate tracks be constructed for passenger service at specified distance (definitions vary) to protect passenger trains from freight train derailments and maintenance activities.

Rail System Safety

In response to several fatal rail accidents, Congress passed the Rail Safety Improvement Act of 2008 (RSIA), the first re-authorization of FRA's safety programs since 1994. RSIA directs FRA to revise and/or develop new safety regulations governing different aspects of railroad operations, traffic control systems and infrastructure. Many of these regulatory changes have a direct impact on freight and passenger rail operations, rail system usage and infrastructure investment needs. Two issues of particular relevance to this Plan include the implementation of Positive Train Control (PTC), and changes to the Hours of Service regulations. Both of these are briefly discussed below. A third and unrelated safety issue, highway-rail at-grade crossing safety continues to be of great importance, and is reviewed as well.

Positive Train Control

Positive Train Control refers to technology that is capable of preventing train-to-train collisions, overspeed derailments and casualties or injuries to railroad workers (e.g., maintenance-of-way workers, bridge workers and signal maintainers). As currently conceived, PTC is being implemented as an "overlay" over existing signal systems, for the express goals of preventing overspeed derailments and collisions between trains and other authorized track occupants. PTC must be implemented by December 2015 on most lines handling regularly scheduled passenger trains or toxic-by-inhalation hazardous materials, or lines with freight volumes that are greater than five million gross ton miles annually. In Oregon, PTC will be implemented along several main lines of UP and BNSF.[37]

PTC implementation has proven to be expensive and technically challenging, and is unlikely to be completed by December 2015. Currently, the industry is pursuing congressional action to push back the deadlines, an issue that has yet to be resolved. Among non-Class I lines, nationally fewer than 100 among the approximately 550 operating in the U.S. will require the installation of PTC. However, even those that do not require its installation may still incur PTC-related expenditures if their locomotives operate over Class I lines that are required to have PTC installed. Installation costs of on-board hardware are expected to be at least $50,000 per locomotive, and considerably more for the older units that lack microprocessor control systems – many of which are operated by non-Class I lines.

[37] BNSF currently has no plans to implement PTC on the either the Oregon Trunk or Gateway subdivisions.

Hours of Service

The Hours of Service (HS) laws, first enacted in 1907 and most recently amended in 2008, control how many hours train employees, dispatching service employees and signal employees may work. Through RSIA, FRA received regulatory authority to establish hours of service limitations for train employees providing commuter and intercity rail passenger transportation service (passenger train employees). On August 12, 2011, FRA published its final rule providing new limitations for passenger train employees, based on the limitations in the HS law as it existed prior to 2008. The regulation adds a requirement to analyze employee work schedules with fatigue modeling tools, and consecutive days limitations that recognize the difference between work during daylight hours and work during nighttime hours.[38]

These HS laws impact both freight and passenger rail operations in Oregon. In September 2011, the Government Accountability Office (GAO) published a report of their analysis related to the HS changes, specifically on the freight industry.[39] As might be expected from changes aimed at improving safety by reducing employee fatigue, the railroad industry reported that RSIA's hours of service changes imposed significant one-time and ongoing operational and administrative costs. The GAO report did not determine how RSIA's changes affected railroads' earnings. Through its industry survey and interviews, GAO found that RSIA's changes affected railroad operations, including changes to crew and train schedules and increases in staffing levels. Similar results may be expected on passenger operations as additional crew rest time is required between work shifts and limits are placed on consecutive tours of duty.

At-Grade Rail Highway Crossings

As discussed in Chapter 2, at-grade crossings are the most common locations where the general population interacts with railroads. They also pose substantial risk and cost to state and local jurisdictions, the public, as well as the railroads themselves. FRA notes that nearly every 180 minutes in the U.S., someone is hit by a train. And, combined highway-rail crossing and trespasser deaths account for 95 percent of all rail-related deaths, most of which are avoidable. Trespassing along railroad rights-of-way is the leading cause of rail-related deaths in America. Nationally, more than 431 trespass fatalities occur each year, and nearly as many injuries, the vast majority of which are preventable.

In Oregon, between 2008 and 2012 there were 74 highway-rail incidents, 57 of which took place at public crossings, resulting in 20 casualties (fatalities and injuries).[40] Between 2008 and 2012 there were also 79 casualties due to trespassing (death or injury) and 68 of them occurred at locations other than at-grade crossings.[41] While Oregon has a comparatively low occurrence of at-grade crossing incidents and deaths compared to other states, ensuring the safest transportation system possible is still a top priority of the FRA, ODOT, railroads operating in the state and others.

The FRA, Oregon and other rail stakeholders encourage at-grade crossing safety and trespasser prevention through public education efforts. FRA launched a public information campaign to

[38] 49 CFR Part 228.

[39] Freight Railroad Safety: Hours of Service Changes Have Increased Rest Time, but More Can Be Done to Address Fatigue Risks, GAO, September 2011.

[40] FRA, Office of Safety Analysis' accidents and incidents, inventory and highway-rail crossing data.

[41] Ibid.

educate people that they should *Always Expect A Train*. They also coordinated the *Right-of-Way Fatality and Trespass Prevention Workshop* in 2012 to bring together transit, freight and commuter rail stakeholders to focus on common problems and solutions surrounding ROW fatality and trespass prevention. There is also an Oregon division of Operation Lifesaver, which is a non-profit that helps promote awareness via a public information program dedicated to reducing collisions, injuries and fatalities at crossings and on rail right-of-way.

Resiliency

The rail system in Oregon may face a number of natural and manmade disaster situations (e.g., earthquakes and tsunamis, heavy snowfall, avalanches, landslides, washouts and flooding) that could disrupt services for a significant amount of time without proper planning. In addition, rail may be able to play an important role in restoring lifeline transportation services in the event that other modes are unable to recover as quickly. Thus, understanding the vulnerabilities and recovery strategies for freight rail is an important consideration for the rail system in Oregon.

Because the freight rail system is primarily privately owned, there has been little coordinated planning at a statewide level to develop vulnerability assessments and recovery plans. Individual railroads do have their own plans in place and in the case of the Class I railroads, are sometimes able to take advantage of route redundancy as they work to bring affected track segments back into operation after a disaster.

One recent attempt to assess overall transportation system resiliency was conducted by the Oregon Seismic Safety Policy Advisory Commission.[42] This analysis focuses on resiliency and response focused on an earthquake or tsunami associated with the Cascadia subduction zone. The report notes that the majority of bridges and other transportation infrastructure in western Oregon would be susceptible to major damage. Also there are many unstable slopes and pre-existing deep slides that are expected to fail. The study notes the following locations with potential vulnerability but points out that detailed studies have not been done:[43]

Trunk Lines

- California state line to Klamath Falls
  - UP: Several miles of dredged fill, one highway overpass, two tunnels in California
  - BNSF: Two major bridges, one highway overpass
- Klamath Falls to Chemult
  - UP/BNSF: One major bridge, five highway overpasses
- Chemult to Redmond
  - BNSF: Two major bridges, five highway overpasses
- Redmond to OT Junction (BNSF); OT Junction to Troutdale (UP)
  - Seven major bridges, three tunnels, twenty-three highway overpasses
- Chemult to Eugene

[42] *The Oregon Resilience Plan: Reducing Risk and Improving Recovery from the Next Cascadia Earthquake and Tsunami*, Report to the 77th Legislative Assembly from Oregon Seismic Safety Policy Advisory Commission (OSSPAC), February 2013.

[43] Ibid.

  - UP: Fourteen major bridges, twenty-one tunnels, seven highway overpasses, six snow and rock sheds
  - Major historical landslide
- Eugene to Portland
  - UP: Fifteen major bridges, thirty-two highway overpasses
- Portland Terminal Area [Troutdale to Portland (UP); Vancouver, WA to Portland (BNSF)]
  - Four major bridges, forty-two highway overpasses

Detours for Trunk Lines

- Siskiyou Line (California to Eugene): Steep grades, twenty-four major bridges, eleven tunnels, twenty highway overpasses
- Oregon Electric Line (Eugene to Tigard): Fifteen major bridges, seven highway overpasses
- West Side District (Albany to Tigard): Fifteen major bridges, two highway overpasses
- Tigard to Willsburg Junction and connection with UP Trunkline: Three major bridges, three highway overpasses

Coastal Branch Lines

- Coos Bay Rail Link: Forty-nine major bridges, eight highway overpasses, nine tunnels
- Astoria District: One tunnel, six highway overpasses
- Albany to Toledo: Forty major bridges, one tunnel, three highway overpasses

The report also looked at transportation system interdependency and determined the potential role of certain rail system elements to provide some redundancy to a basic backbone highway system. The highest priority rail elements include:

- Rail lines to Redmond to provide access to emergency air transportation in Redmond
- The mainline from Klamath Falls to Chemult shared by BNSF and UP
- The BNSF mainline from Chemult to the Columbia River
- The UP mainline along the south side of the Columbia River from Portland to Idaho
- The UP mainline from Chemult to Eugene and roughly paralleling I-5 from Eugene to Portland

Institutional Needs

The Evolving Role of Non-Class I Lines

The relationship between non-Class I and the Class I railroads is one of continuous evolution. Non-Class I lines serve an important role in the North American rail sector. Overall, around one-quarter to one-fifth of traffic handled by Class I railroads starts and/or ends its trip on a short line railroad. For BNSF, short lines accounted for 20 percent of their total unit volume in 2011. For some commodities, short lines are even more critical to BNSF, with 45 percent of industrial products and 35 percent of agricultural traffic handled by short lines at some point.[44] On the UP, short line

[44] *https://www.bnsf.com/employees/communications/railway-magazine/flash/winter2013/files/assets/basic-html/page9.html.*

related traffic accounted for approximately 15 percent of volume.[45] In Oregon, Class I railroads are particularly reliant on their short line connections to serve the forest products industry, one of the state's key freight-oriented sectors.

From the perspective of the Class I railroads, short lines serve several functions:

- Provide access to customers that are not within reach of the Class I.
- Afford operationally intensive functions that Class I railroads have difficulty providing from a cost and service management standpoint. This is often the case in the provision of switching services to industries and public transloading facilities. For example, some industries require frequent switching that a Class I carrier could not provide economically.
- Serve as a retailer to smaller shippers that do not produce sufficient volume for a Class I carrier to service directly. From the short line's perspective, smaller shippers boost overall volumes, and thus the viability of the railroad. From the Class I perspective, having short lines perform the function of aggregating traffic boosts volumes while transferring the disproportionate costs associated with switching and managing customers to other parties.
- Provide access to rail service away from Class I mainlines. The increasingly intensive utilization of many Class I mainlines have made it more operationally difficult and costly to serve customers located on many mainlines. Thus, serving a shipper on a short line may be more cost effective, even with potential dilution of revenues.

The common thread for all of these functions is the ability for the Class I carrier to use a short line connection to complement its services. The basis for the relationship is the revenue and profit potential that the Class I carrier can derive from a particular service. This includes options that might exclude the short line entirely. For example, instead of using the short line to directly reach the customer, the Class I could offer to route it through a port, logistics center or transload facility that is located on the Class I railroad. Or, the Class I carrier could offer an intermodal option in lieu of a carload shipment.

Beyond the issue of the specific profitability of particular short line traffic to its Class I connection(s), lies the broader issue of the Class I railroad's outlook on carload service, i.e. the traditional practice of having trains carry traffic associated with multiple customers and destinations. Individual Class I railroads have varying perspectives on carload service, with some viewing it as a core business with a strong future, while others view it as an increasingly niche product lacking in growth potential. These perspectives affect the carrier's overall strategies towards carload traffic, including investment, operations, pricing, as well as their approach to short lines. As has always been the case, to a substantial degree, the successful short line will have to take its cues from their Class I connections. In the future, these will be marked by:

- Increased use of higher volume multi-car shipments, high capacity equipment (286K weight limit) and more generally greater concentration of traffic;
- Continued shifting of "retail" carload services to short lines as Class I railroads seek to minimize handling of less than trainload traffic;

45 *https://www.progressiverailroading.com/short_lines_regionals/article.aspx?id=32022.*

- With some exceptions, the role of Class I carriers in supplying equipment for short line originated traffic will continue to diminish;
- Improved integration of service and visibility across an entire move, through adoption of integrative technologies such as Interline Service Management; and
- Implementation of improved Interchange Service Agreements that clearly define service standards for traffic interchanged between a short line and its Class I connection.

The primary beneficiaries of these strategies will be the well capitalized and more successful short lines that can afford to effectively engage their Class I connections. The successful short lines will keep up with the Class I service initiatives, and invest in their physical infrastructure to efficiently serve their customers with modern equipment. These trends may favor the large multi-property short line operators, which can wield greater leverage over their Class I connections, due not only to the larger volume of business that they control, but also geographic diversity and a broad range of issues with varying priorities. In contrast, single property short lines with modest volumes may find new challenges to maintain market competitive service.

Regulatory Issues Affecting Class I - Short Line Relationships

A further consideration affecting commercial relations between Class I railroads and their short line connections is federal regulation as administered by the Surface Transportation Board (STB). In recent years, the STB has taken a more active role in examining competitive issues, including some that directly affect short lines. These include paper barriers, expanded industry switching access and bottleneck rates.

Paper barriers and competitive industry switching have received particularly intense attention. Paper barriers[46] describe the common practice of controlling access to interchanges through legal agreements between the divesting carrier and the buyer. The trade-off for the buyer is a lower acquisition cost in return for the divesting carrier having greater control over the traffic handled by the short line. However, the existence of these barriers can sometimes impede the ability of a short line to handle specific traffic, thereby impacting its economic viability and limiting shipper service options. Thus far, the STB has not taken direct action to regulate paper barriers in line sales, but it has proposed requiring additional information for new transactions.[47]

Competitive industry switching access would permit carriers to gain access to customers that are presently captive to a single carrier. Presently there is a proposal (Ex Parte 711) before the STB that would allow a competing carrier to gain access to a captive industry that is located within 30 miles of the interchange point under certain specific conditions.[48] Proponents feel that this expanded access would restore some competitive balance in a rail industry that has come to be dominated by seven large Class I carriers. The Class I railroads are strongly opposed to this proposal, as they feel that implementation would substantially complicate operations, reduce rail revenues, profitability, and thereby the ability to make the investment necessary to keep up with capacity needs and competitive service requirements.

---

[46] See Ex Parte 714, Information Required in Notices and Petitions Containing Interchange Commitments.

[47] *https://www.stb.gov/Decisions/readingroom.nsf/WEBUNID/C9E40181B718CD1485257AA9004BA42A?OpenDocument.*

[48] Ex Parte 711, *Petition for Rulemaking to Adopt Revised Competitive Switching Rules*, *https://www.stb.gov/FILINGS/all.nsf/c72552abc289f85285257515007219bd/80edc553b468f44b852578c60068783b?OpenDocument*.

Passenger Service Needs

Oregon's involvement with intercity passenger service has primarily been with Amtrak Cascades. Amtrak's Empire Builder and Coast Starlight are largely a federal responsibility, and thus state involvement is minimal. Beyond these existing services, there is the potential for new services that would handle growing travel demand between certain markets, some of which have been examined in the past. These are discussed on the next page.

Challenges to Improving Amtrak Cascades Service

The following provides examples of infrastructure improvements that may be required to achieve operational goals for Amtrak Cascades. They are not intended to propose any one solution and readers should refer to the ongoing Oregon Passenger Rail Project for more detailed information and proposals for the corridor.

