

LOWER COLUMBIA RIVER RAIL CORRIDOR RAIL SAFETY STUDY

Final Report

May 2009



Prepared for
Columbia County & Clatsop County

Columbia County



By
HDR Engineering
HDR

In association with
Kittelson & Associates and Mike Webb



Table of Contents

Table of Contents	i
Executive Summary.....	1
Purpose and Scope of Study.....	1
Study Context	1
Railroad Safety, Regional Mobility and Economic Development.....	1
Stakeholder Interviews Frame Corridor Issues	1
Safety & Emergency Response.....	2
Rail Operations (Freight & Passenger).....	2
Highway/Local Road Operations (All Modes).....	2
Local Planning, Regulatory and Circulation	2
Community & Environmental.....	3
Business & Industry	3
Economic Development	3
Project Implementation and Funding.....	3
Project Recommendations	3
Community Project Phasing Recommendations.....	4
Project Funding.....	6
Responsibility for Maintenance and Improvements of Grade Crossings.....	7
Federal Programs and Earmarks under SAFETEA-LU	7
Earmarking	7
Federal Railroad Administration Funds.....	8
Federal Funding for Crossing Protection	8
State Funding Considerations and Sources.....	9
Potential for Public/Private Partnerships	10
<i>Connect</i> Oregon	10
Economic Revitalization Programs.....	10
Oregon’s Share of the American Recovery and Reinvestment Act (ARRA).....	10
Next Steps	10
Engaging the Political Process for Project Development	10
Chapter 1: Introduction.....	12
1.1 Purpose and Scope of Study.....	12
1.2 Study Context	12

Lower Columbia River Rail Corridor/Rail Safety Study

1.2.1	Railroad Safety, Regional Mobility and Economic Development	12
1.2.2	“US 30 as Main Street” Creates Congestion and Safety Problems.....	13
1.2.3	Opportunities for a Growing Region with Lagging Freight Infrastructure	13
1.3	Two Counties, Two Perspectives	13
1.3.1	Columbia County	13
1.3.2	Clatsop County.....	14
1.3.3	Vision, Leadership and Courage Required to Get the Future People Want.....	14
Chapter 2: Existing Conditions		18
2.1	Introduction.....	18
2.2	Previous Studies & Documents	18
2.2.1	U.S. 30 Multimodal Study Lower Columbia River Corridor (May 1991)	18
2.2.2	US 30 Corridor Plan (1996).....	18
2.2.3	Portland-Astoria (US 30) Corridor (September 1999).....	19
2.2.4	Scappoose Rail Corridor Study (October 2002).....	19
2.2.5	City of Columbia City Quiet Zone Crossing Order Application (July 28, 2008)	19
2.2.6	Rainier “A” Street Streetscape and Railroad Safety Report (2003; cost updates 2008).....	20
2.2.7	Lower Columbia River Rail Corridor Study/US 30 Intersection Study (December 2008)	20
2.3	Rail Conditions	21
2.3.1	Existing Corridor Infrastructure.....	21
2.3.2	Railroad Traffic Volumes.....	21
2.3.3	Hazardous Materials	21
2.3.4	P&W Train Crew Perspective on Corridor Safety	21
2.3.5	Public & Private Roadway/Railroad At-Grade Crossings.....	23
2.3.6	Portland & Western Railroad Safety Protocols and Practices.....	23
2.3.7	Operation Life Saver	24
2.4	Existing Roadway Conditions	24
2.4.1	US 30.....	24
2.4.2	Corridor Transit	24
Chapter 3: Future Rail & Roadway Conditions.....		27
3.1	Future Train Volumes and Speeds	27
3.2	Future Hazardous Materials	27
3.3	Rail-Related Vehicle Delay.....	27

Lower Columbia River Rail Corridor/Rail Safety Study

Chapter 4: Corridor and Community Rail Safety Solutions	29
4.1 Stakeholder Interviews Frame Corridor Issues	29
4.1.1 Safety & Emergency Response	29
4.1.2 Rail Operations (Freight & Passenger)	29
4.1.3 Highway/Local Road Operations (All Modes)	29
4.1.4 Local Planning, Regulatory and Circulation.....	30
4.1.5 Community & Environmental.....	30
4.1.6 Business & Industry.....	30
4.1.7 Economic Development.....	30
4.1.8 Project Implementation and Funding.....	30
4.2 Pros and Cons of Increased Train Activity	30
4.2.1 Benefits of Increased Train Speeds and Volumes.....	30
4.2.2 Costs of Increased Train Speeds and Volumes	30
4.3 November 2008 Community Forums.....	31
4.3.1 November 12, 2008 Forum.....	31
4.3.2 Brief Presentations.....	31
4.3.3 Issues Discussed.....	31
4.3.4 November 13, 2008 Forum.....	32
4.3.5 Issues Discussed.....	32
4.4 Preliminary Corridor “Tool Kit” Solutions.....	33
4.4.1 Railroad-Focused Ideas	33
4.4.2 Roadway-Focused Ideas.....	34
4.4.3 Crossing Ideas	34
4.4.4 Eliminating public or private crossings	34
4.4.5 Rainier “A” Street Ideas.....	34
4.4.6 Emergency Response and Access Issues.....	34
4.4.7 Community/Livability Ideas	35
4.4.8 Educational Ideas.....	35
4.4.9 Planning/Regulatory Ideas	35
Chapter 5: Refinement of the Preliminary “Tool Kit” of Corridor Solutions	36
5.1 Transforming Ideas into Solutions.....	36
5.2 Conceptual Cost Development for Alternative Prioritization	36
5.3 Railroad-Focused Solutions.....	36

Lower Columbia River Rail Corridor/Rail Safety Study

5.3.1	Complete Track Upgrades.....	36
5.3.2	Additional Train Storage/Siding.....	37
5.3.3	Inspect and Inventory Movable Rail Bridges.....	37
5.3.4	Relocate St. Helens Switching Operations.....	38
5.4	Roadway/Railroad At-Grade Crossing Solutions (Public Crossings).....	38
5.4.1	Railroad Crossing Protection Upgrades.....	38
5.4.2	Road Closures to Improve Safety.....	39
5.4.3	Private Crossings.....	40
5.5	Roadway-Focused Solutions.....	40
5.5.1	US 30 Storage Capacity-Northbound Right Turn.....	40
5.5.2	US 30 Storage Capacity-Southbound Left Turn.....	40
5.5.3	Corridor Cross Streets: Westbound Railroad-to-US 30 Capacity.....	41
5.6	Emergency Response and Communications.....	41
5.6.1	Ongoing Emergency Planning.....	41
5.6.2	At-Grade Crossing Protection Problems.....	41
5.6.3	Intelligent Transportation Systems (ITS) Strategies.....	41
5.6.4	Emergency Communications, Response, Training & Support.....	42
5.7	Community Planning, Education and Livability Strategies.....	43
5.7.1	Planning for Railroad Communities.....	43
5.7.2	Future Grade Separations.....	43
5.7.3	Develop Alternative Routes Parallel to US 30.....	44
5.7.4	Transit Planning.....	44
5.7.5	Community Awareness.....	44
5.7.6	Operation Lifesaver.....	44
5.7.7	Quiet Zones & Locomotive Horn Requirements.....	44
5.7.8	Landscaping.....	45
Chapter 6:	Ranking of Project Alternatives.....	52
6.1	Safety Improvement Project Ranking Framework.....	52
6.1.1	Project Recommendations.....	52
6.2	Community Project Phasing Recommendations.....	52
Chapter 7:	Recommended Phasing and Funding for Candidate Project.....	56
7.1	Project Funding.....	56
7.2	Responsibility for Maintenance and Improvements of Grade Crossings.....	56

7.3 Federal Programs and Earmarks under SAFETEA-LU56

 7.3.1 Earmarking.....57

7.4 Federal Railroad Administration Funds.....57

 7.4.1 Federal Funding for Crossing Protection.....57

 7.4.2 State Funding Considerations and Sources.....59

 7.4.3 Potential for Public/Private Partnerships59

 7.4.4 *ConnectOregon*.....59

 7.4.5 Economic Revitalization Programs.....59

7.5 Oregon’s Share of the American Recovery and Reinvestment Act (ARRA).....59

7.6 Next Steps60

 7.6.1 Engaging the Political Process for Project Development.....60

Figures

Figure 1.3-1: Lower Columbia River Rail Project Overview Map 15

Figure 1.3-2: LCRRC Corridor Detail Scappoose – Rainier 16

Figure 1.3-3: LCRRC Corridor Detail Rainier – Tongue Point..... 17

Figure 2.4-1: Current and Future Train Volume and Speeds..... 26

Tables

Table ES-1: Recommended Rail Safety Project Phasing-Scappoose4

Table ES-2: Recommended Rail Safety Project Phasing-St. Helens5

Table ES-3: Recommended Rail Safety Project Phasing-Columbia City5

Table ES-4: Recommended Rail Safety Project Phasing-Rainier5

Table ES-5: Recommended Rail Safety Project Phasing-Columbia County Unincorporated/County
Controlled Roadways6

Table ES-6: Recommended Rail Safety Project Phasing-Clatsop County Unincorporated/County Controlled
Roadways6

Table ES-7: Recommended Rail Safety Project Phasing-Portland & Western Railroad Projects6

Table 2.4-1: Lower Columbia River Rail Corridor Study: 20 Selected Crossings—Vehicle Count Data (2008)
..... 25

Table 3.3-1: Key US 30 Intersection Factors and Performance under “Worst Case” Scenario (10-min Unit
Train at Peak of Peak)..... 28

Table 5.7-1: LCRRC Recommended Projects and Conceptual Cost Estimates 46

Lower Columbia River Rail Corridor/Rail Safety Study

Table 6.2-1: Recommended Rail Safety Project Phasing-Scappoose	53
Table 6.2-2: Recommended Rail Safety Project Phasing-St. Helens	53
Table 6.2-3: Recommended Rail Safety Project Phasing-Columbia City	54
Table 6.2-4: Recommended Rail Safety Project Phasing-Rainier	54
Table 6.2-5: Recommended Rail Safety Project Phasing-Columbia County Unincorporated/County- Controlled Roadways	54
Table 6.2-6: Recommended Rail Safety Project Phasing-Clatsop County Unincorporated/County Controlled Roadways	55
Table 6.2-7: Recommended Rail Safety Project Phasing-Portland & Western Railroad Projects	55

Appendices

Appendix A: Lower Columbia River Rail Corridor Inventory Master Summary

Appendix B: Portland & Western Railroad Safety Initiatives Fact Sheet and Emergency Response Plan

Appendix C: Lower Columbia River Rail Corridor/Traffic Analysis (December 2008)

Appendix D: Train Crossing Delay Calculations (February 28, 2009)

Appendix E: Stakeholder Issues Matrix

Appendix F: Conceptual Cost Estimate Worksheets

Appendix G: Dibblee Point Siding Location Map

Appendix H: Quiet Zone Regulations

Executive Summary

Purpose and Scope of Study

The transportation corridor between Portland and Astoria, including rail (the Portland & Western Railroad's Portland-Astoria Line) and highway (the Lower Columbia River Highway, referred to as "US 30" in this study) form the backbone for commerce, job access, emergency response, community connectivity and tourism for a large segment of the populations of both northwest Oregon and southwest Washington. The portion of that corridor from the Columbia/Multnomah county boundary on the south (or east) and Tongue Point, in Clatsop County, is the subject of this study, which focuses specifically on rail safety implications of longer, more frequent freight trains ("unit trains") serving local industry. (See Figures 1.3-1, 1.3-2, and 1.3-3 for an overview and detailed corridor segment maps.)

The study examines at-grade crossing conditions and issues; the ability of vehicles to make turning movements to and from US 30 when trains are occupying the adjacent railroad tracks and blocking the highway/railroad at-grade crossing; pedestrian and bicycle safety; vehicle delay caused by more frequent and longer trains (balanced by increased train speeds made possible by infrastructure investments); emergency response operations and communications; and community education and planning programs and concerns.

Although focused on rail-related safety issues, the study necessarily touches upon economic development, emergency access, land use and future commuter rail and other transit compatibility issues. A related study, being prepared simultaneously with this report, is the Traffic Analysis of 20 selected intersections of US 30 with local streets that cross the P&W Railroad tracks (primarily roadways with higher volumes).

Study Context

Railroad Safety, Regional Mobility and Economic Development

For rail-adjacent communities such as those in Columbia and Clatsop counties, rail is an economic engine, a potential safety threat, a mobility option and a local nuisance, all at the same time. The rail and highway corridors that connect, also bisect many of the same communities, some severely (Rainier, and to a lesser extent Scappoose and St. Helens). Various aspects of these basic characteristics are at work in different combinations all along the Portland and Western railroad segment, known as the A Line, which connects Portland to Astoria through the project study area.¹

Increased rail use along the corridor means severing communities from business, residential, school, and emergency and law enforcement access, at unpredictable and potentially extended periods of time. Changes in the type of freight hauled may mean increased hazards if accidents do occur, and heightens the need to maintain good response time, adequate training and support for local responders, and to improve communications with the railroad and between responders and other local agencies. Required sounding of train horns can be a significant problem for those living close to the tracks. School access, school bus routes, and transit routes can all be impacted by longer, more frequent trains coming through towns and cities along the corridor.

Stakeholder Interviews Frame Corridor Issues

Approximately 55 individuals, in about 20 different interviews or telephone calls, were interviewed to discern a wide range of opinion on

¹ The project study area extends from the Columbia County/Multnomah County line to Tongue Point, in Clatsop County.

increased rail volumes and related safety issues between the Columbia County/Multnomah County line and Tongue Point in Clatsop County. Approximately a dozen other stakeholders were asked, but unable to or declined to comment during the stakeholder interview process.

In Appendix E, the issues identified below are associated with the stakeholders who specifically mentioned them. The bullets under each heading are listed from most frequently to least frequently identified. Note that stakeholders are not a representative sample, and that further, most stakeholders would probably consider the majority of the issues listed below “important.” Still, it is revealing to observe the relative frequency of issues among the stakeholders who were included in the effort.

Safety & Emergency Response

- Provide safety upgrades at more crossings
- Ensure ability to meet fire and medical emergency response time, and honor mutual aid agreements
- Ensure law enforcement agencies’ ability to meet response time goals
- Educate public (focus on youth education) about rail safety—use Operation Life Saver materials
- Ensure safety for school access (bus, bike, pedestrian and vehicle)
- Develop or update plan and precautions for hazmat on rail
- Educate public about federal requirements for horns, and general railroad rights/responsibilities
- Develop or update derailment response plans
- Improve safety-related communications between P&W and responders
- Minimize duration that community is exposed to hazardous rail cargo
- Make sure that increased emergency response resource needs are met

Rail Operations (Freight & Passenger)

- Increase velocity, capacity and reliability of rail
- Maintain highway capacity, safety and reliability
- Address trespasser issues
- More separation of vehicles from trains in Rainier
- Ensure adequate maintenance and inspection of rail
- Improve Clatsop County rail segment to Class 2
- Close public crossings, as possible
- Close private crossings, as possible
- Install automatic gates and lights interconnected to US 30 traffic lights

Highway/Local Road Operations (All Modes)

- Minimize vehicle delay (including school and transit bus) at grade crossings
- Address impact of more/longer trains on vehicle diversion, ped/bike mobility and safety
- Address back-up of vehicle traffic into traffic lanes (safety and mobility)
- Improve safety for hazmat trucks crossing rail
- Develop local through-streets parallel to US 30
- More signals on truck routes (Clatskanie, Beaver Falls)

Local Planning, Regulatory and Circulation

- Plan for higher speed freight and passenger trains over next 20 years
- Support existing and plan for future transit (bus and rail)
- Plan for future grade separations
- Develop vision for future multimodal corridor and associated development
- Identify and preserve industrial land along rail corridor
- Maintain or improve cross-track connectivity

Community & Environmental

- Reduce noise/examine Quiet Zone potential

Business & Industry

- Maintain or improve access to business or industrial sites for customers and shippers/suppliers
- Ensure good rail service to existing and smaller rail users
- Reduce train-related diversion through commercial parking lots

Economic Development

- Promote industrial development along rail corridor by providing rail access
- Shift freight from highway to rail
- Take advantage of existing funding offers (Rainier/ODOT Rail)

Project Implementation and Funding

- Obtain funding for needed safety and mobility improvements
- Seek contributions from all parties, including railroads, to mitigate impacts
- Begin to identify uses for *ConnectOregon* III funds

Project Recommendations

This chapter ranks the rail safety improvement projects identified in Table 5.7-1. Factors taken into consideration were the volumes of vehicles crossing at-grade railroad tracks, the number of trains per day (currently and in the future), safety issues reported by the community and the railroad, and economic development priorities and opportunities. It does not include the long term planning, emergency communication or community education initiatives discussed in Chapter 5, which should be implemented for the entire community.

Rail Projects

The P&W track conditions within the project area are FRA compliant, but should be upgraded for service reliability with higher tonnage loading and

to make the freight rail system attractive and reliable for new business. The grade crossing recommendations brought forward are based on logic and experience, and designed to enhance safety and maintenance ability. They take into consideration ODOT Rail Division and P&W Railroad interests, concerns and needs, as well as community safety and economic development.

In the majority of instances where there is now passive protection, active rail crossing protection was recommended. However, given the cost of that improvement, the project did not always rate highest within communities, most often due to low vehicle and/or train volume at the crossing.

Highway Projects

The projects that have made the final cut for consideration have come from the community, ODOT Highway and Rail divisions, and consultant-prepared documents, including this Rail Safety Study and the companion Traffic Analysis conducted for 20 selected US 30 intersections and highway/railroad at-grade crossings. That analysis considered factors such as crossing geometry, conditions, special users (pedestrians, school buses, recreational vehicles or long trucks, e.g.) collision history, crossing control devices on US 30, storage capacity for turning vehicles and peak hour traffic volumes and delay.

Mitigations suggested for increased train-related vehicle delay or safety issues were developed when “intersections did not meet ODOT mobility standards, and/or for railroad crossings where forecasted vehicle queues exceed available storage.”² Thus, projects were brought to this stage only if they responded to a safety-related concern. There are degrees of risk and concern, however, and that is reflected in the following tables.

² Kittelson & Associates, Inc., (December 2008, p. 12)

Community Project Phasing Recommendations

The following tables show the projects and conceptual (order of magnitude) costs, in order of recommended implementation priority, based on a combination of project “implementability” factors including safety risk, community and railroad support, traffic volume at the US 30 intersection or the highway/railroad at-grade crossing, and fundability.

The ordering of projects in the tables below is also informed by consultation with corridor stakeholders and the Project Core Team. This consultation process provided important insight into community priorities and levels of concern regarding safety and congestion issues that would be aggravated by more frequent and longer trains.

Further study of identified candidates for closure at highway/railroad at-grade crossings as listed first within each community, because closing an at-grade crossing, when feasible alternative access is available or can be cost-effectively provided, is a primary rail safety goal of ODOT Rail Division. However, beyond support for closure of roads already identified (Santosh St. in Scappoose) there was not a substantial public demand for such closures expressed during the public involvement phase of this study. Possible closures at Wyeth and Old Portland Road near Berg Rd appear to offer the most potential for implementation.

It should be noted that the brief field inspection permitted in this project scope did not allow verification of ODOT Rail Division’s suggested closures in rural Columbia and Clatsop County. Moreover, the targeted field inspection that was conducted suggested that it may be very difficult, if not impossible, to provide alternative access in some instances, due to topography. Thus further study in all cases is recommended.

Finally, an understanding of funding sources and categories, and likely support and funding for projects within federal, state and local programs helped determine relative ranking of projects. It should be noted that 2009 and near-future funding constraints as well as new opportunities

(including federal and state stimulus packages) could significantly change the funding context for freight rail, rail safety and economic development projects.

Depending on funding sources and amounts, completing all projects relating to a specific intersection or cross street at the same time might also be desirable. However, most crossings and intersections have a combination of higher- and lower-ranking projects, so the issue would need to be revisited based on funding circumstances.

It is important to note that ODOT practice is to avoid installing signals on US 30 in rural segments. And even in urbanized areas, proposals for new traffic signals on state highways require the approval of the State Traffic Engineer prior to commencing with design. Closures or alterations of pedestrian and bicycle crossings of state highways (US 30) would also require such approval.

