

Appendix A

Map of Rail Lines in Thurston County and Surrounding Areas

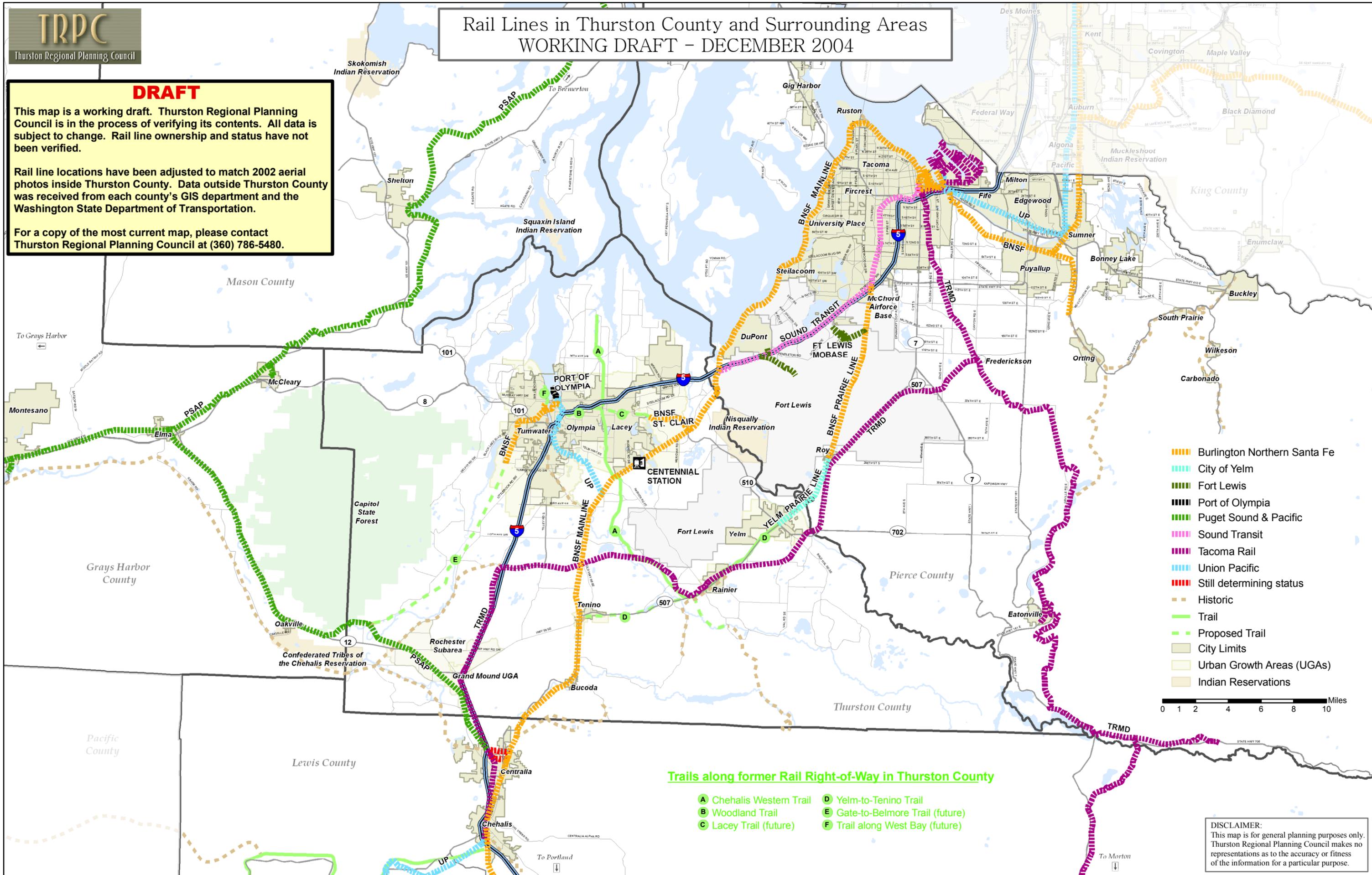
Rail Lines in Thurston County and Surrounding Areas WORKING DRAFT - DECEMBER 2004

DRAFT

This map is a working draft. Thurston Regional Planning Council is in the process of verifying its contents. All data is subject to change. Rail line ownership and status have not been verified.

Rail line locations have been adjusted to match 2002 aerial photos inside Thurston County. Data outside Thurston County was received from each county's GIS department and the Washington State Department of Transportation.

For a copy of the most current map, please contact Thurston Regional Planning Council at (360) 786-5480.



- Burlington Northern Santa Fe
- City of Yelm
- Fort Lewis
- Port of Olympia
- Puget Sound & Pacific
- Sound Transit
- Tacoma Rail
- Union Pacific
- Still determining status
- Historic
- Trail
- Proposed Trail
- City Limits
- Urban Growth Areas (UGAs)
- Indian Reservations



Trails along former Rail Right-of-Way in Thurston County

- Chehalis Western Trail
- Woodland Trail
- Lacey Trail (future)
- Yelm-to-Tenino Trail
- Gate-to-Belmore Trail (future)
- Trail along West Bay (future)

DISCLAIMER:
This map is for general planning purposes only. Thurston Regional Planning Council makes no representations as to the accuracy or fitness of the information for a particular purpose.

Appendix B

Glossary

Glossary

Active Warning Device

A flashing light and/or gate used at grade crossings.

Advance Warning Signals

Signs used along a roadway to warn that a roadway-rail grade crossing is ahead.

At-grade Crossing

The surface where the rail and roadway (or pathway) cross at the same level.

Ballast

Material selected for placement on the roadbed for the purpose of holding the track in place.

Burlington Northern Santa Fe Railway Company, BNSF

Burlington Northern Santa Fe Railway Company is a United States Class I freight railroad that owns the primary north/south railway corridor between Portland and Tacoma. BNSF is one of two Class I carriers that provides transcontinental rail service to Washington State. In addition to the main line, BNSF also owns the St. Clair and Mottman branches in Thurston County as well as a portion of the Prairie Line and the freight rights on the Pt. Defiance Bypass in Pierce County.

Bus

A large motor vehicle designed to carry passengers, powered by diesel, gasoline, battery or alternative fuel engines contained within the vehicle. A bus may be configured quite differently based on its trip purpose – such as local, high volume, intercity, or suburban service.

Bus Rapid Transit (BRT)

A type of frequent but limited stop service, BRT can operate on exclusive bus/transitways, high-occupancy-vehicle lanes, expressways, or ordinary streets. BRT combines intelligent transportation systems technology, priority for transit, vehicle amenities and rapid and convenient fare collection to substantially upgrade performance. Example: King County Metro bus service along the busway and in the bus tunnel.

Busway (or Transitway)

A roadway reserved for exclusive use by public transit (buses and rail may share the right-of-way). It may be grade separated or a controlled access roadway.

Bypass

A track that goes around other rail facilities (bypasses them) or provides a more direct route between two points. A bypass may be as simple as a track that goes around a small yard, or may be as significant as a complete route revision.

Capacity

The number of people, vehicles or amount of goods that can be served by a transportation facility or program.

Centralized Traffic Control

An electronic system that uses remote controls to change signals and switches along a designated portion of railroad track.

Chokepoint

An area along the railroad track that has less capacity than the adjoining tracks, resulting in congestion. This makes it difficult for trains to pass uninterrupted.

Commuter

A person who travels regularly between home and work or school.

Commuter Rail

Service between a central city and its suburbs, running on a railroad right-of-way. Also known as **metropolitan rail**, **regional rail** or **suburban rail**, this type of service uses either locomotive hauled or self propelled diesel or electric service primarily used by commuters. Example: Sounder Commuter Rail Service.

Consist

The number of vehicles forming a train.

Continuous Welded Rail

Rails welded together in lengths of 400 feet or more.

Corridor Train

Intercity passenger rail service that links major transportation centers within a limited geographic region. Example: Amtrak Cascades.

Crossover (Power Crossover)

A set of turnouts connecting multiple tracks. A crossover allows a train to move from one track to another. A power crossover may be controlled by Centralized Traffic Control.

Derail (Power Derail)

A safety device on the track strategically located that when positioned, intentionally guides runaway rolling stock off the track to protect against collisions. A power derail may be operated by Centralized Traffic Control.

Dispatcher

The individual who plans and controls the movement of trains, buses, paratransit vehicles or other transit services.

Double Track

Two sets of main line track located side by side, most often used for travel in opposite directions.

Exclusive Right-of-Way

A right-of-way that is to be used only for a single mode of transportation. It is usually completely grade separated from other types of vehicles.

Express Service

Fixed route transit service with a limited number of stops, speeding up longer trips during peak commuting hours.

Federal Highway Administration (FHWA)

An agency within the U.S. Department of Transportation with jurisdiction over highways.

Federal Railroad Administration (FRA)

An agency within the U.S. Department of Transportation which regulates rail safety and administers the railroad assistance program.

Federal Transit Administration (FTA)

An agency within the U.S. Department of Transportation that funds and regulates transit planning and programs.

Fixed Guideway

A facility using a separate right-of-way (roadway or railway at, below or above grade) or a fixed catenary trolley system for exclusive use by mass transit.

Fixed Route

Transit service that is regularly scheduled and repeatedly operates over a set route.

Flashing Light Signals

Used with the crossbuck signs at railroad crossings. When the lights are flashing, the motorist or pedestrian must stop.

Gates

A structure that may be swung, drawn or lowered to block an entrance or passageway. Gates may be used with flashing signals at certain crossings to warn that a train is approaching.

Geometrics

An engineering term that refers to the design of the tracks.

Grade Crossing

The area along the track where a roadway or pathway crosses.

Grade Separated

Crossing lines of traffic that are vertically separated from each other (e.g., a roadway that goes over a railroad track). Separation eliminates delays from cross traffic and improves safety for all modes.

Growth Management Act (GMA)

Washington state legislation passed in 1990 that requires urban counties and their associated jurisdictions to cooperatively develop and periodically update plans related to issues such as land use, infrastructure, services, and housing. Under GMA, the Regional Planning Council is responsible for creating and maintaining a Regional Transportation Plan and for certifying that the transportation elements of each jurisdiction meet GMA requirements.

Heavy Rail (Rapid Rail)

An electric railway, typically a **metro** or **subway**, carrying a large (or “heavy”) volume of people on exclusive right-of-way at high operating speeds. Example: New York City Subway.

