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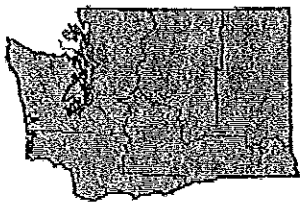

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Washington State's Draft Long Range Plan for Amtrak Cascades

April 2006:
The Washington State Department of Transportation has updated its draft long range plan for intercity passenger rail service. The draft Long Range Plan for Amtrak Cascades represents the department's blueprint for the incremental development of higher-speed intercity passenger rail service between Portland, Seattle, Vancouver, BC, and ten intermediate cities. However, it must be recognized that the actual implementation of this plan, and the achievement of the incremental service goals the department has identified for Amtrak Cascades, is dependent upon available funding and agreements with the BNSF Railway for expanded operations on their rail line.

While the plan represents the state's vision for expanded passenger rail service, WSDOT is working closely with the Washington Transportation Commission as they continue their study of strategic freight and passenger rail system needs, challenges, and opportunities. The findings and recommendations from this study will be incorporated into our passenger rail system plan for capital investment and service operations.

Washington State's Draft Long Range Plan for Amtrak Cascades

All documents are in the PDF format.

• Amtrak Cascades Long Range Cover and Executive Summary	File size: 401 KB
• Chapter 1 Introduction	178 KB
• Chapter 2 Purpose of the Program	142 KB
• Chapter 3 Washington's Vision for Amtrak Cascades Service	543 KB
• Chapter 4 Amtrak Cascades Program Components	2,098 KB
• Chapter 5 Amtrak Cascades Needed Infrastructure Improvements	1,307 KB
• Chapter 6 Environmental and Community Considerations	211 KB
• Chapter 7 Financial and Institutional Framework	322 KB
• Chapter 8 Next Steps	32 KB
• Chapter 9 Previous Studies	18 KB
• Chapter 10 Glossary	31 KB
• Plan Appendices	5,731 KB
• Entire Document (This may take a few minutes to load.)	10.4 MB

If you would like to obtain a hard copy of the plan, or a CD that includes the plan and its supporting technical documents, please contact the WSDOT Rail Office at 1-800-822-2015 (in Washington State), 360-705-7901 (outside of Washington State), or send an e-mail to rail@wsdot.wa.gov. Please be sure to provide your name, complete mailing address, and phone number so we can expedite your request. If you have specific questions about the plan and its contents, please contact Kirk Fredrickson, WSDOT Rail Planning and Policy Coordinator, at 360-705-7939, or e-mail him at fredrik@wsdot.wa.gov.

Chapter Five: Amtrak *Cascades* Needed Infrastructure Improvements

In 1993, the Washington State Legislature directed the Washington State Department of Transportation (WSDOT) to develop high-quality intercity passenger rail service through the incremental upgrading of the existing BNSF Railway Company's (BNSF) north-south main line. Since that time, WSDOT has been working with the BNSF and other organizations to develop operating plans and identify/prioritize infrastructure projects. These projects would improve existing service and enable WSDOT to fulfill the legislature's directive to provide safe, faster, more frequent, and reliable passenger rail service through an incremental approach.

This chapter discusses these major infrastructure improvements and their relationship to the service goals presented in Chapter Three of this document. The infrastructure improvements, which are presented in this chapter, reflect the best solution at this time. Other solutions that meet the same operational needs may emerge as each project is fully investigated through the environmental process.

How were these improvements identified?

Railroad companies perform careful operations studies to determine the need, type, and location for additional tracks. Public agencies sponsoring passenger rail service also study the need for additional tracks and facilities. Often the public agency—and the railroad owning the rail line—will study track needs repeatedly, removing and adding tracks, until both parties agree on the amount of track and other improvements absolutely necessary to perform the desired function and achieve the operational goals. WSDOT, working with the BNSF, performed many such studies.[1] These studies began in the early 1990s and have continued throughout project planning. Other agencies involved in this planning include Amtrak, the Union Pacific Railroad, and the Ports of Seattle and Tacoma. As recently as 2002, these agencies, together with WSDOT, participated in rail modeling activities at BNSF headquarters in Fort Worth, TX.

These modeling efforts looked at the rail corridor over a fifty year horizon. The modeling incorporated all freight and passenger needs of the many

[1] *The operations studies were preceded by a detailed economic and ridership analysis that established the travel time and train frequency (service) goals that would provide the best cost-benefit relationship.*

corridor users. Modeling and planning for freight and passenger rail along the PNWRC was not done in isolation, but in cooperation with the major stakeholders and customers of the rail line.

These studies follow the location of current and future passenger and freight trains minute-by-minute along a specific segment of a rail line. As part of each analysis, a number of steps are performed:

- Representation of the existing track configuration.
- Identification of the minute-by-minute location of every train entering and leaving the area (current trains as well as anticipated future trains).
- Determination of the conflicts between trains as they use the tracks and associated facilities.
- Determination of what conflicts could be solved by changing the time certain trains operate, as well as determining if the time can be changed for these trains (trains have various schedule and maintenance requirements that need to be met).
- Determination of what additional track and facilities are required to accommodate trains that cannot operate at different times. When considering additional track, the possible environmental and economic consequences are also considered.
- Determination of the track and other facilities needed specifically to achieve the service goals.

This procedure was repeated over the course of many years to ensure that each proposed infrastructure improvement fulfills WSDOT's goals of providing safe, more frequent, faster, and reliable passenger rail service between Vancouver, BC and Portland, OR without degrading freight rail service.

How does the physical characteristic of the track relate to rail operations?

Upgrading tracks and facilities is critical when planning an intercity passenger rail system on an existing freight corridor. In order to eliminate conflicts between freight and passenger rail, and to ensure that the ability to conduct current and future freight operations is not diminished, operations analysis is used to identify the types and locations of improvements that are necessary to maintain the rail line's capacity for freight service.

During the operations analysis, passenger trains are incrementally added to the tracks to see if there is enough rail capacity to handle the additional traffic at a given time. If there is a conflict with an existing (or future) freight train, a simple solution may be to change the passenger train's schedule. This may solve the problem. However, during the analysis, consideration also has to be

given to the potential loss (or gain) in ridership that may result from a schedule change. Because of this, operations analyses are often done in conjunction with ridership and commercial viability studies. Another solution to fitting more trains on a track is to see where the conflicts or chokepoints occur on the rail line, and then identify a physical solution that could solve the conflict. However, this approach to operations analysis isn't simple either.

A railroad is a fixed-guideway transportation system. Trains, unlike motor vehicles, must follow a track. Trains can only change "lanes," turn, or enter/leave the route when a track has been specifically constructed for that purpose. Designing for railroads involves figuring out exactly where trains will need to enter and leave the main line, change tracks, and turn onto another route. As such, a number of rail characteristics must be taken into consideration. **Exhibit 5-1** on the following page highlights some of these general railroad elements.

Each of the proposed infrastructure improvements presented in this chapter was designed by figuring out how specific tracks at specific locations could solve the problems in that location, as identified as part of the rail operations analysis.

What were the results of these analyses?

The operations analysis identified needed projects along the main line between Vancouver, BC and Portland, OR. Each project was developed to solve a particular problem or eliminate a chokepoint within the system. Every one of these projects was designed with the purpose to fulfill a specific service need. Because the operations analysis is based on an incremental approach, each of these projects independently fulfills a specific service (operational) goal. The incremental implementation plan was designed to ensure that if funding is not available to complete all of the needed projects along the corridor, the state's investment would not be wasted. Projects were designed to maximize system operations – one project at a time. This approach also requires that projects be built in a very specific order in order to ensure that not only the individual problem is solved (by each individual project) but when put together, a larger, operational problem is solved – thus contributing to the ability to increase service. If projects are not constructed in order (as identified in this plan), project completion cannot be followed immediately by service increases.[2]

[2] *However, benefits will still be derived from each individual project as it relates to its specific location and problem.*

Exhibit 5-1
Railroad Characteristics and Their Relevance

Characteristic	Why is it important?
Track Structure	Track structure has three elements: rails, ties, and ballast. **Rails** are made of steel. Even though the steel is very hard, the rail wears out, just as highway pavement wears out. The **ties**, typically made of wood or concrete, support the rails. **Ballast** is crushed rock used to support the ties and keep the track in correct alignment. The condition of each of these elements dictates the weight and type of equipment that can be used on the track, as well as the speeds allowed on the track.
Number of Tracks and Sidings	The number of tracks affects the capacity of the line. Two tracks (also called **double track**) have more capacity (the number of trains that can move through the area) than one track (**single track**). **Sidings** also increase the capacity of a rail line. Sidings located along the line allow faster trains to overtake slower trains without affecting train traffic on the other track. On a single track line, sidings are also needed to allow one of two trains moving in opposite directions to clear the way for the other. The capacity of the rail line and the reliability of operation are affected by the time required to move between sidings.
Grade (the steepness of the tracks)	The steepness of the track dictates the types of trains that can use the rail line. Typical grades for freight trains do not exceed two percent, while grades for passenger trains can be as high as four percent.
Curves (often presented in degrees)	The tightness of the **curve** dictates the speed that a train can travel. The higher the degree, the tighter the curve, the slower the speed. Amtrak *Cascades* trains can travel faster through tight curves (than most trains) because they use tilt technology.
Speed Regulations	Train **speed limits** are generally regulated by the Federal Railroad Administration (FRA). The Code of Federal Regulations (49 CFR 213, Track Safety Standards) establishes classes of track with associated speed limits and detailed physical requirements for tracks in a given class. Speeds may also be restricted by the Washington Utilities and Transportation Commission (WUTC) if a unique local safety condition exists.
Capacity	The number of trains moving at normal speed that the rail line is capable of accommodating. Capacity and reliability are related. When traffic exceeds capacity, delays increase and train service is not reliable.
Flexibility	The ability of trains to move among tracks, or "change lanes" to pass other trains or to pass maintenance work on one of the tracks. Flexibility allows maximized use of the tracks and limits the requirement for additional track.
Reliability	The ability to operate trains that consistently adhere to schedule.
Traffic (Number of Trains)	The **number and type of trains** along a rail line relate directly to capacity. The more trains that are put on a track, the more capacity is required, generally in the form of increased speed, additional track signals and improved traffic control. Without additional capacity, the speed and traffic on the rail line would diminish as traffic increases.

