



Washington State Transportation
Commission

Statewide Rail Capacity and System Needs Study
Task 1.1.B – Washington State's Passenger Rail System

technical

memorandum

prepared for

Washington State Transportation Commission

prepared by

**Cambridge Systematics, Inc.
HDR, Inc.
Transit Safety Management**

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May 2006

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Task 1.1.B – Washington State's Passenger Rail System

■ Summary

Intercity rail service in Washington State is provided by the National Railroad Passenger Corporation (Amtrak), connecting cities in Washington with each other, and with major cities across the nation. The Empire Builder service offers east-west travel across the State with a northern route serving Seattle, Edmonds, Everett, Winatchee, Ephrata, and Spokane, and a southern route serving Portland, Vancouver, Bingen-White Salmon, Wishram, Pasco, and connecting to the northern route at Spokane for service to Chicago. The Cascades and Coast Starlight services provide north-south access linking Seattle, Tacoma, Olympia, and other cities with Vancouver, British Columbia, Portland, and California. Ridership continues to grow, with a 3.8 percent gain seen from 2004 to 2005.

Sound Transit provides Washington's commuter rail services that provide access to the urban core helping to relieve roadway congestion. This service, which began in 2000, operates daily commuter trains across three counties in the Puget Sound area between the cities of Tacoma and Seattle (South Corridor) and Everett and Seattle (North Corridor), covering a total distance of 82 miles. Ridership has grown steadily from 0.5 million in 2001 to 1.2 million in 2005.

This technical memorandum first describes the Amtrak services, then the commuter service. It includes a brief history, description and maps of current operations, ridership information, and planned service expansions.

■ Objective

The objective of this memorandum is to describe the current passenger rail system serving Washington State and the Pacific Northwest region.

The memorandum has two findings sections:

- Intercity service is provided by Amtrak and connects cities in Washington State with each other, and with major cities across the nation; and
- Sound Transit provides Washington's commuter rail services that provide access to the urban core helping to relieve roadway congestion.

■ Methodology

Information contained in this technical memorandum was obtained directly from the rail operators, from various railroad and government Internet sites, and discussions with coworkers and subconsultants familiar with the Washington State rail network.

■ Intercity Service

Introduction

Amtrak currently operates 43 intercity passenger rail routes in the United States serving more than 500 destinations in 46 states, the only states not having Amtrak rail service being Alaska, Hawaii, South Dakota, and Wyoming. Its passenger rail network covers close to 22,000 miles of track, most of which is owned by the Class I freight railroads. Amtrak owns approximately 730 route miles, representing three percent of its national network, most of which is located between Washington, D.C. and Boston (the Northeast Corridor), and in Michigan. Amtrak does not own any tracks in Washington State, but operates a major maintenance facility in Seattle.

History

Throughout the first half of the 20th century, Americans relied heavily on intercity passenger rail to travel short- and long-distances. As automobiles became more economical and massive highway investments were made in the interstate highway system, the role of passenger rail quickly began to diminish in relationship to personal automobile travel. Development of commercial aviation in the 1950s and 1960s further dealt damaging blows to intercity passenger rail transportation. Consequently, the share of ridership on passenger railroads – both intercity and commuter – dropped significantly, forcing many passenger railroads out of business, and causing freight railroads to rationalize passenger rail operations when possible.

The Nixon Administration, realizing the need for a reliable, national intercity rail system, asked Congress to consider a bill that would form a national intercity railroad to relieve freight railroads of money-losing passenger operations. In 1970, under the Rail Passenger

Service Act, Congress created the National Railroad Passenger Corporation (NRPC/Amtrak) as a for-profit government corporation with trackage rights over all freight railroads. The bill that created Amtrak guaranteed priority over freight trains, but required Amtrak to compensate the freight railroads for the incremental costs associated with its operations over their tracks. Congress expected Amtrak would become profitable and self sufficient after a few initial years of Federal support in terms of capital and operating subsidies. This was perhaps an unrealistic expectation, and one that few passenger rail systems are expected to achieve. The more appropriate question is whether the more than \$29 billion in Federal subsidies Amtrak has received since 1971 can be justified from the standpoint of public benefits obtained from the operations of intercity passenger rail services (avoided highway costs, congestion mitigation, alternate transportation system in times of crisis, environmental and safety improvements, etc.).