- **Portland to Vancouver, WA:** Amtrak Cascades trains operate over a 10 mile segment owned by BNSF and shared with UP between Portland Union Station and Vancouver, Washington. Projected growth in freight volumes will result in a critical bottleneck along this continuous double track segment. Corridor improvements, such as a third mainline track would help avoid adverse effects on passenger rail service in terms of train delays and also handle the anticipated growth in travel north of Portland. This example would require construction of a new rail bridge across the Columbia River.
- **Portland to Eugene:** Amtrak Cascades trains operate over UP track between Eugene and Portland Union Station. This 125 mile line is comprised of a single track with passing sidings, and a 5.8 mile double track segment between Willsburg Junction (Milwaukie) and Portland Union Station. On average, passing sidings are located 9 miles apart. As mentioned previously, growing freight demand will increase congestion which may lead to increasing travel times. Options to alleviate these constraints include constructing additional sidings and adding double track, or developing an alternate route.
- **Stations, parking and other amenities:** Amtrak Cascades and other passenger rail stakeholders have not reported strong current needs for new passenger rail stations or expanding existing stations and/or parking areas. However, to maintain and increase ridership in accordance with state goals, Amtrak, public transit and Cascades POINT *Thruway* bus connections must provide competitive costs, travel times, comfort and convenience comparable to that of I-5 corridor and air travel along the length of the Amtrak Cascades corridor. Reviews of station facilities at regular intervals will help ensure that stations meet current customer needs, including facility conditions, amenities (such as Wi-Fi), vehicular and bicycle parking and transit connectivity.

Other Potential Corridors

Beyond existing passenger service, other markets may merit service in the future. Potential new markets were identified through a screening process, based on population, inter-market travel demand, and general feasibility in terms of existing rail infrastructure. Some of these corridors have been examined in the past for potential service, while others are new. In any event, development of new or expanded service will require a detailed feasibility study that examines ridership, technical feasibility, implementation and ongoing costs and takes into account factors developed in the policy and strategy elements of this Plan.

While much of this section focuses on interregional travel markets ranging from 50 to 300 miles, where intercity passenger rail has been found to be a very favorable alternative, long distance corridors also have demonstrated benefits for the economy, national mobility and a transportation options for citizens accessing needed services.[49]

Figure 19 shows corridors that may have potential for developing passenger rail service, as they connect cities with 20,000 or more residents. Oregon's largest single interregional travel market occurs between Washington State (Puget Sound) and the Portland area (29.0 percent). Within Oregon, interregional travel is driven by the over three quarters of the state's population that resides along the I-5 corridor in the Willamette Valley, with travel between the Portland area and the southern Willamette Valley accounting for 27.9 percent of interregional travel. These markets constitute the majority of estimated interregional trips, and are currently served by Amtrak Cascades.

Of travel markets currently not served by Amtrak, Oregon's Household Activity Survey suggests the greatest potential travel markets are southern Willamette Valley - Southern Oregon (5.6 percent of interregional travel), which includes the cities of Medford, Grants Pass and Ashland; followed closely by Portland - North Coast (4.4 percent of interregional travel), which includes the cities of Astoria, Seaside and Tillamook; and southern Willamette Valley – North Coast (3.6 percent of interregional travel).

Figure 19 highlights counties which have forecasted growth rates that are expected to exceed the state's projected average annual growth rate of 1.2 percent between 2010 and 2035. High rates of growth are expected in the greater Portland area; Jackson County in Southern Oregon; Deschutes, Crook, and Jefferson counties in Central Oregon; and Umatilla and Morrow counties in Northeast Oregon. Although Marion and Lane counties' growth rates are forecasted to be slightly below the state's growth rate between 2010 and 2035, the counties rank four and five, respectively, in terms of total population growth forecasted between 2010 and 2035.

Given these projected trends and the performance of rail passenger ridership over the past two decades, it is reasonable to assume continued growth in demand for Amtrak existing intercity rail services. Figure 19 shows existing and historical routes, as well as those that have been identified at a high level for potential passenger rail opportunity in the future. The opportunities include:

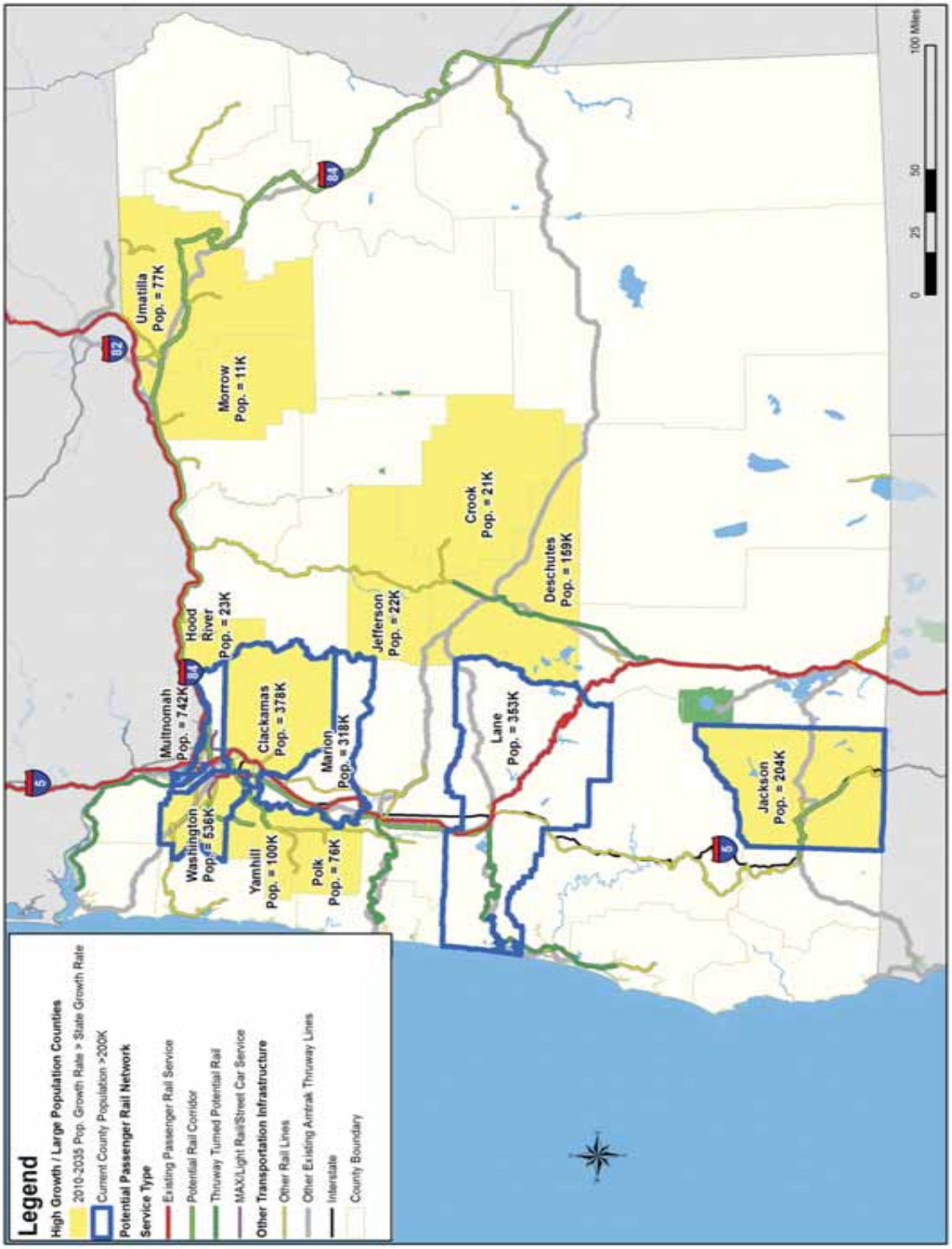
- **Eugene-Ashland Corridor:** The travel market between these regions is one of the largest not served by passenger rail. The Siskiyou Line, a 25 mph short line railroad, connects Eugene and Ashland. The Eugene to Ashland Intercity Passenger Rail Assessment[50] published in April 2010 investigated the feasibility of providing passenger service along this route.
- **Portland-Astoria Corridor:** The travel market analysis suggests this is another potentially underserved travel market. In the short term, Cascades POINT *Thruway* bus service could be expanded to enable more Astoria connections to Portland rail routes.

[49] National Association of Railroad Passengers – Fact Sheets on the Benefits of Passenger Trains: Growing America's Economy, Long Distance Trains: A Foundation for National Mobility, and Long Distance Trains: A Medical Lifeline.

[50] 2010 Oregon Rail Study, Appendix G, Eugene to Ashland Intercity Passenger Rail Assessment. *http://www.oregon.gov/ODOT/RPTD/Pages/Rail-Forms.aspx.*

- **Amtrak's Pioneer route:** Extending from Chicago to Seattle via Salt Lake City and Portland, Amtrak's Pioneer service operated between 1977 and 1997. The former Pioneer route's right-of-way between Portland and the Idaho state line is owned by UP. Although Oregon communities along the Columbia River can access long distance rail service through Amtrak's Empire Builder, reinstatement of the Pioneer route would provide direct access to eastern Oregon and reconnect Portland with the major cities of the mountain west, including Boise, Salt Lake City and Denver.
- **Other Corridors:** Other corridors for which rail infrastructure is in place, but formal studies have not been conducted include the Oakland, CA-Portland Corridor, Portland-Bend and/or Eugene-Bend, Central Oregon corridor and Eugene-Coos Bay. Implementation of competitive passenger service on many of these corridors would require considerable investment, primarily due to rugged topography and circuitous rail routes.

Figure 19: Potential Passenger Rail Network Opportunities with County Population Characteristics



Source: Cambridge Systematics and Oregon Department of Transportation – Rail and Public Transit Division, 2013.

Note: Any expansion or the addition of new service, must consider more detailed evaluation and a number of factors beyond the scope of this review.

The State's Rail Service and Investment Program

This page intentionally left blank.

4 The State's Rail Service and Investment Program

Chapter 4 establishes the "action plan" component of this State Rail Plan, and presents key drivers for how Oregon will make investments in the future. This includes the Oregon State Rail Plan vision statement and goals, the investment decision-making framework, policies and strategies, and indication of project types the state should invest in, given adequate funding in the future. Supporting information for this Chapter can be found in the Investment Program Technical Memorandum.

State Rail Plan Vision Statement and Goals

The rail system in Oregon is predominantly owned by private railroads, yet freight and passenger rail services are critical components of the state's multimodal transportation network. Oregon recognizes the unique opportunities public- and private-sector collaboration presents and has a vested interest in proactively planning for the rail system's future so that Oregon's residents and businesses can capitalize on the many benefits freight and passenger rail services provide:

- **The rail system is a significant conduit for economic and job activity.** The 2011 Oregon Freight Plan estimates that 31 percent of Oregon's economy is based on goods movement dependent industries, including those served by rail such as timber, wood products and paper; agriculture and food; manufacturing; construction; and wholesale and retail trade. Efficient and accessible intercity passenger rail connects job markets, recreation and tourism centers throughout the state to support local economies.
- **The rail system improves connections for people and goods.** Passenger and freight rail systems in Oregon connect people and goods within the state, across the U.S. and to Canada. The freight rail system connects to ports in Oregon which import and export goods between international markets.
- **The rail system provides mode choice and relieves congestion.** Both freight and passenger rail systems provide modal options for users. By offering travel options, transportation costs of residents and businesses are lowered. Likewise, removing vehicles from the road brings positive impacts including congestion mitigation, reduced safety concerns and decreased wear and tear on other parts of the system.
- **Use of rail contributes positively to the environment.** In general, rail is a more efficient mode in terms of fuel consumption, as compared to passenger vehicles and trucks, for moving both people and goods. This reduction in fuel consumption also leads to a reduction in emissions.
- **When coordinated, rail enhances community quality of life.** Through integration of rail systems and land use planning, community quality of life is enhanced. Passenger and commuter rail supports the development of livable communities, provides travel options and spurs economic opportunities at station locations. Preservation of rail corridors ensures that economic development opportunities can be realized in the future.

In order to realize the full spectrum of benefits a transportation system that integrates passenger and freight rail provides, the State of Oregon will take an active role and partner with regional and local governments and private rail companies to proactively plan and explore investments to make the rail system in Oregon better by working together.

Oregon State Rail Plan Vision Statement

The Oregon State Rail Plan Vision Statement is a forward looking statement that will shape the future of the rail system and ensure the beneficial outcomes of rail are realized. The Vision is carried out through the State Rail Plan's goals, policies, strategies and implementation framework.

Oregon will have a safe, efficient, and commercially viable rail system that serves its businesses, travelers and communities through private resources leveraged, as needed, by strategic public investments.

Oregon State Rail Plan Goals

The Vision is carried out through the State Rail Plan's goals, policies and strategies. Seven goals have been developed. Supporting goal text, policies and strategies are articulated later in this chapter. The order in which the goals are presented in this State Rail Plan is not intended to imply any priority among the goals as they are all critically important to meet the State Rail Plan Vision. The use of goal numbers is a convenient way to refer to each individual goal and is not a priority numbering system. The goals for the Oregon State Rail Plan include:

Goal 1 - Partnership, Collaboration and Communication

Goal statement: Partner, collaborate and communicate with rail system operators and other stakeholders to maximize benefits, align interests, remove barriers and bring innovative solutions to the rail system; and foster public understanding of rail's importance.

Goal 2 - Connected System

Goal statement: Promote, preserve and enhance an efficient rail system that is accessible and integrated with Oregon's overall multimodal transportation system.

Goal 3 - System Investments and Preservation

Goal statement: Enhance transportation system reliability, capacity, frequency and travel times through investments that preserve and improve freight and passenger rail assets and infrastructure.

Goal 4 - Funding, Finance and Investment Principles

Goal statement: Establish funding that meets the critical needs of the rail system in Oregon and achieve the objectives of this State Rail Plan.

Goal 5 - System Safety

Goal statement: Plan, construct, operate, maintain and coordinate the rail system in Oregon with safety and security for all users and communities as a top priority.

Goal 6 - Preserving and Enhancing Quality of Life

Goal statement: Increase use and investment in freight and passenger rail systems to conserve and improve Oregon's environment and community cohesion.

Goal 7 - Economic Development

Goal statement: Increase opportunity and investment in freight and passenger rail assets to grow Oregon's economy.

The following section describes how these core goals are used to inform investment decisions in Oregon.

Decision-Making Framework

Consistent with the way Oregon treats decision-making in all of its other statewide long range transportation plans, this State Rail Plan does not specify or prioritize individual projects. However, future investment decisions about specific projects need to be informed by a clearly defined framework with evaluation factors that are consistent with the vision, goals and objectives laid out in the Plan. This decision framework and the evaluation factors it embodies are used to evaluate whether future projects meet the goals of the Plan and implement the policies and strategies contained in the Plan. The decision framework is used to make decisions about whether projects should be funded and the decision framework and evaluation factors can be incorporated into the procedures for prioritizing projects in existing or future funding programs (along with other statutorily mandated decision factors).

Oregon has established investment guidance in the Oregon Transportation Plan (OTP) and detailed implementation processes in the *Connect*Oregon program, which is an important funding source for rail improvements. Oregon also uses other methods to make decisions, not presented in this document, such as criteria and processes during development of the State Transportation Improvement Program (STIP) and considered by Area Commissions on Transportation (ACTs). The decision-making framework and evaluation factors in this Plan must be consistent with the other methods and processes Oregon uses for making investment decisions, and must take into consideration and be consistent with any statutory requirements or regulations that are specified for the sources of funding that will be used to pay for the investments. For example, the statute that created *Connect*Oregon (ORS 367.084) cites five considerations to determine eligibility of projects for this funding source and these should be incorporated into any evaluation that intends to use those funds.