High Capacity Transit (HCT)

Transit systems operating on a fixed guideway, dedicated right-of-way, or freeway/express facility, designed to carry a large number of riders at faster speeds than conventional transit. Frequent and express bus service, passenger ferries and rail are examples of HCT.

High Speed Rail

Trains traveling at high speeds (perhaps greater than 125 miles per hour) on exclusive right-of-way, in densely traveled corridors, and with limited stops. Example: Japan’s Bullet Train.

Intercity Passenger Rail

Service provided for occasional business and leisure travel between cities, typically with a single stop in each city served. This system usually shares or leases track from freight railroads. Examples: Amtrak Cascades, Coast Starlight and Empire Builder.

Intercity Transit (I.T.)

Thurston County’s public transportation provider.

Intermodal

Multiple types or “modes” of transportation working together in an interconnected, efficient, integrated system. The ability to connect and make connections among various modes of transportation such as automobile, motorcycle, truck, bus, train, plane, bicycle, pedestrian, boat and ship.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)

This federal act revolutionized the way transportation decisions were made and revenues spent at the federal, state and local levels. The Act placed a strong emphasis on

coordination among local, regional and state agencies with a mandate to better integrate transportation and land use decision making processes. System preservation and management became at least as important as system expansion. ISTEA required a coordinated, comprehensive and financially-constrained long range transportation strategy. The original act expired in 1997, was reauthorized as **TEA21** in 1998, and as **SAFETEA-LU** in 2005.

Junction

An intersection of railroads where trains may move from one branch to another.

Jurisdiction

The authority of government to conduct activities, generally referring to tribes, states and federal agencies, counties, cities, and port and transit districts.

Land Use

Patterns of use, such as commercial, residential, retail, industrial and mixed use. A land use plan establishes strategies for the use of land to meet identified community needs, such as mobility. Transportation and land use are closely related.

Latent Travel Demand

Demand for travel that does not currently exist, but which would be encouraged by the expansion of transportation capacity.

Light Rail Transit (LRT)

Also known as **street cars**, **trams** or **trolleys**, this electric powered rail system may share right-of-way on a roadway or operate on exclusive right-of-way. It can have multi-car or single car trains with stops typically set every one-half to one mile. This system carries a light volume of traffic compared to heavy rail.

Limited Stop Service

A hybrid between local and express transit service, where stops may be several blocks to a mile or more apart to speed up the trip, and the conveyance may not serve every stop or station along a route.

Local Service

Bus or streetcar/light rail routes with stops every block or two along a route several miles long. When limited to a small geographic area, local service is often called **circulator**, **feeder**, **neighborhood** or **shuttle service**. Such service may operate in a loop and connect to more major bus or rail routes.

Lock Switch (Electric Lock Switch)

Operated by Centralized Traffic Control to regulate when trains can enter or leave the tracks. An electro-mechanical device prevents movement of a hand throw switch when a train is approaching.

Locomotive

A rail power unit vehicle used to pull or push rail cars that does not carry passengers.

Long Distance (Long Haul) Train

A passenger train that serves major transportation centers within and beyond those of a corridor train. Example: Amtrak Empire Builder.

Mainline

A railroad's primary track that typically extends great distances, usually carrying both freight and passenger trains.

Meet

The location where two trains traveling in opposite directions pass one another. Additional tracks and/or crossovers may be needed near these locations so that trains can maintain speeds and schedule reliability.

Metropolitan Planning Organization (MPO)

An agency designated by the governor to administer the federally required transportation planning in a metropolitan area. Every urbanized area with a population over 50,000 must be served by an MPO. MPOs provide continuing, coordinated, comprehensive transportation planning in urbanized areas and serve as a forum for cooperative decision making. Thurston Regional Planning Council serves as the designated MPO for the urbanized areas of Thurston County.

Mobility

The ability of people or goods to move or be moved from place to place. Mobility also refers to the ease and safety with which desired destinations can be served.

Mode

A particular form or means of transport – such as walking, traveling by automobile, bus, rail, boat or ship, or riding a bicycle.

Mode Split

The proportion of total trips using various specific modes of transportation, such as the percentage of people carpooling, driving alone or riding transit.

Multimodal

The availability of multiple transportation options, especially within a system or corridor. A concept embraced by recent federal legislation (ISTE, TEA21, SAFETEA-LU), a multimodal approach focuses on the most efficient way of transporting people and goods from place to place – including truck, train, airplane, boat, bicycle, automobile, bus, or foot.

Olympic Region

One of six Washington State Department of Transportation (WSDOT) geographic regions that deals with state transportation issues. The Olympic region includes Thurston County and is headquartered in Tumwater.

Operating Costs

Recurring costs of operating transit service, such as wages, facility and equipment maintenance, fuel, supplies, employee benefits, insurance, taxes, marketing and other administrative costs.

Park-and-Ride Lot

A parking facility for individuals to transfer from one mode to another – usually from a private vehicle to a carpool, vanpool or public transportation.

Passenger Rail

Any of a range of rail transit options that serve various public transportation needs, such as tourism, local mobility, commuting and intercity travel.

Passive Warning Device

Signs or markers used at all grade crossings.

Pavement Markings

Lines and symbols painted on the pavement in advance of a railroad highway crossing to warn the motorist, cyclists or pedestrian of the rail crossing.

Peak Period

The time of the day when the maximum amount of travel occurs, generally a morning peak period (a.m. peak) and an afternoon peak period (p.m. peak).

Performance Measure

A measure of how well a program, project, activity or system is functioning.

Positive Train Separation

A new railroad safety system using high tech equipment to prevent train collisions.

Public Transportation

Transportation by bus, rail, vanpool or other conveyance, either publicly or privately owned, serving the general public or special service on a regular and continuing basis (but not including school buses, charter, or sightseeing service).

Public Transportation Benefit Area (PTBA)

In legal terms, a municipal corporation created under state law to provide public transportation services within a specific geographical area. In common use, the area in which a transit agency provides service.

Puget Sound & Pacific Railroad, PS&P, PSAP

Puget Sound & Pacific Railroad is a shortline railroad owned by Rail America, Inc. PS&P owns a rail network and provides freight rail service on Washington's Olympic Peninsula, including service to the Port of Grays Harbor. PS&P's track runs through the southwest portion of Thurston County in the Rochester and Grand Mound communities.

Rail America

Rail America, Inc. is a shortline and regional rail provider based in Boca Raton, Florida. Included in Rail America's 47 holdings in the U.S. and Canada are two in Washington State – Puget Sound & Pacific Railroad (serving the Olympic Peninsula) and Cascade & Columbia River Railroad (serving communities north of Wenatchee).

Rail Yard

A system of tracks within defined limits designed for storing, cleaning and assembling consists of rail cars.

Railroad Classification

Federal law establishes three classifications of railroad companies operating in the United States, based on annual revenues. **Class I** railroads earned \$250 million or more in adjusted annual operating revenues over the past three years. In 2004, seven railroad companies operating nationally were designated Class I railroads, including BNSF and UP that operate in Washington State. **Class II** railroads (often referred to as **regional railroads**) earned \$20-\$250 million in adjusted annual operating revenues, and **Class III** railroads (usually called **shortlines**) earned less than \$20 million in adjusted annual operating revenues. Washington State has no Class II railroads, but an array of Class III railroads operate here. In the Thurston region these shortline operators include Puget Sound & Pacific Railroad, Tri-City & Olympia Railroad Company, and Tacoma Rail.

Railroad Crossbuck

A type of sign found at all public railroad crossings. The sign should be treated as a yield sign.

Railroad Tie

The part of the track, often wood or concrete, where the rails are spiked or otherwise fastened.

Rapid Rail (Heavy Rail)

An electric railway that carries a large volume of people on exclusive right-of-way. Example: San Francisco's Bay Area Rapid Transit (BART).

Regional Transportation Plan (RTP)

The long range transportation strategy for the Thurston region.

Regional Transportation Planning Organization (RTPO)

State designated agency created to ensure that regional transportation planning is consistent with county-wide planning policies and growth strategies for the region.

Thurston Regional Planning Council is the RTPO for Thurston County, a single county RTPO.

Reliability

A service measure in transit planning. If a train or bus arrives within five to ten minutes of its scheduled time, it is considered reliable. Train reliability can be impacted by congestion on the tracks, delays at stations, and equipment malfunction.

Ridership

The number of people carried by a passenger train during a specified period.

Right-of-Way

The horizontal and vertical space occupied by the rail service.

Rolling Stock

Train, bus or other transit vehicles.

Shortline

Shortline is a term commonly used to refer to railroad operators providing local, often customized freight rail service where larger railroads can no longer serve economically. Under federal law, a shortline is a Class III railroad with adjusted annual operating revenues less than \$20 million. In the Thurston region, three shortlines service industrial and commercial customers – Puget Sound & Pacific provides rail service on the Olympic Peninsula, Tri-City & Olympia is the Port of Olympia’s contracted rail operator, and Tacoma Rail serves Thurston customers on its Capital Division to Quadlok (St. Clair) and Mottman/East Olympia, as well its Mountain Division in south Thurston County.

Siding

An auxiliary track located next to a main line that allows a train to move out of the way of an oncoming train. Sidings are also used to store trains or to add/subtract rail cars.

Sound Transit, ST

Established in 1993, Sound Transit is the central Puget Sound regional transit authority established to plan, build and operate a high capacity transit system within the region’s most heavily traveled corridors in Snohomish, King and Pierce Counties. It’s first plan, **Sound Moves** (approved by voters in 1996), included a mix of nearly 100 capital and service projects – high occupancy vehicle (HOV) lane access improvements, ST Express bus routes, Sounder commuter rail, and Link light rail. The mass transit system implemented under Sound Moves transports 10 million people a year. **Sound Transit 2**, the second plan, is under development and includes 80 potential projects that extend the system, provide more frequent service, and increase intermodal capacity at transit stations.

Special Needs Transportation

Refers to the needs of people, including their personal attendants, who because of physical or mental disability, income status or age are unable to transport themselves or purchase transportation.

Streetcar

A vehicle on rails used to transport passengers, typically operating on city streets.

Surface Transportation Board (STB)

As the successor to the Interstate Commerce Commission, this federal regulatory agency resolves railroad rate and service disputes, and reviews proposed railroad mergers.