Exhibit 5-1 (Continued)
Railroad Characteristics and Their Relevance

Characteristic	Why is it important?
Width	The rails of a railroad track are spaced 56.5 inches apart. To allow sufficient clearance between vehicles on adjacent tracks, the tracks are generally spaced at least fifteen feet apart. This is often referred to as 15-foot track centers.
Length	Each track that is not a through-route must be long enough to serve the intended purpose. Just as a parking space for a tractor-trailer must be of sufficient length for the vehicle, a railroad track must be long enough to hold even the longest train. The required length depends upon the type of train traffic handled. The length of a typical passenger train is between 500 feet and 1,700 feet. The length of a typical freight train can be between 7,000 feet and 10,000 feet (over a mile—5,280 feet—in length).
Signals and Traffic Control	**Signals** help extend the engineer's sight distance and therefore allow greater speeds. **Traffic control** determines which trains can use which tracks. The type of traffic control system is related to capacity because it affects the ability to utilize the main line tracks.

What are the current conditions along the rail line?

Amtrak *Cascades* service operates along the Pacific Northwest Rail Corridor (PNWRC). This corridor extends from Vancouver, BC to Portland, OR along the BNSF north-south main line.[3]

The BNSF's predecessors -- the Great Northern Railway and the Northern Pacific Railroad -- originally constructed what now has become the Pacific Northwest Rail Corridor, and several other different routes. The oldest part of the line was constructed in 1872, the newest in 1914. In the intervening years, many sections of the rail line were constructed, including some that replaced part of the original construction in order to improve the route. Generally the sections of line that were relocated had relatively steep grades, which were a more important consideration in that era than now because the largest locomotives were much less powerful than a typical locomotive today. Improvements since 1914 have generally consisted only of improved signal and traffic control systems, and tracks leading into or supporting industrial zones that have been built since 1914.

[3] *There are three short exceptions to BNSF ownership of the route. Pacific Central Station in Vancouver, BC is owned by VIA Rail Canada. The Fraser River Bridge is owned by the government of Canada and operated by the Canadian National Railway. The rail line which serves Portland's Union Station, is owned by the Portland Terminal Railroad which is owned jointly by the Union Pacific Railroad and the BNSF. For the most part, BNSF controls rail operation on this rail corridor.*

In addition to the BNSF's rail traffic, the rail line between Portland, OR and Vancouver, BC also has several tenants. In British Columbia:

- Canadian National Railroad between Townsend and Vancouver Junction;
- VIA Rail Canada and Rocky Mountain Railtour's passenger trains between Fraser River Junction and Pacific Central Station;
- West Coast Express between CP Junction and Vancouver Junction;
- Canadian Pacific Railroad between Townsend and CP Junction;
- Canadian National Railroad and Canadian Pacific Railroad at Colebrook;

In Washington and Oregon:

- Sound Transit between Reservation (Tacoma) and Everett;
- Union Pacific between Portland, OR and Seattle; and
- Amtrak (including the *Cascades*) between Portland, OR and Vancouver, BC.

The BNSF has recently sold their line between Tacoma and Nisqually via Lakewood to Sound Transit. This is the line known in this document as the Point Defiance Bypass. The BNSF, Tacoma Rail, and Amtrak (including the Amtrak *Cascades*), will be tenants on this line.

Because of this large number of tenants, as freight and passenger rail traffic grows, capacity will begin to be filled. New main lines and sidings will be required. The current rail line consists of two tracks between Portland, OR and Seattle except for a one and one half mile single track section between the Nelson Bennett Tunnel and Ruston, south of Tacoma. Between Seattle and Everett the line alternates between single track and two tracks. North of Everett is single track.

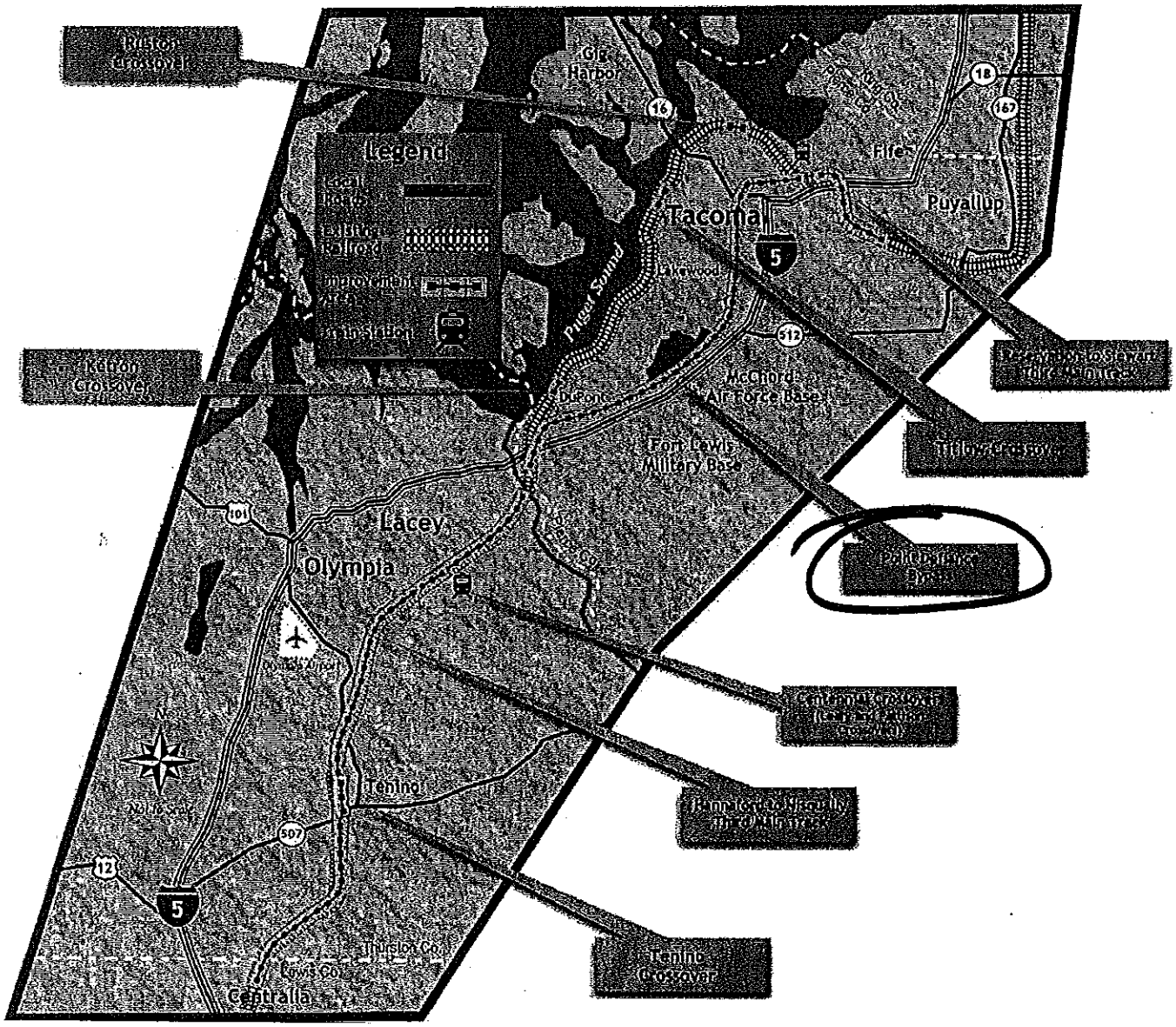
The operations analysis used this information as a basis for developing the future Amtrak *Cascades* service plan. More information about the passenger rail operations, methodology, assumptions, and results can be found in the *Amtrak Cascades Operating and Infrastructure Plan Technical Report*, 2004.

What are the identified infrastructure improvements?

Project improvements are located throughout Washington State's segment of the corridor, as well as in British Columbia and Oregon.[4] The following

[4] *WSDOT identified these potential improvements through their continuous evaluation of the existing rail corridor and the ongoing operational analysis for the Amtrak Cascades*

Exhibit 5-5
Pierce and Thurston Counties Project Improvements



Point Defiance Bypass (rail milepost 25.38 to 12.71)

Currently passenger trains must slow down to use the curved tracks along Puget Sound and the single-track tunnels under Point Defiance. This project will build a bypass so that passenger trains can avoid those areas. Freight trains will continue to use the existing tracks in the Point Defiance area. This will provide reliable Amtrak *Cascades* service by reducing travel time by fourteen minutes and eliminate conflicts with freight trains.

The proposed route of this WSDOT project is the same that Sound Transit will use to extend *Sounder* Commuter Rail service to Lakewood. After both projects are completed, Amtrak trains and *Sounder* Commuter Rail will share the route with freight trains serving Fort Lewis.

The first part of this project will include a new second track between Tacoma and Lakewood. The second part of this project – for which funding is unavailable at this time – will include rehabilitation of tracks and speed increases between Lakewood and Nisqually. The current conceptual cost estimate for the entire project is $412 million. This project is listed in the "2003 Legislative Transportation Package" and the 2005 Transportation Partnership Account," but will require additional funding beyond the $59.8 million allocated by the state legislature.

Ketron Crossover (rail milepost 18.4)

Construction of this crossover provides flexibility for trains to move between tracks. This project will provide increased reliability and capacity. The estimated construction cost of this project is $3.4 million. This project is listed in the "2003 Legislative Transportation Package," and is funded for up to $3.9 million.

Centennial Crossovers (Leary and Pattison) (rail milepost 31.8 to 32.5)

Construction of these crossovers provides flexibility for trains to move between tracks when entering Centennial Station to ensure that passengers can exit the train on the east side of the rail line, adjacent to the station. Without these crossovers, there would be situations when a train would be on the west main line and would require passengers to cross the east main line. This project will provide increased capacity, reliability, and safety. The estimated construction cost of this project is $3.4 million. This project is listed in the "2003 Legislative Transportation Package," and is funded for up to $3.9 million.