Investment Decision-Making Framework

The rail investment decision-making framework in this State Rail Plan mirrors a similar framework established for Washington State (shown in Table 15) for several reasons:

- The framework recognizes that Oregon will make investments in partnership with other parties.
- The framework provides Oregon guidance on when projects have a compelling public interest.
- The framework provides Oregon guidance on what level of participation from the state and other stakeholders is appropriate (and the nature of that participation).
- The framework enables Oregon to prioritize investments based on an evaluation of benefits.
- The framework provides flexibility for Oregon to customize evaluation factors based on the project, funding program and involved stakeholders.
- The framework utilizes a common "scoring" system so that projects of different types can be compared to each other as much as possible. For example, scoring projects based on whether they have "high," "medium," or "low" benefits regardless of the specific metric.

The rail investment framework will enable Oregon to identify projects that benefit the public interest, prioritize those projects and consider funding responsibility of other rail stakeholders in relation to the benefits that they receive.

Evaluation Factors

While the framework for rail investment decision-making has been adapted from other processes (e.g. Washington State rail investments), the evaluation factors have been customized for Oregon. There are numerous evaluation factors that can be considered when making rail investment decisions; the focus of factors in this Plan are those that articulate the various rail stakeholder perspectives, but most importantly best represent public benefit so that a determination of level of program or project partnership (whether financial or non-financial) can be made. The evaluation factors have been selected for several reasons:

- The evaluation factors are aligned with key themes identified in this Plan, including achieving 1) mobility benefits, 2) economic benefits, 3) environmental benefits and 4) community/safety benefits.
- The evaluation factors reflect those aspects of system performance most critical to each of the public- and private-sector rail stakeholders, including the State of Oregon, shippers, ports, railroads, passengers and communities.
- The evaluation factors are both quantitative and qualitative:
    - The quantitative variables are provided so that public benefit can be evaluated in a simple manner and input into benefit-cost type consideration.
    - The qualitative factors are meant to help with "fatal flaw" analysis, such as a review to ensure that proposed projects are practical and fit within Oregon's goals.

The factors for quantitative evaluation are presented in Table 16. This Plan recommends that a mix of different types of factors be used to provide maximum flexibility. The factors used during evaluations may, out of necessity, be different for different types of projects. However, each stakeholder should have just a "few good measures" that represent their perspective during evaluation. It is recognized that in some cases (particularly for private parties), these evaluations may need to be qualitative. In the case of the state, to conduct a benefit-cost type evaluation, effort should be made to quantify each of the factors; however, it is recognized that Oregon has environmental and livability objectives that factor into decisions and are not easily quantifiable.

Table 15: Rail Investment Decision-Making Framework

Proposed Action	State	Shippers	Passengers	Railroads	Ports	Community	Likely Recommendation	Level of Action	Example
A	H	H	H	H	H	H	State should participate, but only if other beneficiaries contribute appropriate share	Consider direct investment and supporting legal and institutional mechanisms	Consider sources such as additional dedicated state freight rail funds, federal funding sources through MAP-21, TIGER and other state matching sources
B	H	L	L	L	L	H	State should participate and be prepared to contribute more than other groups	Consider direct investment and supporting legal and institutional mechanisms	Consider sources such as additional dedicated state freight rail funds, federal funding sources through MAP-21, TIGER and other state matching sources
C	M	M	M	M	M	M	State should participate with caution and only if costs to do so are low	Consider tax exempt financing loans or other methods that have limited costs to state, but benefit private industry	Consider public-private partnerships, tax credits and other non-financing incentives
D	L	H	H	H	H	L	State should probably not participate	State should probably not participate with financial, institutional or legal mechanisms	No state role is anticipated
E	L	L	L	L	L	L	State should probably not participate	State should probably not participate with financial, institutional or legal mechanisms	No state role is anticipated

Source: Cambridge Systematics.
H = High; M = Medium; and L = Low Benefits.

Table 16: Quantitative Evaluation Factors

Rail Partner	Evaluation Factors			
	Mobility	**Economic**	**Environment**	**Safety**
State	• Improved system efficiency (measured in terms of reduced travel times and delays) • Improved system connectivity and access • Increased system preservation (See preservation factors under "Additional Evaluation Factors") • Improved passenger rail service (See passenger rail factors under "Additional Evaluation Factors") • Increased system redundancy/resiliency from seismic and other natural events	• Increased statewide jobs created/ retained (public sector, private sector and including long term and construction jobs) • Positive tax revenue impacts (through new or retained businesses) • Benefit-cost ratio (including impacts on avoided system maintenance costs)	• Improved air quality • Reduced statewide energy use • Reduced greenhouse gas emissions impacts • Improved public health • Reduced environmental justice impacts	• Reduced incidents (property, injury, fatality)
Shippers	• Increased modal alternatives and access to service (does project increase rail/ transportation service options?) • Improved service reliability (on-time performance) • Reduced travel time and delays	• Positive business cost impact (primarily through reduced costs of service) • Improved access to markets and supplies	• Corporate stewardship • Environmental compliance	• Reduced incidents (property, injury, fatality)
Ports	• Improved system throughput • Increased operational efficiency at terminals	• Improved access to markets and expanded hinterlands • Allowing growth at terminals	• Improved air quality and reduced greenhouse gas impacts from port-related operations	• Reduced incidents (property, injury, fatality)
Railroads	• Increased system velocity and throughput • Increased reliability • Reduced hours of train delay • Reduced yard dwell time	• Improved access to new and existing markets • Increased revenue traffic • Reduced system maintenance costs • Improved equipment utilization	• Reduced fuel consumption	• Reduced incidents (property, injury, fatality)
Passengers	• Increased modal choice/access (especially for underserved populations or other special needs groups) • Improved travel time • Increased frequency of service	• Reduced cost of travel		• Reduced involvement in incidents
Communities (similar to State)	• Reduced roadway delays and truck/auto delays at grade crossings • Improved access especially for underserved populations	• Increased local jobs (primarily from rail-served industries and economic development around passenger station areas)	• Improved air quality • Improved public health • Reduced environmental justice impacts	• Reduced incidents (property, injury, fatality) • Reduced local land use conflicts

The *Connect*Oregon program also uses qualitative factors that this Plan recommends be applied when considering rail project investments. The *Connect*Oregon criteria include:

1. How much of the cost of a proposed transportation project can be borne by the applicant for the grant or loan from any source other than the Multimodal Transportation Fund?, and
2. Is the transportation project ready for construction?

As this Plan recommends the framework presented in Table 15, which assigns cost commensurate to benefits received, "Question 1" should be modified to reflect this, for example:

1. Do rail partners have funding available for the project, commensurate with the benefits they receive?

Currently the *Connect*Oregon program has an 80 percent state share and a 20 percent local or other match. It is expected that when partner benefits are evaluated, the state share may be reduced and there will be an opportunity for Oregon to better leverage scare resources with additional private sector contribution. This thinking is in line with the *Connect*Oregon program, as that program provides a higher score to projects that contribute over the 20 percent match. In fact, several projects where Class I railroads were partners the railroads contributed well over 20 percent and in an example shown in the Investment Program Technical Memorandum, UP contributed 75 percent of the project cost.

How Evaluation Factors are Used to Make Investment Decisions

There are likely to be three ways that rail investments will be made by the state in the future: 1) through existing funding programs; 2) through one-time appropriations by the Legislature to deal with an immediate need or opportunity; or 3) through the availability of outside funding, such as the federal TIGER grant program. In any of these cases, the decision framework can be used as presented or adapted to specific requirements associated with the funding sources. For example, since many of the evaluation factors in the decision framework were adapted from the *Connect*Oregon program, this program's decision process is already aligned with the proposed decision framework to a significant extent. However, over time, Oregon may choose to modify the *Connect*Oregon procedures to more closely resemble the decision framework; for example, to take into account measures that reflect how different stakeholders evaluate benefits of the project and making decisions about the level of state funding based on this type of evaluation. Some of the evaluation factors presented as part of the proposed framework could also be considered in *Connect*Oregon evaluation factors in the future.

In the case of one time appropriations, ODOT will want to conduct analysis of proposed projects using the decision framework in order to inform decisions about whether the project should be funded by the state, whether it is consistent with the goals, policies, and strategies of the State Rail Plan, and what specific role the state should play in partnership with other stakeholders. In the case of outside grant programs, conducting a disciplined analysis of public benefits to determine an appropriate state role will likely help in responding to grant applications and will also ensure that the state uses outside funds in ways to further the goals of the State Rail Plan.

An additional benefit of using the decision framework is that it will draw much clearer connections between investment decisions and the goals of this Plan. Table 15 and Table 16 illustrate how the investment framework and evaluation criteria are directly related to the SRP goals. For example in Table 15, the evaluation of the degree of benefits to each important stakeholder group as a means of determining the state's role in partnership with other stakeholders reflects Goal 1-Partnership, Collaboration and Communication. The section of the table that describes how the level of benefits to different stakeholders determines the type of financial participation from the state is related to Goal 4-Funding, Finance and Investment Principles. In Table 16, the Mobility evaluation criteria describe how a project meets Goal 2-Connected System (particularly the improved system connectivity and access criterion) and Goal 3-System Investments and Preservation. The Economic evaluation criteria describe how a project meets Goal 7-Economic Development. The Environment evaluation criteria describe how a project meets Goal 6-Preserving and Enhancing Quality of Life. The Safety evaluation criteria describe how a project meets Goal 5-System Safety.

Additional Evaluation Factors

One of the unique aspects of the investment framework is that it is flexible; the framework and evaluation factors can be customized based on project type and stakeholders involved. As developed by the State Rail Plan Steering Committee, two investment areas were identified with customized evaluation factors through the Plan's policy and strategy work: 1) rail preservation and 2) investments in new passenger rail service.

Preservation Evaluation Factors

The history of rail line abandonment in Oregon, whether due to economic events or natural disasters, has prompted Oregon to consider how and when the state should participate in the purchase of and/or investment in rail lines. Most states approach public ownership of railroads as an option of last resort, recognizing that the economic benefits of a given property most often will not support costs associated with purchase and operation by a new entity. However, the threat of losing rail lines poses a cost to the transportation network that states are not willing to ignore. Several factors were identified to help Oregon determine the potential future viability of a rail line, if service were to continue. These include:

- Existing industry base using the line;
- Potential industrial customers not presently using the line but which can be accessed by it;
- How the line is connected to the national railroad system;
- Geography of the line and its potential service territory;
- Unique circumstances affecting operating costs and revenue potential; and
- Regional vision for the future (What is expected to happen in the area served over the next 50 years?).

These factors have been formally incorporated into this Plan's preservation policy and are identified in Strategy 3f.

Passenger Rail Evaluation Factors

Oregon is currently studying the feasibility of improving/expanding passenger service in the Amtrak Cascades Corridor between Eugene, Oregon and Vancouver, Washington. This Plan also reviewed, at a high-level, other corridors in the state that may be candidates for passenger rail service in the long-term future and may warrant further evaluation. For each of these passenger corridors, prior to Oregon making significant investments, basic factors relating to overall viability of the operation should be weighed including:

- Will the service attract sufficient ridership and revenues to justify the service?
- What are the potential costs of the service?
- What are the economic and social benefits to the state, to local communities and to potential passengers who may have different needs and requirements?
- What are the alternatives to providing the service?
- How does the service satisfy state and local transportation goals?

These factors have been formally incorporated into this Plan's passenger rail policy and are identified in Strategy 2g.

Benefits of Rail Project Types

The State Rail Plan conducted needs assessments for both freight and passenger rail systems in Oregon. A variety of needs were identified, ranging from the need to reduce passenger rail travel time and increase service frequency in existing service, to improving short line bridge and track weight limits and providing improvements at at-grade rail crossings. Each of these needs have been translated into investments that mitigate the condition. These projects have been collapsed into general "project types." As with other statewide plans in Oregon, this State Rail Plan does not specify or prioritize projects, but does identify categories of needs and investments, which can help demonstrate consistency with the State Rail Plan in future funding opportunities. The project types are divided into passenger- and freight-related.

Passenger Rail-related Project Types

- Passenger Rail Operations and Maintenance for Existing Services
- Passenger Rail Capital Improvements for Service Upgrades (station additions, increased frequency, etc.)
- Passenger Rail New Services

Freight Rail-related Project Types

- Class I Chokepoints
- Short Line State of Good Repair
- Grade Separations
- Crossing Safety Improvements
- Railroad Corridor Preservation (right-of-way)

- Railroad Corridor Preservation (infrastructure)
- Port-related Rail Projects (intermodal connectivity)
- Yard Improvements
- Industrial Access Improvements
- Traffic Consolidation Facilities/Logistics Centers/Inland Ports
- Low Emission Locomotive Technology

To better understand how different project types can provide benefits to rail stakeholders, and warrant investment by those stakeholders, five project case studies were developed, and the following section contains an example case study. These case studies highlight how the evaluation factors, outlined in the earlier section, can be applied to stakeholder perspectives. The case studies provide insight into the level of benefits for various project types and this qualitative information has been reviewed for consideration in determining rail system investments in this Plan. More information on the project case studies, can be found in the Investment Program Technical Memorandum.

Short Line State of Good Repair Case Study

This preservation project, awarded under *Connect*Oregon IV (ConnectOregon IV - $4.56 million; Total Project Cost - $5.7 million), dealt with the rehabilitation of 12 miles of Central Oregon & Pacific Railroad (CORP) between MP 505 and MP 517, as well as increasing clearances on four tunnels to allow for the operation of larger, higher capacity freight cars. This project improved the clearances of tunnels and other rail infrastructure between Douglas and Jackson Counties, opening access to the Rogue Valley to the most modern high capacity rail car equipment. With these improvements, CORP has been able to operate at track speeds to ensure they can meet service reliability commitments they have made with area shippers, as well as deliver higher capacity freight cars to their customers. Once products have been loaded onto CORP railcars, they can be shipped with greater safety to their destination thereby reducing loss and damage claims. The tunnel improvements allow shippers to use higher capacity rail equipment, which translates into lower overall shipping costs in getting their products to market.

Example Evaluation Factors by Rail Partner

State

Mobility

- **Improved system mobility -** Customer using high capacity rail cars can improve efficiency and reduce the burden on others parts of the system.
- **Improved system connectivity and access -** This project benefits the state and region as it reduces dependence on I-5 for freight traffic and lowers highway maintenance costs over time.

Economic

- **Statewide jobs created -** This project targeted a key Oregon industry. The CORP handles mostly forest products that make up 88 percent of the total volume of traffic; logs, veneer, dimensional lumber, EWP, plywood and wood chips. Other products include sand, propane,

liquid asphalt, plastic resins, feed grains, organic feed products, industrial glue, fertilizers, scrap metal, food grade flour and fresh produce (pears).

Environmental

- **Improved air quality -** This project improves air quality through the use of more efficient modes.

Safety

- **Reduced incidents -** This project improves safety through reduction of roadway incidents on I-5 and Route 42.

Shippers

Mobility

- **Modal alternatives -** The clearance restrictions limited the economic viability of rail, limiting modal options. This project benefits multimodal freight transportation movement because it improves connectivity to ports and the national rail network.
- **Access to service -** Existing customers now have access to new types of rail equipment (high capacity rail cars) and allows shippers to upgrade to more modernized equipment to compete with other markets.

Economic

- **Reduced cost of service -** By giving shippers transportation options, the project makes transportation costs more competitive.

Railroads

Mobility

- **Increased throughput -** The project improves the efficiency of train operations, through increasing the volume of cargo that can be transported by rail which will maximize the amount of cargo moved per train.
- **Reduced hours of train delay -** Improved efficiency will reduce train delay and yard dwell time increasing revenue and equipment utilization.
- **Increased reliability -** This project improves reliability of the freight system and improves connectivity to the freight system.

Economic

- **Increased revenue traffic -** More efficient train operations enable railroads to handle more traffic.