Table ES-1: Recommended Rail Safety Project Phasing-Scappoose

Location	Project	Conceptual Cost Estimate
Santosh St.	Close Street	N/A- tied to Havlik interchange improvement
Maple St.	Add cantilever to at-grade RR crossing	\$30,000
High School Way	Replace obsolete gate at crossing	\$45,000
Maple St.	Flatten grade on approach to RR	\$52,800
High School Way	Add pedestrian gates, tactile yellow strips	\$38,000 per gate
Maple St.	Replace pedestrian panels	\$65,200
High School Way	100 ft NBRT storage	\$24,800
Maple St.	Add pedestrian gates, tactile yellow strips	\$38,000 per gate

Source: HDR

Table ES-2: Recommended Rail Safety Project Phasing-St. Helens

Crossing	Project	Conceptual Cost Estimate
Wyeth St.	Study possible closure	TBD

Lower Columbia River Rail Corridor/Rail Safety Study

Table ES-2: Recommended Rail Safety Project Phasing-St. Helens

Crossing	Project	Conceptual Cost Estimate
Columbia Blvd.	Close pedestrian access or adjust signal timing to provide sufficient crossing time	Nominal
Columbia Blvd.	215 ft. SBLT storage	\$56,800
Columbia Blvd.	65 ft NBRT storage	\$17,200
Millard Rd.	US 30 traffic signals, inter-tied with existing RR protection [needs State Traffic Engineer approval]	\$250,000
Millard Rd.	Add pedestrian grade crossing at RR	\$45,000
Deer Island Rd.	Remove abandoned rail line	\$25,000
Deer Island Rd.	Relocate gate, design for future transit center	\$25,000
Deer Island Rd.	Pedestrian grade crossing	\$45,000
Deer Island Rd.	150 ft. SBLT storage	\$37,100
Gable Rd. (St. Helens Rail Yard)	Fence yard between Gable and Columbia Blvd. (3000 ft, on US 30 side)	\$134,000 (with possible aesthetic upgrade)
St. Helens St.	Pedestrian grade crossing	\$45,000
St. Helens St.	Replace obsolete gates	\$90,000

Source: HDR

Table ES-3: Recommended Rail Safety Project Phasing-Columbia City

Location	Project	Conceptual Cost Estimate
I Street	Remove confusing crosswalk markings	\$5,000
I Street	Escape bay (75 ft.)	\$18,600

Source: HDR

Table ES-4: Recommended Rail Safety Project Phasing-Rainier

Crossing	Project	Conceptual Cost Estimate
Veterans Way	Escape bay (75 ft)	\$18,600

Source: HDR

Table ES-5: Recommended Rail Safety Project Phasing-Columbia County Unincorporated/County Controlled Roadways

Crossing	Project	Conceptual Cost Estimate
Old Portland Rd. (near Berg Rd.)	Study possible closure	TBD
Marshland District Rd.	Study possible closure	TBD (a closure would eliminate need for \$100,000 RR grade crossing material replacement)
Beaver Dike Rd	Study possible closure	TBD
Old Mill Rd. (Westport Ramp Rd)	Evaluate for potential closure of two-track crossing/with upgrade of Westport Ferry	TBD
Gable Rd.	Add 210 SBLT storage	\$55,400
Johnsons Landing Rd. (Dike Rd.)	Upgrade RR equipment-new constant warning time activation equipment, standby battery and rectifier	\$76,000
Columbia Ave.	110 ft. NBRT storage	\$27,200
Columbia Ave.	Automatic tactile strips/warnings	\$1000
Graham Rd. (Prescott)	Install flashing lights and gates at RR crossing	\$190,000
West Lane	Improve pavement markings	\$1000
West Lane	Prohibit WBLT and WB through traffic for trucks only	\$500 (signage)
Old Portland Rd. (near Bennett Rd.)	Escape bay (75 ft.)	\$18,600
Gable Rd.	Pedestrian/bicycle overpass	\$6.1 Million
Goble Landing	Improve signage and pavement markings	\$1000
Goble Landing	Remove old tracks, replace crossing surface	\$100,000
Goble Landing	Install flashing lights and gates at RR crossing	\$190,000
Goble Landing	NB/SB turn pocket	\$1.1 Million
Goble Landing	Improve/pave escape bay area	\$18,600
West Lane	Escape bay (75 feet)	\$18,600
Kallunki Rd. (SPUR)	Install flashing lights and gates at RR crossing	\$190,000

Lower Columbia River Rail Corridor/Rail Safety Study

Table ES-5: Recommended Rail Safety Project Phasing-Columbia County Unincorporated/County Controlled Roadways

Crossing	Project	Conceptual Cost Estimate
Marshland County Rd.	Improved signage at RR crossing	\$300-700
Marshland District Rd.	Install STOP sign on approach to US 30	\$350
Kallunki Rd. (Main Line)	Install flashing lights and gates at RR crossing	\$190,000
Hermo Rd.	Install flashing lights and gates at RR crossing	\$190,000
Depot St.	Install flashing lights and gates at RR crossing	\$190,000
Pt. Adams Rd. (Midland Rd, Clatskanie)	Install flashing lights and gates at RR crossing	\$190,000
Woodson Rd.	Improve signage and markings at rail crossing	\$6,000
Woodson Rd.	Install flashing lights and gates at RR crossing	\$190,000
Woodson Rd.	Escape bay (75 ft)	\$18,600
Marshland County Rd.	Remove vegetation blocking sight distance at RR crossing	\$500 (\$3,000 per acre)
Marshland County Rd.	SBLT pocket on US 30	\$550,000
Marshland County Rd.	Escape bay (75 ft)	\$18,600
Marshland District Rd.	Replace RR grade crossing material with concrete or asphalt; new ties and panels	\$100,000
Old Mill Rd. (Westport Ramp Rd)	Remove vegetation to increase sight distance for WBLT movement	\$500 (\$3,000 per acre)
Woodson Rd.	NB/SB turn pockets on US 30	\$1.1 Million

Source: HDR

Table ES-6: Recommended Rail Safety Project Phasing-Clatsop County Unincorporated/County Controlled Roadways

Crossing	Project	Conceptual Cost Estimate
Waterhouse Rd.	Study possible closure (using Knappa Rd. as alternative)	TBD

Table ES-6: Recommended Rail Safety Project Phasing-Clatsop County Unincorporated/County Controlled Roadways

Crossing	Project	Conceptual Cost Estimate
Westport Ferry Rd. (Westport Dock Rd.)	Replace RR crossing control circuitry-new cables, gates, flashers, bells and cantilevers	\$190,000
Driscoll Slough Rd.	Remove brush and resurface crossing (concrete pads)	\$100,000

Source: HDR

Table ES-7: Recommended Rail Safety Project Phasing-Portland & Western Railroad Projects

Location	Project	Conceptual Cost Estimate
US 30 Spur/Deer Island area	Replace Control Circuitry	\$76,000
RR MP 62.7 (Columbia County)	Movable Bridge Detailed Inspection & Recommendations Study	\$40,000-120,000 per bridge
RR MP 84.71 (Clatsop County)		
RR MP 94.83 (Clatsop County)		
Dibblee Point, RR MP 48.75 to RR MP 50.35	Add 8,500 siding	\$3.5 Million
St. Helens Yard	Relocate	\$3.67 M (includes \$84,000 for fencing existing yard; excludes ROW acquisition cost)

Source: HDR

Project Funding

All corridor stakeholders recognize that having an abundance of available and well-sited industrial lands with both highway and rail access was important not only to Cascade Grains, US Gypsum, Teevins and DynoNoble: this is a corridor-wide competitive advantage. Although the timing may not be right to leverage that advantage, funding must be found to make progress on the list of prioritized rail safety projects identified in Chapter 6.

Responsibility for Maintenance and Improvements of Grade Crossings

In order to have realistic expectations of project implementation, it is important for local jurisdictions to understand what is and is not the responsibility of the railroads. Maintenance of at grade crossings is the responsibility of the operating railroad for that part of the crossing surface above the crossties.

Outside that area, maintenance responsibility lies with the road authority. ODOT does not specify what kind of material is used in the crossing, only that it be maintained in a safe condition. Recently, some counties and railroads have chosen to work together and share costs to upgrade crossings from asphalt to concrete panels, and several similar projects were identified along the corridor as part of this study. This work can be performed without a Crossing Order as long as the physical dimensions of the crossing are not altered.

If either party chooses to alter a crossing such as widening or adding a track, in most cases, the party that applies for the alteration pays 100 percent of the cost.³

Federal Programs and Earmarks under SAFETEA-LU

Federal funding for rail comes generally in the form of grants or Federal financing tools that include traditional tax credits and loans, and the emerging “innovative” tools that range from private activity bonds to new loan types to public-private partnerships.

The federal transportation funding reauthorization process is driven by House/Senate authorizing committees every six years. Reauthorization earmarks are managed through authoring committees (House Transportation and Infrastructure; Senate Environment and Public Works). Freight provisions contained within the 1,231-page

³ Charles Kettenring, ODOT Rail Division, electronic correspondence March 2009.

SAFETEA-LU bill⁴ include many that can offer funding avenues for rail projects, whether public, private or public-private for the period 2005-2009. Although some of the programs are completely subscribed (that is, 100% of the funding is already earmarked), details on the most promising provisions are provided because the next transportation reauthorization bill may have similar provisions and because the outcomes or experience with this set of provisions will have an impact on the content and structure of that reauthorization. Many believe the next bill will move more strongly to support a much-needed national and multi-state rail policy.

However, many freight rail proponents and stakeholders were disappointed that SAFETEA-LU did not permit as much flexibility in the use of funds, including highway funds, as was permitted for passenger rail uses.

Earmarking

In the past, the multi-year Federal omnibus transportation bills⁵ contain earmarks for specific projects. They are administered through the Federal Highway Authority (FHWA) and the Federal Railroad Authority (FRA) and may also be referred to as FHWA or FRA grants.

Traditionally, earmarking has been an annual process driven by House/Senate appropriation committees each year. Amounts available in TEA-21 and SAFETEA-LU were discretionary monies that could be earmarked. Amounts for projects earmarked in excess of TEA-21 discretionary money generally deducted funds from the WSDOT work program and sometimes required the deferral or deletion of WSDOT work program projects. TEA-21 contained 1,849 earmarks, totaling \$9.3 billion.

⁴ See FHWA HOFM Director Tony Furst’s presentation on freight provisions (September 2005) at http://www.fhwa.dot.gov/freightplanning/safetela_lu.htm

⁵ Beginning with the first five-year bill in 1991, they were known by their acronyms ISTEPA, TEA-21 (1998) and the current authorization, SAFETEA-LU (2005-2009).

The current multi-year \$244.1 billion omnibus transportation funding bill, signed into law in August 2005, is known by its acronym, SAFETEA-LU (Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users). It contains three times as many earmarks as its predecessor, TEA-21. With 5,600 budgeted earmarks totaling \$19.4 billion through 2009.⁶ While the bill's earmarked projects represent monies allocated, funding requests can still be formally routed to the House and Senate Transportation Appropriations Committees to get support for new projects. However, there is no guarantee of success.

Federal Railroad Administration Funds

The Railroad Rehabilitation and Improvement Financing Program (RRIF) was retained from TEA-21 within Section 9003 of SAFETEA-LU and was established to allow the Federal Railroad Administration (FRA) to provide \$35 billion worth of loan authority to be used for loans and loan guarantees to state and local government, government sponsored authorities and corporation, railroads and joint ventures that include at least one railroad.

The funding may be used to:

- Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops;
- Refinance outstanding debt incurred for the purposes listed above; and
- Develop or establish new intermodal or railroad facilities
- No operating expenses are to be financed or funded through this program

⁶ *SAFETEA-LU Highlights for Local Transportation Agencies*, Technology News, November-December 2006
http://www.ctre.iastate.edu/pubs/Tech_News/2006/nov-dec/safetealu-2.pdf

Direct loans can fund up to 100% of a railroad project with repayment periods of up to 25 years and interest rates equal to the cost of borrowing to the government.

Eligible borrowers include railroads, state and local governments, government-sponsored authorities and corporations, joint ventures that include at least one railroad, and limited option freight shippers who intend to construct a new rail connection.

More detailed explanations of the program are available at
<http://www.fra.dot.gov/us/content/177>

A copy of the application form is available at
http://www.fra.dot.gov/downloads/RRDev/rrif_app.doc

Federal Funding for Crossing Protection

When at-grade crossing protection (e.g., gates and warning lights) are installed in conjunction with a crossing closure, federal funding is available.

Programmatic Freight Provisions

Current programs identified below may not have funds now available, but should be monitored through the federal reauthorization process as funding pots are replenished (and possibly reorganized).

Section 1306: Freight Intermodal Distribution Pilot Grant Program

- Provides capital funds to states to address freight distribution and infrastructure needs at intermodal freight facilities and inland ports.
 - \$30 million provided, already earmarked to five states

Section 5204: Training and Education

- (h) Freight Planning and Capacity Building Program
 - Section 5209: National Cooperative Freight Transportation Research Program

- FHWA Section 130: Highway Railroad Grade Crossing Program (Federal share is 90%, funded at \$220 million per year until FY 2009)

Finance Provisions

These expand the range of “innovative finance” mechanisms available to freight projects.

Section 1601: Transportation Infrastructure Finance and Innovation Act (TIFIA)

- Budget authority is \$610 million for period 2005-2009 (or about \$2B in lending authority)
 - Program eligibility was expanded to include public and private freight rail facilities that provide public benefit to highway users, as well as intermodal freight facilities.
 - Smaller projects can be grouped to reach new (reduced) minimum project size of \$50 million (ITS project minimum was reduced to \$15 million)

Section 1602: State Infrastructure Banks (SIB)

- All states included; multi-state projects are allowed
- SIB rail accounts are permitted
- SIBs provide for lower interest rates because bond purchasers are exempt from federal tax on bond revenue.
- National limit of \$15 billion

Section 11-1143 Tax-exempt Financing of Highway Projects and Rail Truck Transfer Facilities (Private Activity Bonds)

- Tax-exempt financing of privately owned or operated rail-truck transfer facilities

Internal Revenue Code Section 45G: Railroad Track Maintenance Credit

- Track maintenance on any Class II or Class III track equal to 50% of the maintenance and rehabilitation expenditures

Projects and Grants

These include many grant categories which have major freight components.

Section 1301: Projects of National and Regional Significance (PNRS)

- Only states can apply; projects must be multi-modal
- Includes pre-construction activities, environmental mitigation and operational improvements for any project eligible under 23 USC, including freight railroad projects
- \$1.779 billion (2005-2009) for 25 designated projects (i.e., program is 100% earmarked in this round; worth keeping an eye on for reauthorization, as “lessons learned” will be folded in to next bill’s selection criteria)
- Up to \$1 million per project, per year

Section 1302: National Corridor Infrastructure Program

- States only; \$1.95 billion (2005-2009) for 33 designated projects

Capital Grants for Rail Line Relocation Projects (Section 9002)

- Only states may apply for local rail line relocation and improvement projects that spur economic development, under this provision. (\$1.4 billion, authorized but not appropriated)
- Federal share is 80%, not to exceed \$20 million

State Funding Considerations and Sources

In the near term, changing signal timing is a relatively easy solution. ODOT conducts analysis of each corridor on a three-year rotating basis. Approximately 230 signals have been identified for the next three years. Crosswalk lengths and cross times are recalibrated as part of the process.

ODOT notes that Gable Rd.—a concern of corridor stakeholders—is complicated, because the signal is over-capacity. ODOT is currently aware of the problem.

ODOT has noted that most of the north-bound right turn storage lane projects would require new pavement—not just a normal maintenance quick fix or a restriping projects which would typically be done as part of a preservation project.

Other projects—probably the majority of the storage issues—which may be able to be addressed as pavement preservation—mean that it will be quite some time for them to appear high on a regional priority list. This is because ODOT has recently performed corridor preservation activities and expended substantial funds on corridor projects.

A project as significant as an overpass would have to be a State Transportation Improvement Program (STIP) project, or potentially an earmark.

Bringing projects in as part of development review/frontage improvement, where signalization modification is already being required, is one strategy to work through a project list. Any time projects can be combined will help to reduce costs—if, for example, a crew is already in the area working, there may be the chance to reduce engineering or mobilization costs.

Potential for Public/Private Partnerships

It is possible that in the future there may be opportunities for public/private partnerships (PPPs, or P3s, as they are known). Such partnerships could include ODOT, city, county and private industrial or residential developers. Obviously, the 2009 economic picture does not inspire optimism for the short term, but the longer term opportunities for tourism and commuter-related transit development, as well as energy, wood products and ocean port industries remains strong. A period such as the current downturn can help leaders focus on sustainable future development.

ConnectOregon

As mentioned earlier, because of the (2009) economic recession, P& W Railroad will be returning the unused portion of its *ConnectOregon* II funding, and has not applied for *ConnectOregon* III funds for projects along the ‘A’ Line.

Economic Revitalization Programs

There are no identified economic revitalization funding programs at this time.

Oregon’s Share of the American Recovery and Reinvestment Act (ARRA)

The American Recovery and Reinvestment Act (ARRA) provides Oregon (through ODOT) with \$334 million in transportation funding (not including transit and fixed guideway modernization) of which \$100 million must be distributed to local agencies. ODOT has already worked with local agencies to allocate some of that money, and the Clatsop and Columbia County stakeholders have been working with ODOT to provide input into the current and future lists.

Under ARRA, eligibility for use of Surface Transportation Program (STP) highway funds is expanded to include passenger and freight rail and port infrastructure.⁷ thus increasing the opportunity for funding freight rail projects. There is no local match requirement for these funds.

Next Steps

Engaging the Political Process for Project Development

Currently, projects associated with economic development and job creation will be seen as high priorities. The study will help position the county to apply for those by having documentation

⁷ A summary of Oregon’s transportation funding under http://www.oregon.gov/ODOT/HWY/docs/Economic_stimulus_FAQ.pdf

prepared with a list of projects and conceptual costs, to move implementation to the next phase.

Stakeholders and project proponents will need to coordinate their rail safety agendas through the Northwest Area Commission on Transportation, their county agencies, ODOT Highway and Rail Divisions, and possibly their state and federal representatives in order to secure regular or special funding.

In the case of bigger projects, or longer term solutions, corridor stakeholders can always approach their congressional delegation for earmarks, or work through the Oregon Transportation Commission, the Northwest Area Commission on Transportation (ACT) or other political channels. However, demonstration of substantial benefit of projects is usually required, and this is always more difficult in lower-volume areas such as Columbia and Clatsop counties.

Interagency cooperation and appropriate role allocation can help move projects, too. In the case of the L Street overpass in Columbia City, for example, the local agency administered the project, and ODOT constructed the project, but worked through local agency liaison.

The Columbia and Clatsop stakeholders could also benefit from coordinating through the Oregon Freight Advisory Committee (OFAC) which provides recommendations on freight projects to the Oregon Transportation Commission (OTC). OFAC performs this function for STIP projects as well as *ConnectOregon* projects, ranking them according to OFAC freight mobility criteria. In consultation with ODOT, OFAC also provides its views on specific federal earmarks to OTC.

Additionally, there are often a variety of small funding pots—for projects such as intelligent transportation systems (ITS) applications—and special programs that can fund all, or separable pieces of projects. None have been identified at this time, but state and federal legislation should be monitored.

Coordination with the planning functions, schedules and staff of these agencies, including Metro, is advised. Coordination activities should also include monitoring and engaging the Oregon Freight Advisory Committee (OFAC) as well as those at ODOT involved in the current update of the Oregon Statewide Rail Plan and the Oregon Freight Plan.

Chapter 1: Introduction

1.1 Purpose and Scope of Study

The transportation corridor between Portland and Astoria, including rail (the Portland & Western Railroad's Portland-Astoria Line) and highway (the Lower Columbia River Highway, referred to as "US 30" in this study) form the backbone for commerce, job access, emergency response, community connectivity and tourism for a large segment of the populations of both northwest Oregon and southwest Washington. The portion of that corridor from the Columbia/Multnomah county boundary on the south (or east) and Tongue Point, in Clatsop County, is the subject of this study, which focuses specifically on rail safety implications of longer, more frequent freight trains ("unit trains") serving local industry. (See Figure 1.3-1, 1.3-2, and 1.3-3 for an overview and detailed corridor segment maps.)

The study examines at-grade crossing conditions and issues; the ability of vehicles to make turning movements to and from US 30 when trains are occupying the adjacent railroad tracks and blocking the highway/railroad at-grade crossing; pedestrian and bicycle safety; vehicle delay caused by more frequent and longer trains (balanced by increased train speeds made possible by infrastructure investments); emergency response operations and communications; and community education and planning programs and concerns.

Although focused on rail-related safety issues, the study necessarily touches upon economic development, emergency access, land use and future commuter rail and other transit compatibility issues. A related study, being prepared simultaneously with this report, is the Traffic Analysis of 20 selected intersections of US 30 with local streets that cross the P&W Railroad tracks (primarily roadways with higher volumes).

1.2 Study Context

1.2.1 Railroad Safety, Regional Mobility and Economic Development

For rail-adjacent communities such as those in Columbia and Clatsop counties, rail is an economic engine, a potential safety threat, a mobility option and a local nuisance, all at the same time. The rail and highway corridors that connect, also bisect many of the same communities, some severely (Rainier, and to a lesser extent Scappoose and St. Helens). Various aspects of these basic characteristics are at work in different combinations all along the Portland and Western railroad segment, known as the A Line, which connects Portland to Astoria through the project study area.⁸

Increased rail use along the corridor means severing communities from business, residential, school, and emergency and law enforcement access, at unpredictable and potentially extended periods of time. Changes in the type of freight hauled may mean increased hazards if accidents do occur, and heightens the need to maintain good response time, adequate training and support for local responders, and to improve communications with the railroad and between responders and other local agencies. Required sounding of train horns can be a significant problem for those living close to the tracks. School access, school bus routes, and transit routes can all be impacted by longer, more frequent trains coming through towns and cities along the corridor.

⁸ The project study area extends from the Columbia County/Multnomah County line to Tongue Point, in Clatsop County.

1.2.2 “US 30 as Main Street” Creates Congestion and Safety Problems

Because the residents of towns along US 30 use that highway as a “main street” for local connectivity north and south, the local short hops on and off US 30, with associated accelerating, slowing, weaving and turning movements add to the congestion and time delays in the more populated segments of the highway. This situation is exacerbated by queuing for turns off US 30 when those turns are blocked by a train, as well as turns onto the highway from east-west side streets. A significant safety problem occurs when vehicles straddling the tracks waiting to turn onto US 30 cannot escape onto the highway to get out of the way of an approaching train.

1.2.3 Opportunities for a Growing Region with Lagging Freight Infrastructure

There is the recognition in both counties, and across all stakeholder groups, that infrastructure development supports regional economic viability. Given that capacity still exists in most parts, at most times, along US 30, those in Clatsop and Columbia counties recognize that significant capacity increases (beyond passing lanes or turn lanes) along the highway are unlikely in the near to mid term. Therefore, and in concert with the Portland-Astoria (US 30) Corridor Plan (May 2000), an effective and safe shift of freight (and eventually commute) trips from highway to rail is growing in importance.

Among the state’s other rail corridors competing for future public investment dollars, the Lower Columbia River Corridor has attractive features that provides competitive advantages: deep water ports; barge, truck and rail modes; access through Longview, WA to Interstate 5, and well-located industrial land.

1.3 *Two Counties, Two Perspectives*

1.3.1 Columbia County

Columbia County is more ambivalent about increased rail use, because the impacts to adjacent land uses are more acute. School bus, bicycle and pedestrian patterns complicate issues of vehicle safety at the rail/highway crossings. Community connectivity is already difficult in spots; with more and longer trains and possible shifts in traffic patterns due to potential street closures, there is great concern about emergency access as well as ordinary mobility flow.

Even the County’s desire for better commute options for residents has a downside: bus service or eventual commuter rail might have the perverse impact of encouraging the “bedroom community” trend. Residential growth that is not balanced by industrial development or family-wage employment opportunities results in an inadequate local tax base, certainly. But beyond that, the plague of latch-key children, neighbors who are strangers and commuting parents who are too tired to attend PTA or volunteer in their local institutions drain the lifeblood of communities. These problematic trends will themselves increase as the towns of Scappoose, St. Helens and Rainier face significant growth pressures over the coming decades.

It is probably safe to say that issues in Rainier, with the railroad running down the center of its main street (“A” Street), and local parking habits that require backing out of those spaces across the tracks, pose the largest challenge. It also has one of the best opportunities to successfully integrate a rail-oriented vision into renewed economic vitality. However, most Columbia County cities along the railroad struggle with the safety, noise and connectivity problems that will be aggravated with increased frequency and length of trains, added to issues associated with current switching operations.

1.3.2 Clatsop County

The development of Tongue Point and Bradwood Landing is key to understanding Clatsop County's goals for this study—to upgrade the railroad to Class 2 track, and permit safer and quicker train movements through the area. Without rail, the existing development would not have happened, and rail is viewed as essential infrastructure to solve the “chicken and egg” dilemma of attracting new family wage jobs to the area. The worries about connectivity are not as pronounced in Clatsop County, where the railroad hugs the Columbia River, mainly outside of town centers.

Emergency access could be a problem in the event of a derailment that occurred between the relatively more sparse public crossings.

1.3.3 Vision, Leadership and Courage Required to Get the Future People Want

Stakeholders clearly understand that change will come. People will grow their families and others will relocate into the attractive Lower Columbia River Corridor because of the quality of life. In order to keep the best features of that quality of life, vision and action is required now. Planning for change will keep the communities in control of their destiny, but failure to plan for growth on the highway, on the railroad, at the ports and in the towns will not prevent it.