Current Status

Following several unsuccessful efforts in the late 1990s to restructure Amtrak and make the railroad self sufficient, Amtrak's current situation is tenuous. The 1997 Amtrak Reform and Accountability Act attempted to bring profitability to the railroad by 1) converting Amtrak from a government corporation to a private entity without monopoly protection; 2) allowing the railroad to add new routes and close money-losing ones; and 3) and providing \$2.2 billion in subsidies through 2002 with the hope that Amtrak would become self sufficient within five years. In 2002, the U.S. Department of Transportation's (DOT's) Office of Inspector General found that Amtrak had not made any progress toward self-sufficiency, and that the railroad would have to receive public funds to continue operating. From Fiscal Year (FY) 2003 to FY 2005, Amtrak continued to receive annual appropriations, although the funding was far below levels requested by the railroad. In fiscal years 2004 and 2005, Congress appropriated funds of the order of \$1.2 billion for Amtrak (\$300 million more than that proposed by the Bush Administration), but well below the \$1.8 billion requested by Amtrak's board through 2006.

The FY 2006 Budget proposed to eliminate all Federal subsidies to the railroad, requesting only \$360 million to allow for the Surface Transportation Board (STB) to support and maintain Amtrak's commuter rail operations along the Northeast Corridor (NEC) and elsewhere, requiring the use of Amtrak personnel or property. However, this was rejected by Congress, and Amtrak has received budget appropriations of around \$1.3 billion for FY 2006. The Administration continues to take a hard stance towards Amtrak, as seen by the recent budget proposal for FY 2007, which provides \$900 million to Amtrak, a 30 percent decrease over FY 2006. Perhaps more important are the details of the proposal, which slates \$500 million for capital needs and maintenance in and around the NEC, and the remaining \$400 million in discretionary efficiency incentive grants, with zero amount for operational subsidies.

A pending Senate Bill entitled "Passenger Rail Investment and Improvement Act of 2005," (S.1516) calls for a shifting of Amtrak capital grants from Federal to state control. This bill calls for of 3 percent of Amtrak capital funds to be allocated to states in 2006, increasing to

33 percent by 2011. States would be permitted to use these funds for capital projects benefiting any intercity passenger rail service, not just Amtrak.

The Administration's posture toward Amtrak clearly indicates an aim towards significant reforms of passenger rail operations in the United States. Whether a national intercity passenger rail system survives, or a series of state-supported regional intercity rail services emerges, remains to be seen.

Amtrak Passenger Rail Services in Washington State

Part of the Amtrak national passenger rail service network operates on lines owned by freight railroads in Washington State. The services include Amtrak's Empire Builder, Amtrak Cascades, and Coast Starlight, which are described below:

Empire Builder

Empire Builder provides daily intercity long-haul passenger rail service between Seattle and Chicago, and Portland and Spokane.

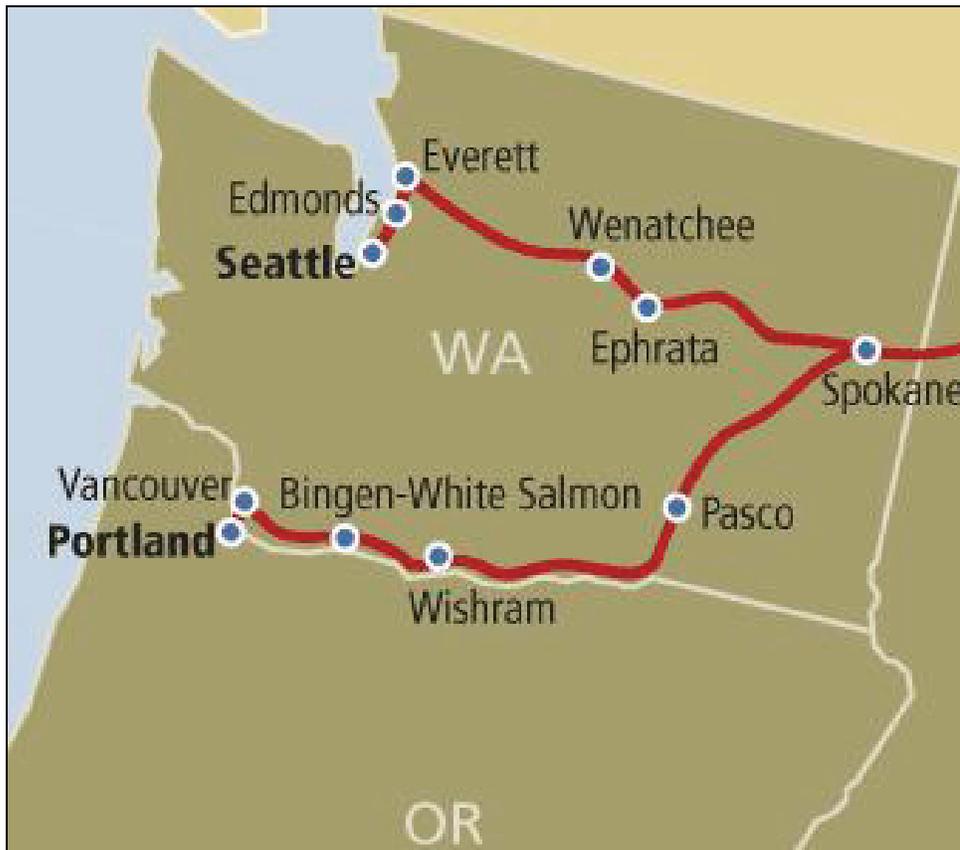
Seattle, Washington to Chicago, Illinois Service