Hannaford to Nisqually Third Main Track (rail milepost 51.39 to 24.5)

A new twenty-six mile-long main line will be built next to the existing double track between Nisqually and the Lewis/Thurston county border, and a second new main line track will be built between rail milepost 36.2 and rail milepost

Other improvements include improved ticketing and baggage facilities, new train arrival and departure displays, new way-finding signage to the surrounding neighborhoods, a new roof, exterior cleaning and safety and security improvements.

King Street Station Transportation Center

The purpose of this project is to design and construct a multi-modal transportation center which will link the variety of public transportation services that are present in the vicinity of King Street Station. The center will link Amtrak *Cascades*, *Sounder* commuter rail, regional and local bus transit, light rail, and the Seattle streetcar. Seattle's intercity bus terminal will also be relocated to this transportation center. The initial focus this project will include conceptual design and preparation of an implementation strategy for project development.

Cascades Trainset Overhaul

The three state-owned trainsets have been in service since 1999. They will be restored to like-new condition and their service life extended to approximately 2029. All three trainsets will receive interior and exterior improvements, including paint, seating, tables, carpet, toilets, windows, wall coverings, and video and audio systems.

In addition to this overhaul, trainsets will continue to be maintained and repaired on a regular basis. The state of Washington does not have any spare train cars, so maintenance and overhaul is critical to the continued service of the Amtrak *Cascades*.

PNWRC Safety Improvements

Since the early 1990s, the U.S. federal government has provided grants to states with federally recognized high-speed rail corridors, which includes the Pacific Northwest Rail Corridor. This federal designation allows WSDOT to apply for federal grants to eliminate safety hazards where vehicles, pedestrians, and higher-speed passenger trains converge. Over the past ten years, WSDOT has received over $3 million for a variety of small rail safety projects between Blaine and Vancouver (WA).

How will WSDOT and the BNSF work together to construct these infrastructure improvements?

In 2003, WSDOT and the BNSF entered into a *Master Corridor Development Agreement* that will govern the construction of Amtrak *Cascades* capital projects within Washington State. This agreement is an important milestone for WSDOT's Amtrak *Cascades* program, as it sets in place the legal framework and guiding principles that both WSDOT and the BNSF will abide by as WSDOT continues to provide public funding for intercity passenger rail

corridor development. Some of the key highlights of the *Master Corridor Development Agreement* include:

- The expressed intent of both WSDOT and the BNSF to work together to develop Amtrak *Cascades* intercity passenger rail service between Portland, OR, Seattle, and Vancouver, BC over the next twenty years.
- BNSF's acceptance of WSDOT's detailed capital and operating plans for Amtrak *Cascades* service improvements within the rail corridor.
- A streamlined administrative process for executing the individual construction projects funded by WSDOT.
- Clearly defined expectations of the specific benefits that WSDOT will derive from each construction project in Washington State, including additional daily frequencies and reduced running times between cities. These clearly defined expectations will guarantee that the state of Washington will get what it is paying for.
- A method for apportioning cost for the various construction projects that provide direct benefits to both WSDOT and the BNSF.

This new *Master Corridor Agreement* between WSDOT and the BNSF is the first of its kind between a state government and a host railroad that sets a legally binding foundation for future development of state-funded intercity passenger rail service. It is expected that this new agreement will make it much easier for both WSDOT and the BNSF to complete the Amtrak *Cascades* capital projects within the state of Washington as identified in this plan.

What projects will be undertaken by other agencies?

As part of WSDOT's ongoing relationship with Sound Transit, the province of British Columbia, and the state of Oregon, a number of projects that will benefit Amtrak *Cascades* service need to be implemented by these entities over the next twenty years. Without implementation of these projects, the build-out of the passenger rail program will not be achieved.

These projects are listed in **Exhibit 5-7** by jurisdiction/agency. More information about these projects can be found in the *Amtrak Cascades Operating and Infrastructure Plan Technical Report*, 2004. The general locations of the Oregon and British Columbia projects are illustrated in **Exhibits 5-8** and **5-9**. The Sound Transit projects are located between Lakewood and Seattle, as well as between Seattle and Everett.

Exhibit 5-7
Projects to be Implemented by other Agencies and Organizations

Jurisdiction/Agency	General Location	Project/Estimated Cost
	[1]Greater Vancouver Terminal (Scott Road Station)	Construct new passenger rail station/$86.3 million
British Columbia	[2]Vancouver Terminal Control System	Installation of new traffic control system/$6.9 million
	[2]Still Creek to CN Junction	New siding/$12.9 million
	[2]Sperling-Willingdon Junction Siding	New siding/$11.4 million
	[2]Willingdon Junction	Grade separation/$16 million
	[2]Brunette-Piper Siding	New siding/$28.6 million
	[2]Fraser River Bridge	Replace or improve existing bridge/$575 million
	Colebrook to Brownsville High-Speed Tracks (north of White Rock)	High speed track, continuation of White Rock bypass/$91.8 million
	Colebrook Siding	New siding/$11.4 million
	White Rock Bypass	High speed rail bypass/$312.7 million
Sound Transit	Seattle to Everett	Various capacity improvements/$207 million
	Seattle to Tacoma to Lakewood	Installation of Centralized Traffic Control (CTC) system and additional trackage/$304 million
	Argo to Black River (south Seattle)	Reconfiguration of existing yard and main line tracks/Costs included above
Oregon	Columbia River Bridge (joint Washington and Oregon project)	New bridge/$575 million. It is anticipated that funds for this project will be shared between the states of Washington and Oregon, as well as other funding partners.
	North Portland Junction to Kenton (north of Portland's Union Station)	Reconfiguration of existing tracks and new second main line/$58.7 million
	East St. Johns Siding and Main Track Relocation	Construction of a new siding and change in configuration of yard tracks/$40.4 million
	Lake Yard North Leads	Install high speed yard leads/$26 million
	Portland Union Station	Construct new turnouts and construct new main line/$7.6 million

[1]If Scott Road is chosen as the terminus for Amtrak Cascades service, then projects in Group [2] will not be required. ***Appendix E*** *of this report discusses the possibility of terminating service at Scott Road in Vancouver, BC. WSDOT will work with regional, provincial, and Canadian federal officials to identify the potential benefits and losses that could result from such a change in service.*

Note: *Canadian projects are estimated in 2006 U.S. dollars.*

When will these projects be built and how will they affect Amtrak *Cascades* service?

As discussed earlier in this chapter, each project improvement was designed to independently solve an operational problem along the Amtrak *Cascades* service corridor. In addition to their ability to solve the specific problems identified, coupled together, incremental service goals could also be achieved—specifically, additional daily round trips along the corridor. **Exhibits 5-10** and **5-11** present the Amtrak *Cascades* service goals that were discussed in Chapter Three of this document. Ordering projects in this manner ensures that each project has immediate utility regardless of future service improvements.

Exhibit 5-10
Amtrak *Cascades* Daily Roundtrip Trains

Total Trains	1994	2003	Mid-point	2023
Portland, OR to Seattle, WA	1	3	8	13*
Seattle, WA to Vancouver, BC	0	2**	3	4

**Includes three trains traveling north, beyond Seattle, to Vancouver, BC.*
***Amtrak Cascades #513/516 travels between Seattle and Bellingham.*

Exhibit 5-11
Amtrak *Cascades* Travel Times

Destination	1994	2003	Mid-point	2023
Portland, OR to Seattle, WA	3:55	3:30	3:00	2:30
Seattle, WA to Vancouver, BC	N/A	3:55*	3:25	2:37
Vancouver, BC to Seattle, WA to Portland, OR	N/A	N/A	6:40	5:22

**Travel time for train #510/517.*

Source for Exhibits 5-10 & 5-11: *Amtrak Cascades Timetable Effective October 27, 2003, and Amtrak Cascades Operating and Infrastructure Plan Technical Report, 2004.*

Building Blocks

Although each project independently solves a problem within the corridor, the projects must be constructed in the order identified in this plan. Service could not be increased as the projects are completed if projects are randomly built along the corridor, because the entire operating program was built on a series of building blocks to meet incremental service goals (timetables). **Exhibits 5-12** and **5-13** show the chronological relationship between the projects and service improvement. The completion year of these projects as well as the service provided is dependent upon funding and the length and complexity of the project's environmental process and permitting.

The order in which projects are built (and when) is based solely on the service timetables presented in this report. State and federal funding will dictate actual completion years—if funding becomes available sooner, service goals can be achieved sooner. If funding is not available, or targeted for a future date, then service goals will not be achieved within the identified twenty-year time frame.

Exhibit 5-13
Timetables and Relationship to Amtrak *Cascades* Service Goals
Seattle to Portland, OR

		Service Goals		
Seattle to Portland, OR Project Improvement	**Timetable (Completion Year)**	**Additional Daily Round Trip Trains**	**Total Daily Round Trip Trains**	**Schedule Running Time**
Felida Crossover Woodland Crossover Titlow Crossover Ruston Crossover Sound Transit - Seattle to Lakewood Improvements	A	1	4	3:25
Vancouver Rail Project Kelso to Martin's Bluff Rail Project Centennial Crossovers (Leary and Pattison) Winlock Crossover Tenino Crossover Ketron Crossover North Portland Junction to Kenton	B	1	5	3:20
Point Defiance Bypass Reservation to Stewart Third Main Track Centralia Steam Plant Coal Track and Power Switches Woodland Siding Newaukum Siding King Street Station Track Improvements China Creek Crossover Auburn South Third Main Track Seattle Maintenance Facility Sound Transit - Seattle to Lakewood Improvements	C (Mid-point service)	3	8	3:00
Winlock to Chehalis Third Main Track Chehalis Siding Chehalis Junction Crossover East St. Johns Siding and Main Track Relocation Lake Yard North Leads Portland Union Station Advanced Signal System - 110 mph	D	2	10	2:55
Chehalis to Hannaford Third Main Track Ostrander to Winlock Third and Fourth Main Track	E	2	12	2:45
Felida to MP 114 Third Main Track Hannaford to Nisqually Third Main Track Columbia River Bridge (Washington/Oregon project)	F (2023)	1	13	2:30

***Note:** At the time of this writing, the implementation of gray shaded projects have been identified by WSDOT as needed improvements that will be funded by other jurisdictions or agencies but are necessary to achieve WSDOT's goals*

completed by Amtrak *Cascades* mid-point service, the most expensive of which is a new crossing of the Fraser River between Surrey and New Westminster. The New Westminster Rail Bridge, a swing-span structure constructed in 1904, is a major choke point for a number of freight and passenger rail operators in the greater Vancouver area. Canadian officials are currently studying bridge replacement options, but a funding plan for a new structure has not yet been developed. Unless and until this bridge is replaced or substantially upgraded, it will not be possible to add any more Amtrak *Cascades* service between Seattle and Pacific Central Station in Vancouver, BC beyond two daily round trips.