ODOT's Rail and Highway Divisions, and the Office of the Governor have been supportive of economic revitalization and the infrastructure needed to initiate and sustain that in the corridor. Planning (long term) for an eventual two-track rail system that accommodate freight at speeds up to 45 mph and commuter rail up to 60 or 65 mph along the length of the corridor would provide opportunities for sustainable and desirable development patterns that would nourish community life. Today there are opportunities to make good, if difficult, decisions, to begin that process. If Clatsop and Columbia counties unite behind a coherent strategy for infrastructure investment and local land use planning and

development, they will increase their potential for successful, funded projects.

Yet the difficulty of balancing competing goals—such as maintaining the integrity and utility of rail, while preserving multi-modal uses and co-existing with current and planned land use within rail-adjacent communities—persists. The remainder of this study will provide targeted traffic and operational analysis relative to a “tool kit” of solutions that will be used to create community-based strategy packages for consideration by local leaders and the residents they serve.

The stakeholders involved in this study stepped forward and offered numerous ideas for addressing some of the most vexing problems within their communities. However, it is important to understand that even the “solutions” pose their own set of problems, or at the very least, tradeoffs. For example:

- Reducing highway blockages means higher train speeds through town
- Obtaining ODOT support for safety upgrades means closing public crossings
- Closure forces traffic onto fewer highway cross streets
- Reducing noise through Quiet Zone implementation requires safety upgrades and railroad assumption of equipment maintenance costs
- Economic growth brings noise and congestion
- Planning for residential uses away from the noise and hazards of the rail line precludes development of desirable waterfront acreage

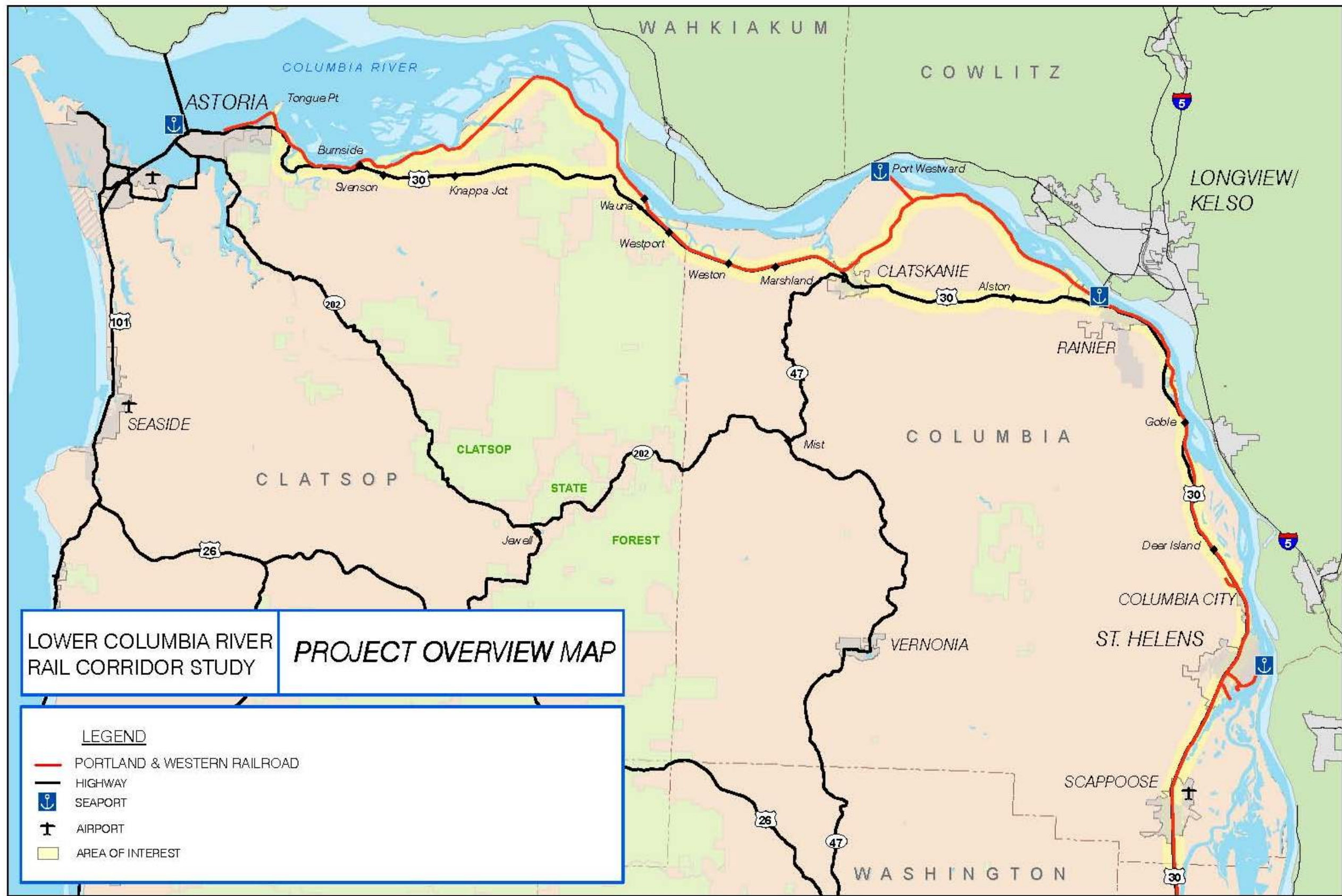


Figure 1.3-1: Lower Columbia River Rail Project Overview Map

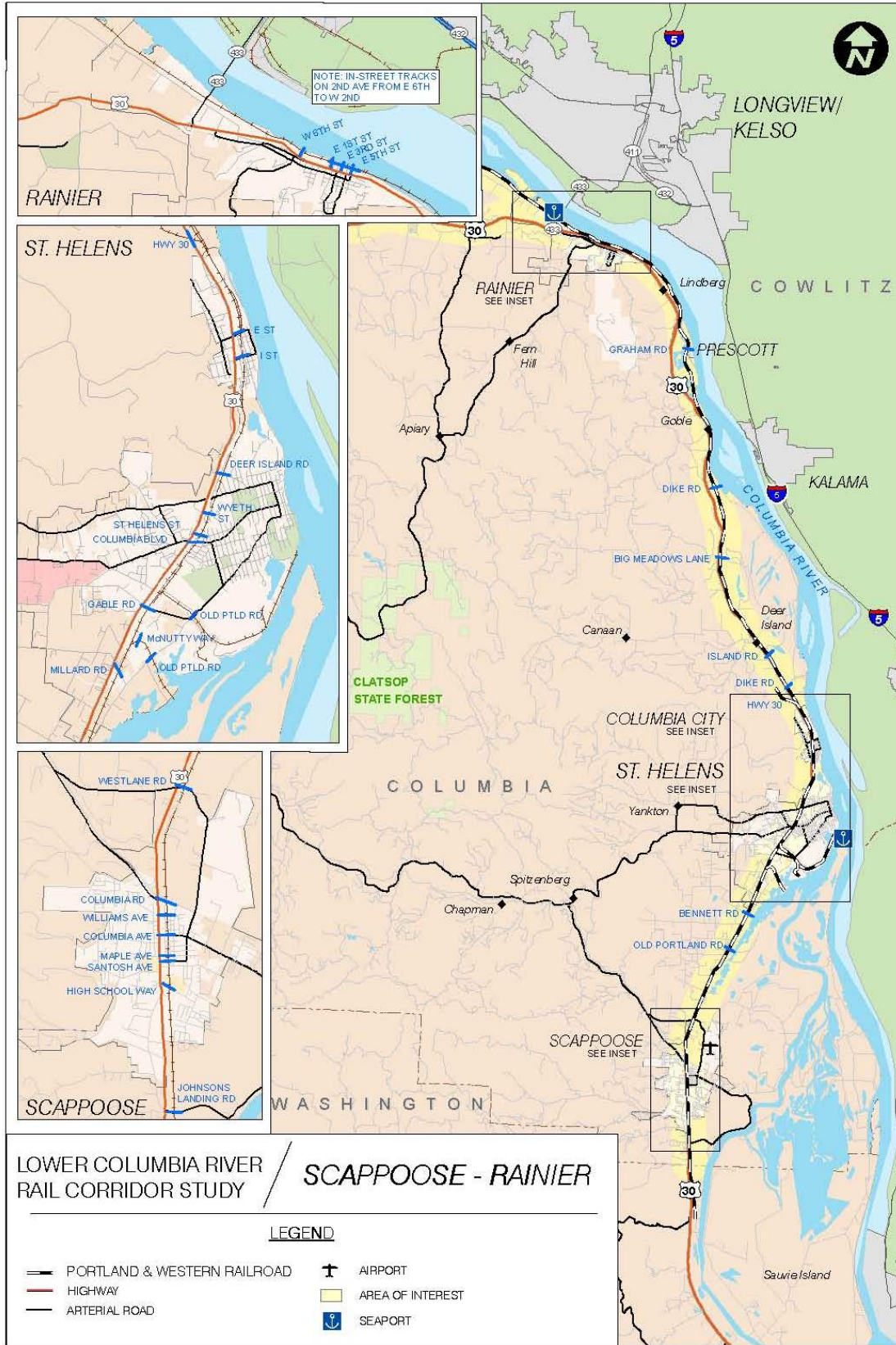


Figure 1.3-2: LCRRR Corridor Detail Scappoose – Rainier

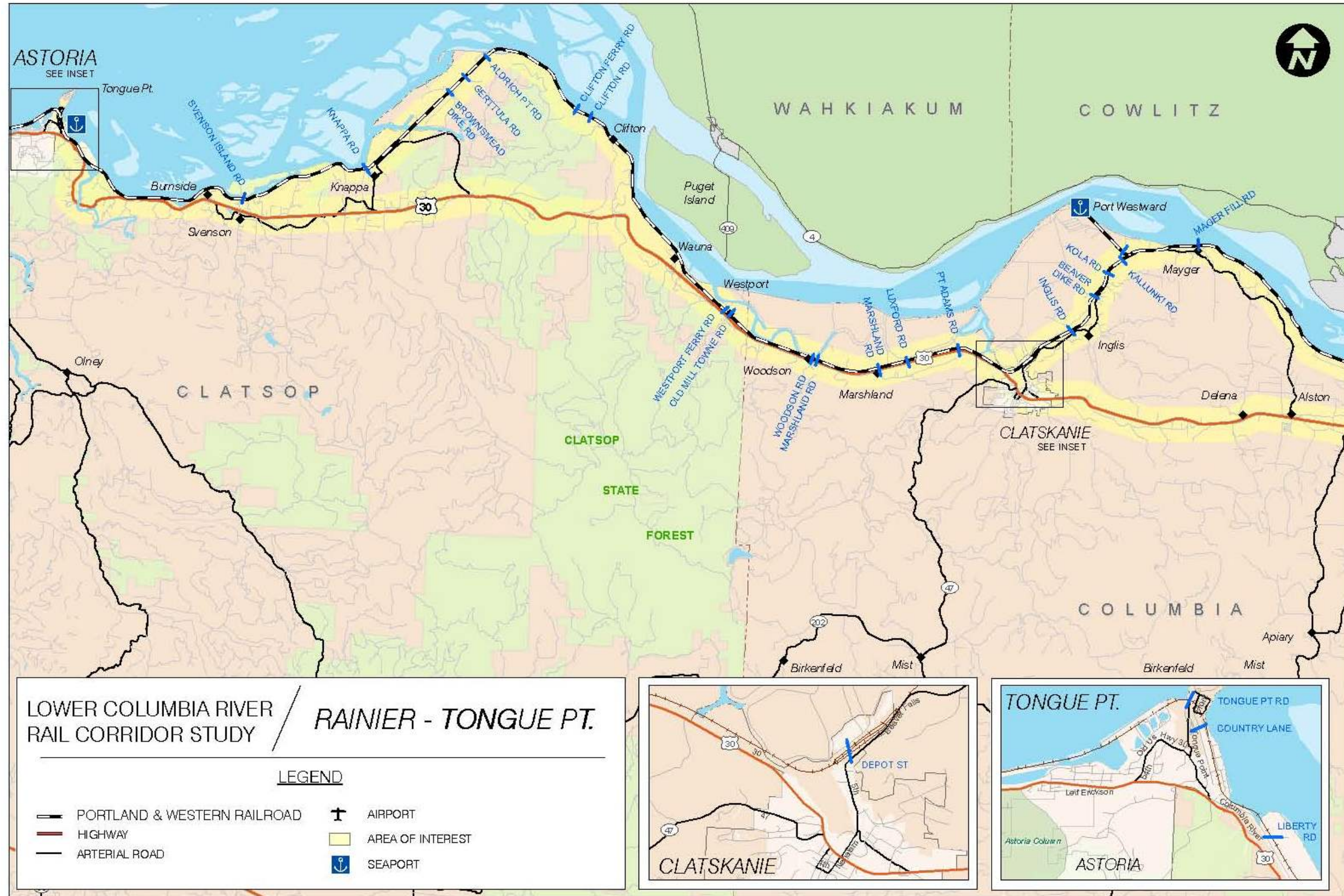


Figure 1.3-3: LCRR Corridor Detail Rainier – Tongue Point

Chapter 2: Existing Conditions

2.1 Introduction

It was important to the study stakeholders and funders to use as much information from existing studies as possible, in order to use study resources and time most effectively. This section on existing conditions begins with highlights of previous corridor study and planning efforts that are most relevant to this rail safety study. A brief review of some existing conditions on US 30 follows. The chapter concludes with a summary of the rail inventory and conditions, which was the primary focus of the baseline condition assessment for this study.

2.2 Previous Studies & Documents

It is important to project stakeholders that this study build from, rather than unnecessarily repeat, the work of studies already completed for the US 30 corridor, including the “Astoria” line of the Portland & Western Railroad. This section describes those studies and

2.2.1 U.S. 30 Multimodal Study Lower Columbia River Corridor⁹ (May 1991)

Though dated, this early study indicates how long ODOT and county and local planners have recognized the importance of the US 30 corridor to economic development and mobility in two counties which had (in 1991) been lagging in growth, compared to the state of Oregon in general. The document notes positive factors related to economic development (beyond wood and fisheries) along the corridor—available land for industry, maritime use, recreation and tourism; high-quality labor force, deep-water ports with Pacific Rim access, barge, rail and highway transportation and low-cost energy. These resources largely have remained consistent through today, and still offer the region a foundation upon which to build.

⁹ Northwest Economic Associates, for ODOT

2.2.2 US 30 Corridor Plan (1996)¹⁰

The US 30 Corridor Plan consists of a Line Study, Transit Feasibility Study and Transportation Strategies Plan for the Portland-Astoria rail and highway corridor, prepared for ODOT Region 1.

The Transit Feasibility Study notes that current (1996) demand for fixed schedule transit service might not support commuter transit between Columbia City/St. Helens and the Portland area. However, projections indicated that congestion will grow, and that commuter service would be an effective way of addressing work-related travel demand during the peak periods. Those projections have, indeed, come to pass, and Columbia County has initiated commuter express service (CC Rider) to begin to address new commuter travel needs. The study also compared vanpool and fixed-route bus transit service in its discussion of alternatives to the automobile.

The Transportation Strategies Plan represented an early effort by ODOT to move from a traditional highway-only focus to multi-modal corridor planning. The plan is designed to resolve major planning issues prior to the development of specific projects. It emphasizes cooperation and collaboration between ODOT and local jurisdictions, so that as corridor plans and specific projects are developed, local comprehensive plan issues are simultaneously resolved. In this Rail Safety Study, the coordination of future land use that reflects the existence of the rail corridor and seeks to avoid unnecessary aggravation of town-rail conflicts would be an outcome supported by the Transportation Strategies Plan.

Within the plan, then-owner Burlington Northern Railroad (BN) was suggesting abandoning or possibly rail-banking of the line from Wauna to Astoria, due to lack of demand. The Port of Astoria and the City of Astoria were attempting (in 1994) to find tenants for the port at Tongue Point. Passenger rail was considered, but dismissed as a possible, at least for 20 years, due

¹⁰ David Evans and Associates, for ODOT

to insufficient residential density, costs to upgrade infrastructure and operate passenger rail. Buses were offered as a more appropriate transit solution for the corridor.

2.2.3 Portland-Astoria (US 30) Corridor (September 1999)¹¹

This Corridor Plan, now ten years old, identifies specific projects along US 30. Project prioritization was based on first maintaining facilities to be safe and functional; then, in order, preserving, optimizing, improving safety and capacity, and finally, completing projects that support economic development, especially recreation and tourism.

The plan recognizes the need for different approaches in different segments of the corridor (urban vs. rural congestion, for example). The Corridor Plan calls for development of local street networks to be used as an alternative to US 30 for short, in-town trips.

The plan includes the following observations on rail service:

The Corridor Plan supports the maintenance of existing rail services and improvements to the infrastructure, e.g., intermodal facilities, to enhance the investment climate for rail users. Increased use of rail to convey bulk commodities can limit the growth of truck freight on US 30. Managing the rail line to preserve future opportunities for passenger service is also promoted. (p. 19)

2.2.4 Scappoose Rail Corridor Study (October 2002)¹²

A study of the rail corridor through Scappoose, examined highway-rail grade crossings resulted in a consensus recommendation on a preferred plan to accommodate growing demand for east-west travel across the Portland & Western Railroad corridor that parallels U.S. US 30 through town. The study area included the highway/railroad grade crossings between milepost (MP) 20.24 and

22.36 on US 30, and rail post 126.8 and 143.1 on the P&W rail line. Preliminary engineering on the preferred alternative¹³, an improved highway/rail at-grade crossing at Havlik Drive (classified as a major collector) has been completed. The project is considered to be included as a future project within this LCRRC study. As this Rail Safety Study goes to print, the City of Scappoose is working with county and state agencies to apply for economic recovery stimulus funding (March 2009) to implement the project.

2.2.5 City of Columbia City Quiet Zone Crossing Order Application (July 28, 2008)

In this application to ODOT Rail Division, the City of Columbia City states its intention to implement a 24-hour Quiet Zone within the City limits. It proposed alterations to crossings at “E” Street, “T” Street and Pacific Street, in compliance with the direction from ODOT Rail Division staff.

The street alterations result in a change of Third Street from two-way to one-way southbound traffic for the block between “E” Street and “F” Street. On “T” Street, the City will construct a non-mountable curb on Fourth Street at “T” Street to channelize vehicle entering and exiting “T” Street at that location. In addition, eastbound trucks will be prohibited from making right-hand turns onto Fourth Street from “T” Street. Westbound truck traffic on “T” Street between Second Street and US 30 will not be allowed to enter US 30.

The state (ODOT Region 1 and ODOT Rail Division) will upgrade US 30/“E” Street traffic signal hardware, provide an escape/holding area for trucks on the shoulder of US 30 west of

¹³ It is noted that local voter actions and investment preferences expressed in Fall 2008 postponed implementation on Havlik, while another alternative (Jenny Drive) was considered. The most recent direction for the City, however, will progress the original Havlik Drive alternative toward implementation, with the closure of Santosh Street, a local two-lane street.

¹¹ David Evans and Associates, for ODOT

¹² Kittelson/HDR, for ODOT

Pacific Street, and install and maintain the six “No Train Horn” signs that the City will fund.

2.2.6 Rainier “A” Street Streetscape and Railroad Safety Report (2003; cost updates 2008)¹⁴

The City of Rainier presents something of a special case along the study corridor. For approximately a decade, the City, local businesses, Columbia County, ODOT Region 1 and the ODOT Rail Division have been engaged in trying to address safety, mobility, noise and livability issues created by the fact that the Portland & Western Railroad runs “in-street” through the center of Rainier’s main street, “A” Street.

The proposed project, extending from East 6th St to West 2nd St included street enhancements and safety improvements for rail, vehicular, bicycle and pedestrian traffic through the center of town. A plan to increase functionality of the railroad by opening the tracks (they are currently obscured by asphalt, except for the rails themselves), and allow trains to move through at 25 mph (as opposed to the current 10 mph) has been much discussed for some years. The plan, modified from a similar set of solutions implemented in Corvallis, OR, would have incorporated new raised curbs and landscaping to channelize traffic to designated intersections with automated safety protection, preventing vehicles or pedestrians and bicyclists from crossing the tracks at any point, as is currently the case.

In response to requests for funding of desired safety improvements, ODOT Rail Division offered to fund intersection safety upgrades in exchange for four road closures, an offer that has been under consideration by the City. However, the offer expired on December 31, 2008 without City action. Currently, there is no agreed-upon engineering solution to the long-standing issues in Rainier. Notably, there remain at least two primary problems: insufficient truck turn-around space at the south (or east) end of town (accessing Foss Maritime) and the space constraint on

implementation of gates and at the north (or west) end, accessing US Post Office at West 2nd Street. The City is continuing to seek internal consensus on a workable engineering and civic design solution that works for rail safety as well as quality of life and economic development needs.

2.2.7 Lower Columbia River Rail Corridor Study/US 30 Intersection Study (December 2008)¹⁵

This study, completed in December 2008 for ODOT, examined 20 key intersections along US 30 in Columbia and Clatsop counties. The study was undertaken in association with the LCRRC Rail Safety Study, to determine potential vehicle queuing problems related to vehicles turning from US 30 (northbound or southbound) across the railroad tracks. The 20 intersections and the key results are shown in Table 2.4-1, below.

Based on an operational analysis of the highest 15 minute period of the peak traffic hour, under current conditions, the signalized intersections of High School Way, Maple Street and Columbia Avenue currently exceed ODOT volume/capacity (v/c) maximum of 0.75 on US 30, in the PM peak hour. In the AM peak, High School Way and Maple Street exceed the ODOT standard.

Queuing analysis was also performed, to determine whether sufficient storage capacity exists on US 30 to accommodate northbound right turns and southbound left turns from US 30 onto streets that then cross the railroad tracks. This analysis quantified concerns about trains blocking crossings and causing backup on US 30, expressed by many stakeholders in the larger LCRRC study. These long queues cause some frustrated drivers to perform risky maneuvers around the stopped vehicles. In addition, there are instances where vehicles traveling (north- and south-bound on US 30) may come around curves and encounter turning-vehicle queues without optimal stopping distance.

¹⁴ W&H Pacific, for City of Rainier

¹⁵ Kittelson & Associates, for ODOT

The analysis used a two-minute turning delay for the “no train” condition; a five-minute turning delay for the existing train events, and a ten-minute delay for the longer unit trains. Note that the five and ten minute delays are longer than the typical 3.5 and approximately 7-8 minute delay associated with corridor train lengths and speeds for the “normal” and unit trains in use.

This Rail Safety Study used the middle set of values (existing train events) to avoid over-estimating delay. The recommendations for safety improvements (Chapters 5 and 6) were based on that set of delay and vehicle queue figures.