Communities (also see State)

Economic

- **Local jobs created -** This project created local construction jobs and helped retain 565 jobs and created 20 to 30 new jobs.

Rail Policies and Strategies

For each of the goals introduced in the beginning of this chapter, additional background, and supporting policies and strategies have been defined to assist the state and Oregon's rail stakeholders in achieving the Oregon State Rail Plan Vision. As discussed earlier in this Chapter, the order in which the goals are presented in the State Rail Plan is not intended to imply any priority among the goals as they are all critically important to meet the State Rail Plan Vision. The use of goal numbers offers a convenient way to refer to each individual goal and is not a priority numbering system.

Goal 1 - Partnership, Collaboration and Communication

Goal statement

Partner, collaborate and communicate with rail system operators and other stakeholders to maximize benefits, align interests, remove barriers and bring innovative solutions to the rail system and foster public understanding of rail's importance.

Background

Nearly all of the rail system in Oregon is privately owned and decisions about investments by these companies are based on business considerations. However, rail is a vital part of the state's multimodal transportation network and part of a national network that requires planning, partnership, collaboration and open communication between the public and private sector. The state has a responsibility to include in public discourse about the transportation system, the benefits of rail and the importance of partnerships with private rail carriers.

Collaboration means public-private and public-public partnerships to identify system "needs" and conduct planning, as demonstrated by this State Rail Plan. It relates to infrastructure investment, as the state has successfully shown with the *Connect*Oregon program. It also means collaboration with local jurisdictions on how to best plan for and integrate rail facilities and systems into communities, and on local land use decisions that protect and preserve rail corridors. Collaboration on multi-state and multi-national corridor projects, which involves a wide variety of public and private partners, is an important part of Oregon's State Rail Plan Vision.

Policies

1.1 Coordinate among system owners, operators, jurisdictions and other partners to ensure the rail system is integrated as a component of the broader multimodal transportation network in Oregon.

1.2 Work with local jurisdictions and railroads to coordinate land use plans and policies to preserve and protect rail corridors, and take into account community needs in relation to the rail system.

1.3 Communicate the benefits of the rail system in Oregon.

Strategies

1a. Work collaboratively with private railroads, jurisdictions and agencies, both within Oregon and in other states, to pursue system improvements and operations that mutually benefit stakeholders over the long term.

1b. Participate in working groups with rail service providers to plan and review operations in shared-use (e.g. freight and passenger) corridors.

1c. Participate in multi-state and bi-national freight and passenger planning efforts to identify mutually beneficial improvements and compatible operations in multi-state and bi-national rail corridors.

1d. Coordinate and participate in rail related projects and advisory groups that include shippers, carriers and railroads, including enhanced rail perspectives in Area Commissions on Transportation, Metropolitan Planning Organizations and local advisory boards and state advisory committees.

1e. Work with local jurisdictions and private industries to coordinate local planning activities and interactions with Class I and short line railroads and service providers.

1f. Provide planning guidance (e.g., transportation system planning guidance, model zoning ordinances, design standards and best practices) to regional and local jurisdictions to minimize conflicts from incompatible land uses in rail corridors and better integrate rail into communities.

1g. Integrate rail system considerations in state, regional and local system and facility plans. Provide guidance documents that promote best practices for multimodal transportation planning and rail integration.

1h. Provide guidance and contact information to local jurisdictions and other partners seeking to plan for, make investments in or conduct work near railroad facilities.

1i. Actively engage ODOT Regions, Area Commissions on Transportation, Metropolitan Planning Organizations, the general public and others. Provide public information on freight and passenger rail benefits (including system congestion, economic, environmental and sustainability benefits), the availability of passenger rail service (as a means of encouraging ridership), objectives and opportunities as part of a multimodal transportation system and information on the benefits and opportunities for public-private partnerships in rail.

Goal 2 - Connected System

Goal statement

Promote, preserve and enhance an efficient rail system that is accessible and integrated with Oregon's overall multimodal transportation system.

Background

For rail to effectively play its critical role in Oregon's transportation system, it must be integrated with and connected to other modes and to other rail systems. Rail corridors and services ensure connectivity within and across the state and nation, linking major population and employment centers, and linking industrial users to their suppliers and markets. Passenger stations and platforms, freight rail yards, transload and port facilities provide the connection points at which modal transfers are made whether by people or goods.

From the first-mile to the last-mile, each element of a connected system has a distinct role and the effectiveness and efficiency of the system is only as good as the performance of the weakest link. Promoting, preserving and enhancing rail services and connections ensure that modal options are available to enhance mobility and overall transportation system resiliency for residents and businesses.[51]

As noted in Chapter 3, rail can also play an important role in providing transportation system redundancy and resiliency in the event of natural disasters. The Oregon Resilience Plan identifies some high priority routes that would improve system resiliency and recommends ensuring that these rail routes meet seismic standards.[52]

Policies

2.1 Make investments that enhance the integration, efficiency, safety and reliability of rail connections with intermodal freight facilities and access by industries and businesses that could benefit from rail services in urban and rural areas of the state.

2.2 Enhance and promote an intercity passenger rail system that is easy to use, frequent, reliable, cost-effective, affordable, has competitive travel times and promotes access and transportation connectivity for all potential users, including the transportation disadvantaged.

2.3 Enhance and promote a commuter rail system for intra-regional mobility that is easy to use, frequent, reliable, cost-effective, affordable, has competitive travel times and promotes access and transportation connectivity for all potential users, including the transportation disadvantaged.

2.4 Explore the feasibility and practicality of high speed passenger rail service in the Amtrak Cascades corridor through corridor assessment, visioning work and planning for improvement projects.

Strategies

2a. Increase rail use by Oregon industries and businesses through programs, investments and facilities that help aggregate freight rail traffic and Cargo-Oriented Development (COD) consistent with private railroads' business models; work with communities to develop land use plans that encourage and provide incentives for industrial land uses and COD near rail lines.

2b. Emphasize intermodal, multimodal and first- and last-mile connectivity to key multimodal facilities, including ports.

[51] ODOT is conducting a Corridor Investment Plan Tier 1 Environmental Impact Statement (EIS) and Service Development Plan for the Willamette Valley portion of the Amtrak Cascades corridor. With eight of the ten largest cities in Oregon along the corridor, including the state's three largest metropolitan areas of Portland, Salem-Keizer and Eugene-Springfield, Oregon is positioning itself to accommodate expected population growth in the Willamette Valley of 35 percent, with an overall regional population reaching approximately 3.6 million by the year 2035. The project strives to improve the frequency, convenience, speed and reliability of passenger rail service along the corridor. Results from the corridor work may warrant future amendments and additions to this State Rail Plan. Future evaluation and consideration of other corridors may also lead to future revisions to this Plan.

[52] Oregon Seismic Safety Policy Advisory Committee, Op cit., February 2013.

2c. Work toward rail system connectivity, resiliency and redundancy within the overall transportation system to help Oregon mitigate and recover quickly from natural disasters or human caused disruptions.

2d. Provide incentives under new or existing funding programs to encourage system owners to adopt best practices to identify and address system vulnerabilities and to reduce recovery times. Ensure that short line railroads are not made ineligible for these incentives.

2e. Support and make investments to improve accessibility within and to various regions of the state, including east-west connectivity and connectivity across state lines consistent with strategies on passenger and commuter rail service and stops.

2f. Enhance and promote intercity and commuter passenger rail services as a viable/cost-effective choice for travelers, taking into consideration travel market characteristics (size of market, frequency and time of day characteristics of travel, cost and convenience of competing alternatives). Work to increase ridership through educating the public about the availability of passenger rail services.

2g. Evaluating new intercity and commuter passenger rail services across Oregon must consider and balance a number of policy questions including at a minimum:

- Will the service attract sufficient ridership and revenues to justify the service?
- What are the potential costs of the service?
- What are the economic and social benefits to the state, to local communities and to potential passengers who may have different needs and requirements?
- What are the alternatives to providing the service?
- How does the service satisfy state and local transportation goals?

2h. Continue to work with the Federal Railroad Administration on a Corridor Investment Plan, to facilitate decisions on future rail service in the Amtrak Cascades corridor, including general rail alignment, communities where stations could be located, number of daily trips, travel time objectives and the rail technology to be used.

2i. Participate in high speed rail visioning to develop a conceptual corridor assessment and high-level costs for high speed rail between the Eugene-Springfield area and Vancouver, Washington, with implementation beyond 2035. Actions needed by local, state and federal governments to advance development and funding of the concept should be identified.

2j. Work with Washington State to initiate a public process and formalize a new policy for the Amtrak Cascades corridor. In the interim, evaluate new proposals to add station stops based on benefits and disadvantages for the entire service.[53] The addition of a station stop should not degrade service or add uncompensated costs for partners of intercity passenger rail service without a full evaluation and balance of established criteria in a final decision. Evaluation criteria for possible additional station stops should include at a minimum:

[53] Interim factors are consistent with new stop evaluation work conducted by WSDOT for the Amtrak Cascades corridor.

Consistency with the State Rail Plan,

- Operational feasibility,
- Customer demand and population served,
- Station suitability,
- Interconnectivity benefits, and
- Fiscal viability.

2k. Support and make investments in intercity bus transportation and transit services that enhance, supplement and expand access and connectivity of the intercity and commuter passenger rail networks in Oregon.

2l. Work with local jurisdictions to plan for integrated multimodal station areas with connectivity to the local street network, intercity bus and local transit systems and bicycle and pedestrian facilities.

Goal 3 - System Investments and Preservation

Goal statement

Enhance transportation system reliability, capacity, frequency and travel times through investments that preserve and improve freight and passenger rail assets and infrastructure.

Background

Bottlenecks, capacity needs and other system deficiencies degrade the performance, safety and attractiveness of the rail system. In particular, deficiencies that impact system travel time and reliability influence how, and how frequently, rail service is used. Maintaining passenger and freight rail system condition in a state of good repair, closely aligned with system demand and economic development potential, ensures the system can serve residents and businesses in the most efficient manner possible while providing modal options. Making improvements on rail lines with shared passenger and freight operations can provide more reliable trains, more frequent trains and shorter travel times.

The loss of any rail service in Oregon is an economic loss.[54] The further loss of rail corridors/right-of-way signifies the end of development opportunities that could be rail served in the future. The state will work with local agencies to consider factors and choices for preserving or protecting rail services and corridors so that rail services continue to function and that future system expansion is possible. Rail abandonment will only be used as a last resort if there are no justifiable reasons to save the line or right-of-way.

[54] In the wake of the Staggers Act, railroads sold many of their lines which had low traffic density in order to improve financial performance. While the most marginal lines were abandoned, many were sold or leased to non-Class I line operators. Subsequently, these short line 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 have been filed by non-Class I lines.

Policies

3.1 Make investments in rail corridors in partnership with private railroads and other jurisdictions to eliminate choke points, improve network fluidity and maintain the rail system in a state of good repair. Public investments should be made in projects that address needs identified in the State Rail Plan, consistent with the investment principles and policies of the State Rail Plan.

3.2 Preserve the rail system service, infrastructure and assets in Oregon to meet existing objectives and capitalize on future opportunities.

Strategies

3a. Evaluate the benefits of designating strategic rail facilities and corridors and its role in informing public investment and planning decisions.

3b. Leverage and support Class I railroad investments to eliminate critical bottlenecks and choke points.

3c. Leverage investments and support short line railroads to upgrade track and maintain the system in a state of good repair where there is a demonstrated rail system, economic and public benefit for the state and/or region, and when a viable long term business plan has been demonstrated. Work may include incentives for businesses to locate and utilize rail assets. The Industrial Rail Spur Fund or similar improvement opportunities are one example of these incentives.

3d. As required by statute (ORS 824.202), eliminate at-grade crossings wherever possible. Give priority for closing crossings with the greatest potential for train conflicts with other modes and redundant crossings. Where rail grade crossings provide an important route for local pedestrian, bicycle or vehicle circulation, the needs of these local movements must be considered in decisions for closing or modifying existing crossings or adding new crossings.

3e. Make and facilitate investments that address intermodal terminal and rail yard capacity needs consistent with the State Rail Plan (e.g., identification or provision of suitable sites and assistance with permitting requirements), where there is market support for such facilities.

3f. Factors for decision making on preservation actions should include, at a minimum:

- Existing industry base using the line.
- Potential industrial customers not presently using the line but which can be accessed by it.
- How the line is connected to the national railroad system.
- Geography of the line and its potential service territory.
- Unique circumstances affecting operating costs and revenue potential.
- Regional vision for the future (what is expected to happen in the area served over the next 50 years?).

3g. Preserve the rail system through a hierarchy of investment and action:

- *1)* Preserve Service - Continue rail service on an endangered line through partial subsidization of the railroad operator, acquisition of the line by the public, or some combination of methods to keep service on the line.

- *2)* Preserve Infrastructure - Preserve the right-of-way and improvements (e.g. track structure) that occupy the right-of-way through means such as acquiring the corridor or otherwise preserving the infrastructure in place for some indeterminate period. The corridor could be brought back to operation at any time, although more resources will likely be required to resume service the longer the corridor is out of operation.
- *3)* Rail Banking - Invoke rails-to-trails legislation to preserve the right-of-way for interim trail use and the potential for the future return of railroad use. The railroad can salvage track but should leave the bridges, tunnels, embankments, etc., for trail and future rail use.
- *4)* Rail Line Abandonment - Rail line abandonment will be used only as a last resort if there are no justifiable reasons to save the rail line or the right-of-way. Even in this instance, right-of-way preservation may have a continued public benefit for other modes.

Goal 4 - Funding, Finance and Investment Principles

Goal statement

Establish funding that meets the critical needs of the rail system in Oregon and achieves the objectives of this State Rail Plan.

Background

Oregon's lack of dedicated, sustainable funding for rail investments is one of the top challenges facing both the passenger and freight rail systems in the state. Without funding, Oregon does not have revenue available, nor the required federal match, to improve, maintain and operate passenger rail services. Significant funds are also needed to maintain and improve the freight rail systems that are vital to Oregon's businesses and economy. Establishing a publicly accepted funding and financing structure/mechanism to address the short- and longer-term rail needs identified in this Plan is paramount.[55]

Policies

4.1 Preserve and improve the freight, passenger and commuter rail transportation system where there are public benefits to Oregon, its businesses and its communities.

4.2 Preserve and improve the rail system in ways that: 1) emphasize operations and non-financial participation before capital investment; 2) preserve and encourage competition between freight railroads; 3) encourage private investment that advances state economic development goals; 4) leverage state participation by allocating cost responsibility among beneficiaries; and 5) require projects to have viable business plans and proposals.

4.3 Develop a permanent rail funding and finance structure that addresses the public funding and critical needs aspects of rail investments.

[55] The *Connect*Oregon program has made significant contributions to the rail system by successfully leveraging resources. However, these funds are multimodal in nature, and passenger and freight rail projects must compete with air, water and other transit projects for its share.

Strategies

4a. Develop and maintain a short-/long-range rail investment needs inventory in partnership with railroad owners and operators that is consistent with needs identified in the State Rail Plan.

4b. Enhance or develop performance measures and benefit/cost-type tools that inform evaluation of rail investments based on benefits to Oregon's economy, improved freight and passenger mobility, improved safety and improved environmental conditions of the transportation system in Oregon.

4c. Make investments that benefit system operations for freight, intercity passenger and commuter rail service (or do not degrade one service type in favor of another), that eliminate conflicts in shared-use corridors and among modes and that allow for future service improvements.

4d. Maximize and leverage railroad investments through *Connect*Oregon and other multimodal funding programs.

4e. Work towards securing a sustainable funding source to address critical freight, passenger and commuter rail system needs for both capital improvements and operations.

4f. Use funding and financing mechanisms that are understandable to transportation system users and the public and minimize undesirable long-term impacts.