Switch

The component of a turnout consisting of switch rails and connecting parts providing the means for making a path to transfer rolling stock from one track to another. The switch may be thrown manually or electronically.

Tacoma Rail, TRMW, TMBL

Tacoma Rail, a shortline, is a municipally owned operating division of Tacoma Public Utilities. It is governed by a 5-member public utility board appointed by the Tacoma City Council. Tacoma Rail's TMBL **Tidelands Division** (formerly known as the Tacoma Municipal Belt Line) has switched freight between the customers at the Port of Tacoma and the transcontinental railroads since 1914. It's TMBL **Capital Division** began operation in 2004 serving more than 20 former BSNF freight customers on the Belmore/East Olympia Line (Olympia Industrial Lead), the Quadlok Line (St. Claire Line), and the Lakeview Line (Pt. Defiance Bypass or Lakeview Subdivision). Tacoma Rail's TRMW **Mountain Division** (separate from the TMBL service) began operating on 132 miles of City of Tacoma owned track in 1998 – the city contracts with Tacoma Rail for operations. The Mountain Division serves Frederickson, Morton and Chehalis, with a branch running through south Thurston County from Yelm through Maytown and south through Grand Mound.

Thurston Regional Planning Council (TRPC)

A council of governments representing the cities of Lacey, Olympia, Rainier, Tenino, Tumwater, and Yelm; the town of Bucoda; Thurston County; Intercity Transit; LOTT Alliance; Thurston County PUD #1; Griffin School District; North Thurston Public Schools; Olympia School District; Confederated Tribes of the Chehalis Reservation; and the Nisqually Indian Tribe. Thurston Conservation District, Timberland Regional Library and Puget Sound Regional Council are Associate Members and The Evergreen State College is a Charter Member Emeritus.

Traffic Analysis Zone (TAZ)

A geographic area that ranges in size from a few blocks to several square miles. TAZs are characterized by population, employment and other factors, and serve as the primary unit of analysis for transportation modeling purposes. The Thurston region has approximately 800 TAZs.

Transit Dependent

Persons who rely on public transit or paratransit services for most or all of their transportation needs.

Transportation Policy Board (TPB)

Advisory body to the Thurston Regional Planning Council that focuses specifically on regional transportation issues. All members of TRPC are eligible to appoint members to TPB. The TPB also includes other representatives of community interests, and state legislators as required by state law. Active members on the TPB include Lacey, Olympia, Tenino, Tumwater, Yelm, Thurston County, and Intercity Transit, as well as representatives from the WSDOT Olympic Region, Washington State Department of General Administration, a large private employer – Providence St. Peter Hospital, two citizen advisors and several state legislators.

Travel Time

The elapsed time between a trip's beginning and end, including travel, transfers and waiting time.

Tribe

Generally, the term "tribe" refers to "Indian tribe" or "federally recognized tribe" and may also refer to State recognized tribes which are not federally recognized but which are eligible for certain federal benefits and privileges under specific federal laws.

Tri-City & Olympia Railroad Company, TCRY

Tri-City & Olympia Railroad Company is a shortline railroad established in 2000 and based in Richland Washington. TCRY serves the Ports of Benton and Olympia rail freight transportation. In the Thurston region, Tri-City & Olympia usually operates between the Port's Marine Terminal through downtown Olympia to 7th Avenue and Jefferson Street.

Trolley

A streetcar powered electrically through a trolley (connecting pole) from overhead wires drawing power from a central source. A trolley vehicle may be either a type of bus or train.

Trolley Replica Bus

A bus with an exterior (and usually interior) designed to look like a street car from the early 1900s. Typically used on historic district and tourist-oriented circulator or shuttle services.

Trolleybus

A rubber-tired bus powered electrically from overhead wires via a connecting pole (called a trolley) from a central power source not on board the vehicle. Some trolley buses are dual-powered to allow them to operate in emergencies or on routes extending beyond the overhead wires.

Turnout

A track arrangement that connects tracks, allowing trains to move from one to another set of tracks.

Union Pacific Railroad, UP

Union Pacific Railroad is a U. S. Class I freight railroad providing transcontinental service to Washington State. Between Portland and Tacoma, UP operates on the BNSF tracks. UP also owns a short portion of track branching from the main line at East Olympia and running into downtown Olympia.

U.S. Department of Transportation (USDOT)

The principal direct federal funding and regulating agency for transportation facilities and programs. FHWA, FTA and FRA are contained within USDOT.

Urban Growth Area (UGA)

Under the Washington State Growth Management Act, those areas designated by cities and counties, and delineated by the Urban Growth Boundary (UGB), where urban growth will be encouraged.

Washington State Department of Transportation (WSDOT)

The agency responsible for transportation at the state level. The WSDOT Public Transportation and Rail Office guides transit policy, funds transit and rail projects, and coordinates state participation in the Amtrak Cascades intercity rail service.

Washington State Utilities and Transportation Commission (WUTC)

This state agency regulates utility and transportation pricing, availability, reliability and safety. For railroad safety, WUTC provides engineering, education and compliance programs to reduce deaths, injuries and property damage on or around railroads.

Sources

American Public Transportation Association website

Bureau of Transportation Statistics website

Merriam-Webster Online website

2025 Thurston Regional Transportation Plan: Guiding Our Future

Victoria Transportation Policy Institute website

WSDOT Rail Office

Appendix C

Passenger Rail Primer

Passenger Rail Primer

**Thurston Passenger Rail Workgroup
November 2005**

Passenger Rail Characteristics

This document is intended as a primer introducing and familiarizing the reader with the basic definitions of passenger rail and providing a comparison of common transit services in 2005. It was developed to facilitate a discussion of passenger rail and other transit options in the Thurston Region, in preparation of a regional rail plan.

In the next section, *Passenger Rail Overview*, the fundamental characteristics of light rail, commuter rail and intercity rail are covered. *Complementary and Alternative Transit Options* (primarily common bus transit choices) provides a wider transit context within which the passenger rail modes coordinate and compete. After investigating transit options individually, they are compared and contrasted in a chart of their characteristics, *Summarizing the Continuum of Services*. *Other Rail Transit Technologies* provides a brief overview of less extensively used rail options and the *Appendices* provide additional details and information.

Additional resources the reader may want to consult include:

- The American Public Transportation Association (APTA) website at www.apta.com
- The Victoria Transportation Policy Institute (VTPI) website at www.vtpi.org
- Bureau of Transportation Statistics (BTS) website at www.bts.gov

Passenger Rail Overview

Introduction

Passenger rail modes may be distinguished from one another based on a variety of characteristics – level of service, technology, right-of-way and operations. These characteristics are discussed in more detail in the other sections of this chapter. Like other transit services, however, in the most basic sense passenger rail modes break down by three distinct geographies – local, regional, and statewide or interstate.

Local rail – typically light rail or metro (rapid or heavy rail) – operates within an urban area providing transit services among many stops serving the metropolitan hub. In this sense, it is a *many-to-many* service with multiple stops in the central business district and perhaps other commercial centers, neighborhood centers and intermodal transportation points (airport, commuter rail and bus stations). Some examples include Sound Transit’s light rail service in Tacoma, and familiar metro examples from New York, Washington, D.C., Paris, and London.

Regional rail – referred to as commuter rail – provides *many-to-one* service by bringing commuters from suburbs to a central business district, typically with only one or two stops in the central business district and at each suburban node along the rail line. The stops in the central business district may be intermodal hubs providing commuters with connections to the local transit system (rail or bus), while the suburban intermodal connections may include park-and-rides and local or commuter bus service. The Sounder linking suburban cities like Auburn and

Kent to Seattle provides such a commuter service, as do the several commuter lines serving New York City – the Long Island Railroad, New Jersey Transit, and Connecticut Commuter Rail.

Intercity rail serves larger statewide and interstate needs with *one-to-one* service between cities. Typically intercity rail serves both business and leisure travel over longer distances that compete with long distance automobile or airplane trips. Such rail service typically makes one stop at each urban node along the chain of stops crossing one or more states. Amenities are typically more comfortable on intercity rail service – softer seats, sleeping accommodations, dining cars, observation areas – than on characteristically more Spartan local and regional rail service. Familiar examples serving the northwest include Amtrak’s Cascades (Vancouver, BC to Eugene, OR), Coast Starlight (Seattle, WA to Los Angeles, CA) and Empire Builder (Seattle, WA to Chicago, IL).

While each mode tends to reflect local, regional or interstate geographies, in some communities a single mode serves multiple needs. For example, in some communities light rail and metro may extend beyond the urban core into the suburbs for a few miles. Such a system not only serves as frequent stops placed close together in the central city, but also serves to bring commuters into work from suburban communities. The light rail system in Portland and the metro rail systems in Chicago and Washington, D.C. are examples.

Intercity rail may also provide commuter service for some passengers, however, such a system is often limited by several factors. Intercity rail service is not necessarily scheduled to coincide with peak period commuter travel and may present limited travel options. With its additional amenities and greater distances between stops, intercity rail may also be more expensive than traditional commuter rail or other commuting options. Also, because of the distances involved and limited access points, fewer commuters are usually candidates for considering this travel option. The Thurston region has another consideration – the location of Centennial Station, the only station between Vancouver, B.C. and Eugene, OR (the Amtrak Cascades corridor) that is not located in or near the central business district. This makes it inconvenient for many in- and outbound commuters to reach their work places in consistent and timely ways.

Light Rail

Light rail, sometimes known as streetcar, tramway or trolley, is a system of lightweight passenger rail cars operating on fixed rails. These cars operate singly or in short (usually two car) trains. Typically the cars have electric motors, drawing power from an overhead power line using a trolley or pantograph. Light rail usually operates in a non-exclusive (shared or adjacent) right-of-way with automotive traffic and perhaps pedestrian traffic for much of its system.

Light rail typically provides local service analogous to local bus service where stops are every few blocks – one-half to one mile. It is called “light” rail because the system carries a light volume of traffic compared to heavy rail.

Heritage or vintage trolley cars are light rail cars build before 1960 or modern replicas of such cars.

In fiscal year 2003, the United States had 27 light rail systems. The average fare per unlinked trip was \$0.68 and the average trip length was 4.4 miles. Light rail systems averaged a speed of approximately 16 miles per hour.