In 2010, Vancouver/Whistler, BC will be hosting the Winter Olympics. This major international event is expected to draw hundreds of thousands of visitors to the Vancouver, BC area. If Amtrak *Cascades* trains are to play a role as a transportation provider before, during, and after the 2010 Olympic Games, regional, provincial, and Canadian federal transportation officials will need to decide if funding the projects necessary for additional Amtrak *Cascades* service is a priority for the region, and if these projects will have a legacy of public benefits after the Olympic Games. These officials will also have to determine if the current station location is the best place for intercity rail travelers—when placed within the context of the region's multi-modal transportation plan developed for the 2010 Olympic Games and beyond.

The final key factor that will influence the location of the Amtrak *Cascades'* northern terminus in Vancouver, BC is customer preference. While a Scott Road Station could eliminate the need for major rail line improvements north of the Fraser River, Amtrak and WSDOT have only limited data to assess the commercial impacts of a northern terminus at Scott Road, rather than downtown Vancouver. BC. WSDOT, Amtrak, and Canadian officials will need to gather this customer data and include it in a full benefit/cost assessment before deciding if relocating the Amtrak *Cascades'* northern terminus from Pacific Central Station to Scott Road is the best course of action.

Once funding becomes available, what are the first steps?

Once funding is available for capital projects in Washington State, WSDOT will work with the BNSF to discuss general design and operational considerations and requirements. Conceptual engineering will then begin. Following conceptual engineering, the preparation of environmental documentation will be required.

What type of environmental documentation will be prepared?

Under the State Environmental Policy Act (SEPA), any agency that proposes to take an official action is required to perform a series of environmental

analyses[7] to ensure minimal impacts will result from that action. At the federal level, pursuant to the National Environmental Policy Act (NEPA), a similar environmental analysis must be performed if the proposed action is being implemented by a federal agency, requires a federal permit, or has federal funding. As a result, each of the identified project improvements (which are being initiated by a state agency and potentially may have federal funding) must follow federal and state environmental regulations as dictated by SEPA and NEPA.

Under NEPA, the Federal Highway Administration (FHWA) and the Federal Railroad Administration (FRA) will act as federal co-lead agencies, while WSDOT will act as the lead SEPA agency. To satisfy both NEPA and SEPA requirements, the three agencies will identify the appropriate level of environmental documentation necessary for each project improvement. Prior to designing and constructing any of these projects, the appropriate environmental documentation will be prepared. Following completion of this documentation, final design, permitting, and mitigation planning will be developed. Only after these steps are completed would construction begin.

What follows the environmental analysis?

Following preparation and approval of the environmental documentation, final engineering can begin. Once engineering is complete, permitting and construction can move forward.

[7] *Unless the action is exempt under SEPA.*

Exhibit 6-1
Summary of General Potential Environmental Impacts by County[1]

Resource	Clark	Cowlitz	Lewis	Thurston	Pierce	King	Snohomish	Skagit	Whatcom
Water Crossings	5	14	7	6	5	7	9	4	6
Miles of Shoreline		4			20	10	18	5	12
Hazardous Sites[2]	23	18	17	2	43	138	52	6	45
Wetlands[3]	Less than 500 acres	751 to 1,000 acres	500 to 750 acres	Less than 500 acres	Over 1,000 acres	751 to 1,000 acres	Over 1,000 acres	Less than 500 acres	751 to 1,000 acres
T&E Species Habitat Sites[4]	0	200 acres	0	0	230 acres	0	10 acres	72 acres	11 acres
Critical Habitat[5]	4	16	1	17	14	11	11	3	7
Unstable Slopes[6]	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Parks[7]	7	2	5	1	20	22	17	5	13
Historic Resources[7]	5	4	10	4	39	40	16	2	15
Targeted Populations[8]	1	4	1	0	5	13	2	0	3

1. *All impacts are estimates. Information was developed using existing resources and mapping. Site specific review and field review were not performed as part of this analysis.*
2. *Known sites located within 2,000 feet of the rail corridor.*
3. *These figures are approximations of wetlands (many located along shorelines) within 1,000 feet of the rail corridor.*
4. *Threatened and Endangered Species (T&E) Habitat Sites: reflects the number of acres of habitat that are located within 1,000 feet of the rail corridor.*
5. *Known Washington and Puget Sound Rare and Native Plant Sites, Wildlife Heritage Data Sites, and Seabird Colony Sites located within 1,000 feet of the rail corridor.*
6. *Indicates areas with extensive amounts of unstable slopes along the rail corridor.*
7. *Located within 1,000 feet of the rail corridor. Most resources are located on the National Register.*
8. *Per Executive Order on Environmental Justice, these figures reflect the number of census tracts along the rail corridor that have a population of fifty percent or more minority residents and/or populations where twenty percent or more of the residents have income below poverty level.*

Southwest Washington Regional Transportation Council

Bi-State Coordination Committee

Below is the meeting report for the Bi-State Coordination Committee meeting, held on **Thursday, June 30, 2005**, from 7:30 a.m. to 9:00 a.m. at the Clark County Public Service Center, 1300 Franklin Street, Vancouver, Washington. An agenda for this meeting is also available.

Meeting Report

I. Welcome and Approval of April 21, 2005, Meeting Report

The meeting of the Bi-State Coordination Committee was called to order by Chair Rex Burkholder, at 7:30 a.m. at the Clark County Public Service Center, 1300 Franklin Street, Vancouver, Washington. Those in attendance follow:

Committee Members
Sam Adams, City of Portland Commissioner
Rex Burkholder, Metro Councilor
Matt Garrett, ODOT Region One Manager
Eric Holmes, City of Battle Ground City Manager
Addison Jacobs, Port of Vancouver Alternate
Royce Pollard, City of Vancouver Mayor
Phil Selinger, TriMet Alternate
Dave Shields, City of Gresham Councilor
Steve Stuart, Clark County Commissioner
Don Wagner, WSDOT SW Regional Administrator
Bill Wyatt, Port of Portland Executive Director
Staff
Andy Cotugno, Metro
Dean Lookingbill, RTC
Mark Turpel, Metro
Diane Workman, RTC
Interested Guests
Chuck Becker, City of Gresham Mayor
Richard Brandman, Metro
Katy Brooks, JD White Company
Pete Capell, Clark County
Justin Clary, City of Ridgefield
Todd Coleman, Port of Vancouver
Kate Deane, ODOT
Rob DeGraff, Columbia River Crossing
Amy Echols, Columbia River Crossing
Doug Ficco, Columbia River Crossing
Bob Hart, RTC
Bill Hidden, Citizen

Chair Burkholder referred to the memorandum included in the meeting packet. Dean Lookingbill said the Purpose and Needs Statement should represent what it is we want the project to do. An example: Is the problem limited highway capacity or is the problem limited economic and freight development? He said there would be a number of perspectives. The Bi-State Committee includes the key representatives from the region to bring bi-state public transportation policy perspectives. There will be other groups that will also bring neighborhood and business perspectives. He asked members for any key policy perspectives. Steve Stuart said he would have a concern in having a policy discussion about purpose and need in that the need is not based on policy. The need is based on what is on the ground, and use data to help define what is going on on the ground. To have the baseline data in hand, we would be able to say here are the traffic flows and the number of freight trips and where they start and where they stop. All this information then can be put together, and that is how you determine your need. It is not about having a policy discussion of what we think the data is; we are defining our need based on our own anecdotal experience, not on the actual need. He said he has had discussions with DOT in getting the baseline information to have a reasoned discussion of what the actual need on the ground is. He said for himself, it would be premature to be discussing what the purpose and need is for the river crossing until the baseline data is in hand to actually know.

Mr. Lookingbill re-phrased his request and said he was looking for some of the policy context that came out of the previous work, some of the data and how that would be stated to guide the current Columbia River Crossing Project. For example, one of the clear policy statements from the I-5 Partnership Project was that in terms of public transportation, the project needed to be a multi-modal project.

Phil Selinger said that the purpose and needs statement needs to serve the federal process and both DOTs as well. We need to have some local consensus but also need to be mindful of what is going to serve federal and state requirements as well.

Rex Burkholder said that the Bi-State Committee is made up of elected officials with multiple responsibilities, not just transportation. With all the other concerns, we need to look at all aspects of broader concerns.

Sam Adams said he looked forward to agenda item 5 discussion, and also said that our economic goals need to be looked at. He was not sure how it was tied to this project, but concrete goals that we establish for ourselves and collectively seeking to achieve those economic goals should be addressed.

Eric Holmes said the relationship of the region and land use transportation commissions on both sides of the river is going to be extremely important.

Dave Shields said in the regional area, the expansion of the urban growth boundary and the industrial lands would cause further impacts. We need to look at the regional area, not just a corridor. There is a need to look at the economic base here.

Rex Burkholder said they have tried to set up the Bi-State Coordination Committee meetings in coordination with the larger Columbia River Crossing Task Force to have better understanding of the information discussed.