4g. Use public-private and public-public Partnerships for system investment that benefits both private and public objectives.

Goal 5 - System Safety

Goal statement

Plan, construct, operate, maintain and coordinate the rail system in Oregon with safety and security for all users and communities as a top priority.

Background

Oregon will continue to approach all aspects of rail system operation with safety and security as a top priority. Shared freight and passenger corridor operations, exclusive right-of-way and street running, at-grade rail crossings, and trespassing on private rail property are specific areas where rail safety and security is a concern and solutions will be coordinated with private-sector and local community partners, including emergency response providers.

At-grade rail crossings are a point of conflict between freight and passenger rail operations and the traveling public using the crossing facility. While Oregon has a statute to eliminate crossings wherever possible, project cost, weighed against the available resources, expected benefits and consideration of local conditions, may result in application of alternate mitigation approaches, such as lower cost improvements and use of technology.[56] Inspections, safety education and awareness programs are key components to improving rail system safety.[57]

[56] Crossing strategies are also discussed under *Goal 3 – System Investments and Preservation* since they are recognized as a strategic investment that improves operations as well as system safety.

[57] Trespassing on railroad private property and along railroad right-of-way is the leading cause of rail-related fatalities in the U.S.; more people have been fatally injured each year by trespassing than in motor vehicle collisions with trains at highway-rail grade crossings.

Rail safety relies on partnerships between railroads, federal and state agencies, local communities and emergency response providers. The ODOT Rail and Public Transit Division ensures compliance with state and federal regulations related to track, locomotives and rail cars, hazardous material transport and railroad operating practices.

Policy

5.1 Improve the safety and security of the rail transportation system for users including operators and employees, passengers, recipients of goods and services, users of other transportation modes, communities and property owners.

Strategies

5a. Coordinate and support safety and security awareness programs, operational improvements, new technology and equipment, inspections, enforcement activities, and coordinated response plans and training that promote overall system safety and security.

5b. Make every effort to further the safety and security of employees working on the rail system, passengers of the rail system, communities near the rail lines and the commodities being transported by rail.

5c. Work in partnership with railroad operators, state and federal agencies, local communities and emergency response providers to provide for the safe and secure transport of commodities throughout the state. Continue state efforts to address the movement and transport safety of hazardous materials.

5d. Increase safety through reduction, prevention or management of potential conflicts between rail and other users of the transportation system, including the consideration of Quiet Zones when federal requirements are met and safety is fully considered.

5e. Design transportation projects to avoid, reduce or address potential safety concerns with at-grade or grade separated crossings in coordination with the ODOT Rail and Public Transit Division.

Goal 6 - Preserving and Enhancing Quality of Life

Goal statement

Increase use and investment in freight and passenger rail systems to conserve and improve Oregon's environment and community cohesion.

Background

Both passenger and freight rail system benefits can help to meet Oregon's quality of life objectives. Rail links residents to jobs contributing to community livability through mode choice, increased mobility and lower transportation costs. Quality of life is enhanced and passenger and commuter rail spurs economic opportunities at station locations through better integration of rail systems, land use planning and Transit-Oriented Development. Rail systems also provide critical links to underserved areas in the state by providing key connections to urban areas, multimodal facilities and national or international markets.

Increasing the use of both passenger and freight rail provides benefits beyond the rail system, such as reducing emissions, fuel consumption, roadway congestion and pavement maintenance costs.

Policy

6.1 In setting priorities for system investments, explicitly take into account rail's role in providing a transportation system that is environmentally responsible and that encourages conservation and protection of natural resources.

6.2 Consider and address environmental and community impacts and resources in rail transportation decisions.

Strategies

6a. Provide information to stakeholders about the role the rail system plays in reducing emissions and reducing traffic on highways.

6b. Advance fuel-efficient rail operations, vehicle design and the use of cleaner fuels as part of Oregon's goal to move toward a cleaner and more diverse energy supply that protects people's health and the environment while making the system more resilient to oil price uncertainty and shocks.

6c. Make passenger and commuter rail improvements that enhance existing compact communities and neighborhoods and support the continued integration of residential, commercial and employment land uses.

6d. Work with railroads to provide efficient intercity mobility through and near urban areas in a manner which minimizes adverse effects on urban land use and travel patterns, including noise mitigation, where appropriate, and rail crossing considerations.

6e. Provide planning guidance and work with local jurisdictions and railroads to better integrate and plan for passenger and commuter rail systems in land use plans (e.g., multimodal connectivity, station area planning and new or relocated stops policy).

Goal 7 - Economic Development

Goal statement

Increase opportunity and investment in freight and passenger rail assets to grow Oregon's economy.

Background

The 2011 Oregon Freight Plan (OFP) estimates that freight demand will grow by nearly 90-percent between 2002 and 2035, comprising a substantial part of Oregon's overall economy. The OFP estimated 31 percent of Oregon's economy is based on goods movement dependent industries, including a substantial portion served by rail, such as timber, wood products, and paper; agriculture and food; manufacturing; construction; and wholesale and retail trade. At the same time, Oregon is expected to add about 1.3 million residents through 2040 increasing passenger travel demands. Without preservation and strategic investments in the rail system, other modes will have to shoulder the load and Oregon's highway system will experience increased congestion. Both degenerative

highway and rail systems will negatively impact Oregon industries and cause them to be less competitive in an increasingly challenging global economy. Rail system investments are critical to retaining Oregon's existing jobs and businesses and provide an opportunity to leverage private sector funds.

Rail also plays a key role in growing existing Oregon industries and attracting new ones to the state. In particular, maintaining and growing rail connections to ports and identifying opportunities to spur Cargo-Oriented Development are two examples of investments communities can spearhead, in partnership with private sector partners, to contribute to state and local economic development efforts.

Policy

7.1 Utilize the rail system in Oregon to promote economic activity and grow jobs throughout the state.

Strategies

7a. Coordinate private and public resources to provide rail system improvements and services that contribute to, or help develop, active and vital economic centers and jobs throughout Oregon.

7b. Promote and support the co-location of economic activities and appropriate transportation facilities with convenient and reliable access to freight and passenger rail options.

7c. Leverage investments in the freight rail system to provide Oregon a competitive advantage by moving goods faster and more reliably to regional, national and international markets.

7d. Make investments in the passenger rail system to so that intrastate, interstate and international travelers can travel easily for business and recreation.

Passenger and Freight Rail Investment

This Chapter of the State Rail Plan has shown that rail is critical to Oregon, to its residents and businesses, and that numerous rail system stakeholders can benefit through investments in freight and passenger rail systems. The rail system investment framework provides a means for Oregon to determine when and how much they should partner with other rail stakeholders on rail investments that implement the vision and goals of this Plan.

Unfortunately, there is uncertainty to the level of funding that may be available in the future – whether 5 years or 25 years. This situation requires a creative approach to rail system investment, and a plan that provides flexibility as the funding picture changes. To incorporate flexibility into investment decision-making, three funding scenarios (developed as part of the OTP) were used to identify which types of projects and programs should be priorities, based on available funding.

These OTP scenarios make specific recommendations for types of projects that should be pursued, given level of funding, and provide insight into the anticipated outcomes of those investments. Based on the information produced in this State Rail Plan, and Steering Committee feedback, refinements to the OTP scenarios have been made so they can be directly linked to this Plan.

Response to Flat Funding Scenario

The OTP "Response to Flat Funding Scenario" represents no additional transportation funds available. In this scenario, it is anticipated that purchasing power will decline 40 to 50 percent over the OTP plan period (2006-2030) due to inflation. In this situation there are minimal investments that Oregon can make; however, basic assumptions of how to invest in the system will remain. These include:[58]

- Emphasize system preservation and operational improvements to maximize system capacity with a triage approach.
- Continue maintaining the system but track may slip to a lower class in some cases leading to lower maintenance and preservation standards.
- Capacity additions at minimum mandated levels.

The OTP describes the potential impacts this level of investment will have on the system, including:[59]

- The system will deteriorate, providing neither livable communities nor a base for economic development.
- Service does not keep pace with population growth. Passenger rail service will be curtailed and bus services in corridors will decline. Only major metropolitan areas retain intercity bus service and with reduced schedules.
- More non-Class I companies fail to adequately maintain track and companies fail.

This State Rail Plan agrees with the goals of focusing on operating, maintaining and preserving the system at the highest level possible in this scenario. As funds are scarce, this State Rail Plan recommends that Oregon should collaborate with rail system stakeholders to identify areas of mutual benefit and select those projects that are opportunities for leveraging private and public sector funds. Additionally, no matter what the funding picture, rail service and corridor preservation should also be included as an option for the state. This could include prioritizing project types such as:

- Railroad Corridor Preservation (right-of-way);
- Railroad Corridor Preservation (infrastructure);
- Passenger Rail Operations and Maintaining Existing Services (as much as possible - which could also provide benefit to freight system operations on shared corridors);
- Crossing Safety Improvements; and
- Short Line State of Good Repair (in cases to ensure businesses remain in Oregon).

In this scenario, with flat funding, only portions of the following State Rail Plan goals are expected to be met:

- Goal 1 - Partnership, Collaboration and Communication
- Goal 3 - System Investments and Preservation

[58] *Oregon Transportation Plan, Volume 1*, Adopted September 20, 2006.

[59] *Ibid*.

- Goal 4 - Funding, Finance and Investment Principles
- Goal 5 - System Safety

Funding Increases to Keep up with Inflation Scenario

The "Funding Increases to Keep up with Inflation Scenario" represents new transportation dollars to keep up with cost from inflation. This scenario:[60]

- Holds existing facilities and services at their current performance levels to the extent possible.
- Addresses some bottlenecks and puts additional funding into operations to preserve capacity.
- Does not focus on major capacity-enhancing improvements.

While this scenario may avoid severe economic consequences, it does not create a competitive advantage for Oregon businesses. The OTP describes the potential impacts this level of investment will have on the system, including:[61]

- Intercity rail service is limited but would offer an alternative to highway travel.
- Rail freight shipping costs would be reduced by elimination of some bottlenecks.
- Preservation of rail services would assist job retention in rural areas and outside the Willamette Valley.
- Funding would prevent further cutbacks of non-Class I rail service and maintain rural access to freight and passenger services.
- Freight accessibility would be lessened by lack of capacity-adding projects.

This State Rail Plan agrees with the scenario's goals of continuing to operate, maintain and preserve the system at the highest level possible, while gradually expanding the system. However, this State Rail Plan recommends emphasizing projects that benefit shared corridor operations, including capital projects and crossing improvements, as well as those projects that promote modal options and efficiencies, providing congestion relief and lower pavement maintenance need. This could include prioritizing project types such as:

From Flat Funding Scenario:

- Railroad Corridor Preservation (right-of-way);
- Railroad Corridor Preservation (infrastructure);
- Passenger Rail Operations and Maintaining Existing Services (which could also provide benefit to freight system operations on shared corridors);
- Crossing Safety Improvements; and
- Short Line State of Good Repair (in cases to ensure businesses remain in Oregon).

New Project Types:

- Class I Chokepoints (in shared passenger corridors);
- Port-related Rail Projects (such as intermodal connectivity projects);

[60] *Ibid.*

[61] *Ibid..*

- Industrial Access Improvements (to allow shippers to use rail);
- Yard Improvements; and
- Low Emission Locomotive Technology.

In this scenario, with funding keeping up with inflation, only portions of the following State Rail Plan goals are expected to be met:

- Goal 1 - Partnership, Collaboration and Communication
- Goal 2 - Connected System
- Goal 3 - System Investments and Preservation
- Goal 4 - Funding, Finance and Investment Principles
- Goal 5 - System Safety
- Goal 6 - Preserving and Enhancing Quality of Life

Expanding Facilities and Services Scenario

The Expanding Facilities and Services Scenario allows modes to take care of their feasible needs over the next 25 years. In this scenario Oregon makes significant investments in new infrastructure, and as such, has a very positive impact on Oregon's economy. In the OTP, Oregon describes the potential impacts this level of investment will have on the system, including:[62]

- Public transit and rail improvements would make greater contributions to congestion relief.
- Rural areas would be better able to retain and attract rail services and related jobs.
- Rural areas would be better connected via public transportation to communities with full services, ensuring better quality of life, retention of population and improved economies.
- Improved rail freight, marine port facilities and airports would enhance the economy across the state.

This State Rail Plan agrees with the scenario's goal of expanding the system. However, this State Rail Plan notes that in recent years since, the OTP was developed, the need for system expansion has increased substantially. On the passenger side, options for investments are being discussed in the Amtrak Cascades Corridor. Also, this Plan reviewed that in the long-term there may be need to further evaluate passenger rail service in other corridors in Oregon.

Related to freight rail, the strategies in this State Rail Plan refine those in the OTP, primarily due to the fact that the investment framework established in this Chapter notes that Oregon should primarily provide financial support commensurate with the benefits the state (public) receives. This could alter the investments made in various parts of the system. For example, removing mainline system bottlenecks should be pursued by the state when the benefit-cost ratio deems it a worthy investment of state funds. This scenario could include prioritizing project types such as:

From Flat Funding and Funding Increases with Inflation Scenarios:

- Railroad Corridor Preservation (right-of-way);
- Railroad Corridor Preservation (infrastructure);

[62] *Ibid.*

- Passenger Rail Operations and Maintaining Existing Services (which could also provide benefit to freight system operations on shared corridors);
- Crossing Safety Improvements;
- Short Line State of Good Repair (in cases to ensure businesses remain in Oregon);
- Class I Chokepoints (in shared passenger corridors);
- Port-related Rail Projects (such as intermodal connectivity projects);
- Industrial Access Improvements (to allow shippers to capitalize on modal options);
- Yard Improvements; and
- Low Emission Locomotive Technology.

New Project Types:

- Passenger Rail Capital Improvements for Service Upgrades (station additions, increased frequency, etc.);
- Passenger Rail New Services;
- Grade Separations; and
- Traffic Consolidation Facilities/Logistics Centers/Inland Ports.

It is anticipated that in this scenario, with funding to expand facilities and services, that each of the State Rail Plan goals will be met:

- Goal 1 - Partnership, Collaboration and Communication
- Goal 2 - Connected System
- Goal 3 - System Investments and Preservation
- Goal 4 - Funding, Finance and Investment Principles
- Goal 5 - System Safety
- Goal 6 - Preserving and Enhancing Quality of Life
- Goal 7 - Economic Development

Conclusion

The OTP notes that investing in the transportation system at levels described in the "Flat Funding" and "Funding Increases with Inflation" scenarios is inadequate to meet Oregonians' needs, with the "Flat Funding" scenario not even maintaining existing infrastructure. While the "Expanded Funding" scenario allows Oregon to be competitive and provides businesses and residents the transportation infrastructure and services that allow them to operate efficiently, that scenario is not a probable future in the short run.

This State Rail Plan and the investment framework described in this Chapter presents an opportunity for Oregon to take a refined approach to its long term transportation future. This Plan provides the guidance to enable Oregon to collaborate with the private sector on rail projects and helps provide guidance on how much contribution is appropriate for each rail stakeholder given general circumstances. This presents a great opportunity for Oregon to better leverage private dollars, and move forward with those projects that are most critical to Oregon.

This page intentionally left blank.

Coordination, Review and Next Steps

This page intentionally left blank.

5 Coordination, Review and Next Steps

Chapter 5 describes the stakeholder coordination and public review mechanisms used during development of the State Rail Plan. The OTC and ODOT strive to include meaningful public involvement in important agency decisions. To accomplish this, the OTC formalized a Public Involvement Policy to meet state and federal public participation requirements, particularly those required for statewide planning. The process used to develop the State Rail Plan was consistent with OTC Public Involvement Policy principles, in that it:

- Facilitated public involvement during Plan development;
- Was developed consistent with ODOT public involvement processes;
- Actively involved members of the public and other stakeholders in the development of the SRP; and
- Met or exceeded all applicable public participation requirements for the SRP.