Metro or Heavy Rail

Like light rail, *heavy rail* (also known as metro, subway, rapid transit or rapid rail) provides local service, but within a densely populated city with heavy volume of rail traffic. These electric railways operate at high speeds with rapid acceleration on grade separated right-of-way. They use sophisticated signaling and high platform loading. Some systems, converted to full automation with no onboard personnel, are considered automated guideways (see the section on *Other Transit Technologies*).

In fiscal year 2003, 14 agencies operated heavy rail systems in the United States. The average trip length was 5.1 miles and the average fare was \$1.00. Speeds averaged 20.6 miles per hour.

Commuter Rail

Commuter rail provides urban passenger train service between suburbs and a central city, with one or two stops in the central business district. It may also provide additional service within the central city. This regularly scheduled service uses electric or diesel locomotive hauled or self propelled railroad passenger cars. Generally, commuter rail travel uses multi-trip tickets, station-to-station fares, and railroad employment practices. More than 50% of the average daily ridership travels on the train at least three times a week.

Twenty-one agencies provided commuter rail service in the United States in fiscal year 2003. The average fare was \$3.79, the average trip was 23.3 miles and the average speed was 31.7 miles per hour.

Complementary and Alternative Transit Options

Passenger rail systems don't stand alone in the transit model, but are supported by and may compete with a variety of bus services. Local bus service that feeds both rail and primary bus routes, and, together with support facilities like park-n-rides, is an essential component of transit system. Express bus service and bus rapid transit may compete with or complement local and regional rail service.

Local Bus Service

Local bus service typically stops every block or two along a route several miles long. If the service is limited to short distance trips or serves a small geographic area it is often called circulator, feeder, neighborhood, trolley or shuttle service. Such service may operate in a loop and connect to more major bus or rail routes.

Express Bus Service

Express bus service typically serves more heavily traveled corridors or destinations, especially during peak commuting hours. This service speeds up trips by operating longer distances between stops. For example, express bus service often connects suburban park-n-ride lots to the central business district. Some bus service may be hybrid – with a route acting as local bus service in the urban core and express service between the core and distant park-n-ride locations. Express bus service operating in the same corridors as primary rail lines may be an alternative to commuter rail.

Bus Rapid Transit

A type of frequent but limited stop service, bus rapid transit (BRT) can operate on exclusive bus/transitways, high occupancy vehicle lanes, expressways or ordinary streets. BRT combines intelligent transportation systems technology, priority for transit, vehicle amenities and rapid and convenient fare collection to substantially upgrade performance. Peak period headways are typically quite short for BRT and systems are usually integrated with other modes of transportation, especially transit (such as local bus service and passenger rail service). BRT, depending on its configuration within a community, could be an alternative to light rail and commuter rail, potentially operating within a community to connect neighborhood, business and intermodal centers or between suburbs and a central business district.

Other Rail Transit Technologies

Personal Rapid Transit

Also known as automated guideway transit or people mover, this form a transit is an electric railway operating on exclusive right of way, staffed or unstaffed. It may provide fixed schedule or demand responsive service activated by a call button. The system may operate with single or multiple car trains that carry only a handful to several dozen passengers at a time. These systems are often used at airports and hospital campuses.

Maglev

A maglev train uses electro-magnetic levitation, guidance, propulsion and control systems to hover above the guideway. Train doesn't physically contact the guideway, except when at rest, eliminating friction and allowing the train to travel at great speeds (upwards of 300 miles per hour). Because of the speed, maglev trains would compete with longer distance travel by car, bus, train or air. Currently, Germany and China have operating maglev systems.

Monorail

Monorail is comprised of a single or multiple car electric train that is suspended from or straddles a single beam, rail or tube guideway. If the trains don't have a crew on board they are

considered automated guideway transit. In the U.S., monorails are most typically found in amusement parks – the only two transit monorails operating in the U.S. are in Seattle and Las Vegas.

Land Use and Rail

Transportation and land use are closely related. In the case of passenger rail, fixed rail infrastructure can contribute to commercial land use investment near rail stations because the route is unlikely to move away from the station. Bus rapid transit with exclusive right of way may also have similar cache.

The type of land use that has developed in other communities around urban and suburban rail stations serving commuters includes a range of mixed uses – denser housing, small to large businesses, and retail services (dry cleaning, child care, small retail, restaurants). An example is the renaissance of Freight House Square in Tacoma.

Public investment in infrastructure can precede development – as an incentive to certain kinds of development, or follow development – to address the need for service. For example, cities may invest in sidewalks or sewers in advance of growth in order to direct and encourage it. Or they may come concurrent with growth – or even follow it – to meet a proven demand.

With transit, certain land use densities are associated with the ability to sustain service. Densities increase generally with the frequency of service, capacity, speed and surety of service (fixed versus adjustable). The table below provides some general rules of thumb for different types of transit service. Land use is expressed in dwelling units, but it is generally recognized that as density of dwellings increase so too must employment and services for a more intensive transit alternative to be sustained.

Service	Frequency	Coverage	DU/Acre
Local Bus	Hourly	½ mile between routes	4
Local Bus	Half-Hourly	½ mile between routes	7
Express Bus	Frequent peak period	?	15
Light Rail/Trolley	5 minute peak	25-100 sq mile corridor	9
Rapid Rail	5 minute peak	100-150 sq mile corridor	12

DU = Dwelling units.

Source: Nelson\Nygaard Consulting Associates, 2002, per Pushkarev, B.S. et al, “Urban Rail in America – An Exploration of Criteria for Fixed Guideway Transit,” 1982.

Summarizing the Continuum of Services

	Local Bus	Light Rail	Heavy Rail	Bus Rapid Transit	Commuter Rail	Express Bus	Intercity Bus	Intercity Rail
Type of ROW	Non-exclusive road	Non-exclusive fixed rail	Exclusive fixed rail	Exclusive bus or transitway, HOV lanes, expressways or ordinary streets	Exclusive fixed rail, may share with freight rail	Non-exclusive roadway	Non-exclusive roadway	Exclusive fixed rail, usually shared with freight rail
Motive Power	Diesel or electric	Electric, often trolley	Electric	Diesel	Diesel or Electric	Diesel	Diesel	
Network	Local	Local	Local	Local or Regional	Regional or Local	Regional	State and interstate	State and interstate
Typical distance between stops	1-2 blocks	¼ - 1 mile	1 mile	Limited	Several Miles	Several Miles	Often 20-100 miles	Often 20-100 miles
Minimum Peak Scheduled Headway	10-60 minutes	6.2 min. (2-15)	4.5 min. (2-8)	10 min. or less	30 min.	15-30 min.	Daily or less often	Daily or less often
Average operating speed	12.7 mph	20 mph [16] (8-35)	20mph [27]		30-50 mph	Posted Speed Limit	Posted Speed Limit	50-79 mph
Maximum operating speed		48.5 mph (20-65)	59 mph (45-80)			Posted Speed Limit	Posted Speed Limit	
Weekday Passenger Volumes		62, 900 [38,000] (4,000-265,000)	728,800 [565,200] (12,800-5,977,200)		62,700 (1,000-326,700)			
Average Trip Length	3.7 miles	4.4 miles	5.1 miles					
Average fare	\$0.75	\$0.68	\$1.00 [\$1.50]		\$2.00 - \$4.00	\$1.50-\$3.00		

The Urban Transportation Monitor, "Characteristics of Light Rail in USA, Canada," September 3, 2004.

The Urban Transportation Monitor, "Characteristics of Urban Heavy Rail Systems in the U.S.," January 23, 2004.

American Public Transportation Association website, October 31, 2005.

Victoria Transportation Policy Institute (VTPI) website www.vtpi.org.

Intercity Transit, "2004 Annual Report & 2005-2010 Transit Development Plan"

Train Web website www.trainweb.org.

Sound Transit website www.soundtransit.org.

Appendix D

Route and Infrastructure Information

**Rail Line and Former Rail Line Route Information
Primary Rail & Trail Infrastructure in Thurston County**

Route Name	Segment Start	Segment End	Owner	Operator Class	Operators	Maximum Speed	Typical Traffic
Main Line – Thurston County	South Thurston County border near Bucoda where SR 507 crosses into Lewis County	North Thurston County border southeast of I-5 near where Old Pacific Highway crosses the Nisqually River (Sweetins Lane)	BNSF	I & III	BNSF Union Pacific Tacoma Rail Capital Division Amtrak Coast Starlight Cascades	F: 50 P: 79	40 to 60 trains per day freight and passenger rail. Much of the freight moves through Thurston County to/from the Ports of Tacoma & Seattle. Also includes traffic from Canada and urban waste from Everett and Seattle.
Main Line – Pierce County	North Thurston County border southeast of I-5 near where Old Pacific Highway crosses the Nisqually River (Sweetins Lane)	North Pierce County Border north of Sumner	BNSF	I	(as above)	F: 50 P: 79	(as above)
Main Line – Lewis County	South Thurston County border near Bucoda where SR 507 crosses into Lewis County	South Lewis County border by Vader	BNSF	I	(as above)	F: 50 P: 79	(as above)
St. Clair Branch	Branches from the Main Line at St. Clair near the intersection of Old Pacific Highway and SR 510 (Pacific Highway/St. Clair Cutoff Road)	The box plant at Union Mills Rd between Pacific Avenue and Marvin Road	BNSF	III	Tacoma Rail Capital Division	10	Service M/W/F
East Olympia Branch (Olympia Industrial Lead)	Branches from the Main Line at East Olympia near the intersections of Rich Road and 83 rd Avenue SE	Downtown Olympia just north of Olympia Avenue	UP	III	Tacoma Rail Capital Division	10	Service M/W/F to Mottman industrial area and Port of Olympia
Port of Olympia Branch	Branches from the Union Pacific Line in downtown Olympia just north of Olympia Avenue	Port of Olympia Marine Terminal	Port of Olympia	III	Tri-City and Olympia Railroad Company	10	Up to daily operations as needed
Mottman Branch	Branches from the Union Pacific Line in downtown Olympia approximately at the intersection of 11 th Avenue and Plum Street (behind the Post Office)	81 st Street just south of Black Lake	BNSF	III	Tacoma Rail Capital Division	10	Service M/W/F
Tono Branch	Branches from the Main Line just south of the South Thurston County borders, extending eastward	Centralia Steam Plant	BNSF	I	BNSF	10	Coal trains delivering Powder River Basin coal
Tacoma Rail System – Thurston County Line	Tacoma Rail yard near the Port of Tacoma to Frederickson, then branches through southern Pierce County entering Thurston County just south of Yelm.	Proceeds through Rainier to Maytown, then turns sharply south to Grand Mound. Enters Lewis County and runs through Centralia ending in Chehalis	Tacoma Rail	III	Tacoma Rail	10	Used infrequently. System also branches at Frederickson to Morton and Mt. Rainier.
Yelm Prairie Line	Downtown Yelm, just north of the intersection of SR 507 and SR 510	Just south of Roy and the Wilcox Farms feed silo next to SR 507	City of Yelm	III	Temporarily Embargoed	N/A	No rail traffic at this time. Rail line runs through Yelm’s industrial area.