Empire Builder's Seattle-Chicago service consists of one train per day each way between Seattle and Chicago, operating through Everett, Wenatchee, and Spokane in Washington State. Other intermediate stations in Washington State served by this service include Ephrata and Edmonds. The daily services depart Seattle and Chicago at 4:45 p.m. and 2:15 p.m. respectively, and the average trip travel time of the service, traversing a distance of 2,206 miles, is around 46 hours. The service runs on tracks owned by the Burlington Northern Santa Fe (BNSF) railroad in Washington State.

Portland, Oregon to Spokane, Washington Service

Empire Builder's Portland-Spokane service consists of one train per day each way between Portland and Spokane, operating through Vancouver and Pasco in Washington State. Other intermediate stations served by this service include Wishram and Bingen-White Salmon in Washington State. For the westward service from Spokane to Portland, the cars arrive on the Empire Builder train from Chicago and are removed at Spokane for the train to Portland. Eastward, the cars from Portland arrive at Spokane on the Portland-Spokane service, and are added to the Empire Builder train to Chicago. The daily services depart Portland and Spokane at 4:45 p.m. and 2:15 a.m. respectively, and the average trip travel time between Portland and Spokane, a distance of 378 miles, is approximately 7.5 hours. The service runs on tracks owned by BNSF in Washington State.

Routes and Stations of Amtrak's Empire Builder service in Washington State are depicted in Figure 1.

Figure 1. Empire Builder Service Routes across Washington State

Source: www.amtrak.com.

Amtrak Cascades

Amtrak Cascades provides daily intercity passenger rail services in the Pacific Northwest, serving the main cities of Portland, Seattle, and Vancouver (British Columbia). The service shares the same railroad tracks as freight trains along this busy corridor. Description of Amtrak Cascades services between major cities is provided below:

Portland, Oregon to Seattle, Washington

Between Portland and Seattle, the Amtrak Cascades service is a combination of trains in the Amtrak national network and trains supported by Washington State and operated by Amtrak. There are three trains per day each way, that also serve the cities of Vancouver, Kelso-Longview, Centralia, Lacey to Olympia, Tacoma, and Tukwila in Washington State. Starting in July of 2006, there will be four trains per day each way, one of which will continue through Seattle, running between Portland and Bellingham. The departure times from Portland and Seattle and the average transit times for the Portland-Seattle service are provided in Table 1.

**Table 1. Amtrak Cascades Departure and Average Transit Times
 Portland to Seattle Services**

Departure Location	Departure Time	Average Transit Time (Portland-Seattle)
Portland	8:45 a.m.	3 hours, 30 minutes
	12:30 p.m.	
	6:15 p.m.	
Seattle	7:30 a.m.	3 hours, 30 minutes
	1:45 p.m.	
	5:25 p.m.	

Note: Amtrak Cascade trains between Portland and Seattle operate in Washington State on tracks owned by the BNSF railroad.