2.3 Rail Conditions

2.3.1 Existing Corridor Infrastructure

An inventory of existing rail infrastructure along the alignment was made via field reconnaissance trips and data search and compilation efforts. Stakeholder agencies provided a great deal of background data and access to previous studies, as well as staff opinions and correspondence.

In addition, as part of the field work for this study, as well as the related US 30 Traffic Study, public and private roadway/rail at-grade crossings, as well as major US 30 intersections were observed, and their capacity, multi-modal amenities, condition and safety features noted.

2.3.2 Railroad Traffic Volumes

Volumes and lengths of trains under existing and future conditions is illustrated in Figure 2.4-1.

2.3.3 Hazardous Materials

Hazardous materials, such as chlorine going to the Wauna mill, are an issue. Yet, area residents understand that the hazardous materials are being used for family wage jobs.

2.3.4 P&W Train Crew Perspective on Corridor Safety

A scheduled on-train inspection trip (September 10, 2008) and interview with two Portland &

Western train crews, afforded a unique and critical understanding of corridor safety issues. The notes and observations summarized below resulted from that effort.

2.3.4.1 Scappoose

During field reconnaissance, the consultant team noticed grade-school children crossing the tracks (some walking, some carrying their bicycles across the tracks) near the EM Watts Elementary School on the west side of US 30. The trespassing was occurring between Santosh Street and High School Way (well outside the public crossings).

2.3.4.2 St. Helens Yard

It is more common for the railroad to have close calls with pedestrians in areas with multiple tracks where they are switching cars. Often, they will see pedestrians walking across the yard in front of the locomotive when they are switching cars. Sometimes they will see pedestrians and bicyclists hop in-between stationary cars to cross the yard. The railroad is concerned with pedestrians being surprised by an unforeseen moving train when they hop to the other side of a stationary set of cars (especially if permitted to travel at the 25/30 mph track speed). There is little room between tracks when cars occupy the lines.

2.3.4.3 Gable Road

The railroad has had some close calls with pedestrians (children) on the sidewalk. In notable cases, the pedestrian did not realize the train was coming until the last minute despite the warnings from the crossing gates and the train whistles from the engineer. St. Helens High School is located on Gable Road, on the opposite side of US 30 from the railroad. Often they will see children and teenagers with headphones on, or talking on their cell phones as they cross the tracks on the sidewalk.

2.3.4.4 Public Crossings in St. Helens

In general, the railroad does not have a problem with the public crossings in St. Helens with regard to vehicle traffic. They may have an occasional car that tries to beat the gates before they close,

but in general, the crossings are not an issue with vehicle traffic when the gates are closed. Again, the one issue that stood out was the close calls on Gable Road with pedestrians (young people) on the sidewalk crossing (see Gable Road, above).

The P&W engineers noted a problem with storage for cars turning left from US 30, and being stopped at the railroad crossing protection gates. Since some of these crossings can hold only one or two vehicles, this has a traffic impact.

2.3.4.5 Private Crossing at MP 31.45

Gravel trucks hauling trailers foul the track when they are waiting to turn onto US 30.

2.3.4.6 Private Crossings between St. Helens and Rainier

The private crossings between St. Helens and Rainier generally have not been an issue for the railroad.

2.3.4.7 Goble Landing (Lake St.)

The railroad has had some close calls at this crossing. Trucks will cross US 30 to Goble Landing and be stopped by a train. At times, the trucks may not see the train because they are focused on crossing US 30 before they approach the tracks. Also, since there is only a stop sign at the tracks, the vehicles will treat this as a yield sign and continue to cross the tracks despite the approaching train.

2.3.4.8 Graham Road

So far, the P&W conductor has not experienced any close calls at this crossing; however, he believes this is a potential hazard because of visibility issues with the crossing.

2.3.4.9 Fishermen between MP 42.5 and MP 45.5

There have been a few occasions where the railroad has encountered fishermen either walking along the tracks or crossing along this corridor. There are homes up on the hillside; the railroad is between the Columbia River and the homes. Also, a “pirate” or illegal crossing was placed approximately a mile east of 6th Street in Rainier.

2.3.4.10 Downtown Rainier (“A” Street)

The railroad tracks run “in-street” through the middle of “A” Street in downtown Rainier. In general, the railroad does not experience a significant number of close calls in this area. This may be due to the local’s familiarity with the railroad and the restricted speed of the trains (10 mph). The railroad will, however, experience an occasional parked delivery truck fouling the tracks or a vehicle driving along the tracks in front of the train (not directly in front, but within a block of the train). The conductor believes these are not local drivers. The railroad blows its horn and sounds the bells through this area as required by the FRA.¹⁶

2.3.4.11 Teevin Brothers (Private Crossings)

The railroad has experienced its largest number of close calls in this area. As the train approaches this area, they are slowing down to begin switching cars. Often, the logging trucks will slow down when they see the approaching train, but when they judge how fast the train is moving, they speed up and cross in front of the approaching train. Although no accidents have occurred, if a train were to pass through at track speed (25mph/30mph), an incident will more than likely occur. In particular, the railroad experiences the greatest number of close calls at MP 47.0. At this crossing, (and a second nearby private crossing with similar issues) trucks are unloaded and ready to leave the premises for another haul. There is a large pile of logs blocking the visibility of the trucks as they approach the tracks from the yard. The railroad crew made a point of saying that the problem was due to **outside haulers** and *not the Teevin Brothers haulers*.

2.3.4.12 Fish Station Road (Private Crossing, MP 55.66)

In this area, the railroad has experienced some close calls with fishermen fouling the track near this crossing. Also, there is a railroad bridge near the area that crosses a creek tributary to the

¹⁶ Stakeholder interviews revealed local concern with

Columbia River. On one occasion, the engineer surprised a father and son sitting on the bridge fishing. The father and son barely had clearance from the passing cars; however, if a unit train were to pass through the area, they may not have had enough clearance.

2.3.4.13 Pt. Adams Rd

This public crossing has signals for oncoming traffic, but does not have an active system. Visibility is an issue at this crossing and the railroad recommends the installation of gates.

2.3.4.14 West of Rainier

In general, there are fewer people, fewer vehicles and fewer problems as the corridor progresses westward toward Astoria from Rainier. From Fish Station Road to Wauna, the train crews will encounter an occasional close call with fishermen fouling the track, but close calls with vehicles decrease notably.

2.3.4.15 Wauna

Since the railroad is switching cars at Wauna, track speed is generally 15 mph. Because of the slower speed and because they actively blow their horns, they typically do not have many problems arise at Wauna.

2.3.4.16 Aldrich Pt. Road

Visibility is an issue looking east toward a westbound train. The crossing has a passive system (stop signs).

2.3.4.17 Fishermen – Near MP 86.93 (West of Waterhouse Rd. in Knappa)

While operating the Bicentennial Train, often the RR would encounter fishermen fishing off the bridge into the creek at this location.

2.3.5 Public & Private Roadway/Railroad At-Grade Crossings

Appendix A, Inventory Master Summary, provides inventory information on the corridor, including:

- Crossing number (1995 Track Chart)

- U.S. DOT identification number
- Milepost
- Average annual daily traffic (from several sources)
- Number of lanes
- Existence of sidewalks and bicycle lanes
- Type of at-grade crossing protection
- Crossing surface type
- Roadway surface type
- Vehicle storage lengths (right turn from US 30; left turn onto US 30)
- Length of rail cars at the crossing
- Number of local and unit trains under current, post-*Connect Oregon II* improvements, and for projected 10 year 8% annual growth in rail demand

Where information was supplied, the number of school buses crossing the tracks is also included.

¹⁷

2.3.6 Portland & Western Railroad Safety Protocols and Practices

Because this study is focused primarily on rail safety, it is important to understand the extent to which the Portland & Western Railroad is committed to the spirit, as well as the letter, of its federal and state safety requirements and its company practices. See Appendix B, P&W Safety Initiative Fact Sheet and Emergency Response Plan.

Key safety facts are:

- Locomotives are inspected daily by engineers and mechanical staff
- Track inspection occurs regularly

¹⁷ As the deliverable for Task 3—Corridor Inventory, photographs and field inventory sheets for each crossing that could be accessed was provided to Columbia County, electronically (CD-ROM) and in a hard-copy notebook. Appendix A represents a summary of that information. It was used in subsequent evaluation and candidate project development and rating.

- P&W Railroad puts all of its employees through rigorous and ongoing safety training and testing
- Communication with local emergency responders is recognized as a key safety factor

2.3.7 Operation Life Saver

Funded by the railroads and state departments of transportation, Operation Life Saver is run mainly by volunteers, with some paid staff. The organization's mission is to educate the public, enforce traffic and private property (trespass) laws, and improve the design and engineering element of rail safety throughout the country and the world. In Oregon, Operation Life Saver can provide customized presentations for the audience-bus drivers, elementary schools, businesses, citizen groups, and the like.¹⁸

2.4 Existing Roadway Conditions

2.4.1 US 30

US 30 is a Statewide Highway, which means that it should function to provide interregional traffic. It is also designated as a National Highway System (NHS) route and a freight route.

ODOT Region 1 is concerned with the impacts of increased rail operations on the safety and operation of US 30, which parallels the railroad. ODOT is especially concerned about adequate storage and queuing capacity for turning movements in both directions on US 30 that may be delayed as trains pass through and block cross streets. In addition, the reliability and capacity of the highway, as it operates in conjunction with increased train volumes, is an ODOT concern.

Identification of the extent of those problems, and development and prioritization of potential solutions is a focus of this Rail Safety Study.

Ensuring the future development of the highway as a multi-modal transportation corridor is important to many stakeholders. Thus, the

¹⁸ Oregon Operation Lifesaver's website is www.oregonol.org.

existence and condition of pedestrian, bicycle, transit and conditions that might affect Americans with Disabilities (ADA) required access to corridor facilities was recorded.

New traffic counts for 20 selected US 30 intersections were conducted in summer 2008, and provide the basis for analysis of conditions and impacts associated with those intersections and at-grade crossings. This material is summarized, along with project recommendations in Appendix C.

A simultaneous study focusing on siting transit stops along US 30 has not been released, but transit stop locations were generally discussed.

2.4.2 Corridor Transit

2.4.2.1 Columbia County

Columbia County Rider (CC Rider) stops at the following locations on fixed service schedule:

St. Helens:

- Medical Mall
- Rite-Aid off Gable Road.

Warren:

- Warren Baptist Church

Scappoose:

- Railroad property by Scappoose City Hall
- Grocery Outlet store on US 30

2.4.2.2 Clatsop County

Sunset Empire Transportation District provides service in Clatsop County with limited (twice daily) connections to Columbia County Rider at Westport.¹⁹

¹⁹ The Sunset Empire Transportation District website may be accessed at <http://www.ridethebus.org/>. Westport Shuttle routes and connections to Columbia County Rider is shown at <http://www.ridethebus.org/route/westport.html>

Lower Columbia River Rail Corridor/Rail Safety Study

Table 2.4-1: Lower Columbia River Rail Corridor Study: 20 Selected Crossings—Vehicle Count Data (2008)

Location	US 30 Intersection	Vehicles Crossing the Railroad Tracks						
	PM Peak Hour Volume (at US 30 intersection)	NB Right Turn Volume	SB Left Turn Volume	WB Left Turn + Through Volume	EB Through Volume	WB Right Volume	PM Peak Hour Total Vehicles Crossing Railroad Tracks	Calculated average vehicle/hour: 55%* of Peak*
High School Way	3190	145	75	100	5	80	405	225
Maple Street	3096	51	21	68	26	18	184	102
Columbia Avenue	2774	160	80	175	-	70	485	269
West Lane Road	2395	20	30	10	<5	40	105	58
Old Portland Road	2273	10	<5	<5	-	<5	10-25	6
Bennett Road	2344	180	15	60	<5	5	265	147
Millard Road	2170	5	35	15	5	15	75	42
Gable Road	2747	105	130	325	165	170	895	497
Columbia Boulevard	2410	230	120	-	255	-	605	336
St. Helens Road	2072	-	-	440	-	230	670	372
Deer Island Road	1624	115	50	90	<5	85	345	192
I Street	1319	45	10	30	<5	10	100	56
E Street	1213	10	5	15	5	5	40	22
Goble Landing (Nicolai Road)	719	10	5	5	<5	<5	20-30	14
Veterans Way	1114	5	30	10	5	25	75	42
Marshland Rd	572	<5	<5	5	<5	<5	<25	6
Marshland District Rd	580	<5	<5	<5	-	<5	<20	4
Woodson Rd	563	5	10	5	<5	5	25	14
Old Mill Rd	585	15	<5	20	<5	5	40-50	25
Westport Ferry Rd	556	5	10	10	-	5	30	17

*Possible rounding discrepancies

Source: 2008 Kittleson & Associates, Inc. Study (Summer 2008 US 30 Corridor Vehicle Counts for ODOT Region 1)

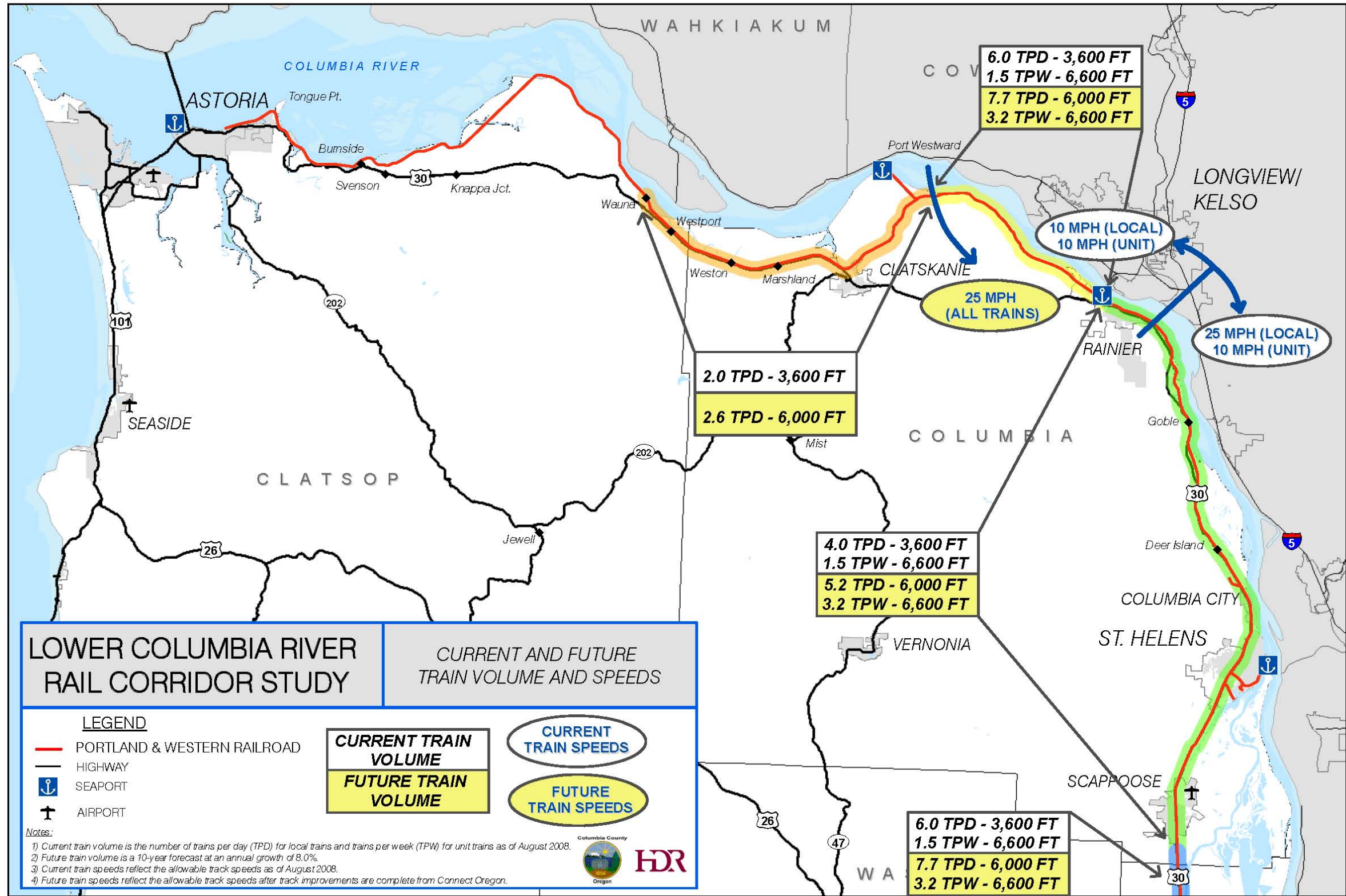


Figure 2.4-1: Current and Future Train Volume and Speeds

Chapter 3: Future Rail & Roadway Conditions

3.1 Future Train Volumes and Speeds

With proposed infrastructure improvements (track upgrades included as part of the *ConnectOregon* II funding package) track speeds will increase in sections from 10 to 25 mph in all sections of the 'A' Line from Scappoose through Wauna, with the exception of Rainier, which will remain at 10 mph absent local improvements.

Figure 2.4-1 above identifies those changes in speed, as well as current and future train volumes along the study corridor. Note that as rail-shipped freight demands grow, the railroad will add more cars to existing trains before adding another train (which would require additional equipment and labor costs.) Under this assumption, Scappoose-to-Rainier area residents and travelers would see an increase in local trains from 4 to 5.2 trains per day, and in unit trains from 1.5 trains per *week* to 3.2 trains per week between 2008 and 2018 (with 8% annual growth). Obviously, the economic recession will slow down potential growth here and elsewhere.

3.2 Future Hazardous Materials

There may be some incremental increase in the amount of hazardous materials shipped to P&W's existing customers, but this would not change emergency response protocols for the railroad or the corridor jurisdictions: ongoing safety training and improvements will continue. The amount or type of future hazardous materials that might be shipped by rail if the railroad was restored and upgraded all the way to Tongue Point is unknown. However, if that restoration occurred, Clatsop County would have to plan for accidents and derailments as Columbia County does now.

3.3 Rail-Related Vehicle Delay

Vehicle delay at railroad crossings is a primary concern of the corridor stakeholders. It is not only an inconvenience, but it also has implications for emergency response to situations on the other side of the tracks.

Unit trains, because of their greater length and slower acceleration and deceleration, create greater delay than local (shorter) trains would under the same track speed conditions. Because unit trains travel the corridor an average of only three times per week, however, their influence on total train-related delay is small compared to the influence of the more frequent local trains.

In terms of total daily delay (in vehicle hours per day) due to local and unit trains blocking crossings with the post-*ConnectOregon* improvements in track speed, the top ten public crossings in the active portion of the corridor can be ranked as follows (from greatest to least total daily delay):

- Gable Rd. (Columbia County/St. Helens)
- St. Helens St. (St. Helens)
- Columbia Blvd. (St. Helens)
- Columbia Ave. (Scappoose)
- High School Way (Scappoose)
- Deer Island Rd. (St. Helens)
- Old Portland Rd. (near Bennett Rd.)
- Maple St. (Scappoose)
- 2nd Street (Rainier)
- Depot St. (Columbia County)

The ranking of all public crossings (from Johnsons Landing Rd. to Driscoll Slough Rd.) are found in Appendix D, Train Crossing Delay Calculations. Delay is shown, and ranked, according to total daily hours of vehicle delay (Table 2.4-1) as well as delay per single crossing event due to local and unit train blockage. Delay rankings are shown for current conditions, post-*ConnectOregon* II improvements, and a 10-year projection of growth in trains (calculated at 8% per year).

Table 3.3-1 shows features of 20 key US 30 intersections, and rates them (A = most concern), based on peak hour capacity, crash history, and turning movement storage capacity. These ratings are factors that inform project prioritization.

Lower Columbia River Rail Corridor/Rail Safety Study

Table 3.3-1: Key US 30 Intersection Factors and Performance under “Worst Case” Scenario (10-min Unit Train at Peak of Peak)

Intersection	Intersection Control Type	Peak Hour Capacity	Crash History	Rt. Turn Queue Capacity	Lt. Turn Queue Capacity	Overall Rating
High School Way	Signalized	A	A	A	B	A
Maple Street	Signalized	A	A	C	A	B
Columbia Avenue	Signalized	A	A	A	B	A
West Lane	Unsignalized	C	C	C	C	C
Old Portland Road	Unsignalized	C	C	NQ	C	C/NQ
Bennett Road	Unsignalized	A	A	A	C	B
Millard Road	Unsignalized	C	B	C	C	C
Gable Road	Signalized	B	A	B	B	B
Columbia Blvd	Signalized	B	A	A	B	A
St. Helens Road (1-way WB)	Signalized	C	C	NA	NA	C
Deer Island Road	Signalized	C	B	B	B	B
I Street	Unsignalized	C	C	C	C	C
E Street	Signalized	C	B	C	C	C
Nicolai Road	Unsignalized	C	C	NQ	NQ	B/NQ
Veterans Way	Unsignalized	C	B	C	C	C
Marshland Dist. Rd./Schroeder Rd.	Unsignalized	C	C	NQ	C	C/ NQ
Marshland District Rd	Unsignalized	C	V	NQ	NQ	C/ NQ
Woodson Road	Unsignalized	C	C	NQ	NQ	C/ NQ
Old Mill Town Road	Unsignalized	C	A	C	C	C
Westport Ferry Road	Unsignalized	C	B	C	C	C

Source: Kittelson, December 2008

A = Most concern B = Some concern C = Little concern NQ = No exclusive turn lane to queue in; queuing occurs in a US 30 through lane

Chapter 4: Corridor and Community Rail Safety Solutions

4.1 Stakeholder Interviews Frame Corridor Issues

Approximately 55 individuals, in about 20 different interviews or telephone calls, were interviewed to discern a wide range of opinion on increased rail volumes and related safety issues between the Columbia County/Multnomah County line and Tongue Point in Clatsop County. Approximately a dozen other stakeholders were asked, but unable to or declined to comment during the stakeholder interview process.

In a separate document, the issues identified below are associated with the stakeholders who specifically mentioned them (see Appendix E). The bullets under each heading are listed from most frequently to least frequently identified. Note that stakeholders are not a representative sample, and that further, most stakeholders would probably consider the majority of the issues listed below “important.” Still, it is revealing to observe the relative frequency of issues among the stakeholders who were included in the effort.