**Rail Line and Former Rail Line Route Information
Primary Rail & Trail Infrastructure in Thurston County**

Route Name	Segment Start	Segment End	Owner	Operator Class	Operators	Maximum Speed	Typical Traffic
BNSF Prairie Line	Just south of Roy and the Wilcox Farms feed silo next to SR 507	Merges with the Point Defiance Bypass in Lakewood just south of 112 th St.	BNSF	I	BNSF	10	Serves Ft. Lewis as requested and Wilcox Farms weekly.
Point Defiance Bypass (Lakewood Subdivision)	Branches from the Mainline at Nisqually (just north of the Thurston County border)	Freight House Square/Tacoma Dome Station	Sound Transit	III	Tacoma Rail Capital Division Sound Transit (future) Amtrak (future) Coast Starlight Cascades	10	Service Tu/Th/Sa
Puget Sound & Pacific	Branches from the Main Line in Centralia at Centralia Junction, running northwesterly through Grand Mound and Rochester	Branches in Elma with one line running west to the Port of Grays Harbor (Aberdeen) and another line running north to Bremerton and further north in Kitsap County	Puget Sound & Pacific	III	Puget Sound & Pacific	?	Includes grain trains to Aberdeen and military service to Kitsap County bases. Other services?

**Rail Line and Former Rail Line Route Information
Primary Rail & Trail Infrastructure in Thurston County**

Junctions	Location	Joins	Owner		Operators		Notes
Centralia Junction	Centralia	Main Line and Puget Sound & Pacific	BNSF and Puget Sound & Pacific		BNSF Union Pacific Puget Sound & Pacific		Main Line junction.
Blakeslee Junction	Centralia	Tacoma Rail and Puget Sound & Pacific	Puget Sound & Pacific and Tacoma Rail		Puget Sound & Pacific Tacoma Rail		Junction approximately one mile west of the Centralia Junction.
East Olympia	Near the intersections of Rich Road and 83 rd Avenue SE	Main Line and Olympia Industrial Lead	BNSF and UP		Tacoma Rail		
Downtown Olympia	Approximately 7 th and Jefferson	Olympia Industrial Lead, Mottman Branch and Port of Olympia Branch	UP and Port of Olympia		Tacoma Rail Tri-City & Olympia Railroad		
St. Clair	Near the intersection of Old Pacific Highway and SR 510 (Pacific Highway/St. Clair Cutoff Road)	Main Line and St. Clair Branch	BNSF		Tacoma Rail		
Nisqually	Nisqually (just north of the Thurston County border)	Main Line and Point Defiance Bypass	BNSF and Sound Transit		Tacoma Rail		
Freight House Square (Tacoma/Fife/Pt Tacoma)	Downtown Tacoma Fife / Port of Tacoma	Main Line and Point Defiance Bypass BNSF, UP and Tacoma Rail	Sound Transit Port of Tacoma, BNSF, UP, City of Tacoma		Sound Transit Tacoma Rail (Port Facility), Tacoma Rail (Capital Division), UP, BNSF		Main switching point for Port of Tacoma and the interchange with Tacoma Rail, the BNSF, and UP. Major BNSF and UP rail yards adjacent to this junction in Tacoma and Fife, respectively.
Roy (proposed)	Just south of Roy	Yelm/BNSF Prairie Line and Tacoma Rail	Yelm		Yelm operator (TBD) Tacoma Rail		
Lakewood	Lakewood just south of 112 th St.	Point Defiance Bypass and BNSF Prairie Line	BNSF and Sound Transit		BNSF		
Ray Allred	Frederickson	Tacoma Rail branches	Tacoma Rail		Tacoma Rail		
Morton/Mt. Rainier	Elbe	Tacoma Rail branches	Tacoma Rail		Tacoma Rail		

**Rail Line and Former Rail Line Route Information
Primary Rail & Trail Infrastructure in Thurston County**

Trails from Rails	Start	End	Owner			Notes
Chehalis Western Trail	Woodard Bay	Yelm-to-Tenino Trail, with a planned extension south toward Vail Loop Road	Thurston County			Owned by WSDNR (Woodard Bay to Chambers Lake) and Thurston County (Chambers Lake to Yelm-to-Tenino Trail). The County plans to extend the southern reach towards Vail Loop Road.
Yelm to Tenino Trail	Tenino City Park (near the Main Line)	Yelm City Hall (at the intersection of SR 510 and SR 507)	Thurston County			Owned by Thurston County.
Woodland/St Clair Trail	<u>Olympia</u> : Tumwater Historic Park (planned), currently accessed at Eastside Street <u>Lacey</u> : Chehalis Western Trail	<u>Olympia</u> : Chehalis Western Trail <u>Lacey</u> : Box plant at Union Mills Road with options beyond.	Cities of Olympia & Lacey			Owned by Olympia. Lacey plans additional development of the trail and adjacent park land it owns between the box plant and St. Clair.
Gate to Belmore Trail	Branches from the Puget Sound & Pacific at Gate	Meets the Mottman Branch at 81 st Street just south of Black Lake	Thurston County			Owned by Thurston County, but not yet developed.
West Bay	Near Heritage Park	Near West Bay Marina	Olympia *			* Olympia is in negotiations with BNSF, the Port of Olympia and other property owners to secure trail and park property along the corridor. Not yet developed.

Appendix E

Commuter Rail Reference Information

Commuter Rail and Express Intercounty Bus Service Reference Information

Commuter Rail

Regional rail – referred to as commuter rail – provides *many-to-one* service by bringing commuters from suburbs to a central business district, typically with only one or two stops in the central business district and at each suburban node along the rail line. The stops in the central business district may be intermodal hubs providing commuters with connections to the local transit system (rail or bus), while the suburban intermodal connections may include park-and-rides and local or commuter bus service. The Sounder linking suburban cities like Auburn and Kent to Seattle provides such a commuter service, as do the several commuter lines serving New York City – the Long Island Railroad, New Jersey Transit, and Connecticut Commuter Rail.



Commuter rail provides urban passenger train service between suburbs and a central city, with one or two stops in the central business district. It may also provide additional service within the central city. This regularly scheduled service uses electric or diesel locomotive hauled or self propelled railroad passenger cars. Generally, commuter rail travel uses multi-trip tickets, station-to-station fares, and railroad employment practices. More than 50% of the average daily ridership travels on the train at least three times a week.

Twenty-one agencies provided commuter rail service in the United States in fiscal year 2003. The average fare was \$3.79, the average trip was 23.3 miles and the average speed was 31.7 miles per hour.

For the purposes of the Passenger Rail Workgroup discussion, commuter rail means peak period service from one or two rail stations serving our region. Service would be northbound toward Tacoma and Seattle in the a.m. peak period and southbound to our region in the p.m. peak period.

Potential options for developing commuter rail service in the region include becoming part of the Sounder system, or establishing a Thurston based commuter rail service that connects to Sounder service at a station in Pierce County.

Express Bus Service

Express bus service typically serves more heavily traveled corridors or destinations, especially during peak commuting hours. This service speeds up trips by operating longer distances between stops. For example, express bus service often connects suburban park-n-ride lots to the central business district. Some bus service may be hybrid – with a route acting as local bus service in the urban core and express service between the core and distant park-n-ride locations. Express bus service operating in the same corridors as primary rail lines may be an alternative to commuter rail.

Intercity Transit, in cooperation with Pierce Transit, provides express intercounty bus service between Thurston County and Pierce County transit centers. Our region's commuter service also connects to Sound Transit express bus service and Sounder commuter rail service.

The Intercity Transit/Pierce Transit express service operates both north- and southbound during the a.m. and p.m. peak periods, with limited midday service. It serves the Thurston region's outbound commuters traveling to Pierce County and beyond, as well as inbound commuters traveling from outside the Thurston County to the greater Olympia/Lacey/Tumwater area.



More Information

More information about rail and bus services is available in the Primer distributed to the Passenger Rail Workgroup in November, 2005.

Appendix F

Light Rail Reference Information

Light Rail and Bus Rapid Transit Reference Information

Light Rail

Local rail – typically light rail or metro (rapid or heavy rail) – operates within an urban area providing transit services among many stops serving the metropolitan hub. In this sense, it is a *many-to-many* service with multiple stops in the central business district and perhaps other commercial centers, neighborhood centers and intermodal transportation points (airport, commuter rail and bus stations). Some examples include Sound Transit’s light rail service in Tacoma, and familiar metro examples from New York, Washington, D.C., Paris, and London.



Light rail, sometimes known as streetcar, tramway or trolley, is a system of lightweight passenger rail cars operating on fixed rails. These cars operate singly or in short (usually two car) trains. Typically the cars have electric motors, drawing power from an overhead power line using a trolley or pantograph. Light rail usually operates in a non-exclusive (shared or adjacent) right-of-way with automotive traffic and perhaps pedestrian traffic for much of its system.



Light rail typically provides local service analogous to local bus service where stops are every few blocks – one-half to one mile. It is called “light” rail because the system carries a light volume of traffic compared to heavy rail.

Heritage or vintage trolley cars are light rail cars built before 1960 or modern replicas of such cars.

In fiscal year 2003, the United States had 27 light rail systems. The average fare per unlinked trip was \$0.68 and the average trip length was 4.4 miles. Light rail systems averaged a speed of approximately 16 miles per hour.

For the purposes of the Passenger Rail Workgroup discussion, light rail means intra-urban rail service in the region’s urbanized center of Lacey, Olympia and Tumwater. Service would run along strategic corridors connecting activity centers and intermodal hubs. It may include grade separated and/or shared right-of-way.