IV. Heavy Rail - Public/Private Actions

Chair Burkholder said today's discussion is the second half of the heavy rail presentation by the Port of Portland and the Port of Vancouver. Todd Coleman with the Port of Vancouver distributed two handouts: the Port of Vancouver Economic Development and Conservation Plan along with a handout of his Freight Rail presentation. Mr. Coleman said that one in every four jobs in Washington is trade dependent. That is almost $96 billion per year in trade, and $51 billion in waterborne

trade, noting those numbers are just going to be increasing over the years. The Port of Vancouver has been a part of a couple studies through the Washington Public Ports Association: The 2004 Marine Cargo Forecast and the WPPA Rail Study. The Marine Cargo Forecast shows those numbers are going to grow. They expect waterborne cargo to grow by 2/3 over the next 20 years, and cargo containers will triple in 20 years. These are huge increases.

The rail system in Washington is actually limited. Mr. Coleman highlighted the main rail lines in Washington State, saying there are 80 trains a day through our area. That is 4 trains an hour going through one point. Mr. Coleman said the other passes are over 2 percent in grade. The line up the Columbia Gorge is a 1 percent grade. That means more trains are needed to pull the heavy loads of grain over the passes. That speaks dollars, so the most cost effective is through the Columbia Gorge. They are now taking double-stacked trains out of Tacoma and bringing them down to Vancouver and along the Columbia River, so we are seeing even more traffic. They are trying to alleviate some of that extra traffic by moving empties over the other passes, but it is still an issue of a lot of freight. Mr. Coleman said there are problems in looking at growth to the future. Using charts with trains per day from 2002 to 2024 he showed Stevens Pass estimated sustainable capacity versus growth. This shows capacity reached by 2010. There are solutions that need to be addressed quickly, given the amount of time these large projects take. He said if they could clear Stampede Pass, which means they could add double-tacked trains to Stampede Pass, which makes that another viable option. They currently cannot do that because of the tunnels. If they could clear that pass, that would build capacity and allow the Stevens Pass system to not reach capacity until 2018. The Nelson-Bennett Tunnel will reach capacity in 2010-2014. If Point Defiance Bypass Route were added, that would add capacity out as far as we can see today, past 2024. Mr. Coleman said these are regional issues that we need to deal with in the State of Washington.

Mr. Coleman said they like to talk about wheat, because they are one of their largest customers and huge in the State of Washington. Oregon, Washington, and Idaho yield 85 percent of all U.S. soft wheat. Almost all wheat exports are shipped via the Columbia/Snake Rivers. He said most folks don't realize that nearly 40 percent of all U.S. wheat exports are going out the Columbia River. This makes us the 2nd largest export gateway on the West Coast with $14 billion of cargo.

The WPPA Rail Study findings show projected growth through 2025 for all train types to cause significant pressure on the rail network in the Pacific Northwest. This congestion impedes Washington ports' ability to efficiently handle growing volumes of trade traffic. They need to deal with the chokepoints on the primary main line corridor segments. Chokepoints have far reaching impacts. A chokepoint in Vancouver is backing up trains clear up the Columbia River, clear to Pasco. Trains backed up in Vancouver are being backed up in Tacoma and even up into Canada. The study said we have a lot of main line capacity, and looked at ways to alleviate some of the congestion points. This is what ties into the Port of Vancouver.

The Vancouver WYE is where trains go east to Chicago, north/south to California, Canada, and Seattle. The Port of Vancouver is on the cusp of all of this. The annual rail car count for 2004 was 43,084. The Port of Vancouver has 1,600 acres they are in the process of developing. They hope to net about 600 of those acres after the environmental impacts and mitigation processes. This has the capacity to add a lot of rail to that system. They are looking at projections of about 80 – 120,000 more rail cars, which is in addition to the 43,000 currently handled today. This would add rail system within the Port. There is a plan to develop the east bypass. They are looking at different options. Mr. Coleman referred to the handout displaying some of the alignments that they are evaluating in their EIS process. He said they are looking at projects that not only impact the Port of Vancouver activities, they are looking at what happens to the main line as well. They are able to show the base case and projected out to 2025 with the additional 120,000 rail cars on the system. If they are able to create another access in the system that alleviates some of the chokepoints, they can

actually decrease the delays from what they exist today. That is adding all the 2025 projections for freight (that is the 67 percent increase), adding the passenger rail, and adding the Columbia Gateway traffic.

The cost of the Port of Vancouver rail project ranges from $50 million to $80 million. They have secured some funding, saying thanks to Senator Murray and RTC with help in the EIS process and in their partnership with the City of Vancouver. This also includes proposed 26th Avenue. In the longer term, they need more significant and expansive operating and capital investment initiatives. Mr. Coleman said there are a lot of projects identified in the WPPA Study: Stampede Pass, Point Defiance Bypass, Bayside Bypass, Vancouver Bypass, and Vancouver to Kelso.

Mr. Coleman said we should not assume that BNSF and UP will be willing and/or able to contribute significant capital. It is not necessarily a Railroad issue from their perspective. He said they need to identify a variety of current and potential stakeholders and develop a persuasive and compelling case for their participation. Stakeholders need to understand the long-term economic growth of the region.

Conclusions on what needs to be done: Must increase investment in freight road and rail infrastructure to take advantage of market opportunities. Funding for FMSIB-approved projects, funding for strategic freight projects on DOT system, increasing the knowledge overall of the impacts to the freight system, and where improvements can be made, what types of phases, and how to create the public/private partnerships for class 1 railroads. Mr. Coleman said the train constraints mean: increase in transportation costs, decrease in reliability, diversion of cargo, relocation, stress to national transportation system, loss of revenues, and ultimately, loss of jobs. Currently in the Vancouver area, particularly in November when the merchandise trains are up because of the Christmas season and the grain trains are up because of harvest, they are seeing their smaller customers who do not see rail switches for up to a week. That is very hard for small businesses to handle. He said if we do not find revenue for some of these projects, they would start to move out.

Mr. Coleman introduced Ann-Marie Lundberg with the Port of Portland. Ms. Lundberg said that Mr. Coleman had already done a good job of identifying what a lot of the existing issues are. She said she was going to talk about some of the potential solutions to some of those problems. Freight is doubling in 20 years by virtually every study that has been published today. They are seeing the effects of that already being felt across their state. They've been talking to a lot of people that are dependent on transportation deficient transportation dynamics, and they're having problems, and they're having problems getting their products from overseas, and also having problems just getting their raw materials from domestic sources. They are being impacted. Trucking capacity is an issue today, and they are looking to the rail to help alleviate some of their capacity issues. The railroads are already very close to capacity in a lot of instances. She acknowledged that when talking about on the ground solutions and talking about the role of this committee, there have been solutions identified, and some of those are already coming to fruition. As mentioned, one is the Vancouver Bypass. That was clearly identified in the Partnership Plan as a capacity fix, and the funds have been identified but not allocated at this point. Two other projects are identified. The 92nd Avenue Connector by the Portland airport, which is currently in construction. What is significant about this project is it's a road and a rail capacity improvement. It did manage to leverage private dollars for part of the solution. BNSF and Union Pacific Railroad put $2 million into that project. When a strategic investment is made in this region, we can also get the private parties to be able to help make sure that it's a long-term effective capacity improvement. The other project is the Ramsey Rail Yard in the Rivergate area. That is the number one priority project that will get funded if the TEA-LU gets out of Congress. Those projects came from the work that the Partnership conducted. They hope that all of the rail projects for capacity move forward. Those capacity improvements will probably help for the next 10 or 12 years.

She said they care about this because of jobs. Ms. Lundberg noted several businesses

that are heavily rail dependent that have several hundred jobs, which are affected. If they don't have affective transportation or affective transportation alternatives, (rail or truck), they will not get into certain markets and they will not employ people. She said they have many construction fixes that are crucial. Ms. Lundberg said if you don't operate effectively over that infrastructure, you can plug it up as fast as you can build it. Another issue that needs to be taken care of is that it is being operated as efficiently as possible. So in addition to infrastructure fixes, they also recommend that operational fixes are part of the overall solution.

The Port of Portland is currently working on a project, which is a third-party situation. She said they have talked with the Port of Vancouver about this, and ultimately, the scope could grow to include a good part of the region. Basically, the larger railroads, the class one carriers, are very good if they just have to take one long train from one part of the country to another part of the country. Where their service often really falls down is once the train lands in its destination city, and it has to be taken apart and switched out to the various industries. They are not particularly effective at that. The Port is recommending that they take them out of that business and put a company in that specializes in that type of operation. This will help car turn over, and equipment utilization. It will get shippers their products, therefore, emptying the equipment that they need to get the product out, as well as getting their loads more effectively and more efficiently. It will also mean that the infrastructure that we have today will be used more effectively, and you delay the expansion of the build-out of that infrastructure. Things are growing and velocity is the key to capacity. So if you've got infrastructure that is key to capacity and also velocity. How quickly products move over that infrastructure can advance the capacity as well. A question was asked in regard to the process of making the recommendation and getting a private company to do the switching out. It was said that it is a negotiating process. Ms. Lundberg said that in looking at the infrastructure, one of the things that was discussed by Mr. Coleman is that decisions that are made hundreds or even thousands of miles away are going to affect our region. When they look at capacity fixes for the state of Oregon, the Portland/ Vancouver metropolitan area, they really need to remember that they are part of the northwest regional rail network. Anything that happens in Seattle, Tacoma, or even Spokane is going to affect our rail system in the Portland/Vancouver area. The State of Oregon is more or less Union Pacific territory. UP has the highest volume east-west corridor in Oregon. Burlington Northern is the larger rail carrier in the state of Washington. In the state of Oregon, the mainlines are fed by a network of short-line railroads. They have in southern Oregon a special Oregon Pacific. In the valley, they have several including the Portland Western Railroad. This short-line network is crucial to making sure that the mainlines and mainline capacity is going to be effective in moving forward.