For project stakeholders, communications occurred primarily via email, phone calls, the project website and detailed discussions at project meetings. For the general public, the communication method included information on the project website, project fact sheets and other information materials, often provided through email notifications. The planning process requires, and ODOT supports, public meetings which occur during the formal public review for the Draft State Rail Plan. The following sections provide additional detail on the process and the stakeholders engaged.

Project Public Involvement Plan

A project specific Public Involvement Plan (PIP) was developed for the State Rail Plan. The PIP ensured that ODOT meaningfully involved the public providing for early, open, continuous and effective public participation in and access to key planning activities and decisions during the development of the SRP. The project's public involvement goals were critical success factors for the project and included:

- Communicate complete, accurate, understandable and timely information to statewide rail and transportation interests and others throughout the project.
- Design and facilitate a Steering Committee process that results in broad-based support for the information and strategies laid out in the Plan.
- Seek participation of all potentially affected and/or interested individuals, communities and organizations.
- Coordinate outreach with the Oregon Passenger Rail Project and Washington State Department of Transportation, as appropriate.
- Comply with Civil Rights Act of 1964 Title VI requirements and Oregon Transportation Commission, Title IV and environmental justice objectives.

- Ensure that the public involvement process meets applicable state and federal laws and requirements including the OTC Public Involvement Policy, and is sensitive to local policies, goals and objectives.

Key Audience and Messages

As stated in the goals above, the engagement efforts sought participation of potentially affected and/or interested individuals, communities and organizations, including the following:

- Railroad owners and operators
- Freight, warehousing and shipping interests
- Passenger rail interests
- General public
- Elected officials
- Cities and counties
- Special Districts such as transit and ports
- Area Commissions on Transportation
- Interested federal and state agencies
- Applicable ODOT advisory committees
- Metropolitan Planning Organizations
- Environmental interests
- Traditionally underserved populations
- Tourism interests
- Native American tribes
- Regional Solutions Teams

The PIP established key messages to convey to Oregon stakeholders about the project, including that:

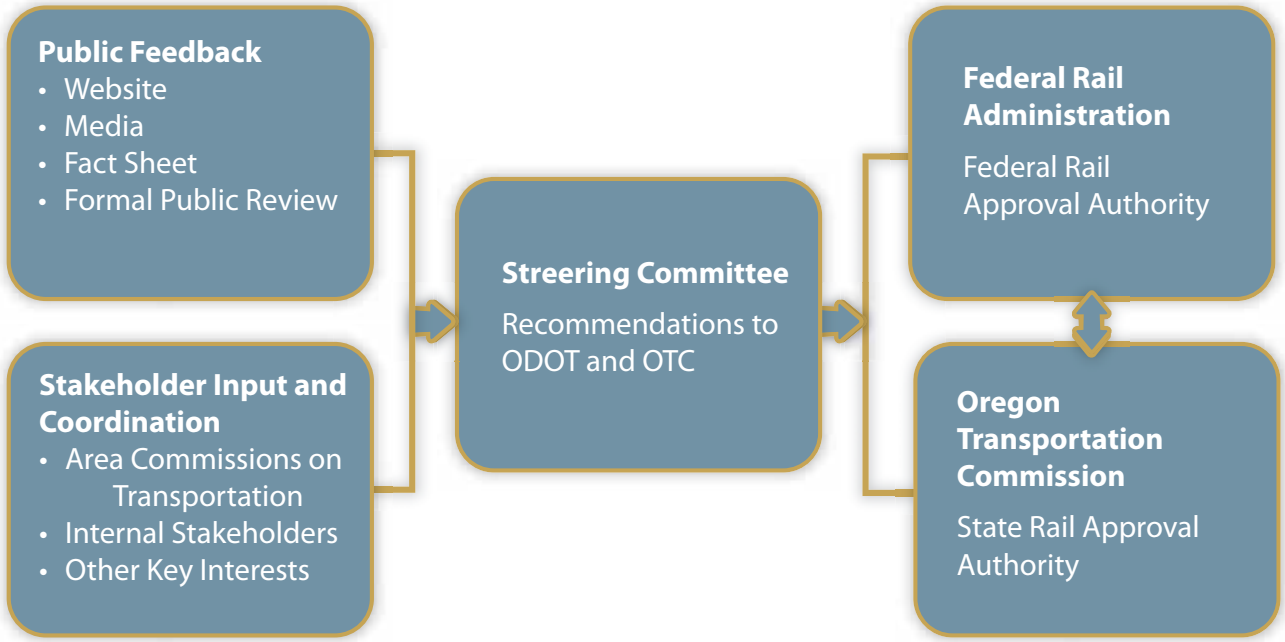
- The SRP will identify current capabilities and plan to meet future needs of the freight, passenger and commuter rail system in Oregon.
- The SRP will clarify the role of rail in Oregon's multimodal transportation system.
- The SRP will provide an information and strategy framework for decision-making regarding public investment in railroad infrastructure.
- The SRP is intended to enhance community quality-of-life and economic development throughout Oregon.
- The SRP will ensure public review and input and provide access to technical and policy information used in the planning process throughout its development, including a formal public comment period on the Draft State Rail Plan not less than 45 days.
- The SRP will be adopted by the OTC as the state approval authority.
- The SRP must be accepted by FRA before the project is deemed complete.

Decision-Making Structure

The PIP also formalized the State Rail Plan project's decision-making structure. The OTC is the project's final decision maker for state approval, although the Plan is also reviewed by FRA as the federal approval authority for compliance with PRIIA and accepted as a complete document. The SRP Steering Committee, appointed by ODOT's Director, made recommendations to ODOT and the OTC based on technical analysis and stakeholder input. ODOT's Area Commissions on Transportation and other key stakeholder groups were targeted for input during Plan development, particularly during the Plan's formal public review period.

Decision-making was supported and informed by substantial and broad stakeholder input in the belief that the best way to build Plan support is to have an open, continuous, effective and inclusive planning process that is viewed as credible by stakeholders. The Plan decision-making structure is shown in Figure 20.

Figure 20: State Rail Plan Decision-Making Structure



Public Agency Coordination

ODOT coordinated with key agencies throughout development of this Plan, including the FRA, State of Washington and internally throughout ODOT.

Federal Railroad Administration

FRA is the federal approval authority of the State Rail Plan based on PRIIA. Under the grant/cooperative agreement between ODOT and FRA, FRA participated in the SRP through project updates and review of the task deliverables.

Development of this Plan was made possible by a federal grant from FRA. All federal grants awarded to ODOT have mandatory reporting requirements, and as part of this, the ODOT SRP Project Manager produced monthly project reports for FRA, submitted along with invoices for

project cost reimbursement. This reporting process was supported by regularly scheduled conference calls between ODOT project managers and staff at the FRA to ensure that all reporting requirements were met to FRA's satisfaction.

Washington State

ODOT worked with its counterparts at WSDOT to coordinate planning efforts particularly for the Amtrak Cascades Corridor. The Transportation Director in Oregon and Secretary in Washington signed a Memorandum of Understanding to coordinate management and planning for the corridor and WSDOT was in the process of preparing their SRP on roughly the same schedule as ODOT's. ODOT and WSDOT coordinated though project-specific conference calls and corridor meetings between staff, sharing Draft State Rail Plan materials and joint project updates to Agency leadership. Respective staff also participated in project stakeholder meetings as schedules allowed.

Oregon Department of Transportation

The ODOT SRP Project Manager organized internal ODOT stakeholders to ensure project activities were coordinated with ODOT Regions, Divisions, and offices, as well as to ensure that this Plan was developed consistent with Oregon Transportation Plan and statewide planning goals, and other applicable state and federal policies and procedures.

The ODOT SRP Project Manager coordinated with the Project Team to compile project reports and briefings for ODOT Executive Management. ODOT also has a number of existing groups that meet on a regular basis that the ODOT SRP Project Manager coordinated with, including Agency planning and technical leadership teams.

Area Commissions on Transportations (ACTs)

Area Commissions on Transportation are advisory bodies chartered by the OTC in order to expand opportunities for local citizen and jurisdictional involvement in ODOT's decision-making. There are eleven ACTs in Oregon that consider regional and local transportation issues particularly in respect to the state system. The ACTs work with other local organizations dealing with transportation-related issues and play a key advisory role in the development of the Statewide Transportation Improvement Program and other ODOT plans. As part of the State Rail Plan's public review period, each of the ACTs were consulted by the Project Team.

Rail Plan Steering Committee

The State Rail Plan Steering Committee (SC) was established for the purpose of reviewing and guiding the ODOT-led rail planning process which resulted in a recommendation to the ODOT Director and the OTC on the resulting Oregon State Rail Plan. The SC members were appointed by the ODOT Director to represent the broad range of rail community interests statewide, and included:

- Committee Chair - David Lohman - *Oregon Transportation Commission*
- David Anzur - *Portland & Western Railroad*
- David Arnold - *Association of Oregon Rail and Transit Advocates*
- Susan Brody - *On Behalf of the Oregon Environmental Council*

- Rob Eaton - *Amtrak*
- Ron Fox - *Southern Oregon Regional Economic Development Inc*.
- Hal Gard - *Oregon Department of Transportation*
- Paul Langner - *Tevin Brothers*
- Jeff Lowe - *TriMet*
- Linda Modrell - *Benton County*
- Susan Morgan - *Douglas County*
- Brock Nelson - *Union Pacific*
- Scott Palmer - *Brotherhood of Locomotive Engineers and Trainmen*
- Kitty Piercy - *City of Eugene*
- Toby Van Altvorst/Dale Keller - *City of Prineville Railway*
- Colleen Weatherford - *BNSF Railway*
- Dennis Williams - *Rosboro Lumber*
- Kathryn Williams - *Port of Portland*

Throughout Plan development the SC made consensus decisions on the understanding that their recommendations to the ODOT and the OTC were strengthened by high levels of agreement. While the primary purpose of SC meetings was to provide a forum for the discussion and input from the Committee, meetings were open to the public for observation. Time at each meeting was reserved for public comment.

The Committee met regularly to discuss study findings and inform key elements of the SRP. Ten Steering Committee meetings were scheduled during Plan development. This included a meeting in January 2014 for the explicit purpose of coordinating with the Oregon Passenger Rail Project.

Additionally, each of the SC members participated in a one-on-one interview with the Project Team to discuss issues, needs and opportunities for the rail system in Oregon.

Public Review and Comments

A minimum 45-day public review and comment period is required prior to adoption of Oregon statewide plans. All formal comments received during this time period are cataloged by the Project Team. An assessment is made on whether changes to the Plan are needed. If changes are not recommended, the team will document the comment and explanation of why that decision was made. The Project Team worked with the Steering Committee to finalize the Plan in response to public comment and reported the outcome as part of the OTC consideration for Plan adoption.

Steps Following Plan Adoption

Implementing the State Rail Plan will build on the planning framework established in the Oregon Transportation Plan, other mode and topic plans, and federal legislation. The SRP's goals, policies and strategies, and the investment framework provide Oregon with opportunities to leverage private

investments and move forward with rail projects and programs that are most critical to citizens and businesses across the state.

Implementing some elements of the SRP can be accomplished in the short term while other actions will require commitments over the long term. Many implementation activities will rely on partnerships and coordination between and within government agencies, private railroads and shippers and other stakeholders. Many actions are dependent on funding availability and the SRP was developed to be flexible and adapt to different funding scenarios for Oregon.

Early actions following Plan adoption include:

- Submitted the OTC-adopted 2014 State Rail Plan to the Federal Railroad Administration for "acceptance" under the requirements of PRIIA. FRA accepted in January 2015.
- Identify and document key implementation activities for ODOT and other partners over the short and long term planning periods based on policies and strategies called for in the SRP.
- Continue efforts to establish sustainable and reliable funding to meet the critical rail needs in Oregon and work toward the objectives of this SRP.
- Assist work underway for the Corridor Investment Plan Tier 1 Environmental Impact Statement and Service Development Plan along the Willamette Valley portion of the Amtrak Cascades corridor. Assist the High Speed Rail Vision Group developing a conceptual corridor assessment and high-level costs for the possibility of long-term high speed rail in the Willamette Valley. Assess any impacts or needs for amendment to the SRP based on the outcomes of this work.
- Continue work with Washington State, and other states as applicable, to improve the effectiveness and efficiency of passenger rail services for Oregon.
- Whenever applicable, use the framework provided in the SRP Investment Program to enable Oregon to identify projects that benefit public interest, prioritize those projects and consider funding responsibility of other rail stakeholders in relation to the benefits they receive.
- Develop guidance to assist ODOT staff, local governments and other stakeholders working with railroad partners on land use and community issues around rail lines.
- Provide outreach on the role of rail in Oregon's statewide multimodal transportation system, the characteristics of rail in Oregon and information to help improve public and private partnerships for rail.
- Work with other statewide modal and topic planning efforts to consider and integrate rail connections to benefit multimodal system connectivity and efficiencies, and to mitigate issues between rail and other modes of transportation.
- Continue to improve the overall safety of the rail system in all facets of ODOT's work.
- Build off of the information compiled for the SRP to develop and maintain a short/long range rail investment needs inventory and other preparatory work that allows Oregon to capitalize on future funding opportunities as they arise.
- Monitor and assess the effectiveness of implementing the SRP to inform future amendments and updates, including revisions needed to comply with PRIIA and stay current on federal requirements for future funding opportunities.

Appendices

This page intentionally left blank.

Appendix A — Passenger Rail Definitions

Urban Rail Systems. Urban rail systems provide passenger service within a metropolitan area, connecting residential neighborhoods with local activity centers. Urban rail service can take several forms, including heavy-rail transit (e.g., subways and elevated trains), which offers high-capacity, high-speed service; cable-cars, trams or streetcars offering lower-speed, lower-capacity, localized service; and light-rail systems, which offer capacities and speeds between those of heavy rail and streetcars/trams.

Commuter Rail Systems. Also called regional rail, these rail systems typically provide passenger service within a single region, and occasionally between regions. A commuter rail system operates on mainline trackage which may be shared with intercity rail and freight trains. Systems tend to operate at lower frequencies than urban rail systems, but tend to travel at higher speeds and cover longer distances.

Intercity Passenger Rail Systems. Also called conventional rail, intercity passenger rail services provide transportation between metropolitan areas, to rural areas, and to points beyond the state's borders, primarily sharing freight trackage. Amtrak operates all intercity rail services in the state. Generally, the speed range for conventional rail is 99 mph or less, but can be quite diverse, ranging from 31 mph in a mountainous area or 124 mph on newly-constructed or improved tracks. Ideally, the average speed of intercity rail service should be faster than 62 mph in order to be competitive with car, bus and other methods of transport.

High Speed Rail Systems. Generally, the speed range for high speed rail is between 124 mph and 249 mph. Although almost every form of high speed rail is electrically driven via overhead lines, this is not necessarily a defining aspect and other forms of propulsion, such as diesel locomotives, may be used. A definitive aspect is the use of continuous welded rail which reduces track vibrations and discrepancies between rail segments enough to allow trains to pass at speeds in excess of 124 mph. Although a few exceptions exist, zero grade crossings is a policy adopted almost worldwide.

This page intentionally left blank.

APPENDIX B — Oregon State Rail Plan Steering Committee Members

Special thanks to the following committee members for their contribution to the OSRP. We also wish to thank the many citizens of Oregon, including Area Commissions on Transportation, policy board members and their staff who provided valuable comments and assistance on the OSRP.