Bus Rapid Transit (BRT)



A type of frequent but limited stop service, bus rapid transit (BRT) can operate on exclusive bus/transitways, high occupancy vehicle lanes, expressways or ordinary streets. BRT combines intelligent transportation systems technology, priority for transit, vehicle amenities and rapid and convenient fare collection to substantially upgrade performance. Peak period headways are typically quite short for BRT and

systems are usually integrated with other modes of transportation, especially transit (such as local bus service and passenger rail service). BRT, depending on its configuration within a community, could be an alternative to light rail and commuter rail, potentially operating within a community to connect neighborhood, business and intermodal centers or between suburbs and a central business district.

An example of bus rapid transit was Metro King County's transit service operating above ground from south Seattle, then in the bus tunnel (now closed for adaptation to also serve light rail). Metro is also considering other bus rapid transit, such along SR 99 and across Lake Wahsington. Spokane and Eugene are other northwest communities considering or implementing bus rapid transit.



Light Rail Overview

Typical Characteristics (Primer Summary)

Type of Right of Way	Non-exclusive fixed rail
Motive Power	Electric, often trolley
Network	Local
Typical Distance Between Stops	¼ - 1 mile
Typical Frequency	5 minutes
Minimum Peak Scheduled Headway	2 – 15 minutes
Coverage	25 – 100 square mile corridor
Minimum Density	9 dwelling units per acre
Average Speed	20 mph

Cost Per Mile (<http://lightrail.com/LRTSystems.htm>)

Vintage Trolley

\$ (million) per mile	City	Year Established
<i>established</i>		
2.0	Dallas	?
2.3	Kenosha	00
3.0	Detroit	76
5.0	San Pedro	03
7.2	Little Rock	01
12.0	Charolette	?
	<i>Median = 4.0</i>	
<i>planned</i>		
5.0	Savannah	

Light Rail

\$ (million) per mile	City	Year Established
<i>established</i>		
9.6	Sacramento	87
16.4	Portland	01
19.0	Baltimore	92
25.0	Camden	04
29.0	San Jose	87
40.0	Los Angeles	90
43.0	Dallas	96
46.0	Dallas	?
50.0	Tacoma	03
55.0	Portland	?
56.0	Salt Lake City	?
60.0	St. Paul/Minneapolis	?
65.0	Los Angeles	03
103.0	Jersey City	01

\$ (million) per mile	City	Year Established
	<i>Median = 44.5</i>	
<i>planned</i>		
3.0	Albuquerque	
8.5	Salt Lake City	
11.0	Salem	
15.0	Boston	
22.0	Sacramento	
25.0	Cincinnati	
26.0	Raleigh	
26.0	Norfolk	
26.0	Portland	
27.0	Sacramento	
34.0	Philadelphia	
35.0	Kansas City	
36.0	Phoenix	
36.0	Phoenix	
38.0	Columbia	
45.0	Denver	
45.0	Washington, D.C.	
45.0	Charolette	
54.0	Los Angeles	
55.0	Phoenix	
60.0	San Jose	
65.0	Phoenix	
66.0	San Jose	
68.0	St. Louis	
72.0	St. Paul/Minneapolis	
95.0	Los Angeles	
100.0	Jersey City	
105.0	San Francisco	
133.0	Rockland	
150.0	Los Angeles	
150.0	Seattle	
	<i>Median = 45.0</i>	

Note: Some cities have more than one light rail project planned, so a city may repeat on the list according to the number and cost of its projects.

Appendix G

Rail Plan Synopses

Abstract

High Speed Rail Passenger Service Western Washington Corridor Economic Feasibility Study December 1984

For: Washington State Legislative Transportation Committee
By: Parsons Brinkerhoff Quade & Douglas, Inc. and the Washington State
Transportation Center

Commissioned by the Washington State Legislature in the 1983-1985 biennium, the study looked at existing and future conditions along the rail corridor from Vancouver, B.C. to Portland, OR. It assessed potentially applicable high speed rail technology, laid out a set of alternative alignments and technologies, and evaluated the economic feasibility of implementing high speed service. The analysis relied on existing data with order-of-magnitude patronage and capital cost projections. The legislative subcommittees requested that a potential upgrade to existing Amtrak service be evaluated as part of the alternatives.

The study found that upgraded Amtrak service was technically feasible, using the existing rail corridor with upgrades to improve speeds. Other high or super speed technologies investigated would require establishing a new right-of-way and new or upgraded facilities. Much higher speeds could be reached on such a dedicated system. The potential intercity rail market consisted of 50 plus mile trips -16% of the intercity travel occurring along the corridor, highly dependent on private automobiles. The cost of the alternatives ranges from upgraded Amtrak (top speed 100 m.p.h.) at \$687 million to super speed rail (top speed 250 m.p.h.) at over \$12 billion.

The report recommended:

1. **Establish state goals and objectives for rail passenger service in major travel corridors, including the Western Washington Corridor.** A clear legislative and WSDOT mandate was needed. The report recommended establishing a task force to advise on an appropriate long-term role for rail passenger service.
2. **Determine the appropriate level of service and establish a program of upgrading Amtrak rail passenger service to achieve state-set goals and objectives in a cost-effective manner.** The study found a growing high speed passenger rail market that could be fostered through improvements in speed, safety, station amenities, and local access via public transportation and parking. Additional study was needed to determine level of service, financing, and management.
3. **Based upon the goals and needs identified from actions contained in the first two recommendations, evaluate the basis of state funding to upgrade existing Amtrak service and better integrate local public transportation with rail passenger service.** The state's role in funding such a service and potential federal contributions needed to be investigated. Motor Vehicle Excise Tax (MVET), sales tax and state gas tax were suggested as potential sources.

4. **Preserve existing rights-of-way which may be used for public transportation corridors in the future.** Although the system couldn't be funded right away, the future value of these corridors was noted. The old interurban Puget Sound Electric Railway – now the Interurban Trail along the Green River – was an example.
5. **Recognize, in the State's long-range planning process, the potential for higher speed intercity rail passenger systems.** Studies in Western Washington indicated that high and super speed rail service could generate enough revenue to offset operation and maintenance costs, and even repay a small amount of the capital costs. The enormous capital costs of such systems made them infeasible. The state's constitution also constrained a role for the state in improving and promoting passenger rail.
6. **Monitor social-economic and technological conditions as triggers to higher speed systems.** Conditions impacting the future high speed rail include changes in auto ownership, the ratio of air fare to rail fare, and corridor population densities. Also noted were fuel prices and fuel efficiency, highway congestion, and income levels. Technological advances in high speed rail service could also improve feasibility.

Abstract

Railroad Right of Way Inventory for Thurston County

December 1989

By: Thurston Regional Planning Council

The Railroad Right of Way Inventory gathered available data on how right of way was originally acquired, possible future uses, track condition, current use, and information about the abandonment process. The information was gathered to form a basis for policy concerning future right of way. At the time, railroad rights of way in Thurston County were controlled by Burlington Northern, Union Pacific and Chehalis Western. The Burlington Northern and Union Pacific were common carriers – hauling general freight for hire. The Chehalis Western was a private carrier hauling logs for Weyerhaeuser Timber Corporation, their parent company. Originally (in the late 1800's and early 1900's) a number of companies acquired rail right of way in the region, however, ownership was consolidated over the years to the three rail companies.

The Inventory explores the County Auditor's files and Assessor's maps to understand how the rights of way were assembled. Rail acquisition instruments were varied and sometimes complicated – congressional land grants, warranty deed, right of way deed, quit claim deed, adverse possession, decree, and bargain sale and deed. The way in which the right of way was originally acquired had consequences for future purchase and use.

Resource maps – commercial and industrial zoned lands, parks, recreation areas and bikeways – were used to investigate potential current and future needs and uses of the rail rights of way. Use as potential roadways and utility corridors was also examined.

Track condition and frequency of use were evaluated. The mainline had 45-50 freight trains per day plus 6 passenger trains. Centralia-to-Aberdeen [now Puget Sound & Pacific] had 4 trains per day. Gate-to-Belmore and Tenino-to-Yelm had no traffic, while the St. Clair had 7 cars per week [the average train had 20 cars]. The Union Pacific line to Olympia had no more than several cars per day. The Chehalis Western Tacoma-to-Centralia Line [now Tacoma Rail] still had traffic, but the Vail-to-Woodard Bay Line [now the Chehalis Western Trail] was not used. The abandonment process, through the old Interstate Commerce Commission (ICC), was also reviewed.

Railroad right of way was then assessed by potential for abandonment. The Union Pacific Line from Centralia to Aberdeen had been recently abandoned (1987). Several Burlington Northern lines were identified as potential abandonment candidates – Gate-to-Belmore, Yelm-to-Tenino, and the St. Clair line. The stability of the Chehalis Western lines was difficult to judge at the time, however part of the Vail-to-Woodard Bay Line had already been sold.

The lines were also assessed by future use/value and ease of acquisition. The report ended by recommending that policies and strategies be developed to either keep the threatened rail lines open or to acquire the rights of way for other uses. The report said it could be used as a basis for action in the interim, should abandonment be proposed for any corridor. It further recommended

the lines should be prioritized by value and that financing options should be explored. A watch dog mechanism was advised so that jurisdictions would receive adequate notice to take timely action.

Abstract

High Speed Ground Transportation Study

December 1992

To: Governor
Washington State Legislature
Washington State Transportation Commission
For: High Speed Ground Transportation Steering Committee
By: Gannett Fleming, Inc.

The Washington State Legislature, in 1991, directed a comprehensive assessment of the feasibility of high speed ground transportation system in the state. To support the analysis, a steering committee and the Office of High Speed Ground Transportation (in WSDOT) were formed. The two major corridors analyzed were Portland-Seattle-Vancouver, B.C. and SeaTac-Moses Lake-Spokane. Increasing congestion of road and air facilities were significant concerns prompting the study.