Ms. Lundberg said the Oregon Governor set up the Connect Oregon Program. She said they are looking at how to get the private sector to the table. She said short-line railroads are not as wealthy as the class one railroads. The Governor's Connect Oregon Program is looking at strategic investment specifically projects along the short-line network. With these types of strategic investments and even discussions about them, what that has triggered is the Union Pacific has come to the table with capital to fix some of their mainline issues. When they saw that the state is making strategic investment for the short-line network that lead to the mainlines, they have dedicated now $30 million over the next two years to fix some of their tunnel problems on their mainlines in Oregon. Making partnerships means making sure that strategic investments are made and that we can leverage dollars public/private sector and bring them to the table as well. That is really also part of the solution.

In discussion of freight overall, Ms. Lundberg said we are part of a regional network and part of a road and rail network as well. Trucking companies are facing the same issues that some of the railroads are. Fuel costs are going up. It is very difficult to hire and retain truck drivers. Now, they have more cargo than they can handle. The trucking companies are saying in order to meet drivers' needs, stay close to home for example, and to mitigate some of the increasing fuel costs, they are saying they need to be able

to partner more with the railroads. It is a part of the solution for them. She said we are going to see pressure from the trucking industry and railroads moving forward. If freight is going to move efficiently and effectively through our region, that partnership is going to be part of the overall solution as well.

Ms. Lundberg referred back to the third party infrastructure. She said when they go to increasing their mainline capacity for the future, one of the ideas for 6 to 12 years down the road, is the idea of directional running along the Columbia River Gorge. Current capacity is about 90 trains a day for both railroads going east and west on that particular route. What is starting to be discussed is if you take all the freight for both railroads and run eastbound on the Union Pacific (south) side and westbound on the Burlington Northern (north) side, you can effectively double the capacity, up to 180 trains a day. There has been some precedent for this. The Canadian Pacific (CP) have what they call a co-production group arrangement where they also run through British Columbia directionally on each other's railroad. Ms. Lundberg said this is just something that they have brought up for discussion. They have talked with the Port of Vancouver and the Washington Public Ports Association, as well as some of the partners in Oregon, and ODOT. She said currently, the feedback has been that they recognize capacity as they move forward is an issue. Anything that they can do to improve that, they need to be talking about it.

The Partnership identified the need for a rail forum. In order to realize directional running along the Columbia River Gorge to happen, a forum would need to be established. Ms. Lundberg displayed a map of the rail lines and sidings along the Columbia River Gorge. The sidings are the areas of double tracking, which adds capacity. When you run a railroad along a piece of track and trains going in both directions, when they meet, one train will have to go off onto a siding to let the other train proceed. Sidings are also used to let a faster train get around a slower train. These are issues that would need to be discussed by a large sort of stakeholder group in order to consider directional running.

Rex Burkholder said the Partnership had recommended a forum be set up for rail. The presentations today and the previous presentation at the April meeting were to set a basis for establishing the forum. Chair Burkholder asked members their opinion on how the rail forum should be formed along with the role of the Bi-State Committee. He said it seems natural to have the Ports to hold that role, and then have them report back to the Bi-State Committee.

Addison Jacobs said the Port of Vancouver has a huge interest. She said their project and issues on the Vancouver side are so significant that they need to be involved in the discussion. She said it is a Port issue, but felt it needed to extend to a broader forum. She said Larry Paulson serves as chair of the Washington Public Ports Association that did the rail study. She said some of the studies and resources on the Oregon side should come together with those on the Washington side perhaps in a more structured fashion. She said there are lots of pieces moving around, but maybe there is a way of helping that and bringing it all together. Ms. Jacobs said that Ed Barnes would be Chair of the Rail Study for the Washington Transportation Commission, which has been given as part of the last legislative session. It is a $1.5 million rail study. She was not sure of the structure, but felt it would need to be a part of this discussion as well.

Bill Wyatt said on the Oregon side there is the rail group ORULE. He said that depending on the legislature, they could be spending $40 million, which is significant for them. He said as they move forward with projects like the I-5 Crossing and others, it would be beneficial to have presentations such as this on a periodic basis to help keep everyone in the region aware of what is taking place rather than try to replicate what already exists. Mr. Wyatt suggested that the two Ports have moved forward with the recommendation of the Partnership Committee.

Chair Burkholder said that it does make sense to have the Ports continue and consider

the Bi-State Committee a Forum of its own and have presentations as they move forward so elected officials on both sides of the river are aware of what is going on.

Don Wagner said that we can't forget passenger rail in this conversation. He said the major conversation is around freight rail and its importance. He said of the $100 million that the State of Washington is investing in the freight /rail system in his region over the next six years, all $100 million is based on passenger rail. He said that is how we can get our money into the system. He also noted the Grain Train pictured in the presentation by Mr. Coleman, which is 1 of WSDOT's 100-car fleet. WSDOT purchased the Yellow Grain Train to make sure the grain cars were available for their Ports. He encouraged folks not to forget passenger rail, because that is how the state can be a partner.

Matt Garrett said that the theme is partnerships. He felt that what we are looking at is attainable if we work together.

Dave Shields asked in regard to the east/west directional trains that would double capacity, why the delay in putting that in place. Ms. Lundberg said several infrastructure pieces need to be in place prior to that. It is not just improvements, but negotiations need to take place. Bill Wyatt said that Union Pacific and Burlington Northern have very different commercial stakes and different needs and wants. It is a delicate conversation. They have to engage in this without threatening their financial situations.

V. Coordination of 2030 Forecasts For Jobs and Housing, Action

Chair Burkholder said coordination of the 2030 forecasts for jobs and housing is a critical issue, especially in light of the analysis that needs to be done for a project the size of the Columbia River Crossing. A memorandum with forecast information was distributed. Andy Cotugno said at last month's meeting, Committee members directed staff to move forward in finding a way to coordinate a single set of 2030 forecasts. Mr. Cotugno referred to page two of the memo listing a table comparison of projections of population, households, and employment for Clark County and Metro. Metro does the forecast for the Oregon side. Clark County for the County GMA responsibilities, and RTC does the forecast on the Washington side for the transportation planning purposes, which they derive from the County's land use forecast. They are all in different methodologies. The Washington requirement by the state is to have the County select from among a range of population forecasts and then determine whether appropriate to include forecast for employment to go with that. The margin is a 20-year target year. The comparison table listed Population, Households, and Employment for Clark County's 2000 US Census, the Adopted 2023 Clark County GMA, the 2024 Proposed Draft Clark County GMA, the 2025 Adopted Metro RTP, 2030 Proposed RTC MTP, and 2030 Proposed Metro RTP. Mr. Cotugno said Metro forecasts were developed by using an economic model of the larger region (a six county area including Clark County) and then allocating the location of growth using Metroscope, an integrated economic and transportation model. The 2030 projections are a moving target for both Metro and Clark County. The draft forecasts clearly produce different results for population, households, and employment.

Mr. Cotugno said they want Board Members' staffs to understand the numbers that are being brought back to them. We need to agree on which number to use for a coordinated forecast number. He also suggested that he did not think the Columbia River Crossing EIS could be based upon a single forecast. He said along the way, because of changes, forecasts would change.

Rex Burkholder asked if there were any other multi-state areas similar to our region. Don Wagner said there are bridges being built now between other states, and WSDOT has visited some of them, primarily on the east coast. He said they were hoping to learn of a good way of doing this planning, but they found that we are ahead of the curve. He

context of how commuter rail could operate if some of the bottlenecks that freight rail now has were taken care of since the commuter rail operates on the freight rail lines. He said a commuter rail line from Washougal to downtown Portland would have an impact on reducing traffic on SR-14 and the bridges. He said he felt potential commuter rail needs to be looked at not as an alternative of light rail, but in addition to light rail.

The next Bi-State Coordination Committee meeting will be held on September 29, 2005, at Metro.

The meeting was adjourned at 9:25 a.m.

More Information

Dean Lookingbill
Transportation Director, RTC
360-397-6067

Andy Cotugno
Transportation Director, Metro
503-797-1763

for this area would provide for additional off-main line staging and storage capacity.

- Construct Pt. Defiance Bypass Route for passenger operations. The study indicates that the Nelson-Bennett Tunnel will not be able to accommodate the full volume of freight and passenger service projected over the Tacoma to Vancouver corridor. The Pt. Defiance Bypass will remove intercity passenger trains from the main line between Tacoma and Nisqually, allowing considerable freight growth to be handled through Nelson-Bennett well into the future.

Chapter 7: Capital investment focus and strategies of BNSF and UP

This chapter briefly discusses the capital investment focus and strategies of BNSF and UP since their respective mergers in the mid-1990's and how their respective capital investment programs are expected to continue into the future, particularly capacity expansion capital.

Chapter 8: Statewide Conceptual Infrastructure Improvements to Support Growth and Rail Service

This chapter is divided into two sections. The first identifies and discusses operating and capacity improvements that are relatively less capital intensive and could be initiated in a relatively short period of time. The second section identifies and discusses operating and capacity improvements that are longer-term in nature and will likely require significant levels of capital investment. For purposes of this study $25 million was utilized as the "cut-off" point for inexpensive versus expensive capital investment. Inexpensive operating and capital projects identified and briefly discussed are:

- Construct the Duwamish Corridor in Seattle to facilitate access/egress between the main lines and Port of Seattle on-dock intermodal facilities (estimated at $9 to $12 million).
- Implement BNSF/UP co-production access/egress between the main lines and the Tidalflats at Tacoma (estimated at $1 to $6 million).
- "D" Street grade separation, Tacoma. Included in this section because of its positive impact on implementing co-production to and from the Tidelflats (estimated at $28 million and funded).
- Construct Bayside Bypass Route in Everett, mitigating conflicts between passenger and freight operations through the single-track Everett Tunnel (unknown cost but estimated at $15 to $25 million).
- Construct improvements between PA Jct. and Delta Jct. at Everett. Curve realignment will increase passenger and freight train speeds passing Delta Yard and provide additional car staging/storage for BNSF to serve local customers (estimated at $9 million).