4.1.1 Safety & Emergency Response

- Provide safety upgrades at more crossings
- Ensure ability to meet fire and medical emergency response time, and honor mutual aid agreements
- Ensure law enforcement agencies’ ability to meet response time goals
- Educate public (focus on youth education) about rail safety—use Operation Life Saver materials
- Ensure safety for school access (bus, bike, pedestrian and vehicle)
- Develop or update plan and precautions for hazmat on rail
- Educate public about federal requirements for horns, and general railroad rights/responsibilities
- Develop or update derailment response plans
- Improve safety-related communications between P&W and responders

- Minimize duration that community is exposed to hazardous rail cargo
- Make sure that increased emergency response resource needs are met

4.1.2 Rail Operations (Freight & Passenger)

- Increase velocity, capacity and reliability of rail
- Maintain highway capacity, safety and reliability
- Address trespasser issues
- More separation of vehicles from trains in Rainier
- Ensure adequate maintenance and inspection of rail
- Improve Clatsop County rail segment to Class 2
- Close public crossings, as possible
- Close private crossings, as possible
- Install automatic gates and lights interconnected to US 30 traffic lights at certain locations

4.1.3 Highway/Local Road Operations (All Modes)

- Minimize vehicle delay (including school and transit bus) at grade crossings
- Address impact of more/longer trains on vehicle diversion, ped/bike mobility and safety
- Address back-up of vehicle traffic into traffic lanes (safety and mobility)
- Improve safety for hazmat trucks crossing rail
- Develop local through-streets parallel to US 30
- More signals on truck routes (Clatskanie, Beaver Falls) (could include active crossing protection or local traffic signals or warning signs)

4.1.4 Local Planning, Regulatory and Circulation

- Plan for higher speed freight and passenger trains over next 20 years
- Support existing and plan for future transit (bus and rail)
- Plan for future grade separations
- Develop vision for future multimodal corridor and associated development
- Identify and preserve industrial land along rail corridor
- Maintain or improve cross-track connectivity

4.1.5 Community & Environmental

- Reduce noise/examine Quiet Zone potential

4.1.6 Business & Industry

- Maintain or improve access to business or industrial sites for customers and shippers/suppliers
- Ensure good rail service to existing and smaller rail users
- Reduce train-related diversion through commercial parking lots

4.1.7 Economic Development

- Promote industrial development along rail corridor by providing rail access
- Shift freight from highway to rail
- Take advantage of existing funding offers (Rainier/ODOT Rail)

4.1.8 Project Implementation and Funding

- Obtain funding for needed safety and mobility improvements
- Seek contributions from all parties, including railroads, to mitigate impacts
- Begin to identify uses for *ConnectOregon* III funds

4.2 Pros and Cons of Increased Train Activity

Through the combination of stakeholder interviews, Study Core Team meetings, and informal discussions, an understanding of the tradeoffs involved in more, longer and faster trains traveling on the P&W Railroad emerged, as listed below.

4.2.1 Benefits of Increased Train Speeds and Volumes

- Trains are greener than trucks (360 ton-miles vs. 30 ton-miles per gallon of fuel for trucks)
- Each railcar means 3 trucks off the highways
- Rail service will facilitate economic development
- Rail is needed for development of Tongue Point
- Time savings for rail shipments compared to current service
- Increased industry and jobs (from railroad itself plus rail-served businesses)
- Higher property values (in the case of planned transit-oriented development, or industrial rail-accessible property development)
- Infrastructure improvements support eventual commuter rail
- Opportunity to improve or enhance existing community mobility and way of life (commuter rail and associated transit/walkable development)

4.2.2 Costs of Increased Train Speeds and Volumes

- The railroad is exposed to increased risk at grade crossings
- Potential time delay for vehicles, pedestrians, bicyclists, at grade crossings from longer trains
- Noise
- Emergency response access issues
- Impacts on community connectivity
- Increased exposure to potential safety issues at passive grade crossings

- Automatic crossing protection is expensive; could create additional diversion issues
- Potential service impacts to existing or smaller businesses
- Changes to existing community mobility and way of life

4.3 November 2008 Community Forums

Two community forums were held on November 12 and 13, 2008 at the Columbia County Courthouse, in St. Helens, OR and the Clatskanie River Inn, Clatskanie, OR, respectively. The purpose of the forums was to get input from the public on rail safety issues generally, and specific safety concerns at public and private highway/rail at-grade crossings.

4.3.1 November 12, 2008 Forum

Forum Attendees (in alphabetical order) were:

April Bamburg, The Chronicle
Rita Bernhard, Columbia County Commissioner
Greg Cohen, Coast River Business Journal
Michael Greisen, Scappoose Rural Fire District
Dale Hansen, Portland & Western Railroad Chief Engineer
Henry Heimuller, Transit Coordinator Columbia County Transit District
Josette Hugo, for Rep. Witt
David Kim, ODOT Rail
Donna Nyberg, for Rep. Witt
John Schull, Scappoose Rural Fire District
Lonny Welter, Columbia County Road Department
Oregon State Representative Brad Witt
Janet Wright, Columbia County
Diane Young, Portland & Western Railroad Safety Officer

4.3.2 Brief Presentations

After self-introductions, Deborah Redman (HDR) introduced the project purpose and background, progress to date and identified the next steps. She explained how to provide input during the meeting.

Kurt Reichelt (HDR) reviewed the data collection and existing conditions report, and explained how the information was gathered.

Dale Hansen and Diane Young from Portland & Western Railroad (P&W) presented information about their safety record (one of the best in the country, if not the best) and on emergency protocols, emergency training and communication with local responders, and Operation Lifesaver.

- Operation Lifesaver is funded by the railroads and the state DOTs. It's a national organization with a full range of safety training and educational modules, which can be customized for different audiences such as school children, bus drivers, emergency responders.
- Locomotives are inspected daily by engineers and mechanical staff
- Track inspection is ongoing, and is required by the Federal Railroad Administration
- P&W conducts ongoing hazardous materials and other safety training for its own personnel
- P&W trained Scappoose Rural Fire District (and others along the corridor, through the Regional Fire Operations Group) in rail emergency response, such as where the fuel shutoffs are, how to move through the cars, how to get help from the train crew, set and release brakes, and so on.
- Good communication between the railroad and the local communities is the foundation for safe operations

4.3.3 Issues Discussed

- Rainier is the main problem in this segment of the study corridor.

- Access to businesses on the north side of A Street in Rainier.
- What happens if there's a problem with the crossing protection?
 - Dale Hansen explained the 1-800 telephone number that was posted at each protected crossing. Also, dial 911 to alert emergency personnel and they will arrive to guard the crossing until the railroad comes to address it.
- Could a “chase car” be sent in advance of all trains to ensure that crossings were not blocked and to prevent incidents?
 - Not likely to be a solution the railroads would endorse. In addition, it may not address issues of concern.
- Emergency response—what about advance notice to the local responders?
 - This has not worked out; Scappoose Fire District found it not to be a relevant solution. They have not actually been prevented from responding due to a train blocking a crossing. Their approach is simply to look for the nearest available crossing, if a crossing is blocked.

4.3.4 November 13, 2008 Forum

Forum Attendees were:

Margaret Cemulini, Rainier

Terry Deaton, Rainier

Dale Hansen, Portland & Western Railroad Chief Engineer

Henry Heimuller, Transit Coordinator Columbia County Transit District

Ruth Howard, Clatskanie

Robert Keyser, Clatskanie

Paul Langner, Teevin Brothers, Rainier

Donna Nyberg, Representative Witt's staff

E.L. Oliver, Clatskanie

Mayor Diane Pohl, City of Clatskanie

Ray Pohl, Clatskanie

Rosemary Brinson Siipola, CWCOG-MPO

Darrl Taylor, Rainier

Judith Taylor, Rainier

Kristi Ward, US Gypsum (?), Clatskanie

Oregon State Representative Brad Witt

Janet Wright, Columbia County

The forum began with a brief presentation, similar to that provided to the public on November 12. The forum was then open to questions and discussion.

4.3.5 Issues Discussed

- Potential for P&W to simply continue to travel at 10 mph, or perhaps head in to town at 10 mph and increase speed to 25 mph as the train travels through Rainier, thus reducing the time that the train blocks A Street.
- A member of the public asked if trains are running faster at night. P&W representative Dale Hansen was not aware of this, and it is not their policy to run faster at night. He asked for information of any specific issues to be sent to him.
- What about vibration from the railroad? Could it affect stability of hillside development?
 - Two citizens expressed concern about vibrations with longer, heavier trains.
 - P&W and HDR discussed the fact that with improved rail (use of continuous welded rail instead of jointed rail) some vibrations will be reduced. Vibrations are not typically a problem, but Dale Hansen said he would look into the specific location in Rainier that was brought up by a citizen participant.
- Look at the impact of putting the freight cars back on the road, and compare that with the tradeoff of increasing rail traffic.

- Look at transit across the bridge to Washington; Greyhound is coming back to Kelso Depot, and there are four Cascades trains per day
- Goal is 110 mph, ultimately, for Amtrak route in Washington
- Port of St. Helens—the train is a must; 90% of future clients want power, water and rail access
- Clatsop County—trying to acquire Tongue Point, and that will add to the need for improved rail and safety.
- Look at integrated freight and commuter rail throughout the corridor.
- What portions of the corridor remain to be upgraded after *ConnectOregon II*?
 - Approximately five total miles remain to be upgraded out of a total 38 miles of light-weight rail, divided into several smaller segments: the stretch between Mayger and Port Westward, a segment in Rainier and about 1.5 miles near Deer Island.
- What hazmat is going up and down the railroad?
 - Further discussion about the fact that hazardous materials trucked up and down US 30 is probably more dangerous.
 - Dale Hansen explained that the latest ethanol railcars are designed to stay upright in the unlikely event of a derailment. Participants discussed the tradeoffs between decreasing speed vs. increasing speed and reducing crossing blockage duration
- Consider the fiscal impact of the Rainier street closure plan on the citizens of Rainier
- Consider quiet zones through cities
- Ensure good rail service to existing and smaller rail users in the future

- Promote good land use planning, and preserve the potential for commuter rail and grade separations now.

4.4 Preliminary Corridor “Tool Kit” Solutions

The following list of potential solutions for the issues identified along the corridor come from a variety of sources, including the ODOT Rail letter to Janet Wright, May 25, 2007; LCRRC stakeholder interviews and Core Team meetings, Portland & Western Railroad management and rail crews, previous planning documents and consultant team assessment.

4.4.1 Railroad-Focused Ideas

- Scappoose to Port Westward—existing 85-90 pound rail, ties and sidings must be replaced to support ethanol plant at Port Westward (\$25 M est. cost)
- Port Westward to Tongue Point—existing 85-90 pound rail, ties and sidings must be replaced (\$18.5 M est. cost)
- Three swing span drawbridges—cannot be adjusted to become fully automated—either weld in position if waterways can be closed to navigation, or consider new automated lift span bridges
- Inspect, inventory all rail bridges to determine load capacity, remaining life cycle, cost to repair or replace
- Tunnel—raise ceiling to permit double stack carloads
- Add more rail storage
- Use sidings for operations, rather than storage, in critical areas
- Relocating switching operations
- Siting new or relocating existing yards
- Fencing (to fence or not to fence)
- Improve site visibility (vegetation, grade, horizontal alignments)

4.4.2 Roadway-Focused Ideas

- Overpasses
 - One per community (longer term)
 - Potential of pedestrian/bicycle grade separated paths in key areas (e.g., near schools)
- Escape lane for vehicles turning onto US 30
- Longer queuing on US 30
- Improve site visibility (vegetation, grade, horizontal alignments)
- Information technology to alert traffic to alternative roads during blockages
- Improve connectivity parallel to US 30, to reduce need to use US 30 as “Main Street”

4.4.3 Crossing Ideas

- Crossing upgrades
 - Ensure interconnection with US 30 traffic lights to prevent vehicles from being stuck on track
 - Install protective gates and lights:
 - Graham Rd., Prescott
 - Kallunki Rd., main entrance to Port Westward
- Active Warning Devices with Grade Crossing Predictor to measure train speed
- Landscape barriers to channel crossings safely
- Pedestrian/bicycle bridges

4.4.4 Eliminating public or private crossings

- Roads that cannot be closed were identified as follows (not intended to be an exhaustive list):
 - Aldrich Pt. Road access a boat ramp, and cannot be closed
 - No county roads in Clatsop can be closed.
 - 6th Street East, Rainier
- Closure Candidates (from ODOT Rail Division)

- Old Portland Rd.—poor line of sight, alternate access available (both Old Portland Rd. crossings should not be closed; one must remain open to avoid pushing traffic to Gable Rd. or create long out-of-direction travel patterns for some residents)
- Waterhouse Road might be able to be closed, because Knappa Dock accesses that area; consolidate with Knappa Road
- Beaver Dike Rd., Quincy, consolidate with Hermo Rd.
- Identify those private crossings without a valid agreement between the state, railroad and property owner
- Closure Candidate (other stakeholders)
 - Wyeth Road
 - Santosh Road
 - Old Portland Road (Bennett)

4.4.5 Rainier “A” Street Ideas

- ODOT Rail recommends opening up the track; curb it; close three of the following crossings, and install gates and lights at the other three (note that federal assistance for installation of gates and lights is available in conjunction with a crossing closure)
 - 6th Street East (keep open/install gates and lights)
 - 5th Street East, Rainier
 - 4th Street East, Rainier
 - 3rd Street East
 - 2nd Street East
 - 1st Street
 - 2nd Street West
- Implement the 2003 Plan for “A” Street

4.4.6 Emergency Response and Access Issues

- Improve communication between railroad and emergency responders
 - Train operations (as possible)

- Hazardous materials information
- Support community preparation, training and staffing for increased hazmat risks

4.4.7 Community/Livability Ideas

- Implement Quiet Zones

4.4.8 Educational Ideas

- Corridor-wide education in schools, businesses and community organizations
 - Work with Operation Life Saver
 - Law enforcement component—identify the trespass risks and penalties

4.4.9 Planning/Regulatory Ideas

- Review and revise local zoning to support safer at-grade crossing from built environment perspective
- Minimize incompatible development near railroad
- Revise comprehensive plans to identify and preserve future grade separated crossings, local and regional bus and commuter rail facilities, and appropriate industrial land to support economic development as well as transit-oriented and recreational land

Chapter 5: Refinement of the Preliminary “Tool Kit” of Corridor Solutions

5.1 Transforming Ideas into Solutions

Based on review of the proposed solutions with stakeholders and with the railroad, some of the ideas presented in Chapter 4 were taken to the next level of development, as discussed below.

Based on extensive stakeholder engagement, review of previous plans, and available data, this study developed a set of improvement alternatives that fall into distinct categories, as follows:

- Railroad-focused Solutions
- Roadway/Railroad At-Grade Crossing Solutions
- Roadway-focused Solutions
- Roadway/railroad at-grade crossing treatment
- Emergency Response and Communications
- Community Planning, Education and Livability Strategies

Recommendations from the preliminary list suggested by stakeholders were screened down to include only specifically safety-related projects.

This chapter also includes conceptual level cost estimates. It must be emphasized that these are not engineered cost estimates; they are to be used for relative ranking and to help communities understand the order of magnitude costs associated with different possible solutions to identified concerns and corridor problems.

Chapter 6 will provide a framework for assessing the performance of recommended solutions against some broad evaluation criteria--safety, rail and highway operations, emergency response, stakeholder support and economic development—identified through the stakeholder engagement process. Based upon a final round of stakeholder input, the solutions will be grouped, by category (e.g., railroad crossing protection upgrades) and sorted into community-focused strategies designed to help affected residents,

businesses and local and state agencies seek funding and implement preferred projects. Projects will be placed into three tiers for funding prioritization.

5.2 Conceptual Cost Development for Alternative Prioritization

The cost estimates associated with identified safety and congestion improvements are conceptual only. They were developed based on available information, unit costs, recent corridor experience and professional judgment, for the purpose of evaluating and prioritizing corridor alternatives. They are not sufficient for funding applications or engineering work. In no cases do they account for right-of-way acquisition. See Appendix F for conceptual cost estimate detail.

5.3 Railroad-Focused Solutions

5.3.1 Complete Track Upgrades

The P&W Railroad received the top-ranked regional award from *ConnectOregon II* funds--\$6.3 million in 2008 to upgrade 23 miles of track (to accommodate 286,000 lb. railcars) along the Portland-Astoria rail line. The intent of this track upgrade was to:

1. Enable the ‘A’ Line to safely and efficiently accommodate 286,000 lb gross weight freight cars, compared to the existing capability for 263,000 lb gross weight freight cars. This allows rail-served shippers and receivers on the ‘A’ Line to reduce their transportation costs, and better compete with shippers and receivers in other locales.
2. Improve train speeds and train capacity on the ‘A’ Line, commensurate with other safety requirements.
3. Reduce track maintenance costs.
4. Reduce roadway/railroad at-grade crossing occupancy times by trains, potentially.

Cascade Grain Products LLC filed for Chapter 11 bankruptcy protection on January 29, 2009, shutting down its 113 million gallon per year ethanol operation, due to economic conditions and technical issues. The need for Portland & Western Railroad to accommodate 286,000 lb. cars has diminished. Though there is a possibility that the plant will reopen, the problems with plant operation and function that are related to the bankruptcy remain to be resolved.

As of February 2009, P&W had upgraded 7 of the 23 miles funded under *ConnectOregon II*. Not only have plans to complete the entire corridor upgrade (though *ConnectOregon III*) been halted, but P&W may return funding to ODOT Rail Division, and seek a refund of its proportionate matching funds.

Conceptual Construction Cost: \$N/A – Project On Hold

5.3.2 Additional Train Storage/Siding

Sidings are used to increase operational flexibility and efficiency in serving rail customers, for purposes that include sorting, staging and storing railcars. P&W has looked at locations between Rainier and St. Helens to add capacity, but there are issues with land availability and difficult terrain, as well as funding.

South of the study area, near Sauvie Island, there is a possible site that might accommodate a 7,000 foot siding extension of the Harbor Siding to Larson Road. A site at the northern end of the study area, near Mayger Rd., was also identified as a possible siding location.

Discussions with P&W Railroad indicated interest in a site just north (west) of Rainier. There, an 8,500 foot flat site at Dibblee Point might accommodate a siding, or potentially a yard, extending from railroad mile post (RR MP) 48.75 to RR MP 50.35 and would be constructed within existing right-of-way. Construction would be contingent on future business conditions. See Appendix G for location map.

Conceptual Construction Cost: \$3.47 million

5.3.3 Inspect and Inventory Movable Rail Bridges

There are three movable swing-span type drawbridges between Port Westward and Tongue Point. According to ODOT Rail Division engineers, the three bridges are not conducive to either remote-control operation or automatic operation. However, ODOT recommended that a bridge consultant should be hired to determine load limits on those bridges, and determine if the waterways can be closed to navigation.

Permanently affixing the bridges into a closed position may add years to the useable life of the bridges. If bridges cannot be permanently affixed due to waterway needs, consideration should be given to replacing them with fully automated lift span bridges with sufficient vertical clearance to enable the 'A' Line to accommodate double-stack container trains. To make these determinations, qualified engineers should manually inspect each bridge.

Swing Span Bridge Structure at RR MP 62.7 (Columbia County) Due to the speed restriction of 5 mph on this 223 foot bridge over the Clatskanie River, a bridge structural engineer should be hired to determine what it would require to increase the speed on the bridge to 40 mph. The bridge is rated for 268,000 lb rail cars, and would need to be upgraded to accommodate 286,000 lb cars.

Swing Span Bridge Structure at RR MP 84.71 (Clatsop County) This bridge is approximately 688 feet long, including approaches, and spans the Blind Slough.

Swing Span Bridge Structure at RR MP 94.83 (Clatsop County) This bridge crosses the John Day River, and is approximately 312 feet long (including approaches).

Conceptual Engineering Study Cost:
Approximately \$40,000-\$120,000 per bridge

The wide variation in likely consulting fees is due to variables in bridge condition, access issues and scope of work. Safety and staging complexities also vary according to site characteristics, and these and other factors affecting actual study cost

would be determined as part of scoping a request for proposal. This range assumes field inspection by a crew of two to three people, possibly with mobile lift platforms for access, and includes preparation of a detailed report on findings and recommendations for functional repairs. The level of detail needed for findings and requirements for cost estimates for resulting recommendations would affect the study cost.

5.3.4 Relocate St. Helens Switching Operations

St. Helens Yard is a rail yard that supports local rail-served customers. It also creates a mobility barrier within the community for motor vehicle and pedestrian traffic. Both the community and the railroad are concerned about trespassing, as it creates a safety risk and liability issue. Even if the yard is not relocated, fencing along US 30 is proposed. (The \$3.67 million relocation cost includes an estimated \$84,000 for fencing the yard along US 30.)

P&W must serve customers in the St. Helens area, and it may be impossible for the railroad to completely vacate the yard. However, storage (as opposed to active switching) activities might be economical to accomplish elsewhere, and the railroad might be interested in relocating, with provision of a new yard on a one-to-one replacement ratio. The cost of moving is an issue, as is finding suitable land.

Conceptual Relocation Cost: \$3.7 M (exclusive of right-of-way acquisition)

5.3.4.1 Fencing or landscape barriers-St. Helens Yard

Fencing along St. Helens yard is recommended as a partial solution to trespassers. Additional law enforcement is also a possible solution to the trespass problem in this location. P&W RR is committed to enforcing the law against trespassers and working with local law enforcement. Fencing cost below is based on 3,000 feet of chain-link fence on US 30 side of the existing yard. The City of St. Helens may be interested in a more visually appropriate fencing

solution, such as incorporating sight-obscuring slats or landscape elements, though this would likely involve additional costs.

Conceptual Fencing Cost: \$84,000 (Does not include maintenance, which would become City responsibility.)

5.4 Roadway/Railroad At-Grade Crossing Solutions (Public Crossings)

5.4.1 Railroad Crossing Protection Upgrades

Each public roadway/railroad at-grade crossing along the study corridor was examined during a field inventory conducted in July 2008. A follow-up examination by train added information from the P&W railroad crew perspective, and is incorporated into the considerations and recommended solutions for each crossing.

5.4.1.1 Crossing device upgrades

Grade-crossing safety improvements are categorized each grade crossing into similar risk reduction groups.

CATEGORY OF CROSSING TYPE: The crossings have been segregated into nine (9) distinct categories. The following specifies the work associated with each category:

1. **Category 1** Control Circuitry Replacement: requires new approaching train detection and arrival time prediction electronics, shunt enhancing equipment, new track leads, new batteries and battery charging equipment.
2. **Category 2** Partial Replacement or Upgrade: requires replacement or addition of one or more flasher / gate assemblies, along with some or all of the Control Circuitry Replacement identified in Category 1.
3. **Category 3** Complete Replacement: requires complete replacement of electronic equipment, including new shelters and ground equipment. New shelter to include: control circuitry (category 1). New ground equipment

to include cables, gates, flashers, bells and cantilevers as required. However, there are some crossings where existing apparatus (e.g., cantilever, gate assembly) are adequate for use but will require re-cabling.

4. **Category 4** Complete Signalization of an Un-signalized Crossing: requires installation as per ODOT crossing order.
5. **Category 5** Roadway Geometry, Drainage and Crossing Surface Upgrade.
6. **Category 6** Roadway Traffic Signal and Crossing Pre-emption Upgrade.
7. **Category 7** Crossings to be Considered for Closure and Traffic Rerouted.
8. **Category 8** Crossings to have a complete Diagnostic Review.
9. **Category 9** Crossings that require no changes or investment to reduce risk at this time. (In some cases, non-critical improvements are recommended, however.)