- Chair, David Lohman – *Oregon Transportation Commission*
- David Anzur – *Portland & Western Railroad*
- David Arnold – *Association of Oregon Rail and Transit Advocates*
- Susan Brody – *On Behalf of the Oregon Environmental Council*
- Rob Easton – *Amtrak*
- Ron Fox – *Southern Oregon Regional Economic Development, Inc.*
- Hal Gard – *Oregon Department of Transportation*
- Paul Langner – *Tevin Brothers*
- Jeff Lowe – *TriMet*
- Linda Modrell – *Benton County*
- Susan Morgan – *Douglas County*
- Brock Nelson – *Union Pacific*
- Scott Palmer – *Brotherhood of Locomotive Engineers and Trainmen*
- Kitty Piercy – *City of Eugene*
- Toby Van Altvorst/Dale Keller - *City of Prineville Railway*
- Colleen Weatherford – *BNSF Railway*
- Dennis Williams – *Rosboro Lumber*
- Kathryn Williams – *Port of Portland*

This page intentionally left blank.

Appendix C — Example Projects by Type

As with other statewide plans in Oregon, this State Rail Plan does not recommend or prioritize specific projects for investment, however, it does present illustrative projects by type for Oregon to consider pursuing in the future. This Appendix identifies these illustrative projects. This list of projects has been developed from analysis conducted as part of State Rail Plan development, from projects identified in the 2010 Oregon Rail Study, and it also contains projects that the Plan Team is aware of through knowledge of the rail system in Oregon. This list is meant to be illustrative of the different project types that would satisfy needs identified in the State Rail Plan. By no means is it comprehensive nor prioritized. Nonetheless, this list should be reviewed regularly to ensure that it is representative of the types of projects that address the evolving needs of Oregon's rail system. Given these factors, project eligibility for future funding opportunities does not hinge on their inclusion in this illustrative list, but rather the demonstration of consistency with the goals and needs identified in this State Rail Plan as adopted by the OTC. Additional project example information is available in the Investment Program Technical Memorandum.

While also included in elements of the illustrative list, preliminary engineering and environmental work (PE/NEPA) is underway for several key infrastructure improvements in the Willamette Valley Corridor including the Willbridge Crossovers Project, North Portland and Peninsula Junction Connections, Eugene Station Layover tracks and Portland Union Station building and tracks.

Railroad Corridor Preservation Projects

- Albany and Eastern Railroad - Sweet Home Branch
- Central Oregon & Pacific Railroad - Ashland to Montague, CA
- Hampton Railway - Entire line
- Lake Railway - Entire line
- Longview Portland & Northern Railway - Entire line
- Oregon Pacific Railroad - Liberal to Molalla
- Port of Tillamook Bay Railroad - Already abandoned part of line
- Portland & Western Railroad - Astoria District - Forest Grove District
- Wallowa Union Railroad - Entire line
- Willamette & Pacific Railroad - Abandoned in 2011; Dallas District
- Willamette Valley Railway - Entire line
- Wyoming & Colorado Railroad - Entire line

Main Line Speed Improvement Projects

- BNSF - Upgrade to CTC BNSF Oregon Trunk - Chemult to Oregon Trunk Junction
- BNSF - Increased Speed Over the Willamette and Columbia River Bridges
- BNSF and UP - North Portland Junction
- UP - CTC Crates to Biggs, Signal improvements; increased fluidity

Connecting Ports to Main Line Projects

- West Hayden Island - Main Line Access

Port Projects

- Port of Portland T-4 - Pier 1 Rail Yard Improvements
- Port of Portland West Hayden Island - Unit Train Loops
- Port of Portland T-4 - Soda Ash Storage Tracks
- UP Bonneville Yard Build Out - to support Port of Portland T-4
- Ramsey Yard - Utilization
- South Rivergate Rail Access - Second Slough Bridge

Connecting Short line Railroads to Class I Railroad Main Line Projects

- BNSF/UP/Portland Terminal Railroad – Mainline Access Improvement by replacing hand-thrown switches with automated power switches through Lake Yard
- Peninsula Terminal Railroad - BNSF/PT Rail Connection at Suttle Road

Quiet Zone Projects

Where grade separations are not feasible or affordable, quiet zone projects maintain safe at-grade crossings without the noise from train horns.

- Portland - Cathedral Park Quiet Zone

Passenger Rail Projects

- Outcome of the Oregon Passenger Rail Project
- Additional work and analysis of other potential corridors identified in the Plan

Main Line Capacity Projects

- Albany Rail Consolidation Project
    - Double Track UP main line – from siding just south of Albany, through Albany to Millersburg
    - Add CTC
    - Eliminate at-grade crossings through combination of closure and grade separation
        - ◊ Ellingson Rd. SW
        - ◊ 34th Ave. SW*
        - ◊ SW Queen*
        - ◊ SE Madison
        - ◊ SE Main St.

- ◊ Santiam Rd. SE
- ◊ SE Geary
- ◊ SE Salem Ave.*
- ◊ NE Davidson St.*

** Primary or Critical Crossing*

- Union Pacific Railroad
  - o Double Track - Eugene Depot to Irving
  - o Extend Siding - Coalca
  - o Double Track - Willsburg Junction to Clackamas
  - o Double Track - T-5 (Bonneville Yard) to Barnes Yard
  - o Double Track - Penn Jct. to West Hemlock
  - o Double Track - Hinkle to Nampa, ID
  - o Double Track - Troutdale to Hinkle
  - o Double Track - Peninsula Jct. to Troutdale
  - o Double Track - Peninsula Jct. to North Portland Jct.
  - o UP - North Portland Crossover Improvements
  - o UP Main Line - Track Realignment South of Albina (6 MPH Curves)
  - o UP North Portland - Undoing the "X"
  - o Mosier 2 MT New 2MT section on Portland Sub – additional capacity
  - o Hinkle Gravel Tracks New tracks for bulk staging – additional capacity/fluidity at major yard
  - o Milam-Gibbon 2 MT New 2MT section on LaGrande Sub – additional capacity
  - o Graham Line Midpoint Siding - New siding on Graham Line for meets/pass; increased fluidity
  - o East Portland Connection - Additional connection to Graham Line - increased fluidity
  - o Hinkle 2nd Trim Lead - Additional capacity/fluidity at major yard
- BNSF Railway
  - o Bend to Oregon Trunk Jct. Siding Extensions – Install and extend sidings for meets/passes to increase capacity and velocity
  - o Willbridge Crossover - Upgrade from No. 11 power double crossovers. Project would increase train velocity by allowing higher train speeds through the crossovers. With federal funding, ODOT is preparing the PE/NEPA project to 30% designs with expected completion August 2015
  - o North Portland Jct. - Third Main Line – to Vancouver, WA
  - o Bieber Junction, Klamath Falls - Power switches at Bieber Junction where BNSF and Union Pacific connect, to improve velocity

Safety Projects

Several areas in the state currently have in-street running, which should be evaluated in the future, including:

- Albany
- Harrisburg
- Independence
- Junction City
- Newberg
- Rainier
- Salem

As rail traffic increases throughout the state, communities should review locations that have at-grade rail crossings for potential improvements, including improvements that consider local pedestrian, bicycle and vehicle circulation. Improvements could include grade separations or elimination of crossings where train and roadway traffic justify this. In other cases, improving/adding warning signals may be sufficient.

The Port of Portland also has some specific grade separation projects that would improve operations outside the terminals, while improving motor vehicle operations on streets that are currently blocked. Example projects include:

- Port of Portland Marine Drive Grade Separation Project
- Port of Portland T-6 Berth 607 Grade Separation

Appendix D — Findings of Compliance with Oregon's Statewide Planning Goals

Statutory Background and Requirements for Oregon State Rail Plan

Adoption of the 2014 Oregon State Rail Plan (SRP or Plan) fulfills federal and state requirements and objectives for state rail planning. While this document focuses on content and actions to meet Oregon's statewide planning goals, it is also important to acknowledge that the SRP is in compliance with the federal Passenger Rail Investment and Improvement Act (PRIIA). More specifically, the SRP is in compliance with 49 U.S.C. § 22102 which stipulates eligibility requirements for a FRA rail grant assistance program pertaining to state planning and administration.

The SRP was prepared by the Oregon Department of Transportation (ODOT), the state rail transportation authority, that will also maintain, coordinate and administer the Plan. The Oregon Transportation Commission (OTC), the state approval authority, will consider the SRP for adoption as part of its legal responsibility and authority under ORS 184.618. The SRP is a modal plan under the Oregon Transportation Plan (OTP) and will serve as a component of the state's transportation system plan (TSP).

Findings of Compliance with State Agency Coordination Agreement

ODOT's State Agency Coordination Agreement (SAC) requires the OTC to adopt findings of fact when adopting final modal system plans (OAR 731-015-0055). Pursuant to these requirements, the following findings and supporting information supplements the OTC adoption of the 2014 Oregon State Rail Plan.

Coordination Procedures for Adopting Final Modal Systems Plans (OAR 731-015-0055)

(1) Except in the case of minor amendments, the Department shall involve DLCD, metropolitan planning organizations, and interested cities, counties, state and federal agencies, special districts and other parties in the development or amendment of a modal systems plan. This involvement may take the form of mailings, meeting, or other means that the Department determines are appropriate for the circumstances. The Department shall hold at least one public meeting on the plan prior to adoption.

(2) The Department shall evaluate and write draft findings of compliance with all applicable statewide planning goals.

(3) If the draft plan identifies new facilities which would affect identifiable geographic areas, the Department shall meet with the planning representatives of affected cities, counties and metropolitan planning organization to identify compatibility issues and the means of resolving them. These may include:

(a) Changing the draft plan to eliminate the conflicts;

(b) Working with the affected local governments to amend their comprehensive plans to eliminate the conflicts; or

(c) Identifying the new facilities as proposals which are contingent on the resolution of the conflicts prior to the completion of the transportation planning program for the proposed new facilities.

(4) The Department shall present to the Transportation Commission the draft plan, findings of compatibility for new facilities affecting identifiable geographic areas, and findings of compliance with all applicable statewide planning goals.

(5) The Transportation Commission, when it adopts a final modal systems plan, shall adopt findings of compatibility for new facilities affecting identifiable geographic areas and findings of compliance with all statewide planning goals.

(6) The Department shall provide copies of the adopted final modal systems plan and findings to DLCD, the metropolitan planning organizations, and others who request to receive a copy.

FINDING: Development of the 2014 Oregon State Rail Plan was based on an open and ongoing public and agency involvement process which included the Department of Land Conservation and Development (DLCD), metropolitan planning organizations (MPOs), Area Commissions on Transportation (ACTs), cities, counties, state and federal agencies, modal and stakeholder interest groups and input from interested citizens.

ODOT formed and worked closely with an 18-member Steering Committee to guide plan development. The Steering Committee was chaired by an OTC member and included representatives from: railroads, service providers and rail employees; local jurisdictions; Oregon ports; shippers; and transportation, economic and environmental stakeholders. The Steering Committee met 10 times over the course of SRP development. Steering Committee meetings were open to the public, with specific times identified for public comments scheduled at each meeting.

DLCD was an interested participant in the SRP Steering Committee meetings, attending the majority of sessions. DLCD also received a letter with notification of the Plan's availability for public review and comment.

At their April 18, 2014 Meeting, the OTC reviewed the Draft SRP and released the document for public review and input. A public hearing was held at the May 16, 2014 OTC Meeting to provide the opportunity to testify directly to the Commission. Public comments were accepted until June 20, 2014.

Broad notice on the availability of the Draft SRP was sent as described in the Plan's Outreach Record. Agency, public and stakeholder notice on the Draft SRP provided a range of materials including links to the full document, a Fact Sheet summarizing key elements of the SRP, links to supporting and technical materials from Plan development, public review and hearing dates and a description of methods to provide comments. Information was also provided on how to request materials in Spanish and alternative formats. The public involvement and outreach process followed OTC Policy 11 – Public Involvement Policy for statewide planning processes and the Statewide Transportation Improvement Program (STIP).

The OTC took action on the proposed SRP and Draft Findings of Compliance with Oregon's Statewide Planning Goals at their September 18, 2014 Meeting. Each OTC Meeting provided additional opportunity for public comment. Notice of OTC consideration was also distributed broadly as part of the September 2014 OTC Meeting Packet.

The September 2014 OTC Meeting Packet included the following material and information for OTC consideration:

- OTC Cover Memorandum
- 2014 Oregon State Rail Plan, including Findings of Compliance with Oregon's Statewide Planning Goals
- Outreach Record
- Summary of Comments Received on Draft State Rail Plan and Recommended Actions
- Compilation of Written Public Review Period Comments Received

Per the SAC, and customary ODOT practice, information on the adopted SRP and final Findings of Compliance with Statewide Planning Goals will be distributed to DLCD, MPOs, interested participants from the Plan development process, and others who request a copy following adoption. The finaldocumentswillbeavailableontheSRPProjectwebpage: *https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OSRP* (as posted at the time of this document).

Findings of Compliance with Oregon's Statewide Planning Goals

The State of Oregon has established 19 statewide planning goals to guide state, regional and local land use planning. The goals express the state's policies on land use and related topics. The findings below are based on applicability and content of the SRP.

1. ***Citizen Involvement*** *- The purpose of Goal 1 (660-015-0000(1)) is "To develop a citizen involvement program that ensures the opportunity for citizens to be involved in all phases of the planning process."*

FINDING: The development and review of the SRP provided extensive opportunities for citizen involvement as demonstrated more fully in the Outreach Record, which was presented as part of the OTC's September 2014 packet. Outreach for the Draft SRP was conducted in compliance with OTC Policy 11 - Public Involvement, which establishes public involvement objectives for the development and update of statewide plans, including modal plans, such as the SRP. Outreach activities were also conducted in compliance with relevant policies in the Oregon Transportation Plan including OTP Goal 7, Coordination, Communication and Cooperation.

Highlights of outreach during the SRP process included:

- The Plan was developed with guidance of a Steering Committee representing a wide range of stakeholder interests.
- Notification of public review was sent to DLCD, other interested state agencies, MPOs, Oregon counties and cities, interested advisory committees and interested project stakeholders.
- Presentations were provided to numerous groups both before and during the public review period.
- A public hearing was held at the May 2014 OTC meeting.
- A range of outreach materials were developed including outreach fliers provided in Spanish. Additionally, a notification was posted on the project website for the availability of alternate formats of the materials.

Development of the State Rail Plan is in compliance with and supportive of Statewide Planning Goal 1, Citizen Involvement.

2. ***Land Use Planning*** **-** *The purpose of Goal 2 (OAR 660-015-0000(2)) is "To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions."*

FINDING: While not directly impacting land use at any specific geographic location, development of the SRP recognized many of the challenges and opportunities that the rail system provides communities and properties adjacent to rail lines. Example opportunities include supporting industrial zoning near rail facilities and supporting multimodal passenger station areas to strengthen community connections. Challenges include integrating rail traffic in local communities and associated impacts from rail crossings and noise. The SRP balances these competing items as best as possible, and identifies future work and guidance to improve consideration of rail in land use issues and the consideration of land use impacts in rail decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 2, Land Use Planning.

3. ***Agricultural Lands*** **-** *The purpose of Goal 3 (OAR 660-015-0000(3)) is "To preserve and maintain agricultural lands."*

FINDING: The SRP does not directly impact or hinder the overall objectives of Statewide Planning Goal 3, Agricultural Lands. The SRP does not propose specific facilities that would encroach or impact agricultural lands. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 3, Agricultural Lands.

4. ***Forest Lands*** **-** *The purpose of Goal 4 (OAR 660-015-0000(4)) is "To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture."*

FINDING: The SRP does not directly impact or hinder the overall objectives of Statewide Planning Goal 4, Forest Lands, which protects forest lands primarily for resources purposes. The SRP does not propose specific facilities on or near forest lands. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 4, Forest Lands.