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- Lengthen Stanwood Siding, Everett to Blaine main line segment. Provides an additional meet/pass location for freight trains operating in conjunction with intercity passenger trains (estimated at $3 million).
- Main line track upgrades past the Georgia-Pacific plant at Bellingham. Would increase passenger and freight train speeds through the area and improve safety between main line operations and local switching operations (estimated at $200,000).
- Upgrade to siding at Mt. Vernon, Everett to Blaine main line segment. Provides as additional meet/pass location for freight trains operating in conjunction with intercity passenger trains. Also provides for constructing additional car staging/storage capacity on the branch line to Anacortes (estimated at $3.8 million).
- BNSF/UP directional running between Pasco/Wallula and Spokane. This scenario would utilize BNSF's main line in one direction for joint traffic and UP's main line for joint operations in the other. A long-term track upgrade program would likely be necessary on the UP track, particularly between Pasco/Kennewick and Wallula (unknown but estimated initially at $25 million)

The second section of this chapter identifies and discusses operating and capacity options that would likely require longer-term implementation and significant levels of capital investment.

- Clear the Stampede Pass Tunnel for Doublestack. Virtually any operating scenario for east/west traffic under the growth projections will require the Stampede Pass Tunnel be able to accommodate doublestack cars (estimated at $25 million).
- Vancouver, WA Bypass Route. Construction of a bypass route of Vancouver Yard and the main lines will greatly improve BNSF's throughput between Pasco and Seattle/Tacoma and reduce main line and local operating conflicts (estimated at $57 million).
- Pt. Defiance Bypass. Projected growth through the Nelson-Bennett Tunnel of freight and passenger train volumes will result in train volumes greatly exceeding the estimated sustainable capacity of this single-track section. The Pt. Defiance Bypass would remove intercity passenger trains from the tunnel (unknown but estimated at minimum of $80 million).
- Sumner connection and full co-production Black River to Reservation. The connection would allow BNSF trains to and from Tacoma to directly access Stevens Pass from the UP main line. The scenario would also allow UP through trains that do not need to stop at Fife Yard to operate over BNSF main lines between Reservation and Black River. Significant capacity expansion capital would be required on BNSF main lines between Sumner and Black River in addition to the cost of constructing the connection (unknown but estimated at minimum $75 million).
- Martin's Bluff to Kelso main line and off-main line infrastructure improvements. A 3rd main line between these two points will be necessary to minimize conflicts

Freight Rail Capacity Study

Executive Summary

Chapter 1: Introduction

The Washington Public Ports Association (WPPA) Freight Rail Capacity Study is an unconstrained, though relatively high-level, analysis of the freight rail system in the State of Washington from the perspective of the state's marine terminal ports. The study was commissioned in response to the 2004 Marine Cargo Forecast which predicts robust growth of cargoes moving through Washington ports, particularly for containers and bulk commodities that are very dependent on rail service. Port officials are concerned that inland rail system congestion may constrain their capacity to handle future cargo growth.

The primary focus of this analysis have been to consider the impact of future cargo growth on the freight rail system, and to identify the cooperative operational and infrastructure improvements needed to increase rail capacity to accommodate that growth.

Chapter 2: Current Main Line Rail Routes in Washington

Burlington Northern and Santa Fe Railway operates the majority of the main line rail network in Washington state through the Stevens Pass, Stampede Pass and long the Washington side of the Columbia River. BNSF also operates north-south routes along the I-5 corridor between Vancouver, WA and Spokane.

Union Pacific operates a main line between Hinkle, OR and Eastport, ID through Spokane and a short stretch of main line between Tacoma and Tukwila that parallels I-5.

Chapter 3: Current Chokepoints at WPPA Deep Water Ports and Within the Regional Rail Network

This chapter analyzes rail capacity chokepoints near or within port and rail terminal areas and also on the regional rail network, or main line. Terminal area chokepoints include access/egress, rail car staging and storage capacity at or near port facilities. Rail industry methods for calculating growth estimates for different types of traffic are also presented.

The second section identifies and discusses the critical chokepoints for various main line segments, such as BNSF's Stevens Pass Route between Everett and Spokane, and the implication that growth has for throughput capability on each segment.

Chapter 4: Impacts of Forecasted Growth on Port/Rail Chokepoints and Potential Solutions

The 2004 WPPA Cargo Forecast Forecast was used as a basis for estimating the train impact of future growth in freight train volume on the capacity of the freight rail system in the state of Washington. Non-port freight train operations, including locals and switchers, was also factored into the analysis, as were increases in passenger rail traffic according to long-term growth plans.

3.4.b.4. Tacoma (Reservation Interlocking) to Kalama/Longview

The main line segment between Reservation Interlocking in Tacoma and Kalama/Longview is predominantly doubletrack with train movements governed by Centralized Traffic Control. The primary capacity constraint is the one single track segment through the Nelson-Bennett Tunnel. The single track extends for 1 ½ miles from McCarver Street in Tacoma southward to Titlow. While maximum train speed across the segment is 50 MPH for freight and 70 MPH for passenger, a short stretch of a maximum 40 MPH for both freight and passenger between mile post 5.3 and 5.4 effectively sets train speed limits over the section, particularly for freight. In addition, the speed restriction at "D" Street greatly affects overall capacity for both freight and passenger operations. The improvements at "D" Street, anticipated to be completed in 2007, will triple capacity through the curve, allowing both freight and passenger trains to move more efficiently.

From Titlow to Kalama the main line is Two Main Track CTC. Maximum track speed is 79 MPH for passenger, 50 MPH for freight to Longview Jct., and 60 MPH for freight Longview Jct. to Kalama. The segment also has numerous powered crossovers between the main tracks, particularly in areas where local switching is performed such as Centralia, Kelso, Longview and Kalama.

Other capacity constraints besides the Nelson-Bennett Tunnel include the previously discussed use of the main lines for local switching and through train setouts and pickups along the route. Further, entering or departing the main lines at Kalama and Longview, particularly northbound trains, consumes considerable capacity as they do so at greatly reduced speeds and normally have to crossover to the southbound main to access the entry switch.

In addition, the route features a broad mix of trains with differing maximum speeds, from 45 MPH loaded grain trains to 79 MPH passenger trains. One of the most significant factors of capacity consumption on any main line configuration is the disparity in maximum speeds between train types, as large speed differentials create the need for frequent overtakes. Overtakes cause both main tracks to be utilized by the trains moving in the same direction, restricting capacity in the opposite direction. With remotely controlled crossovers normally positioned 5 to 10 miles apart, a train that has to occupy the opposing main line to allow a faster train to pass can consume up to 42 miles of signal protected track if opposing trains are not to be delayed.

Napavine Hill is the dominant grade on the route and ascends in both directions at a 1.5% grade. While that gradient is not normally significant, tonnage trains such as grain that do not have sufficient power can experience greatly reduced speeds while traversing the hill, again consuming capacity and creating additional overtake possibilities.

Over the time line of this study, however, the primary issue of concern in the segment accommodating projected growth is the planned expansion of intercity passenger service. WSDOT and BNSF have identified a number of initiatives to accommodate increased passenger train volumes and protect freight operations. Between Kalama and Nisqually Jct. BNSF projects the need for a third main track by the time full implementation of the intercity passenger plan occurs (26 trains per day between Portland and Seattle). The previously mentioned plan to construct a third main track between Martin's Bluff and Kelso is the first portion of the third

main track that would be constructed and would provide additional main line capacity in the Kalama/Longview area.

Short of boring a second track clearance through Nelson-Bennett Tunnel, however, it will remain the defining capacity constraint on this segment. In recognition of that fact, WSDOT, as part of its long-term intercity passenger plan, has expressed interest in developing a bypass route for the tunnel. This route, known as the Pt. Defiance Bypass, would utilize 2 existing BNSF branch lines extending between Nisqually Jct. (just north of Olympia) and Reservation Interlocking in Tacoma. The route extends through Dupont, Ft. Lewis, Lakewood and Tacoma. WSDOT's plan would upgrade the route as a high-speed passenger corridor, removing passenger operations through Nelson-Bennett Tunnel. Sound Transit is currently operating over a small portion of the route to access Freight House Square but is planning on expanding its service southward to access Lakewood and potentially Dupont. As is demonstrated in more detail later in this study, construction of the Pt. Defiance Bypass route for passenger operations will be necessary if the passenger plan is fully implemented and freight operations grow as projected. The following simulation schematic identifies the profile of this line segment.