Intercity travel was projected to increase 75% by 2020. A third mode was deemed an important alternative. The study found it compatible with regional transportation plans and supportive of growth management objectives. The Vancouver, B.C.– Portland corridor presented the best near term development opportunity, and the Seattle – Spokane corridor offered the most advantageous long term opportunity for truly high speed service. The report also found significant ridership potential, even using conservative congestion assumptions for highways. Farebox revenues were projected to cover operation and maintenance within 12 to 15 years of beginning service, and generate a surplus after that. The report also stated that there were no fatal environmental flaws with high speed ground transportation, that it need not depend on petroleum fuels, that it was cost effective with respect to other modes, and that it provided reliable, all-weather service. However, the marginal ridership gains associated with maglev did not justify the much higher cost and risk associated with that technology.

Capital costs for a 185 m.p.h. high speed ground transportation system were projected to run from \$14.48 to \$19.26 billion for both corridors – comparable to the estimated \$20 billion to duplicate I-5 and I-90 in 1992. At an annual rate of \$500 million, the 590 mile system would take 30 to 40 years to complete. Both gas and sales tax were investigated as funding options (the gas tax option requiring a constitutional amendment).

Several policy actions were required to proceed, including a major state funding commitment, formation of a single entity to implement the program, and development of public/private partnerships, as well as building public support. Commitments to support other modes were needed too – improving transit, upgrading the interstate and major arterials, and expanding the airport system.

The report recommends maintaining the state's commitment to upgrade Amtrak service and take additional action to build support for high speed ground transportation. Three goals were presented:

1. Commit to high speed ground transportation implementation by 2020 – Seattle to Portland in 2 hours 30 minutes by 2000, in 2 hours by 2010, and in 1 hour 45 minutes by 2020 with service extended to Everett.
2. Add high speed service from Everett to Vancouver, B.C.
3. Implement high speed service between Seattle and Spokane.

A phased approach was laid out, with progress occurring on all three goals.

Abstract

The Railroad Right of Way Strategy Report

1990, Revised 1991 and 1992

By: Thurston Regional Planning Council
Railroad Right-of-Way Advisory Committee

Concern over several pending rail line abandonments in Thurston County prompted TRPC to investigate ways to preserve rail lines and rights-of way. Many communities across the U.S. were undertaking similar efforts. TRPC formed a Railroad Right-of-Way Advisory Committee to identify short and long term strategies for each of the rail corridors in the County.

The committee found that the corridors were too important to allow them to break up and that continued use as active freight and passenger rail lines was a priority. Promoting industrially zoned land adjacent to rail was noted. The committee also recommended that future rail corridor use be incorporated into each local jurisdiction's comprehensive plan in the transportation, recreation and utilities sections. They also stressed the necessity to take action before official abandonment occurred to keep contiguous linear corridors in tact. Coordination with the State Office of Archaeology and Historic Preservation was encouraged since they often receive first inquiries when a move to abandon was made. Filing notice of interest and intent to preserve the rail corridor with the ICC was also encouraged.

The National Trail System Act established a tool for maintaining rail corridors for recreational use and possible future transportation purposes. As the least expensive method for acquiring rail corridors, it was the recommended mechanism to use. The committee also encouraged the exploration of joint (shared) uses for rail corridors.

The committee supported cooperation among the Port, cities and County to acquire threatened corridors. In 1990, the Port of Olympia agreed to serve as the interim lead agency – filing the interim trail use applications with the ICC in case of a move to abandonment occurred before the rail strategy was accepted in 1991. This role for the Port reflected its interest in maintaining the corridors and its legislatively mandated ability to acquire, construct, purchase, lease, contract for and operate rail services, equipment and facilities – both passenger and freight. The committee also recommended the Port of Olympia assess the viability of short line operations for freight or passenger rail.

Interest was expressed in using existing rail corridors for vintage trolley operations, attracting transit funding and serving as a nucleus for any future modern light rail system. The committee suggested exploring an employee tax, motor vehicle excise tax and sales tax in the public transportation benefit area to support these efforts. The committee encouraged the development of tourist rail operations as well. A seasonal steam train brought tourists to Offut Lake Resort for dinner and other potential tourist attractions were suggested.

The action recommendations of the 1991 report included many coordinated efforts among the Port, cities, County and other interested parties:

1. Negotiate acquisition of the Tenino-to-Yelm corridor using the National Trails System Act.
2. Preserve the Gate-to-Belmore corridor.
3. Acquire the abandoned Fones Rd to Olympia Post Office corridor.
4. Investigate acquisition and continued operation of the Fones to Lake St. Clair line.
5. Include rail recommendations in the comprehensive plans.
6. Prevent encroachment into rail right-of way.

Ongoing actions included:

- Find a solution to the trestle on the Lacey to Deschutes River corridor that severs the connection of the planned trail.
- Monitor and support WSDOT's efforts to increase Amtrak service for use by commuters.
- Investigate & where possible integrate streetcar/trolley operations in traffic congestion reduction programs.
- Support steam train operations.
- Encourage movement of freight by rail rather than road.
- Coordinate corridor usage with the Urban Trails Plan developed by Olympia, Lacey & Tumwater.
- Continue to monitor moves to abandon rail lines.

Abstract

Options for Passenger Rail in the Pacific Northwest Rail Corridor Planning Report 1995

To: Washington State Department of Transportation
Oregon Department of Transportation
British Columbia Ministry of Employment & Investment
For: Pacific Northwest Rail Corridor Technical Oversight Committee
By: Morrison Knudsen Corporation

The report is an analysis the engineering and operational issues of the 466 mile corridor stretching from Eugene, OR to Vancouver, B.C. along the principal main line rail route. At the time, 6 to 7 million people lived within 10 to 20 miles of the railroad, with a 40% growth in population and a 50% growth in jobs expected in the corridor in next 20 years. Washington and Oregon commissioned several studies in preceding years and began specific rail upgrades to expand intercity passenger rail service. At that point, \$80 million had been committed by the states and Burlington Northern through cooperative agreements. The report provides a cohesive review of the entire corridor, allowing more cost-effective, prioritize, incremental infrastructure investment. These investments provided incremental service improvements.

The report compares the \$2.4 billion investment needed to add one freeway lane each way from Seattle to Portland (at \$6.5 million per lane mile) to the rail improvements of \$507 million (\$2.7 million per mile) In four phases spanning 20 to 25 years, passenger rail running time is expected to be reduced from nearly 4 hours to under 3 hours for Vancouver to Seattle; from nearly 4 hours to 2.5 hours for Seattle to Portland; and from 2.5 hours to 1.75 hours for Portland to Eugene. This assumes a maximum operating speed of 125 m.p.h. The corridor includes some new and alternative alignments, as well as the use of tilt train technology. The number of daily round trips was planned to substantially increase and ridership was expected to increase from approximately 600,000 annually in 1995 to upwards of 2.8 million in 2015.

Proposed improvement included upgrades to existing track for increased frequency and speed; construction of new, parallel track; and new bypass routes in key areas. First priority was for low-cost improvement to bottlenecks and choke points. Second, capacity and efficiency projects were proposed to provide incremental improvements. Last, the mega projects, such as the British Columbia and Oregon bypasses were to round out the plan.

Of interest to the Thurston Region were the bypass options to work around the bottleneck at Point Defiance. Considered were:

- the Lakeview branch (diverging from the mainline at the Nisqually River, running parallel to I-5 through Lakewood and on to Tacoma station)
- and the Prairie Line (now the Yelm-to-Tenino Trail, then branching from the mainline at Tenino, proceeding through Yelm to Roy and on to Lakewood, joining the Lakewood line and following the same route to the Tacoma station).

Though no option was selected in the report, the Lakeview branch appeared preferable to the Prairie Line because it was shorter, saved more time, was less expensive (\$150 million) and maintained a stop at Centennial Station. However, some grade crossings would remain because of the proximity to I-5 and numerous cross streets.

The report points to the need for additional environmental analysis and a corridor wide, coordinated public involvement effort. Strategies for governance, cost sharing and funding were reviewed.

The investment required through all four phases for the entire corridor totaled \$1.8 billion. Funding sources were not identified. The operations and maintenance subsidy, with increasing service levels implemented over the years, was projected to be about \$10 million in 1995 and ranged from \$8 to \$27 million in 2015. Annual investments in the program ranged (based on a 20 or 32 year program) in first phase from \$47 to \$68 million annually to the last phase from \$106 to \$167 million annually.

Abstract

Freight Access by Rail (FAR) Corridor White Paper

April 2000

For: Washington State Department of Transportation
By: Transit Systems Management
The Resource Group
HDR Engineering, Inc.

In 1999, the Washington State Legislature funded a study to explore whether improved use of South Sound rail corridors could:

- Relieve congestion on I-5.
- Improve freight movement.
- Extend planned commuter rail to Olympia.
- Build on existing public rail investments.
- Provide economic development opportunities.

The white paper presents preliminary findings and recommended next steps. The focus is between downtown Olympia and Tacoma/Lakewood. The report assumed that to provide commuter rail service in Olympia (and provide for future Amtrak service expansions), capacity would need to be freed up on the BNSF mainline by tapping underutilized rail lines to absorb some of the freight movement.

The report examines two freight and four passenger rail alternatives, assessing the physical and operational features, and estimating the costs for improvements. The freight rail alternatives included:

- **F1: Tacoma Rail Mountain Division.** The alternative proposed a new connection between the mainline and Tacoma Rail in Chehalis. Traffic would move north through Grand Mound, Maytown, Rainier, Yelm, Roy and Fredrickson, to connect with the Union Pacific rail yard in Fife, with another new connection to the BNSF mainline in Tacoma. The track conditions require slow speeds and the steep grade in Tacoma (hence the name Mountain Division) made train movements challenging, requiring additional locomotive power. The alternative was found to be potentially feasible. Improvements were estimated at \$52 million.
- **F2: Tacoma Rail Mountain Division and the PNWRC Point Defiance Bypass/BNSF Prairie Line.** Like F1, the route begins with a new connection between the mainline and Tacoma Rail in Chehalis. Traffic would move north through Grand Mound and Maytown on the Tacoma Rail Mountain Division. Then a new connection at either Rainier or Roy would transfer traffic to the Prairie Line. Traffic would move from Rainier or Roy to Lakewood, where the Prairie Line joins the Point Defiance Bypass (to be used for commuter rail). The route would continue on to BNSF's rail yard (called Reservation) in Tacoma. Day-to-day freight operations were expected to be difficult due to the need for coordination with Sound Transit and Amtrak. The Point Defiance Bypass was expected to accommodate three passenger trains and hour in each direction. The alternative was deemed impractical and no cost estimate was provided.