5. ***Natural Resources, Scenic and Historic Areas, and Open Spaces*** - *The purpose of Goal 5 (OAR 660-015-0000(5)) is "To protect natural resources and conserve scenic and historic areas and open spaces."*

FINDING: The SRP does not directly impact or hinder the overall objectives of Statewide Planning Goal 5, Natural Resources, Scenic and Historic Areas, and Open Spaces. The SRP does not propose specific facilities on or near lands protected by Goal 5. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 5, Natural Resources, Scenic and Historic Areas, and Open Spaces.

6. ***Air, Water and Land Resources Quality*** - *The purpose of Goal 6 (OAR 660-015-0000(6)) is "To maintain and improve the quality of the air, water and land resources of the state."*

FINDING: The SRP does not directly impact or hinder the overall objectives of Statewide Planning Goal 6, Air, Water and Land Resources Quality. The SRP does not propose specific facilities as part of the document. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The SRP also recognizes the inherent fuel and related emission efficiencies that rail transportation can provide in relation to other modes and takes these efficiencies into account when considering potential rail investment decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 6, Air, Water and Land Resources Quality.

7. ***Areas Subject to Natural Hazards*** - *The purpose of Goal 7 (OAR 660-015-0000(7)) is "To protect people and property from natural hazards."*

FINDING: The SRP recognizes the challenges associated with natural hazards and the interruption of reliable service due to a series of hazards. There is also focused discussion, particularly in SRP Goal 2, Connected System, on seismic resiliency for rail, transportation system redundancy and opportunities for rail to support repair and recovery following natural disasters or other extreme events. Other elements of the SRP identify resiliency benefits as potential criteria for rail investments.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 7, Areas Subject to Natural Hazards.

8. ***Recreational Needs*** - *The purpose of Goal 8 (OAR 660-015-0000(8)) is "To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts."*

FINDING: The SRP does not directly impact or hinder the objectives of Statewide Planning Goal 8, Recreational Needs. The SRP does not propose specific facilities as part of the document. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail

system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 8, Recreational Needs.

9. Economic Development *- The purpose of Goal 9 (OAR 660-015-0000(9)) is "To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens."*

FINDING: The SRP has a considerable foundation in facilitating economic development opportunities for Oregon. SRP Goal 7, Economic Development, seeks to increase opportunities and investment in freight and passenger rail assets to grow Oregon's economy. This includes the promotion of job creation and economic centers, leveraged investments to provide a competitive advantage for Oregon and Oregon businesses and investments in passenger rail service to provide reliable and effective business and recreational travel.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 9, Economic Development.

10. Housing *- The purpose of Goal 10 (OAR 660-015-0000(10)) is "To provide for the housing needs of citizens of the state."*

FINDING: The SRP is not directly applicable to Goal 10, Housing.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 10, Housing.

11. Public Facilities and Services *- The purpose of Goal 11 (OAR 660-015-0000(11)) is "To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."*

FINDING: One of the unique elements of the rail system is that it is predominantly a privately owned mode of transportation. However, freight and passenger rail services are critical components of the state's multimodal transportation network and the state has a vested interest in proactively planning for rail. In addition, some elements of rail right-of-way, infrastructure and services are publicly owned assets. The SRP acknowledges these publicly owned assets, but even more so, the document focuses on when a public return on investment warrants a potential investment in the private assets. The later element is the basis for the SRP investment framework. The SRP does not propose specific facilities, but has a role in specifying system needs and recognizing opportunities for investment in rail.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 11, Public Facilities and Services.

12. Transportation *- The purpose of Goal 12 (OAR 660-015-0000(12)) is "To provide and encourage a safe, convenient and economic transportation system."*

Transportation Planning Rule, OAR 660-012

Statewide Planning Goal 12, Transportation, and its administrative rule, the Transportation Planning Rule (TPR), have several elements for assuring that statewide planning goals are considered in transportation planning efforts. The TPR is a broad administrative rule that covers a range of applications, some of which are summarized below:

- The preparation and coordination of transportation system plans
- Coordination with federally required transportation plans in metropolitan areas
- Elements of TSPs
- Complying with statewide planning goals
- Determination of transportation needs
- Evaluation and selection of transportation alternatives
- Transportation financing programs
- Implementation of TSPs
- Transportation project development
- Timing and adoption of TSPs
- Plan and land use regulation amendments
- Transportation improvements on rural lands
- Exceptions for improvements on rural lands

The SRP is a statewide modal plan that addresses many of the elements in Statewide Planning Goal 12. However, it is the combination of the state's policy based Oregon Transportation Plan, modal and topic plans, and state facility plans that together form the state Transportation System Plan. Not all sections and objectives of the TPR are applicable to the SRP.

- ***Purpose, OAR 660-012-0000***

Many elements of the SRP reflect objectives from the TPR purpose statement. Section (1) of the purpose statement is included below for context.

(1) This division implements Statewide Planning Goal 12 (Transportation) to provide and encourage a safe, convenient and economic transportation system. This division also implements provisions of other statewide planning goals related to transportation planning in order to plan and develop transportation facilities and services in close coordination with urban and rural development. The purpose of this division is to direct transportation planning in coordination with land use planning to:

(a) Promote the development of transportation systems adequate to serve statewide, regional and local transportation needs and the mobility needs of the transportation disadvantaged;

(b) Encourage and support the availability of a variety of transportation choices for moving people that balance vehicular use with other transportation modes, including walking, bicycling and transit in order to avoid principal reliance upon any one mode of transportation;

(c) Provide for safe and convenient vehicular, transit, pedestrian, and bicycle access and circulation;

(d) Facilitate the safe, efficient and economic flow of freight and other goods and services within regions and throughout the state through a variety of modes including road, air, rail and marine transportation;

(e) Protect existing and planned transportation facilities, corridors and sites for their identified functions;

(f) Provide for the construction and implementation of transportation facilities, improvements and services necessary to support acknowledged comprehensive plans;

(g) Identify how transportation facilities are provided on rural lands consistent with the goals;

(h) Ensure coordination among affected local governments and transportation service providers and consistency between state, regional and local transportation plans; and
(i) Ensure that changes to comprehensive plans are supported by adequate planned transportation facilities.

FINDING: The SRP identifies and refines the state and public role in rail transportation to serve as an effective element of the multimodal transportation network within Oregon. The Plan serves to enhance rail as an efficient, effective and safe multimodal option for both freight movement and for passengers. The protection of rail corridors and taking advantage of rail opportunities for industrial land uses are identified as important outcomes of the SRP, among others. While the SRP does not propose specific facilities for construction, SRP Goal 1, Partnership, Collaboration and Communication, recognizes the importance of working with rail providers, local communities and a number of stakeholder groups to foster effective coordination in all aspects of rail planning and investment.

- ***Definitions, OAR 660-012-0005***

FINDING: Section 0005 of the TPR establishes definitions. The State Rail Plan is not directly applicable to this section.

- ***Transportation Planning, OAR 660-012-0010***

FINDING: Section 0010 of the TPR recognizes that the state TSP is comprised of a number of elements as described in ODOT's State Agency Coordination Program. The SAC states, *"(1)(a) The state TSP shall include the state transportation policy plan, modal systems and transportation facility plans as set forth in OAR 731, Division 15."* The SRP is a component of the state TSP, along with the statewide policy plan (OTP), other modal/topic plans and facility plans.

- ***Preparation and Coordination of Transportation System Plans, OAR 660-012-0015***

Section 0015 of the TPR conveys that the state TSP shall include the state transportation policy plan, modal systems plans and transportation facility plans.

FINDING: The SRP is a modal transportation plan under the OTP. As noted above, the state policy plan (OTP), modal systems plans and transportation facility plans are separate documents that together make up the state TSP.

- ***Coordination with Federally-Required Regional Transportation Plans in Metropolitan Areas, OAR 660-012-0016***

FINDING: The State Rail Plan is not applicable to Section 0016 of the TPR.

- ***Elements of Transportation System Plans, OAR 660-012-0020***

Section 0020 of the TPR stipulates that a TSP "shall establish a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs and that the TSP will include a description of the type or functional classification of planned facilities and services and their planned capacities and performance standards…."

FINDING: The rail system in Oregon is unique among most other types of transportation modes. The vast majority of rail facilities are privately-owned, yet freight and passenger services are critical to the state's multimodal transportation network.

The SRP allows Oregon to assess the existing conditions and needs of the rail network in Oregon and identify lines that are at-risk of abandonment. The SRP also analyzes areas of the state where there is market potential to enhance freight and passenger service after considering policy questions on whether the return is a good investment for Oregon. The SRP's Existing Conditions work compile and describe track classification, infrastructure capabilities, operating conditions and a number of other system performance factors.

- ***Complying with the Goals in Preparing Transportation System Plans; Refinement Plans, OAR 660-012-0025***

FINDING: The majority of TPR Section 0025 does not apply to the SRP because the Plan does not include any specific proposals for transportation facilities, services or major improvements. However, TPR Section 0025, Subsection 2 states "Findings of compliance with applicable statewide planning goals and acknowledged comprehensive plan policies and land use regulations shall be developed in conjunction with the adoption of the TSP." This requirement is addressed through development of this "Findings" document and its supporting information.

- ***Determination of Transportation Needs, OAR 660-012-0030***

Section 30 of the TPR requires that TSPs identify transportation needs relevant to the planning area and the scale of the transportation network being planned including state, regional and local transportation needs.

FINDING: The SRP is based on a comprehensive needs assessment for the rail system in Oregon. The Existing Conditions work identifies features for freight railroads in Oregon including route miles, track classification, ownership and parent companies. The SRP also assesses operating characteristics such as number of carloads, revenue and at-risk segments. The work also compiles information on key supporting facilities such as rail yards and freight terminals. The SRP takes stock of the physical and operating characteristics of the railroads including weight limits, bridge conditions, horizontal and vertical clearance restrictions and traffic control systems.

The SRP also evaluates the passenger rail services in Oregon including station characteristics, passenger ridership, on-time performance, delay, travel time and speed and program funding.

Based on the Existing Conditions work, SRP development looked at macroeconomic trends and forecasts, implications for future freight rail demand, forecasts for future passenger rail demand and other characteristics to hone in on an assessment of rail needs for the Class I (mainline) system, Non-Class I (short line) facilities and passenger service needs. The SRP also looks at the potential for improving or expanding passenger service if opportunities arise in the future.

- ***Evaluation and Selection of Transportation System Alternatives, OAR 660-012-0035***

TPR Section 0035 stipulates that TSPs shall be based upon evaluation of potential impacts of system alternatives.

FINDING: The SRP does not address changes or amendments to specific system alternatives and is not applicable to TPR Section 0035.

- ***Transportation Financing Program, OAR 660-012-0040***

FINDINGS: Section 0040 of the TPR applies to a transportation financing program for urban areas over 2,500. The SRP is not applicable to Section 0040 of the TPR.

- ***Implementation of the Transportation System Plan, OAR 660-012-0045***

FINDING: TPR Section 0045 addresses actions required by local governments to implement its TSP and does not directly apply to the SRP. However, implementation of SRP policy direction has been identified as a critical "next step" by ODOT and in stakeholder comments.

- ***Transportation Project Development, OAR 660-012-0050***

FINDING: TPR Section 0050 does not apply to the SRP. The SRP does not propose specific transportation projects.

- ***Timing of Adoption and Update of Transportation System Plans; Exemptions, OAR 660-012-0055***

FINDING: Section 0055 of the TPR covers the adoption, update and exemptions of local TSPs and does not apply to the SRP.

- ***Plans and Land Use Regulation Amendments, OAR 660-012-0060***

FINDING: Section 0060 of the TPR addresses the coordination and review that must occur when a local government considers an amendment to its comprehensive plan and land use regulations. The SRP does not invoke consideration of a local plan amendment or regulation, so this provision is not applicable.

- ***Transportation Improvements on Rural Lands, OAR 660-012-0065 and OAR 660-012-0070***

FINDING: TPR Sections 0065 and 0070 apply to transportation improvements on rural lands. The SRP does not propose new transportation improvements. These sections of the TPR are not applicable.

13. <u>Energy Conservation</u> - *The purpose of Goal 13 (OAR 660-015-0000(13)) is "To conserve energy." Goal 13 declares that "land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles."*

FINDING: The SRP supports the overall objectives of Statewide Planning Goal 13, Energy Conservation. While the SRP does not propose specific facilities, SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions. The SRP recognizes the inherent fuel and related emission efficiencies that rail transportation provides in relation to many other modes and takes these efficiencies into account when considering potential rail investment decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 13, Energy Conservation.

14. <u>Urbanization</u> - The purpose of Goal 14 (OAR 660-*015-0000(14)) is "To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities."*

FINDING: The SRP does not directly impact or hinder the overall objectives of Statewide Planning Goal 14, Urbanization. The SRP does not propose specific facilities in or near urbanized areas. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions. The SRP also recognizes the benefits of multimodal station areas for passenger service and respective opportunities to utilize transportation and land uses most efficiently in those areas.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 14, Urbanization.

15. Willamette River Greenway *- The purpose of Goal 15 (OAR 660-015-0005) is "To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway."*

FINDING: The SRP does not plan for specific uses on lands protected in the Willamette River Greenway. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 15, Willamette River Greenway.

16. Estuarine Resources *- The purpose of Goal 16 (OAR 660-015-0010(1)) is "To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and to protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity and benefits of Oregon's estuaries."*

FINDING: The SRP does not propose any land uses that would impact estuarine resources. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 16, Estuarine Resources.

17. Coastal Shorelands *- The purpose of Goal 17 (OAR 660-015-0010(2)) is "To conserve, protect, where appropriate, develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources and recreation and aesthetics. The management of these shoreland areas shall be compatible with the characteristics of the adjacent coastal waters; and to reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of Oregon's coastal shorelands."*

FINDING: The SRP does not propose any land uses that would impact coastal shoreland resources. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 17, Coastal Shorelands.

18. Beaches and Dunes *- The purpose of Goal 18 (OAR 660-015-0010(3)) is "To conserve, protect, where appropriate develop, and where appropriate restore the resources and benefits of coastal beach and dune areas; and to reduce the hazard to human life and property from natural or man-induced actions associated with these areas."*

FINDING: The SRP does not propose any land uses that would impact beach and dune resources. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 18, Beaches and Dunes.

19. Ocean Resources *- The purpose of Goal 19 (OAR 660-015-0010(4) is "To conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social value and benefits to future generations."*

FINDING: The SRP does not propose any land uses that would impact ocean resources. SRP Goal 6, Preserving and Enhancing Quality of Life, recognizes and seeks to enhance the role of the rail system in improving Oregon's environment and community cohesion. Part of SRP Goal 6 is finding balance among different goals and policy areas, and to consider and address environmental and community impacts and resources in rail transportation decisions.

The State Rail Plan is in compliance with and supportive of Statewide Planning Goal 19, Ocean Resources.

Conclusion

The SRP is the state's modal transportation plan for rail. Development of the SRP was designed to meet federal PRIIA regulations and Oregon's own statewide transportation planning requirements.

The SRP was developed in compliance with OAR 731-015-055, Coordination Procedures for Adopting the Final Modal Systems Plans and the Oregon Transportation Commission's Policy 11 – Public Involvement Policy. These Findings of Compliance with Statewide Planning Goals and supporting information were presented to the OTC for consideration and action at their September 18, 2014 Meeting.

As a component of the state's Transportation System Plan, the SRP must be in compliance with statewide planning goals. Based on the analysis of each statewide goal represented by the findings in this report, the SRP is found to be in compliance with all 19 statewide planning goals.