Costs for recommended improvements (see Table 5.7-1) are based on recent experience with Portland & Western Railroad in Oregon and on the corridor, and represent close matches to ODOT Rail Division estimates (2002) with approximate 6% annual cost escalator incorporated.

5.4.1.2 Pedestrian/bicycle Access

Notable pedestrian and bicycle facility gaps, poor conditions and special users (schools, elderly or disabled needs, community connectivity) affect the ability of pedestrians and bicyclists to cross the railroad tracks. Depending on the crossing, treatment can be to do nothing, improve (replace or repair) the between-track surface to make it easier to traverse, to improve signage or signal timing, or, in the most-used intersections, to consider a pedestrian/bicycle overpass. Such improvements are listed in Table 5.7-1.

Because the railroad (and in many places, US 30) pose connectivity problems for pedestrians and bicyclists, a grade-separated pedestrian bridge is a solution that was examined for potential

application in the corridor. Through discussions with stakeholders and examination of traffic issues, the top candidate for such treatment was determined to be Gable Road (St. Helens).

Conceptual Pedestrian/Bicycle Bridge Construction Cost: \$6.1 Million

5.4.2 Road Closures to Improve Safety

5.4.2.1 Road Closure Issues

Eliminating redundant or unnecessary roadway/-railroad at-grade crossings is an important part of improving safety of rail corridors. Yet, closing a road is a serious, and possibly contentious, undertaking. Property owners must be provided access to the transportation network, and even with alternative access, there is often resistance to changing long-standing travel patterns. Thus, the goals of safety, public necessity, convenience, economics and the right to access property along a railroad alignment must be balanced, when considering closing roads.

A highway operations concern related to road closures is that traffic would be diverted to other crossings, which could, given sufficient diversion volumes, become congested, or could otherwise result in undesirable traffic patterns. The traffic study (companion study) of this corridor review attempted to identify those issues, and did not find that roads mentioned for possible closure would divert a problematic level of vehicles to other nearby roads. That said, the list of potential closure candidates is provided with the caveat that it is advisory, and more community discussion is needed to move forward with most of the identified candidates.

ODOT (Rail Division) has the authority, within Oregon, to eliminate highway/rail at grade crossings (ORS Section 824.206 (1998)). Closure requests can be initiated by ODOT, the railroad or the local jurisdiction.

In an effort to make closures more attractive to local communities, ODOT Rail offers assistance in improving intersections at locations near those which can be closed. Because at-grade crossing

safety upgrades are expensive (in the neighborhood of \$190,000 to \$250,000 per crossing) ODOT Rail's approach to closures enables more frequently used crossings to receive the needed safety upgrades.

Such a plan was part of the proposed Rainier solution to in-street railroad conflicts with local traffic, parking and pedestrian activity. That proposal did not result in city approval, and is being re-examined through a different process. The Rainier crossings are therefore not considered in this study.

Conceptual Closure Cost: To be determined based on site-specific factors. While simple closure of an unsignalized active crossing might be relatively low, local and site-specific requirements for right-of-way to create needed cul-de-sacs would add significantly to project costs, as would signal removal.

5.4.2.2 Potential Closure Candidates

Below is a list of closure candidates that warrant further exploration with the local jurisdictions and ODOT Rail:

Santosh Road, in Scappoose, is planned for closure in connection with the Havlik Drive/US 30 interchange project.

Old Portland Rd.(near Berg Rd.) This at-grade crossing has poor roadway geometry (narrow lanes, curvature and a steep westbound approach to the railroad). It's a low-volume road, and a small amount of traffic could access US 30 using Bennett Road.

Wyeth Road in St. Helens is the strongest closure candidate in that community

Beaver Dike Road is recommended for further review as a potential closure location, with traffic diverted to Hermo Rd.

Marshall District Road in Marshall is a very low volume road that could be closed, with diversion to Woodson a possibility.

5.4.2.3 Clatsop County

It was determined that no county roads in Clatsop County could be closed. It was also noted that Aldrich Pt. Road accesses a boat ramp, and must remain open.

One possible closure is Waterhouse Rd, since Knappa Rd. could be used as an alternative.

5.4.3 Private Crossings

ODOT Rail and the P&W Railroad want to close or consolidate as many private crossings as are feasible. The railroad and ODOT Rail Division are currently in the process of determining which existing private crossings lack a valid agreement between the state, railroad and property owner. Those can become the subject of closure negotiations with property owners, where alternative access exists.

5.5 Roadway-Focused Solutions

5.5.1 US 30 Storage Capacity-Northbound Right Turn

Traffic, especially during the evening peak period, can begin to queue to make right turns onto streets with at-grade highway/rail crossings within the corridor. Without adequate storage, these queues can block US 30 through traffic, and create hazards, notably rear-end collision potential. The situation also adds to peak period delay.

Additional storage to accommodate the existing train delay "worst case scenario" was identified as part of the ODOT Traffic Study Report (December 2008). The situation assessed is, indeed, a worst case, because it assumes that a local train will block crossings for five minutes during the 15 minute "peak of the peak" (during the a.m. or p.m. peak hour) under current track speed conditions. Recommendations for improvements are identified in Table 5.7-1.

5.5.2 US 30 Storage Capacity-Southbound Left Turn

Southbound motorists wishing to make left hand turns onto cross streets with highway/rail at-grade

crossings can be blocked by trains. Queues at signalized US 30 intersections can back up significantly during peak periods (notably morning peaks). This situation adds to congestion, and creates a safety concern as motorists encounter a long queue and/or try to go around it. Additional storage and/or signalization is recommended at several locations on the corridor, as shown in Table 5.7-1.

In all cases of excessive queuing, but especially for the southbound left turn from US 30, ODOT traffic planners should consider extending the green arrow phase to clear the queue, once the train has passed the blocked at-grade crossing. Given the fact that through-traffic will have had unobstructed time while the train was present, this solution should not pose a problem.

5.5.3 Corridor Cross Streets: Westbound Railroad-to-US 30 Capacity

A third area of roadway concern relates to westbound traffic, especially at unsignalized intersections with US 30, where westbound left turn vehicles can be trapped without ability to complete the left turn, as a train approaches. Emergency escape bays, located on the shoulder of US 30 (north of the intersection) would permit vehicles in such situations to move out of the way of approaching trains. Locations and conceptual costs for building those escape bays are identified in Table 5.7-1.

5.6 *Emergency Response and Communications*

5.6.1 Ongoing Emergency Planning

Emergency responder stakeholders in the Scappoose area noted that they have had training for rail emergencies, which emphasized how to move through the cars, how to get help effectively from the train crew, and where the emergency fuel shutoffs were located and how to operate them. In addition, they learned how to set and release brakes on the rail cars. This type of

training and preparation is typical in communities along the P&W 'A' Line.

5.6.2 At-Grade Crossing Protection Problems

Paragon Systems operates a 1-800 telephone number for anyone to report problems with crossings. The crossing identification number is identified clearly on equipment located at each crossing.

Conceptual Construction Cost: N/A

5.6.3 Intelligent Transportation Systems (ITS) Strategies

Stakeholders expressed interest in information technology systems to alert traffic to alternative roads during blockages, as well as to make emergency response dispatchers aware of train locations in order to reduce the potential for emergency response vehicles to encounter waits at grade crossings for trains.

A related important note is that, during the stakeholder interviews, emergency responders themselves largely expressed the view that they currently "worked around" the blockages, were familiar with alternative routes to access during emergency response events. However, the potential solution was evaluated, and is summarized here.

Of relevance is the fact that the Portland & Western "A" Line is dispatched by Track Warrant Control, a Method of Operation that does not inherently require or provide real-time monitoring of train location to deliver safe and efficient train movement authorities. Monitoring the train's location in real-time with sufficient precision to be of use to an emergency response dispatching office is not feasible with a Track Warrant Control system. It is possible, to a degree, with other Methods of Operation such as Centralized Traffic Control (which uses wayside signals to authorize train movement) or Positive Train Control (which monitors train location using a combination of GPS, axle tachometers, and transponders mounted on the track at fixed points and read by the train as the train passes over

them). Both PTC and CTC would require multi-million dollar expenditures to equip the "A" Line.

Methods of Operation are designed to prevent train-to-train and train-to-maintenance-of-way collisions, and to efficiently prioritize train movements and maintenance activities. They are not designed to provide real-time locational monitoring except as required to meet railroad operations purposes. In a low-train density operation such as the "A" Line, a train may be authorized the entire distance of the line at one time, if there are no other trains or maintenance personnel that will require entrance to the line, prior to the train completing its work and exiting the line. Thus an Emergency Response System that monitored P&W's TWC dispatching system would in almost all cases not provide information that was useful for emergency vehicle dispatching.

An alternate possibility is to equip P&W locomotives with GPS transceivers and monitor the locations of locomotives from the emergency dispatching center using a mapping type display. Such systems are in wide use for tracking military vehicles (Blue Star Tracker), commercial trucks (FleetTek, Fleetmatics, Trimble), and emergency vehicles. The technology is inexpensive and off-the-shelf. The drawbacks are that the system only informs the user of the location of a vehicle, it does not disclose the intent of the vehicle's operator and projections of a vehicle's future location must be done by the user. The cost to equip a vehicle such as a locomotive is in the \$300 to \$1,000 range depending upon the robustness and transmission range of the transceiver, and cost of a central dispatching view client is in the \$10,000 range. Communications bandwidth must be available to support the signal between the GPS transceiver on the vehicle and the view client. The cost of providing communications bandwidth can be extremely high if infrastructure with sufficient capacity is not available.

The drawback of such a system is that the GPS transceiver only tracks the locomotive to which it is attached. The P&W has approximately 40 locomotives of which any one could be on the "A" Line on any given day. The system tracks

every locomotive unless someone turns off the transceiver when it's attached to a trailing locomotive in a multiple locomotive consist (and is meticulous about turning it back on when the locomotive is live and leading a train), which can clutter and overwhelm the capacity of the view client. Each of the transceivers has to be maintained and inspected. There may be Homeland Security, trade secret, or other reasons that makes the disclosure of locomotive location prohibited. Without an encryption scheme, the signal from the transponders can be read by low-cost commercial receivers available to hobbyists. Maintenance costs to ensure the GPS signals were reliable, accurate, and on when needed and off when not needed will be high. Bandwidth costs could be high.

For these reasons, this solution is not recommended for implementation.

5.6.4 Emergency Communications, Response, Training & Support

Portland & Western expressed a strong commitment to maintain and improve its safety practices which now make it one of the safest regional railroads in the country. P&W has an emergency response plan (see Appendix B) and is continually training its own staff and train crews in emergency response protocols, including how to handle spills of hazardous materials. In the latter case, the primary responsibility of the railroad is to communicate the necessary information on type of material to the local emergency responders.

In Clatsop County, the issue of distance from the nearest at-grade crossing and a potential accident or derailment is a problem. For example, from Brownsmead Dike Road to Blind Slough station, there is a distance of about five miles with no good emergency access. However, discussions with stakeholders did not reveal any practical solution. Essentially, if something happens, the conductor must radio for assistance and try to stop at the nearest crossing and wait for emergency responders to meet or access the train.

During stakeholder interviews, the Knappa Fire District indicated that the developer of the proposed LNG facility at Bradwood was working cooperatively with the Fire District to ensure that needed safety precautions are put in place. However, adequate staffing, training and equipping of emergency responders is a concern all along the corridor.

5.7 Community Planning, Education and Livability Strategies

5.7.1 Planning for Railroad Communities

Future land use planning should acknowledge existence of, and potential expansion of both freight and commuter rail operations along the Lower Columbia River.

5.7.2 Future Grade Separations

Many stakeholders voiced a strong desire to have reliable access across the railroad that would provide certain connectivity between two sides of communities straddling the railroad. Discussions of “one grade separation per community” took place, and general agreement that each community should identify locations where future grade separations could be built. In addition, the possibility of a second track or siding in some locations to accommodate future commuter rail should be factored in to future planning.

According to FHWA, Highway-Rail grade separations should be considered when the average annual daily traffic exceeds 100,000 (in urban areas) or 50,000 in rural area, when an average 150 or more trains per day or 300 million gross tons per year pass through the crossing, or when vehicle delay exceeds 40 vehicle hours per day.²⁰ Note that at the highway/rail at-grade crossing now experiencing the most total vehicle

hours of delay per day (Gable Rd. in St. Helens) that total reaches only 3.5 hours per day (including local and both empty and loaded unit trains). That figure would be reduced to 2.2 hours per day by the improvement of track speeds proposed (put on hold in the spring of 2009). If the local and unit train volumes increased by eight percent per year for ten years, and the *ConnectOregon II* improvements were made, total delay at this worst crossing would still only reach six hours per day.

However, in addition to formidable economic factors, in many cases, a grade separated highway/rail intersection is not feasible for engineering and/or land use issues. Scappoose, for example, has developed along US 30 to a degree that now prevents an easy or obvious location for a future grade separation.

In St. Helens, the top priority for an eventual grade separation would be at Pittsburg Road/West Road, between Wyeth St. and Deer Island Rd. Pittsburg Rd. is a major link to US 30 for many city and county residents. A grade separation would need to extend over both US 30 and the railroad. Careful analysis and engineering will be required to ensure that sufficient connection to US 30 at that location is maintained.

Notwithstanding these concerns, stakeholders are interested in identifying and preserving possible locations for future grade separations based on long-term projections in growth and associated increased needs for emergency access. This will be accomplished through the normal planning review process such as local comprehensive planning and transportation system planning updates.

Conceptual Construction Cost \$5.6 M - \$9 M The lower range of this estimate was prepared by HDR, assuming characteristics of the Pittsburg Rd/West St. site in St. Helens, excluding right-of-way acquisition. The upper range was suggested by ODOT as a typical overpass cost.

²⁰ *Guidance on Traffic Control Devices at Highway-Rail Grade Crossings*. Washington, DC: Federal Highway Administration (FHWA), Highway/Rail Grade Crossing Technical Working Group, November 2002.

5.7.3 Develop Alternative Routes Parallel to US 30

A major reason for the peak congestion of US 30 is that local traffic is forced on to the street during peak periods, simply to make short local trips. This congestion adds to the turn-lane storage problems and resulting safety issues during times when trains block turning movements. The cities of St. Helens and Scappoose are particularly impacted by the lack of parallel alternatives, and they may wish to develop local traffic plans that address the problem. Major impediments to proceeding in the direction of such a solution include the disruption to local business and established circulation patterns, and right-of-way acquisition costs.

Conceptual Construction Cost: To be determined, depending on scope, right-of-way issues

5.7.4 Transit Planning

Columbia County is in the final phases of a study designed to identify required elements of basic corridor transit plan. The former Stimson lumber mill site (Deer Island Rd., St. Helens) has been proposed by Columbia County as a future transit hub. Removal of abandoned tracks and repaving should be accomplished to advance that plan. The conceptual cost estimate for track removal and relocation of the gate, in anticipation of use of the site for a transit center is listed below.

More generally, as part of local transportation plan updates, cities and the counties should consider optimal locations for possible future commuter rail platforms, park and rides and other supporting services to facilitate multi-modal choices along the corridor.

Former Stimson Lumber Mill Site Conceptual Preparation Cost \$50,000 (excludes construction of transit hub)

5.7.5 Community Awareness

Signalized highway/rail at-grade crossings are one issue; Unsignalized, unprotected crossings pose additional challenges. This is especially true with

young people who may not have grown up in a train environment. Train safety education and programs should be implemented in both counties, if train volumes and speeds increase. Increased public announcements, inclusion of railroad safety education in schools, libraries and parks programs, and parental guidance are all part of community responsibility for keeping its residents, especially children, safe where railroads and vehicle or pedestrian travel routes intersect.

5.7.6 Operation Lifesaver

Operation Lifesaver is an international organization, whose non-profit local branch is known as Oregon Operation Lifesaver. The organization (locally and internationally) is dedicated to ending collisions, fatalities and injuries at highway/railroad at-grade crossings, and along railroad rights-of-way. This purpose is accomplished through education, enforcement and continued research and innovation in engineering.

Educational programs with volunteer speakers are available to speak to schools and civic organizations. In Oregon, Operation Lifesaver has been recently underfunded, and so local funding support might increase the level of educational coverage that OL could handle. Localities are urged to contact Oregon's Operation Lifesaver at www.oregonol.org to schedule presentations.

Enforcement of safety, traffic and trespass laws is another important piece of the safety puzzle, and on that P&W Railroad is firmly committed to. Here is another opportunity for railroad/local jurisdiction cooperation and one that has been fruitful in the past.

5.7.7 Quiet Zones & Locomotive Horn Requirements

Although implementation of a Quiet Zone was frequently mentioned, the tradeoffs necessary to secure ODOT Rail funding for necessary upgrades are challenging: for each upgrade, ODOT Rail asks that a highway/rail at-grade crossing be closed.

According to the FHWA Railroad-Highway Grade Crossing Handbook (Revised Second Edition, p. 38) “Outside of quiet zones, railroads must sound the horn 15-20 seconds prior to a train’s arrival at the highway-rail grade crossing, but not more than one-quarter –mile in advance of the crossing.”

Because train whistle noise is often a major complaint of those who live or work near railroad tracks, the establishment of a quiet zone is a potential option in some locations. Discussions with the Portland and Western Railroad revealed that it would find a partial quiet zone (e.g., restricting train horn sounding to daylight hours) unacceptable, for safety reasons due to confusion of both the engineer and the public.

Requirements for quiet zones are contained within 49 U.S.C. 20153, and are included in Appendix H of this report. Depending on the level of risk at a given crossing or set of crossings, supplementary and alternative safety measures are required that compensate adequately for the absence of a train horn. Quiet zones can be implemented in low-risk situations without additional safety improvements.

Within the study corridor, the City of Columbia City is completing implementation of a quiet zone in spring of 2009.

In some locations, such as St. Helens, a quiet zone is not practical since it would have to encompass the entire town to be most effective. Nonetheless, city stakeholders identified the area near Deer Island Rd. as a potential for future consideration based on future residential land use and a transit center. A closure at Wyeth, which is a low volume street, could be part of such an application to ODOT Rail Division.

The Rainier issue is being explored by the City, separately. No other obvious location for quiet zone application within the corridor was identified.

5.7.8 Landscaping

The need to improve site visibility by removing vegetation was noted in several locations within the study corridor (see Table 5.7-1).

Conceptual Construction Cost: \$3,000 per acre for clearing and grubbing; estimated \$300-500 per clearing of localized areas to make traffic and warning signs more clearly visible..

Lower Columbia River Rail Corridor/Rail Safety Study

Table 5.7-1 was revised March 3, 2009, incorporating contributions from February 17, 2009 Core Team Meeting.

“Concern Level” Definitions: A = Most Concern; B = Some Concern; C = Least Concern (Based on factors including at-grade crossing issues, train and vehicle volumes, existing infrastructure, rail-related operational problems.)

Note: Cost estimates are CONCEPTUAL ONLY and do not include right-of-way costs. Cost of signals is not included unless specified. Mobilization and contingency = 50%.

Table 5.7-1: LCRRC Recommended Projects and Conceptual Cost Estimates

Road Crossing Name & Overall Concern Level A=Most Concern; B = Some Concern C= Least Concern	US 30 Intersection Signalization	Total Daily Vehicle Delay Ranking Post Connect Oregon Unit Train Scenario (1 or A = most delay; some roads are tied for same ranking)	Existing Highway/Railroad At-Grade Crossing Protection	Recommended Projects + Concept-Level (Order of Magnitude) Cost Estimates					Pedestrian, Bicycle & ADA Connectivity or Highway/Rail Grade Crossing Safety
				Highway/Railroad At-Grade Crossing	US 30 Capacity (Northbound Right Turn)	US 30 Storage Capacity (Southbound Left Turn)	RR to US 30 Storage (Westbound Left Turn) **		
Johnsons Landing (Dike Rd.) (Columbia County control) Concern Level C	Unsignalized	31 (C)	Signalized with gate	Upgrade equipment-New constant warning time activation equipment, standby battery and rectifier \$76,000	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 100 v/d; 6 v/h ((ODOT)) 100 ft WBLT storage,
High School Way (Scappoose) Concern Level A	Signalized	5 (A)	Signalized, gate and cantilever No pedestrian warning signs or automatic gates to control pedestrian crossings when train is present.	(2)Replace obsolete gate, standby battery and rectifier \$45,000	Add NBRT storage (100 ft) \$24,800	No recommendations	No recommendations	Pedestrian gates, tactile yellow strips Remove vegetation \$38,000 per gate	Average demand crossing tracks: 4050 v/d; 223 VPH (KAI 2008) PM Peak crossing tracks: 405 VPH (KAI 2008) PM Peak at US 30 Intersection: 3190 (KAI 2008) 31 ft WBLT storage High school and elementary school children crossing (pedestrian/bicycle) Capacity improvements needed (not safety-related) SBLT queue may block driveway
Santosh St. (Scappoose) Concern Level C	Unsignalized	20 (B)	Stop sign	Closure tied to Havlik Drive interchange	N/A	N/A	A	N/A	Average demand crossing tracks: 978 v/d; 54 VPH (ODOT) 43 ft WBLT storage Will Close w/New Havlik Connection
Maple St. (Scappoose) Concern Level B	Signalized	8 (A)	Signalized with gate	Add cantilever Review right turn arrow pavement striping related to driver confusion. \$30,000	No recommendations (NBRT storage capacity is gained when Santosh St. closes)	No recommendations	Close Santosh Street; Close 1 st Street access to Maple Future-flatten grade on approach to RR, to AASHTO Standards (max 50 ft pavement) \$52,800	Install automatic pedestrian gates, strips, warnings (not typical) \$38,000 per gate Replace pedestrian panels \$65,160 pedestrian panels	Average demand crossing tracks: 1840 v/d; 102 v/h (KAI 2008) PM Peak crossing tracks 184 VPH (KAI 2008) PM Peak at US 30 Intersection: 3096 (KAI 2008) 38)ft WBLT storage,—steep grade on east side of railroad can obscure the storage capacity limit on the west side Middle School, Fire Station nearby
Columbia Ave. (Columbia County control) Concern Level A	Signalized	4 (A)	Signalized, gate and cantilever	No recommendation	Increase NBRT lane by 110 feet \$27,200	No recommendation	No recommendations	Consider automatic tactile strips/warnings \$1,000 (approx)	Average demand crossing tracks: 4850 v/d; 269 v/h (KAI 2008) PM Peak crossing tracks: 485 VPH (KAI 2008) PM Peak at US 30 Intersection: 2774 (KAI 2008) 37 ft. WBLT storage Main track + siding Pedestrian and skate-board users
Crown Zellerbach Rd. (Scappoose) Concern Level C	Signalized	22 (B)	Signalized, gate and cantilever	No recommendations	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 425 v/d; 24 v/h (KAI 2008) 43 ft. WBLT storage)