I-5 Corridor, Reservation to Vancouver
WA

Exhibit 3.4.b.4.1

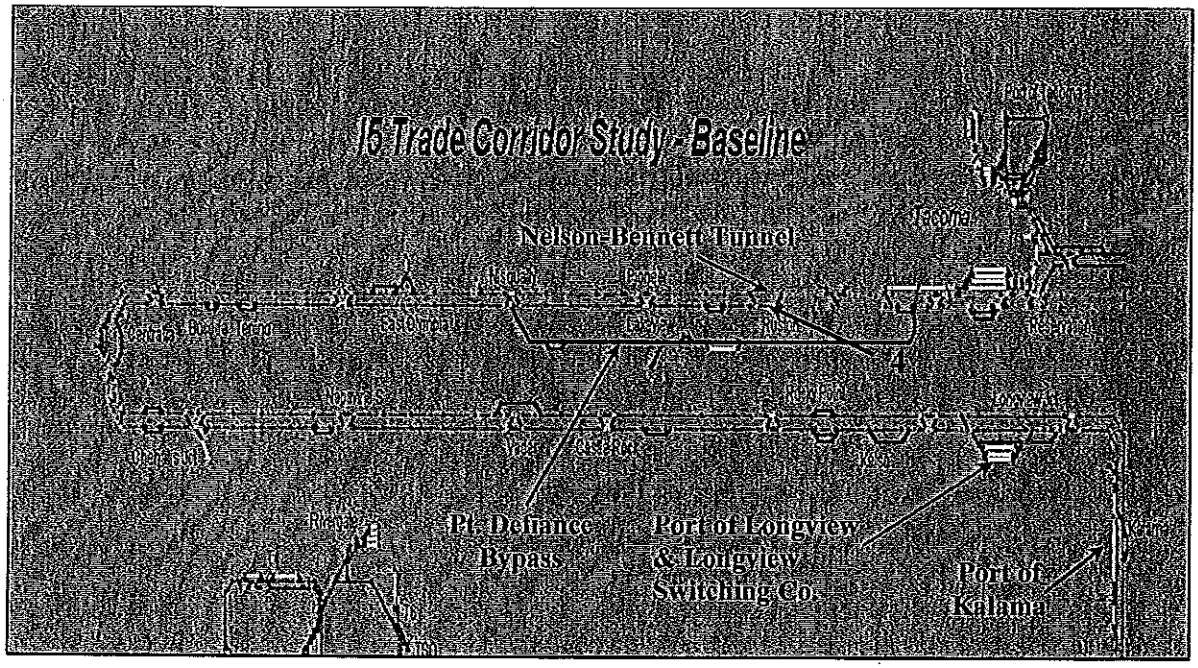

Table 3.4.b.4

Current Operations
Estimated Sustainable Capacity: 60 Trains/Day **Average Trains/Day: 45/Day** **Peak Trains/Day: 50/Day**
Projected 2025 Operations
Estimated Sustainable Capacity: 120 Trains/Day **(with Pt. Defiance Bypass)** **Average Trains/Day: 80/Day** **Peak Trains/Day: 88/Day**
Primary Capacity Constraints
Nelson-Bennett Tunnel - Difficulty to Mitigate : 4

3.4.b.5. Kalama/Longview to Vancouver

This segment is similar to the Reservation to Kalama segment, except that it is all Two Main Track CTC with no single track sections. As mentioned in the above discussion of Reservation to Kalama, this arrangement of rail infrastructure offers considerable throughput capability. As with the previous segment, however, such factors as the mix of maximum speed trains and trains entering or departing the main tracks at Kalama and Vancouver can greatly affect sustainable maximum capacity.

Also as mentioned above, BNSF anticipates that a third main track will need to be constructed between Vancouver and Kalama (Martin's Bluff) to accommodate the full implementation of high-speed intercity passenger plan to protect freight operations. In addition, it is MLM's and HDR's opinion that the previously identified Vancouver Bypass will need to be constructed to ensure that freight operations at Vancouver can continue with an acceptable level of performance with the planned increased passenger train volumes.

The following simulation screenprint identifies the key locations on this segment.

6.5 Construct Martin's Bluff to Kelso Capacity Improvements

This project, discussed earlier in this report, will be essential to protect through freight operations between Vancouver WA and Tacoma if the Intercity Passenger Plan between Portland and Seattle is realized in its totality. From a rail perspective, there are two primary capacity improvements that are the foundation of the overall plan. The first is the eventual construction of approximately 18.7 miles of 3rd main track between Martin's Bluff (3 miles north of Woodland at BNSF Mile Post 113.9) and the double track Ostrander Tunnel (north of Kelso at BNSF Mile Post 95.2). The 3rd main track will allow passenger trains to through the area while minimizing impacts of freight operations, particularly local freight operations in at Kalama and Longview.

The second capacity improvement would involve construction of expanded off-main line surge capacity for Kalama and Longview at two locations. The first would be construction of a new Interstate Rail Yard just north of Martin's Bluff between mile post 113.7 and mile post 111.02. This yard, over 2 ½ miles in length, would be composed of 5 yard tracks on which loaded and empty unit trains could be staged for movement into the ports or for furtherance east.

The second off-main line capacity improvement would be construction of a new South Yard at Kalama. The yard would be composed of a siding track, a running track and 10 new yard tracks. As with the Interstate Rail Yard, this yard would provide for significant surge capacity near Kalama and Longview. In addition, the proposed new running track would allow unit trains to enter or leave the main line(s) at higher speeds, reducing the negative impact that such moves at slower speeds has on other through train operations.

In addition to the track improvement described above, the overall proposed capacity improvements would involve improving and/or relocating various crossings at grade and grade separations, vehicular and pedestrian. Total cost of the completed project is estimated at **$320 million** with construction scheduled to begin in 2009. Construction could begin in as early as 2006 should funding become available sooner.

6.6 Construct Pt. Defiance Bypass

In conjunction with the capacity improvements between Vancouver WA and Tacoma described in the preceding section, freight and passenger growth volumes, if realized, will ultimately require construction of the Pt. Defiance Bypass Route between Nisqually Jct. and Reservation Interlocking. As indicated earlier in this report, MLM and HDR do not believe that the single track Nelson-Bennett Tunnel will be able accommodate growing volumes of freight and passenger traffic throughout the projection period.

The Pt. Defiance Bypass would utilize an existing BNSF industrial track and branchline route between Nisqually Jct. and Reservation. Total length of the route would be approximately 20.5 miles. Between Reservation and Lakeview Jct., a distance of approximately 9 miles, the route is BNSF's Lakeview Subdivision branch line. Sounder Commuter Rail is operating over the northernmost portion of the line between Reservation and Freight House Square Commuter Station. Sounder has plans to expand its operations southward to Lakeview and potentially as far south as Dupont, which is just north of Nisqually Jct.

The segment between Lakeview Jct. and Nisqually Jct., 11.5 miles in length, is essentially "other line segment" industrial track that serves Ft. Lewis. The Pt. Defiance Bypass Plan would upgrade the entire route between Nisqually and Reservation for high-speed passenger operations, removing intercity passenger trains from the freight main lines between Titlow (just south of the Nelson-Bennett Tunnel) and Reservation. While MLM and HDR are not aware of an estimated cost to upgrading the Bypass Route for passenger train speeds of up to 110-MPH, we believe the overall cost of the project would likely exceed **$80 million**, particularly as an aggressive grade separation/crossing closure program would likely be required.

8.2.b. Vancouver WA Bypass (**$57 million**)

This project would go a long way to relieving conflict and congestion problems within the Vancouver Terminal and provide an operational benefit to both BNSF and UP. The ability to route and/or stage BNSF trains to and from the route to Pasco off the current main lines would free up considerable capacity for UP through trains and movements between BNSF and the Port of Vancouver.

8.2.c. Point Defiance Bypass for Passenger Trains (cost unknown but likely in excess of **$80 million**)

If the WSDOT/Amtrak high speed passenger program is implemented to its full plan, the single track Nelson-Bennett Tunnel on BNSF's main line between Tacoma and Titlow will become a point of significant capacity constraint for freight train operations. The Pt. Defiance bypass would remove all passenger movements between Portland and Seattle from the Nelson-Bennett Tunnel.

8.2.d. Sumner Connection between UP and BNSF to Support Tacoma to Seattle Co-Production (no preliminary engineering but estimated at a minimum of **$75 million** and would likely be well over **$100 million**, including BNSF triple track main lines Sumner to Orillia, improvements to UP Fife Yard to Sumner, a new rail bridge at Sumner and a grade separation at Sumner)

Co-production in Puget Sound between the two Class 1 railroads cannot be fully realized unless BNSF can access Stampede Pass directly to and from the Port of Tacoma. This project would provide that access. BNSF, however, would expect at least 3 main tracks be constructed between Black River and Sumner, not including any additional trackage required to support Amtrak High Speed Passenger Operations between Portland and Seattle.

8.2.e. Construct 3rd main track between Martin's Bluff (Woodland) and Kelso (Ostrander Tunnel) (high-speed passenger requirement), use Kalama grain staging/storage tracks adjacent to main lines as additional through routes. Construct off- main line surge yards between Woodland and Kalama. 3rd main lines essential early on between Woodland and Kelso and at Chehalis/Centralia (total overall cost of the project, including grade separation improvements, estimated at **$320 million**).

In addition, if the planned High Speed Passenger operations are realized, we believe it will be necessary for a third main track to be constructed the entire distance between Rye Jct. (Vancouver) and Nisqually. With the volumes of high speed passenger trains, we would not be surprised if construction of sections of 4th main track may be necessary in certain areas, driven by scheduled passenger meets and freight operations. At the minimum, however, three main tracks between Vancouver and Nisqually (Pt. Defiance Bypass) will be necessary to ensure that freight operations can continue relatively unfettered by passenger operations, and vice versa.

WPPA Rail Capacity Study

Table 8.2.1

Project	Location/Segment	Benefit	Est. Cost	Key Issue/Status
Stampede Pass Tunnel Clearance	Auburn - Pasco Line Segment	Clears route for doublestack cars	$25 mm	Funding
Vancouver WA Bypass Route	Vancouver WA	Reduces congestion at Vancouver Yard & Vancouver Jct	$57 mm	Funding
Pt. Defiance Bypass Route	Tacoma to Kalama Line Segment	Removes passenger operations from Nelson-Bennett Tunnel	Unknown, but est. at minimum $80 mm	Funding
Co-Production Reservation to Black River via Sumner	Seattle – Tacoma Line Segment	Maximizes main line capacity through joint operations	Unknown but est. at least $75 mm to $125 mm	Funding, RR participation
Additional Main Track, Martin's Bluff – Kelso	Tacoma – Vancouver Line Segment	Reduces conflicts between passenger and freight – through and local	$320 mm for full build-out	Funding
Lind to Ellensburg Cutoff	Puget Sound – Spokane Corridor	Facilitates use of Stampede Pass and directional running	Unknown, but likely in excess of $125 mm	Funding, BNSF Cooperation
Phase 3 Improvements, Argo – Black River	Seattle – Tacoma Line Segment	Increases main line throughput, reduces conflicts with local rail operations	Unknown, but estimated at a minimum of $25 mm	Funding and RR Cooperation
FAST Program	Various	Reduces conflicts between public and rail, increases overall rail capacity	Long-term cost unknown	Funding
Intermodal Facility South Kent Valley	Seattle-Tacoma Line Segment	Enhances IM lift capacity and car staging/storage capacity	Unknown, est. at $60 mm to $120 mm	Funding and RR Cooperation