Four commuter rail options were explored in the FAR Corridor report, including:

- P1: Saint Clair Line from Olympia to Lakewood/Tacoma. In 1987 the rail line between downtown Olympia and Fones Road was abandoned as part of an I-5 improvement program. [Note: Another section from Fones Road to Union Mills Road was recently vacated, and now much of the old rail alignment is becoming the Olympia and Lacey Woodland Trails.] A commuter route would run from Olympia along the St. Clair to the mainline, where it would turn north, then northeast onto the Point Defiance Bypass and on to Lakewood/Tacoma. Track, bridges and most of the grade were removed between I-5 and downtown Olympia. The alignment also passes through Lacey's business district on Pacific. [Note: Lacey recently removed much of the track in construction of the Pacific/Lacey one way couplets.] Travel time from Olympia to Tacoma was estimated at 41 minutes and build-out improvements at \$128 to \$151 million. It was deemed feasible but expensive.
- P2: Union Pacific Olympia Line to Lakewood/Tacoma. Service would begin in downtown Olympia, travel southeast on the Union Pacific Line past the brewery to the mainline, then travel north on the mainline to Centennial Station, continuing north to the connection with the Point Defiance Bypass, then northeast to Lakewood/Tacoma. This is the only rail access to Olympia and is used by both BNSF [now Tacoma Rail] and Union Pacific [now Tri-City and Olympia]. The Union Pacific Line has two tunnels between Olympia and Tumwater and speed is restricted to 10 m.p.h. The report estimates it would take 26 minutes to travel from Olympia to Centennial Station, plus travel time from Centennial to Lakewood/Tacoma. Build-out improvements would cost \$162 million. It was deemed infeasible.
- P3: Union Pacific Olympia Line to Amtrak Station. Like P2, service would begin in downtown Olympia, travel southeast to the mainline, then north on the mainline to Centennial Station. The alternative assumes connecting service is made at Centennial Station. The trip would take 26 minutes plus dwelling time at the station waiting for the connecting service. The alternative was estimated to cost \$62 million. It was deemed infeasible.
- P4: Commuter Service on the BNSF Mainline and Point Defiance Bypass. Service would be provided from Centennial Station, running north along the mainline, then northeast on the Point Defiance Bypass to Tacoma. Centennial Station access was an issue, otherwise the route would require few physical improvements. Commuter service at build-out was estimated at \$109 million. This alternative was called "...attractive as a starter commuter rail service" because of relatively low start up costs, accessibility to Lacey residents and rapid growth in eastern Thurston County.

The study recommended:

- Negotiations should continue to use Tacoma Rail Mountain Division for freight and conceptual improvements/costs should be outlined.
- Commuter rail should focus on travel from Centennial Station to Tacoma on the Point Defiance Bypass.
- TRPC should work with the City of Olympia and the East-West Greenway Trail committee to assure that the St. Clair line was preserved for future high capacity transportation use.
- The region should start forging partnerships with Sound Transit for potential service and equipment for commuter rail to Olympia.

Abstract

Washington Commerce Corridor Feasibility Study

December 2004

To: Washington State Legislature
For: Washington State Department of Transportation
By: Wilbur Smith Associates

The Washington Commerce Corridor was conceived as a north-south alternative to I-5 facilitating the movement of freight, goods, people and utilities. The willingness and ability of the private sector to build and operate the proposed corridor was assessed. The proposed corridor extends from Lewis County to the Canadian border. The study posed two questions:

- Is there sufficient demand for the corridor?
- Can it be built?

The energy sector was not interested in developing the corridor. Passenger rail service could not contribute to the financial feasibility of the corridor. While the corridor follows active and inactive/abandoned rail lines, the freight rail companies were primarily focused on east-west mainline improvements as their priority investments. Neither would car tolls be a significant source of revenues. The traffic patterns associated with auto and freight rail did not fit the north-south long haul orientation of the corridor. Truck tolls needed further exploration. A sizable share of the southern segment of the corridor (I-90 to Chehalis) may be supportable by truck tolls and public subsidy.

The proposed alignment of the corridor had significant natural constraints with a fatal flaw through the Cedar River Watershed. The corridor would impact several small rural and agricultural based communities. Regulatory and land use issues presented obstacles, potentially requiring changes to local comprehensive plans. The state's existing environmental review process was not equipped to handle a project of this scope, posing a significant pre-construction risk for the private sector. These factors were found to significantly undermine the feasibility of the corridor at the conclusion of the study.

The corridor was estimated to cost between \$42 and \$50 billion. Right-of-way costs represented about 40% of total costs. Roadway costs represented a 70% share, rail 11% to 17%, energy (power and pipeline) 10% to 14%, and trails 3%. The cost of the corridor greatly undermined the feasibility of a private sector entity bundling all modes into a single corridor even if users generate revenue. Feasibility would be improved from a cost standpoint by targeting only the components most likely to generate revenue.

The legal and institutional issues included the need for robust state legislation allowing public-private initiatives and for a single purposed entity vested with the powers and authority to oversee the project. Co-locating utilities and transportation in the same corridor was also restricted.

The report recommends:

- Reduce the complexity, scale and length of the corridor strategy.
- Pursue a multimodal freight based corridor strategy.
- Conduct a detailed feasibility analysis of a public/private truck freight corridor.
- Create more robust public-private state legislation.
- Create a single entity to coordinate creation of state significant energy corridors.
- Develop a streamlined environmental review and permitting process.

Specific to the Thurston Region, potential corridor alignments followed the Prairie Line (beginning at Tenino through Yelm, then connecting to Tacoma Rail), Tacoma Rail's branch from Fredrickson to Chehalis (from Grand Mound to Yelm), and a third alignment on Tacoma Rail's branch from Fredrickson to Morton that skirts Thurston County passing directly from Lewis to Pierce County.

Abstract

Draft Washington State Long Range Plan for Amtrak *Cascades* Ongoing in 2006

By: Washington State Department of Transportation

This draft plan update, undergoing review now, describes the vision and incremental implementation process for improvements to infrastructure and service of the Pacific Northwest Rail Corridor and Amtrak *Cascades* service. In 1992, the corridor was one of five federally designated high speed rail corridors in the United States. The designation helps the region compete for federal funds to assist the state with planning and implementing improved passenger and freight rail service throughout the corridor. The corridor extends 466 miles on the BNSF mainline from Eugene, OR to Vancouver, B.C., with 297 miles in Washington State.

Currently, the maximum allowed passenger train speed on the corridor is 79 m.p.h., as set by the Federal Rail Administration. To increase speed, improvements to tracks, crossings, train control and signal systems are needed. The state plans to incrementally advance Amtrak *Cascades* service, improving safety, reliability and frequency while reducing travel times. The plan, at build-out, calls for 13 round trips per day between Portland and Seattle, with travel time reduced from 4 hours to 2.5 hours.

In 1993, when improvements were begun, Amtrak *Cascades* annual ridership was 95,000 passengers per year between Portland and Seattle. That climbed to 345,000 by 2003. At build-out, a projected 2 million passengers per year will use the service between Portland and Seattle (3 million overall in the corridor).

Future needed improvements include crossing upgrades, increases in speed, enhanced train control, new train equipment, improved stations (including access and connections), and track upgrades. The physical improvements are expected to last 50 to 100 years. Build-out will require a \$5 billion investment. Operations and maintenance ranges from \$20 million annually today to \$83 million at build-out (in today's dollars). Farebox recovery is expected to increase to 99% by build-out, with the maximum subsidy of \$15 million which gradually decreases until build-out. Revenue sources and timeframe are still under discussion.

Specific to the Thurston Region, ridership at build-out in Olympia/Lacey is projected at 180,250 annually. Improvements include:

- Crossovers at Centennial Station to provide flexibility for trains to move between tracks when entering the station and ensuring that passengers can exit the train at the station platform without crossing other tracks. The estimated project cost is \$3.4 million and is fully funded.
- Crossover at Tenino provides flexibility for trains to move between tracks and helps keep passenger rail service on-time. This \$3.4 million project is fully funded.
- Hannaford to Nisqually Third Main Track is a new 26 mile main line next to the existing double tracked main line, extending from the Thurston/Lewis County line to Nisqually. The

new track will allow passenger trains to operate at 110 m.p.h., reducing travel time between Portland and Seattle. The physical condition of the existing tracks and local geography prevent the train from traveling at high speeds. Estimated construction will cost \$315 million. [The project extends from Hannaford to Chehalis in Lewis County at the additional cost of \$66 million.]

- Point Defiance Bypass (in Pierce County just north of the Thurston County border) includes improvements to the line recently acquired by Sound Transit for Sounder service. Amtrak *Cascades* and *Coast Starlight* will also travel this route, bypassing the curvy mainline tracks and the single track tunnel choke point at Point Defiance. The project cost is \$233 million, with \$21 million included in the 2003 state legislative transportation package.

Abstract

Statewide Rail Capacity and System Needs Analysis Ongoing in 2006

To: Washington State Legislature
For: Washington State Transportation Commission
By: Cambridge Systematics

In the 2005 session, the Washington State Legislature commissioned the Washington Transportation Commission to complete three studies, including one on statewide rail capacity and needs. The purpose of the study is to:

- Assess the state's freight and passenger rail infrastructure needs
- Review the state's current powers, authorities and interests in passenger and freight rail
- Recommend policies for state participation and ownership in rail infrastructure and service delivery.

The report is due to the legislative transportation committees by December 1, 2006. The Transportation Commission recently selected Cambridge Systematics to complete the work. The scope of work includes ten key tasks –

1. Review the role of rail in the state and national economy.
2. Determine the current status, future plans, capacity constraints and needs of the state's passenger and freight rail, including their interaction.
3. Analyze the state's major freight-rail-dependent supply chains and their impediments.
4. Investigate the current and future operating practices of the rail industry.
5. Explore the positioning of the state's rail program in national studies and funding possibilities.
6. Develop the conceptual approach underlying the rationale of state participation in private rail investment.
7. Develop a menu of practical policy options for implementing alternatives.
8. Develop a rail asset management plan for state owned assets.
9. Summarize recommendations and plans for implementation.
10. Incorporate public involvement in the rail plan implementation.

The project budget is \$1.15 million, including contingency funds and a new position in WSDOT to manage the project and its implementation.