Lower Columbia River Rail Corridor/Rail Safety Study

Road Crossing Name & Overall Concern Level A=Most Concern; B = Some Concern C= Least Concern	US 30 Intersection Signalization	Total Daily Vehicle Delay Ranking Post Connect Oregon Unit Train Scenario (1 or A = most delay; some roads are tied for same ranking)	Existing Highway/Railroad At-Grade Crossing Protection	Recommended Projects + Concept-Level (Order of Magnitude) Cost Estimates					Pedestrian, Bicycle & ADA Connectivity or Highway/Rail Grade Crossing Safety
				Highway/Railroad At-Grade Crossing	US 30 Capacity (Northbound Right Turn)	US 30 Storage Capacity (Southbound Left Turn)	RR to US 30 Storage (Westbound Left Turn) **		
West Lane Rd. (Columbia County control) Concern Level C	Unsignalized	13 (A)	Sign to warn long vehicles not to stop on tracks	No recommendations	No recommendations	No recommendations	Escape bay (75 feet) \$18,600 Improve pavement markings \$1,000 Prohibit WBLT and WB through traffic for trucks only	Average demand crossing tracks: 1050 v/d; 56 v/h (KAI 2008) PM Peak crossing tracks: 105 VPH (KAI 2008) PM Peak at US 30 Intersection: 2395 (KAI 2008) 56 ft WBLT storage-potential for am/pm queue across tracks Traffic Signage and Preemption Significant truck use	
Old Portland Rd. (near Berg Rd.) (Columbia County control) Concern Level C	Unsignalized	37 (C)	Stop sign and crossbucks	Consider Closure	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks 200 v/d; 6 v/h (KAI 2008) PM Peak crossing tracks: 10-25 VPH (KAI 2008) PM Peak at US 30 Intersection: 2273 (KAI 2008) 53 ft WBLT storage Needs Diagnostic Review if closure is not possible; visibility issues-site distance due to curvature, steep westbound approach to rail crossing, narrow lane width Potential to close this crossing, but would divert traffic to US 30/Bennett Road Crossing; possible diversion also to already congested Gable, according to City.
Old Portland Rd. (near Bennett Rd.) (Columbia County control) Concern Level A	Unsignalized	7 (A)	Signalized with gate No Lane markings between US 30 and the rail crossing	No recommendations	No recommendations	No recommendations	A	No recommendations	Average demand crossing tracks: 2650 v/d; 147 v/h (KAI 2008) PM Peak crossing tracks: 265 VPH (KAI 2008) PM Peak at US 30 Intersection: 2344 (KAI 2008) 50 ft WBLT storage Articulated trucks from Port of St. Helens using intersection. No heavy pedestrian use.
Millard Rd. (St. Helens) Concern Level B	Unsignalized	15 (A)	Signalized, gate and cantilever	Install US 30 traffic signals inter-tied with existing railroad crossing protection \$250,000 (8 phase signal)	No recommendations	No recommendations	No recommendations	Existing concrete panels are in good condition, though there is no sidewalk. Possible to add pedestrian grade crossing. \$45,000	Average demand crossing tracks: 750 v/d; 42 v/h (KAI 2008) PM Peak crossing tracks: 75 VPH (KAI 2008) PM Peak at US 30 Intersection: 2170 (KAI 2008) 47 ft WBLT storage City desires full crossing facilities for bike/ped (bike lanes/crosswalks) US 30/Millard Rd is next CITY (not ODOT) priority for signalization in St. Helens. However, it has not been approved by the State Traffic Engineer.
Gable Rd. (Columbia County control) Concern Level A	Signalized	1 (A)	Signalized, gate and cantilever Guard rail damaged (RT from US 30)	Fence the yard between Gable and Columbia Blvd. (Approx 3,000 feet) on US 30 side \$134,000	No recommendations	Add 210 SBLT queue storage \$55,400		Pedestrian/bicycle overpass (ADA compliant)-over RR and US 30 \$6.1 Million	Average demand crossing tracks: 8905 v/d; 497 v/h (KAI 2008) PM Peak crossing tracks: 895 VPH (KAI 2008) PM Peak at US 30 Intersection: 2747 (KAI 2008) 34 ft WBLT storage Some switching across Gable to St. Helens Yard Truck Route (St. Helens Transportation System Plan, p. 4-5) 3.2% trucks pm peak; Could be a "Job Cluster" for economic development, taking advantage of 20 acre site (Port of St. Helens vacant property) along McNulty Way. Existing concern for ped/bike—left turning vehicles, 150 ft crossing over RR and US 30 City desires full crossing facilities for bike/ped (bike lanes/crosswalks)

Lower Columbia River Rail Corridor/Rail Safety Study

Road Crossing Name & Overall Concern Level A=Most Concern; B = Some Concern C= Least Concern	US 30 Intersection Signalization	Total Daily Vehicle Delay Ranking Post Connect Oregon Unit Train Scenario (1 or A = most delay; some roads are tied for same ranking)	Existing Highway/Railroad At-Grade Crossing Protection	Recommended Projects + Concept-Level (Order of Magnitude) Cost Estimates					Pedestrian, Bicycle & ADA Connectivity or Highway/Rail Grade Crossing Safety	
				Highway/Railroad At-Grade Crossing	US 30 Capacity (Northbound Right Turn)	US 30 Storage Capacity (Southbound Left Turn)	RR to US 30 Storage (Westbound Left Turn) **			
Columbia Blvd. (St. Helens) Concern Level A	Signalized	3 (A)	Signalized with gate (one way street, so no cantilever)	No recommendations	Because of switching activity, 65 feet of NBRT queue storage is recommended \$17,200	Add 215 feet SBLT queue storage \$56,800	N/A	Close ped access or adjust signal timing to provide sufficient crossing time for pedestrians (Note: closing ped access across US 30 would require State Traffic Engineer approval)	Average demand crossing tracks: 6050 v/d; 336 v/h (KAI 2008) PM Peak crossing tracks: 605 VPH (KAI 2008) PM Peak at US 30 Intersection: 2410 (KAI 2008) One-Way EB Street Lack of pedestrian walk time across US 30 is not a rail-related safety problem, but was identified by City. City desires full crossing facilities for bike/ped (bike lanes/crosswalks)	
St. Helens St. (St. Helens) Concern Level A	Signalized	2 (A)	Signalized, gate and cantilever	Replace obsolete gates \$90,000	N/A	N/A	None identified	Pedestrian grade crossing \$45,000	Average demand crossing tracks: 6700 v/d; 372 v/h (KAI 2008) PM Peak crossing tracks: 670 VPH (KAI 2008) PM Peak at US 30 Intersection: 2070 (KAI 2008) 41 ft WBLT storage City desires full crossing for bike/ped—Ped facilities exist No rail-related safety problems identified	
Wyeth St. (St. Helens) Concern Level B	Unsignalized	38 (C)	Signalized with gates	Add traffic signal with intertie to rail crossing, if not closed for future Quiet Zone \$250,000	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 63 v/d; 4 v/h (ODOT) 48 ft WBLT storage 300 feet existing storage on US 30 for NBRT Could be closure candidate, to be included in future Deer Island Rd. Quiet Zone application	
Deer Island Rd. (St. Helens) Concern Level B	Signalized	6 (A)	Signalized with gates	Remove abandoned rail line and restripe the intersection of Deer Island Rd/Oregon Rd. (former siding) Future: Move the gate, design for transit center use, if that proposed County project and design moves forward. \$25,000 for track removal; 180 feet of in-street trackage + restriping and repaving. \$25,000 for gate relocation	No recommendations	Consider dedicated SBLT storage up to 150 feet \$62,265	No recommendations	Pedestrian grade crossing. \$45,000	Average demand crossing tracks: 3450 v/d; 192 v/h (KAI 2008) PM Peak crossing tracks: 345 VPH (KAI 2008) PM Peak at US 30 Intersection: 1624 (KAI 2008) 45 Ft WBLT storage Likely to become commercial/residential on east side of US 30—could be germ of future TOD Former Stimson Lumber site proposed for corridor multi-modal transit hub City desires full crossing facilities for bike/ped (bike lanes/crosswalks) SBLT peak queue 150 feet—anticipated to be greater problem with transit center implementation	
I St. (Columbia City) Concern Level C	Unsignalized	14 (A)	Gates	No recommendations	No recommendations	No recommendations	Add emergency right turn bay (75 feet) \$18,600	Remove confusing crosswalk markings, as there are no sidewalks on either I or 4 th Street. \$5,000	Average demand crossing tracks: 1000 v/d; 56 v/h (KAI 2008) PM Peak crossing tracks: 100 VPH (KAI 2008) PM Peak at US 30 Intersection: 1319 (KAI 2008) 46 ft WBLT storage Columbia City residential traffic Traffic Signals and Site Distance-Trucks not permitted to enter US 30 from I Street I Street Overpass available as alternative access if train blocks I St. or E. St.	

Lower Columbia River Rail Corridor/Rail Safety Study

Road Crossing Name & Overall Concern Level A=Most Concern; B = Some Concern C= Least Concern	US 30 Intersection Signalization	Total Daily Vehicle Delay Ranking Post Connect Oregon Unit Train Scenario (1 or A = most delay; some roads are tied for same ranking)	Existing Highway/Railroad At-Grade Crossing Protection	Recommended Projects + Concept-Level (Order of Magnitude) Cost Estimates					Pedestrian, Bicycle & ADA Connectivity or Highway/Rail Grade Crossing Safety
				Highway/Railroad At-Grade Crossing	US 30 Capacity (Northbound Right Turn)	US 30 Storage Capacity (Southbound Left Turn)	RR to US 30 Storage (Westbound Left Turn) **		
E St. (Columbia City) Concern Level C	Signalized	23 (B)		No recommendations	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 400 v/d; 22 v/h (KAI 2008) PM Peak crossing tracks: 40 VPH (KAI 2008) PM Peak at US 30 Intersection: 1213 (KAI 2008) 40 ft WBLT storage (but low volume street-390 VPD), 400 AADT (August 2008 KAI Study) No issues noted
Pacific St. (Columbia City) Concern Level C	Unsignalized	28 (C)		No recommendations	No recommendations	No recommendations	Dixieline Lumber-owned by ODOT, and emergency right turn being constructed N/A	No recommendations	Average demand crossing tracks: 175 v/d; 10 v/h (ODOT) 35 ft WBLT storage (Dixieline Lumber-owned by ODOT, and emergency right turn being constructed to prevent trucks fouling tracks)
US 30 (spur)			Old equipment; poor angle	Control Circuitry Replacement: requires new activation equipment, shunt enhancing equipment new track leads, new batteries and batter charging equipment \$76,000	N/A	N/A	N/A	N/A	
Goble Landing (Lake St./Nicolai Road) (Columbia County control) Concern Level C	Unsignalized	31 (C)	Yield sign and STOP sign	Improve signage and pavement markings at grade crossing Remove old tracks, repair/replace crossing surface and signalize with gates and lights \$190,000 (RR signalized with flashing lights and gates) \$100,000 Rebuilt panels, track removal and new ties, track	NBRT lane \$1,136,600 (N/S turn pockets) [this estimate assumes that street widening would be required; if that is not the case, or can be mitigated, this figure would be reduced]	SBLT pocket See cell to left.	Emergency right turn escape bay (75 foot) Long term—consider realigning US 30 or railroad to increase distance between railroad and highway. \$18, 563 (escape bay)	No recommendations	Average demand crossing tracks: 250 v/d; 14 v/h (KAI 2008) PM Peak crossing tracks: 20-30 VPH (KAI 2008) PM Peak at US 30 Intersection: 719 (KAI 2008) 58 ft WBLT Access to RV park and a quarry Long, slow moving vehicles may queue across the rail crossing School bus route; very close to US 30—just enough for a bus, which sometimes has to edge onto the Hwy shoulder to cross. Good site visibility lessens safety concerns.
Graham Rd. (Prescott) Concern Level B	Unsignalized	34 (C)	Stop signs and cross bucks, rubber crossing surface	Flashing lights with gates \$190,000	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 220 v/d; 12 v/h (ODOT) Poor visibility; school bus route
Veterans Way (Rainier) Concern Level B	Signalized	12 (A)	Signalized with gates	No recommendations	No recommendations	No recommendations	Emergency right turn escape bay (75 foot) \$18, 563 (escape bay)	No recommendations	Average demand crossing tracks: 750 v/d; 42 v/h (KAI 2008) PM Peak crossing tracks: 75 VPH (KAI 2008) PM Peak at US 30 Intersection: 1114 (KAI 2008) 49 ft WBLT storage Pedestrian facilities exist. School bus route. Can be very congested with boat launch, Senior Center and housing development
Dike Rd. (Columbia County control) Concern Level C	Unsignalized	31 (C)	Gates and signals	No recommendations	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 99 v/d; 6 v/h (ODOT)
Mayger Fill Rd. (Columbia County control) Concern Level C	Unsignalized	26 (B)	Stop sign and cross bucks	No recommendations	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 300 v/d; 17 v/h (ODOT) No buses

Lower Columbia River Rail Corridor/Rail Safety Study

Road Crossing Name & Overall Concern Level A=Most Concern; B = Some Concern C= Least Concern	US 30 Intersection Signalization	Total Daily Vehicle Delay Ranking Post Connect Oregon Unit Train Scenario (1 or A = most delay; some roads are tied for same ranking)	Existing Highway/Railroad At-Grade Crossing Protection	Recommended Projects + Concept-Level (Order of Magnitude) Cost Estimates					Pedestrian, Bicycle & ADA Connectivity or Highway/Rail Grade Crossing Safety
				Highway/Railroad At-Grade Crossing	US 30 Capacity (Northbound Right Turn)	US 30 Storage Capacity (Southbound Left Turn)	RR to US 30 Storage (Westbound Left Turn) **		
Kallunki Rd. (SPUR) (Columbia County control) Concern Level C		N/A	Yield signs and crossbucks.	Flashing lights with gates \$190,000	N/A	N/A	N/A	N/A	Off main rail line Main road into Port Westward, with high truck use
Kallunki Rd. (Columbia County control) Concern Level B	Unsignalized	24 (B)	Stop signs and crossbucks	Flashing lights with gates \$190,000	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 250 v/d; 14 v/h (ODOT) 75 ft WBLT storage 6 daily school bus crossings Future trucks to Cascade Grain and carbon dioxide facility-large county investment in industrial development
Hermo Rd. (Columbia County control) Concern Level C	Unsignalized	11 (A)	Stop signs and crossbucks	Flashing lights with gates \$190,000 \$160,000 w/o gate	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 750 v/d; 42 v/h (ODOT) Diagnostic Review 3 daily school bus crossings ODOT Rail identifies as possible closure, but Columbia County indicates this is not practical or desirable, as County is building connection from Hermo Rd. to Port Westward. ODOT Rail has recommended flashing lights and gates at the grade crossing; Columbia County does not view this as a high priority.
Beaver Dike Rd. (Columbia County control) Concern Level C		27 (b)	Stop signs and crossbucks	No recommendations	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks 150 v/d; 8 v/h (ODOT) Diagnostic Review (possible flashing lights in future) 3 daily school bus crossings
Depot St. (Columbia County control) Concern Level B	N/A	10 (A)	Stop sign and Crossbucks, poor visibility and profile.	Flashing lights with gates \$190,000 \$160,000 w/o gate	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks 756 v/d; 42 v/h (ODOT) County (Lonny Welter) suggested eliminating gates, but gates were included because it is not significantly more costly than installing equipment and circuitry for flashing lights. 6 daily school bus crossings
Pt. Adams Rd. (Midland Rd)- Clatskanie (Columbia County control) Concern Level B	Unsignalized	40 (C)	Flashers only (can cease working if battery dies)	Complete replacement with new shelter grounding equipment, circuitry. \$190,000	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks 12 v/d; 1 v/h (ODOT) 86 ft WBLT storage, 12 AADT 8 daily school bus crossings Railroad recommends gates
Marshland Rd. (Co. Rd. 198) Marshland (Columbia County control) Concern Level C	Unsignalized	30 (C)	Stop sign and crossbucks	Provide rail crossing warning signs for drivers on Marshland Rd. Long term: improve alignment to eliminate sharp WB turn on approach to railroad tracks. Remove vegetation blocking sight distance at rail crossing. \$300-700 warning signs \$3000 per acre to remove vegetation		Provide SBLT pocket \$550,000 [this estimate assumes that street widening would be required; if that is not the case, or can be mitigated, this figure would be reduced]	Emergency right turn escape bay (75 foot) \$18, 563 (escape bay)	Add lighting and improve pavement markings at US 30/Marshland Rd. (not rail-related)	Average demand crossing tracks: 100 v/d; 6 v/h (KAI 2008) PM Peak crossing tracks: <25 VPH (KAI 2008) PM Peak at US 30 Intersection: 572 (KAI 2008) 78 ft WBLT storage Diagnostic Review (for long term improvement to road geometry) 4 daily school bus crossings

Lower Columbia River Rail Corridor/Rail Safety Study

Road Crossing Name & Overall Concern Level A=Most Concern; B = Some Concern C= Least Concern	US 30 Intersection Signalization	Total Daily Vehicle Delay Ranking Post Connect Oregon Unit Train Scenario (1 or A = most delay; some roads are tied for same ranking)	Existing Highway/Railroad At-Grade Crossing Protection	Recommended Projects + Concept-Level (Order of Magnitude) Cost Estimates					Pedestrian, Bicycle & ADA Connectivity or Highway/Rail Grade Crossing Safety
				Highway/Railroad At-Grade Crossing	US 30 Capacity (Northbound Right Turn)	US 30 Storage Capacity (Southbound Left Turn)	RR to US 30 Storage (Westbound Left Turn) **		
Marshland Dist. Rd. #4119 Woodson (Columbia County control) Concern Level C	Unsignalized	35 (C)	Stop sign and crossbucks	Replace grade crossing material with concrete or asphalt Study closure of crossing and alternative routes (Woodson, potentially) New ties and panels-with concrete crossing surface complete-\$100,000	No recommendations	No recommendations	Install STOP sign on approach to US 30 \$350	Replace grade crossing material with concrete or asphalt (included in \$100,000 ties and panel replacement)	Average demand crossing tracks: 80 v/d; 4 v/h (KAI 2008) PM Peak crossing tracks: <20 VPH (KAI 2008) PM Peak at US 30 Intersection: 580 (KAI 2008) 55 ft WBLT Storage No pedestrian facilities Deteriorated wood and dirt surface at rail crossing; potential for erosion and subsequent trapping of vehicle wheels on rail tracks. Noted as possible closure –use Woodson Rd. (might be difficult)
Woodson Rd. Woodson (Columbia County control) Concern Level A	Unsignalized	24 (B)	Stop signs and crossbucks	Improve signage and markings at rail crossing \$6,000 Flashing lights and gates \$190,000	[this estimate assumes that street widening would be required; if that is not the case, or can be mitigated, this figure would be reduced]	SBLT lane (included in NBRT)	Escape bay (65 feet) \$18,563	None identified	Average demand crossing tracks: 250 v/d; 14 v/h (KAI 2008) PM Peak crossing tracks: 25 VPH (KAI 2008) PM Peak at US 30 Intersection: 563 (KAI 2008) 63 ft WBLT Storage 12 daily school bus crossings
Old Mill Rd. (Westport Ramp Rd.) Westport (Columbia County control) Concern Level C		17 (B)	Stop signs and crossbucks, 2-track sign	Evaluate for potential closure of two-track crossing, in association with upgrade of Westport Ferry Cost TBD—depending on scope of study	No recommendations	No recommendations	Remove vegetation to increase site distance for WBLT movement \$3000 per acre to remove vegetation	No recommendations	Average demand crossing tracks: 450 v/d; 25 v/h (KAI 2008) PM Peak crossing tracks: 45 VPH (KAI 2008) PM Peak at US 30 Intersection: 585 (KAI 2008) No safety issues identified 4 daily school bus crossings P&W to talk to Georgia Pacific about rail storage and crossing visibility issues.
Westport Ferry Rd. (Westport Dock Rd.) Westport (Clatsop County control) Concern Level C		19 (B)	Flashers	Control circuitry replacement, new cables, gates, flashers, bells and cantilevers \$190,000	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks: 300 v/d; 17 v/h (KAI 2008) PM Peak crossing tracks: 30 VPH (KAI 2008) PM Peak at US 30 Intersection: 556 (KAI 2008) 4 daily school bus crossings Trains could block access to ferry/SR-4, and thus to I-5 in Washington Recommendation to restripe US 30/Old Mill Rd intersection to ODOT standards (approx. \$5,000) is not related to railroad safety issues (Stimulus funding of a 9-17 passenger ferry is being sought)
Driscoll Slough Rd. Wauna (Clatsop County control) Concern Level C		41 (C)	Stop signs and crossbucks	Remove brush and resurface crossing \$100,000 (concrete pads)	No recommendations	No recommendations	No recommendations	No recommendations	Average demand crossing tracks 10 v/d; 1 v/h (ODOT) Must avoid blocking access at Wauna

NOTES: Any recommendation for signalization of US 30, or closure of access across US 30 (to bicyclists or pedestrians, e.g.) would require approval of the State Traffic Engineer.

Includes relevant site information from the following sources:

- HDR corridor inventory (for WBLT storage capacity)
- Kittelson (KAI) Traffic Study for ODOT (December 2008)
 - 20 Selected Crossings-Peak Hour counts + 55 % of peak to estimate average vehicle/hour crossing the RR Tracks
 - Peak Hour Volume at US 30 Intersection
 - AADT Crossing RR tracks calculated from 2008 counts as 10 x PM Peak
- ODOT Rail or Highway Data for average vehicles per day (AADT-v/d) and calculated average vehicle/hour (v/h) (data may be old; this data is used for roads where newer counts are unavailable)
- Stakeholder & Consultant knowledge

Source: Recommended Project Performance Ratings for “20 Selected US 30 Intersections” from Kittelson December 2008 Traffic Study Report; Remaining Recommended Project Performance Ratings from HDR Engineering. Data from ODOT Highway and Rail Divisions, Corridor Counties and Cities, study stakeholder information and 2008 traffic counts at 20 locations.

** In most cases, HDR rated site concern level “A” in cases where US 30 is unsignalized and there is more than 75 feet distance between the RR and US 30. All other unsignalized US 30 intersections were rated B, because there is always some concern. Signalized intersections were C.

Chapter 6: Ranking of Project Alternatives

6.1 Safety Improvement Project Ranking Framework

6.1.1 Project Recommendations

This chapter ranks the rail safety improvement projects identified in Table 5.7-1. Factors taken into consideration were the volumes of vehicles crossing at-grade railroad tracks, the number of trains per day (currently and in the future), safety issues reported by the community and the railroad, and economic development priorities and opportunities. It does not include the long term planning, emergency communication or community education initiatives discussed in Chapter 5, which should be implemented for the entire community.

6.1.1.1 Rail Projects

The P&W track conditions within the project area are FRA compliant, but should be upgraded for service reliability with higher tonnage loading and to make the freight rail system attractive and reliable for new business. The grade crossing recommendations brought forward are based on logic and experience, and designed to enhance safety and maintenance ability. They take into consideration ODOT Rail Division and P&W Railroad interests, concerns and needs, as well as community safety and economic development.

In the majority of instances where there is now passive protection, active rail crossing protection was recommended. However, given the cost of that improvement, the project did not always rate highest within communities, most often due to low vehicle and/or train volume at the crossing.

6.1.1.2 Highway Projects

The projects that have made the final cut for consideration have come from the community, ODOT Highway and Rail divisions, and consultant-prepared documents, including this Rail Safety Study and the companion Traffic Analysis conducted for 20 selected US 30 intersections and highway/railroad at-grade

crossings. That analysis considered factors such as crossing geometry, conditions, special users (pedestrians, school buses, recreational vehicles or long trucks, e.g.) collision history, crossing control devices on US 30, storage capacity for turning vehicles and peak hour traffic volumes and delay.

Mitigations suggested for increased train-related vehicle delay or safety issues were developed when “intersections did not meet ODOT mobility standards, and/or for railroad crossings where forecasted vehicle queues exceed available storage.”²¹ Thus, projects were brought to this stage only if they responded to a safety-related concern. There are degrees of risk and concern, however, and that is reflected in the tables in Section 6.2.

It is important to note that ODOT practice is to avoid installing signals on US 30 in rural segments. And even in urbanized areas, proposals for new traffic signals on state highways require the approval of the State Traffic Engineer prior to commencing with design.

6.2 Community Project Phasing Recommendations

The following tables show the projects and conceptual costs, in order of recommended implementation priority, based on a combination of project “implementability” factors including safety risk, community and railroad support, traffic volume at the US 30 intersection or the highway/railroad at-grade crossing, and fundability.

The ordering of projects in the tables below is also informed by consultation with corridor stakeholders and the Project Core Team. This consultation process provided important insight into community priorities and levels of concern regarding safety and congestion issues that would be aggravated by more frequent and longer trains.

²¹ Kittelson & Associates, Inc., (December 2008, p. 12)

Further study of identified candidates for closure at highway/railroad at-grade crossings as listed first within each community, because closing an at-grade crossing, when feasible alternative access is available or can be cost-effectively provided, is a primary rail safety goal of ODOT Rail Division. However, beyond support for closure of roads already identified (Santosh St. in Scappoose) there was not a substantial public demand expressed for such closures during the public involvement phase of this study. Possible closures at Wyeth and Old Portland Road near Berg Rd appear to offer the most potential for implementation.

It should be noted that the brief field inspection permitted in this project scope did not allow verification of ODOT Rail Division’s suggested closures in rural Columbia and Clatsop County. Moreover, the targeted field inspection that was conducted suggested that it may be very difficult, if not impossible, to provide alternative access in some instances, due to topography. Thus further study in all cases is recommended.

Finally, an understanding of funding sources and categories, and likely support and funding for projects within federal, state and local programs helped determine relative ranking of projects. It should be noted that 2009 and near-future funding constraints as well as new opportunities (including federal and state stimulus packages) could significantly change the funding context for freight rail, rail safety and economic development projects.

Depending on funding sources and amounts, completing all projects relating to a specific intersection or cross street at the same time might also be desirable. However, most crossings and intersections have a combination of higher- and lower-ranking projects, so the issue would need to be revisited based on funding circumstances as they appear.

Table 6.2-1: Recommended Rail Safety Project Phasing-Scappoose

Location	Project	Conceptual Cost Estimate
Santosh St.	Close Street	N/A- tied to Havlik interchange improvement
Maple St.	Add cantilever to at-grade RR crossing	\$30,000
High School Way	Replace obsolete gate at crossing	\$45,000
Maple St.	Flatten grade on approach to RR	\$52,800
High School Way	Add pedestrian gates, tactile yellow strips	\$38,000 per gate
Maple St.	Replace pedestrian panels	\$65,200
High School Way	100 ft NBRT storage	\$24,800
Maple St.	Add pedestrian gates, tactile yellow strips	\$38,000 per gate

Source: HDR

Table 6.2-2: Recommended Rail Safety Project Phasing-St. Helens

Crossing	Project	Conceptual Cost Estimate
Wyeth St.	Study possible closure	TBD
Columbia Blvd.	Close pedestrian access or adjust signal timing to provide sufficient crossing time	Nominal
Columbia Blvd.	215 ft. SBLT storage	\$56,800
Columbia Blvd.	65 ft NBRT storage	\$17,200
Millard Rd.	US 30 traffic signals, inter-tied with existing RR protection [needs State Traffic Engineer approval]	\$250,000
Millard Rd.	Add pedestrian grade crossing at RR	\$45,000
Deer Island Rd.	Remove abandoned rail line	\$25,000
Deer Island Rd.	Relocate gate, design for future transit center	\$25,000
Deer Island Rd.	Pedestrian grade crossing	\$45,000
Deer Island Rd.	150 ft. SBLT storage	\$37,100
Gable Rd. (St. Helens Rail Yard)	Fence yard between Gable and Columbia Blvd. (3000 ft, on US 30 side)	\$134,000 (with possible aesthetic upgrade)
St. Helens St.	Pedestrian grade crossing	\$45,000
St. Helens St.	Replace obsolete gates	\$90,000

Lower Columbia River Rail Corridor/Rail Safety Study

Source: HDR

Table 6.2-3: Recommended Rail Safety Project Phasing-Columbia City

Location	Project	Conceptual Cost Estimate
I Street	Remove confusing crosswalk markings	\$5,000
I Street	Escape bay (75 ft.)	\$18,600

Source: HDR

Table 6.2-4: Recommended Rail Safety Project Phasing-Rainier

Crossing	Project	Conceptual Cost Estimate
Veterans Way	Escape bay (75 ft)	\$18,600

Source: HDR

Table 6.2-5: Recommended Rail Safety Project Phasing-Columbia County Unincorporated/County-Controlled Roadways

Crossing	Project	Conceptual Cost Estimate
Old Portland Rd. (near Berg Rd.)	Study possible closure	TBD
Marshland District Rd.	Study possible closure	TBD (a closure would eliminate need for \$100,000 RR grade crossing material replacement)
Beaver Dike Rd	Study possible closure	TBD
Old Mill Rd. (Westport Ramp Rd)	Evaluate for potential closure of two-track crossing/with upgrade of Westport Ferry	TBD
Gable Rd.	Add 210 SBLT storage	\$55,400
Johnsons Landing Rd. (Dike Rd.)	Upgrade RR equipment-new constant warning time activation equipment, standby battery and rectifier	\$76,000
Columbia Ave.	110 ft. NBRT storage	\$27,200
Columbia Ave.	Automatic tactile strips/warnings	\$1000
Graham Rd. (Prescott)	Install flashing lights and gates at RR crossing	\$190,000
West Lane	Improve pavement markings	\$1000
West Lane	Prohibit WBLT and WB through traffic for trucks only	\$500 (signage)

Table 6.2-5: Recommended Rail Safety Project Phasing-Columbia County Unincorporated/County-Controlled Roadways

Crossing	Project	Conceptual Cost Estimate
Old Portland Rd. (near Bennett Rd.)	Escape bay (75 ft.)	\$18,600
Gable Rd.	Pedestrian/bicycle overpass	\$6.1 Million
Goble Landing	Improve signage and pavement markings	\$1000
Goble Landing	Remove old tracks, replace crossing surface	\$100,000
Goble Landing	Install flashing lights and gates at RR crossing	\$190,000
Goble Landing	NB/SB turn pocket	\$1.1 Million
Goble Landing	Improve/pave escape bay area	\$18,600
West Lane	Escape bay (75 feet)	\$18,600
Kallunki Rd. (SPUR)	Install flashing lights and gates at RR crossing	\$190,000
Marshland County Rd.	Improved signage at RR crossing	\$300-700
Marshland District Rd.	Install STOP sign on approach to US 30	\$350
Kallunki Rd. (Main Line)	Install flashing lights and gates at RR crossing	\$190,000
Hermo Rd.	Install flashing lights and gates at RR crossing	\$190,000
Depot St.	Install flashing lights and gates at RR crossing	\$190,000
Pt. Adams Rd. (Midland Rd, Clatskanie)	Install flashing lights and gates at RR crossing	\$190,000
Woodson Rd.	Improve signage and markings at rail crossing	\$6,000
Woodson Rd.	Install flashing lights and gates at RR crossing	\$190,000
Woodson Rd.	Escape bay (75 ft)	\$18,600
Marshland County Rd.	Remove vegetation blocking sight distance at RR crossing	\$500 (\$3,000 per acre)
Marshland County Rd.	SBLT pocket on US 30	\$550,000
Marshland County Rd.	Escape bay (75 ft)	\$18,600

Table 6.2-5: Recommended Rail Safety Project Phasing-Columbia County Unincorporated/County-Controlled Roadways

Crossing	Project	Conceptual Cost Estimate
Marshland District Rd.	Replace RR grade crossing material with concrete or asphalt; new ties and panels	\$100,000
Old Mill Rd. (Westport Ramp Rd)	Remove vegetation to increase sight distance for WBLT movement	\$500 (\$3,000 per acre)
Woodson Rd.	NB/SB turn pockets on US 30	\$1.1 Million

Source: HDR

Table 6.2-6: Recommended Rail Safety Project Phasing-Clatsop County Unincorporated/County-Controlled Roadways

Crossing	Project	Conceptual Cost Estimate
Waterhouse Rd.	Study possible closure (using Knappa Rd. as alternative)	TBD
Westport Ferry Rd. (Westport Dock Rd.)	Replace RR crossing control circuitry-new cables, gates, flashers, bells and cantilevers	\$190,000
Driscoll Slough Rd.	Remove brush and resurface crossing (concrete pads)	\$100,000

Source: HDR

Table 6.2-7: Recommended Rail Safety Project Phasing-Portland & Western Railroad Projects

Location	Project	Conceptual Cost Estimate
US 30 Spur/Deer Island area	Replace Control Circuitry	\$76,000
RR MP 62.7 (Columbia County) RR MP 84.71 (Clatsop County) RR MP 94.83 (Clatsop County)	Movable Bridge Detailed Inspection & Recommendations Study	\$40,000-120,000 per bridge
Dibblee Point, RR MP 48.75 to RR MP 50.35	Add 8,500 siding	\$3.5 Million
St. Helens Yard	Relocate	\$3.67 M (includes \$84,000 for fencing existing yard; excludes ROW acquisition cost)

Source: HDR

Chapter 7: Recommended Phasing and Funding for Candidate Project

7.1 Project Funding

All corridor stakeholders recognize that having an abundance of available and well-sited industrial lands with both highway and rail access was important not only to Cascade Grains, US Gypsum, Teevins and DynoNoble: this is a corridor-wide competitive advantage. Although the timing may not be right to leverage that advantage, funding must be found to make progress on the list of prioritized rail safety projects identified in Chapter 6.

7.2 Responsibility for Maintenance and Improvements of Grade Crossings

In order to have realistic expectations of project implementation, it is important for local jurisdictions to understand what is and is not the responsibility of the railroads. Maintenance of at grade crossings is the responsibility of the operating railroad for that part of the crossing surface above the crossties.

Outside that area, maintenance responsibility lies with the road authority. ODOT does not specify what kind of material is used in the crossing, only that it be maintained in a safe condition. Recently, some counties and railroads have chosen to work together and share costs to upgrade crossings from asphalt to concrete panels, and several similar projects were identified along the corridor as part of this study. This work can be performed without a Crossing Order as long as the physical dimensions of the crossing are not altered.

If either party chooses to alter a crossing such as widening or adding a track, in most cases, the party that applies for the alteration pays 100 percent of the cost.²²

²² Charles Kettenring, ODOT Rail Division, electronic correspondence March 2009.

7.3 Federal Programs and Earmarks under SAFETEA-LU

Federal funding for rail comes generally in the form of grants or Federal financing tools that include traditional tax credits and loans, and the emerging “innovative” tools that range from private activity bonds to new loan types to public-private partnerships.

The federal transportation funding reauthorization process is driven by House/Senate authorizing committees every six years. Reauthorization earmarks are managed through authoring committees (House Transportation and Infrastructure; Senate Environment and Public Works). Freight provisions contained within the 1,231-page SAFETEA-LU bill²³ include many that can offer funding avenues for rail projects, whether public, private or public-private for the period 2005-2009. Although some of the programs are completely subscribed (that is, 100% of the funding is already earmarked), details on the most promising provisions are provided because the next transportation reauthorization bill may have similar provisions and because the outcomes or experience with this set of provisions will have an impact on the content and structure of that reauthorization. Many believe the next bill will move more strongly to support a much-needed national and multi-state rail policy.

However, many freight rail proponents and stakeholders were disappointed that SAFETEA-LU did not permit as much flexibility in the use of funds, including highway funds, as was permitted for passenger rail uses.

²³ See FHWA HOFM Director Tony Furst’s presentation on freight provisions (September 2005) at http://www.fhwa.dot.gov/freightplanning/safetea_lu.htm

7.3.1 Earmarking

In the past, the multi-year Federal omnibus transportation bills²⁴ contain earmarks for specific projects. They are administered through the Federal Highway Authority (FHWA) and the Federal Railroad Authority (FRA) and may also be referred to as FHWA or FRA grants.

Traditionally, earmarking has been an annual process driven by House/Senate appropriation committees each year. Amounts available in TEA-21 and SAFETEA-LU were discretionary monies that could be earmarked. Amounts for projects earmarked in excess of TEA-21 discretionary money generally deducted funds from the WSDOT work program and sometimes required the deferral or deletion of WSDOT work program projects. TEA-21 contained 1,849 earmarks, totaling \$9.3 billion.

The current multi-year \$244.1 billion omnibus transportation funding bill, signed into law in August 2005, is known by its acronym, SAFETEA-LU (Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users). It contains three times as many earmarks as its predecessor, TEA-21. With 5,600 budgeted earmarks totaling \$19.4 billion through 2009.²⁵ While the bill's earmarked projects represent monies allocated, funding requests can still be formally routed to the House and Senate Transportation Appropriations Committees to get support for new projects. However, there is no guarantee of success.

7.4 Federal Railroad Administration Funds

The Railroad Rehabilitation and Improvement Financing Program (RRIF) was retained from TEA-21 within Section 9003 of SAFETEA-LU and was established to allow the Federal Railroad

²⁴ Beginning with the first five-year bill in 1991, they were known by their acronyms ISTEA, TEA-21 (1998) and the current authorization, SAFETEA-LU (2005-2009).

²⁵ *SAFETEA-LU Highlights for Local Transportation Agencies*, Technology News, November-December 2006 http://www.ctre.iastate.edu/pubs/Tech_News/2006/nov-dec/safetealu-2.pdf

Administration (FRA) to provide \$35 billion worth of loan authority to be used for loans and loan guarantees to state and local government, government sponsored authorities and corporation, railroads and joint ventures that include at least one railroad.

The funding may be used to:

- Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops;
- Refinance outstanding debt incurred for the purposes listed above; and
- Develop or establish new intermodal or railroad facilities
- No operating expenses are to be financed or funded through this program

Direct loans can fund up to 100% of a railroad project with repayment periods of up to 25 years and interest rates equal to the cost of borrowing to the government.

Eligible borrowers include railroads, state and local governments, government-sponsored authorities and corporations, joint ventures that include at least one railroad, and limited option freight shippers who intend to construct a new rail connection.

More detailed explanations of the program are available at

<http://www.fra.dot.gov/us/content/177>

A copy of the application form is available at http://www.fra.dot.gov/downloads/RRDev/rrif_app.doc

7.4.1 Federal Funding for Crossing Protection

When at-grade crossing protection (e.g., gates and warning lights) are installed in conjunction with a crossing closure, federal funding is available.

7.4.1.1 Programmatic Freight Provisions

Current programs identified below may not have funds now available, but should be monitored through the federal reauthorization process as funding pots are replenished (and possibly reorganized).

Section 1306: Freight Intermodal Distribution Pilot Grant Program

- Provides capital funds to states to address freight distribution and infrastructure needs at intermodal freight facilities and inland ports.
 - \$30 million provided, already earmarked to five states

Section 5204: Training and Education

- (h) Freight Planning and Capacity Building Program
 - Section 5209: National Cooperative Freight Transportation Research Program
 - FHWA Section 130: Highway Railroad Grade Crossing Program (Federal share is 90%, funded at \$220 million per year until FY 2009)

7.4.1.2 Finance Provisions

These expand the range of “innovative finance” mechanisms available to freight projects.

Section 1601: Transportation Infrastructure Finance and Innovation Act (TIFIA)

- Budget authority is \$610 million for period 2005-2009 (or about \$2B in lending authority)
 - Program eligibility was expanded to include public and private freight rail facilities that provide public benefit to highway users, as well as intermodal freight facilities.
 - Smaller projects can be grouped to reach new (reduced) minimum project size of \$50 million (ITS

project minimum was reduced to \$15 million)

Section 1602: State Infrastructure Banks (SIB)

- All states included; multi-state projects are allowed
- SIB rail accounts are permitted
- SIBs provide for lower interest rates because bond purchasers are exempt from federal tax on bond revenue.
- National limit of \$15 billion

Section 11-1143 Tax-exempt Financing of Highway Projects and Rail Truck Transfer Facilities (Private Activity Bonds)

- Tax-exempt financing of privately owned or operated rail-truck transfer facilities

Internal Revenue Code Section 45G: Railroad Track Maintenance Credit

- Track maintenance on any Class II or Class III track equal to 50% of the maintenance and rehabilitation expenditures

Projects and Grants

These include many grant categories which have major freight components.

Section 1301: Projects of National and Regional Significance (PNRS)

- Only states can apply; projects must be multi-modal
- Includes pre-construction activities, environmental mitigation and operational improvements for any project eligible under 23 USC, including freight railroad projects
- \$1.779 billion (2005-2009) for 25 designated projects (i.e., program is 100% earmarked in this round; worth keeping an eye on for reauthorization, as “lessons learned” will be folded in to next bill’s selection criteria)
- Up to \$1 million per project, per year

Section 1302: National Corridor Infrastructure Program

- States only; \$1.95 billion (2005-2009) for 33 designated projects

Capital Grants for Rail Line Relocation Projects (Section 9002)

- Only states may apply for local rail line relocation and improvement projects that spur economic development, under this provision. (\$1.4 billion, authorized but not appropriated)
- Federal share is 80%, not to exceed \$20 million

7.4.2 State Funding Considerations and Sources

In the near term, changing signal timing is a relatively easy solution. ODOT conducts analysis of each corridor on a three-year rotating basis. Approximately 230 signals have been identified for the next three years. Crosswalk lengths and cross times are recalibrated as part of the process. ODOT notes that Gable Rd.—a concern of corridor stakeholders—is complicated, because the signal is over-capacity. ODOT is currently aware of the problem.

ODOT has noted that most of the north-bound right turn storage lane projects would require new pavement—not just a normal maintenance quick fix or a restriping projects which would typically be done as part of a preservation project.

Other projects—probably the majority of the storage issues—which may be able to be addressed as pavement preservation—mean that it will be quite some time for them to appear high on a regional priority list. This is because ODOT has recently performed corridor preservation activities and expended substantial funds on corridor projects.

A project as significant as an overpass would have to be a State Transportation Improvement Program (STIP) project, or potentially an earmark.

Bringing projects in as part of development review/frontage improvement, where signalization modification is already being

required, is one strategy to work through a project list. Any time projects can be combined will help to reduce costs—if, for example, a crew is already in the area working, there may be the chance to reduce engineering or mobilization costs.

7.4.3 Potential for Public/Private Partnerships

It is possible that in the future there may be opportunities for public/private partnerships (PPPs, or P3s, as they are known). Such partnerships could include ODOT, city, county and private industrial or residential developers. Obviously, the 2009 economic picture does not inspire optimism for the short term, but the longer term opportunities for tourism and commuter-related transit development, as well as energy, wood products and ocean port industries remains strong. A period such as the current downturn can help leaders focus on sustainable future development.

7.4.4 *ConnectOregon*

As mentioned earlier, because of the (2009) economic recession, P&W Railroad will be returning the unused portion of its *ConnectOregon* II funding, and has not applied for *ConnectOregon* III funds for projects along the 'A' Line.

7.4.5 Economic Revitalization Programs

There are no identified economic revitalization funding programs at this time.

7.5 *Oregon's Share of the American Recovery and Reinvestment Act (ARRA)*

The American Recovery and Reinvestment Act (ARRA) provides Oregon (through ODOT) with \$334 million in transportation funding (not including transit and fixed guideway modernization) of which \$100 million must be distributed to local agencies. ODOT has already worked with local agencies to allocate some of that money, and the Clatsop and Columbia County stakeholders have been working with

ODOT to provide input into the current and future lists.

Under ARRA, eligibility for use of Surface Transportation Program (STP) highway funds is expanded to include passenger and freight rail and port infrastructure.²⁶ thus increasing the opportunity for funding freight rail projects. There is no local match requirement for these funds.

7.6 Next Steps

7.6.1 Engaging the Political Process for Project Development

Currently, projects associated with economic development and job creation will be seen as high priorities. The study will help position the county to apply for those by having documentation prepared with a list of projects and conceptual costs, to move implementation to the next phase.

Stakeholders and project proponents will need to coordinate their rail safety agendas through the Northwest Area Commission on Transportation, their county agencies, ODOT Highway and Rail Divisions, and possibly their state and federal representatives in order to secure regular or special funding.

In the case of bigger projects, or longer term solutions, corridor stakeholders can always approach their congressional delegation for earmarks, or work through the Oregon Transportation Commission, the Northwest Area Commission on Transportation (ACT) or other political channels. However, demonstration of substantial benefit of projects is usually required, and this is always more difficult in lower-volume areas such as Columbia and Clatsop counties.

Interagency cooperation and appropriate role allocation can help move projects, too. In the case of the L Street overpass in Columbia City, for example, the local agency administered the

project, and ODOT constructed the project, but worked through local agency liaison.

The Columbia and Clatsop stakeholders could also benefit from coordinating through the Oregon Freight Advisory Committee (OFAC) which provides recommendations on freight projects to the Oregon Transportation Commission (OTC). OFAC performs this function for STIP projects as well as *ConnectOregon* projects, ranking them according to OFAC freight mobility criteria. In consultation with ODOT, OFAC also provides its views on specific federal earmarks to OTC.

Additionally, there are often a variety of small funding pots—for projects such as intelligent transportation systems (ITS) applications—and special programs that can fund all, or separable pieces of projects. None have been identified at this time, but state and federal legislation should be monitored.

Coordination with the planning functions, schedules and staff of these agencies, including Metro, is advised. Coordination activities should also include monitoring and engaging the Oregon Freight Advisory Committee (OFAC) as well as those at ODOT involved in the current update of the Oregon Statewide Rail Plan and the Oregon Freight Plan.

²⁶ A summary of Oregon's transportation funding under http://www.oregon.gov/ODOT/HWY/docs/Economic_stimulus_FAQ.pdf