Seattle, Washington to Vancouver, British Columbia

Between Seattle and Vancouver, British Columbia, the Amtrak Cascades service is supported by Washington State and operated by Amtrak. There is one train per day each way between Seattle and Vancouver, British Columbia, and one train per day each way between Seattle and Bellingham. These trains also serve the cities of Edmonds, Everett, and Mt. Vernon in Washington State. In July 2006, the train between Seattle and Bellingham will extend into a Portland to Bellingham service. The departure times from Seattle and Bellingham/Vancouver, British Columbia for Amtrak Cascade train services in this corridor are shown in Table 2.

**Table 2. Amtrak Cascades Departure and Average Transit Times
 Seattle to Bellingham/Vancouver, British Columbia Services**

Service	Departure Location	Departure Time	Average Transit Time
Seattle-Vancouver, British Columbia	Seattle	7:45 a.m.	4 hours
	Vancouver, British Columbia	6:00 p.m.	
Seattle-Bellingham	Seattle	5:30 p.m.	2 hours, 20 minutes
	Bellingham	10:25 a.m.	

Note: Amtrak Cascade trains between Seattle and Vancouver, British Columbia operate in Washington State on tracks owned by the BNSF railroad (Figure 2).

Figure 2. Amtrak Cascades Service Route across Washington State

Source: www.amtrak.com.

Coast Starlight

Amtrak's Coast Starlight is a daily intercity passenger rail service between Seattle and Los Angeles, serving the main Pacific Northwest cities of Portland and Seattle. It also serves the intermediate cities of Vancouver (Washington), Kelso-Longview, Centralia, Olympia-Lacey, and Tacoma in Washington State. There is one Coast Starlight train operating per day each way between Seattle and Los Angeles. The departure time of the service from Seattle is 10:00 a.m., and the transit time to Portland is around 4 hours, 5 minutes. Due to ongoing track improvements performed by Union Pacific Railroad (April 1 through December 2006 on track south of Portland), the Coast Starlight service is presently experiencing delays en route, and consequently, booking service for trips from intermediate stations to Seattle is not available at this time. However, under normal conditions, the northbound service departs from Portland at 4:05 p.m. and reaches Seattle at 8:30 p.m. Coast Starlight trains operate in Washington State on tracks owned by the BNSF Railroad (Figure 3).

Figure 3. Coast Starlight Service Route across Washington State

Source: www.amtrak.com.

Routes with Multiple Services

Several of the rail routes in Washington State are used by more than one passenger rail service. The following section describes the routes with multiple rail services, by origin-destination (O-D) pair:

Portland, Oregon to Vancouver Washington

- Empire Builder – One train each way per day;
- Coast Starlight – One train each way per day; and
- Amtrak Cascades – Three trains each way per day (four trains each way per day after July 1, 2006).

Portland, Oregon to Tacoma, Washington (TR Jct.)

- Coast Starlight – One train each way per day; and
- Amtrak Cascades – Three trains each way per day (four trains each way per day after July 1, 2006).

Tacoma, Washington (TR Jct.) to Seattle, Washington

- Coast Starlight – One train each way per day;
- Amtrak Cascades – Three trains each way per day (four trains each way per day after July 1, 2006); and
- Sounder – Four trains each way per day (nine trains per day each way after completion of infrastructure projects under construction or in planning).

Seattle, Washington to Everett, Washington

- Empire Builder – One train each way per day;
- Amtrak Cascades – Two trains each way per day; and
- Sounder – Two trains each way per day (four trains per day each way after completion of infrastructure projects under construction or in planning).

Table 3. Summary of Amtrak Passenger Rail Services in Washington

Service	Origin-Destination	Frequency
Empire Builder	Seattle-Chicago	1 train per day, each way
	Portland to Spokane	1 train per day, each way
Amtrak Cascades	Portland to Seattle	3 trains per day, each way
	Seattle to Vancouver, British Columbia	1 train per day, each way
	Seattle to Bellingham	1 train per day, each way
Coast Starlight	Seattle to Los Angeles	1 train per day, each way

Amtrak Partnerships with Washington State

Amtrak’s Amtrak Cascades service along the Pacific Northwest Rail Corridor is partly operated in partnership with Washington State. Funds are contributed by the State for the following Amtrak Cascades services:

- Two daily round-trips between Portland and Seattle;
- One daily round-trip between Seattle and Vancouver, British Columbia; and
- One daily round-trip between Seattle and Bellingham.

The above services are managed by the State and Amtrak to ensure collaboration, coordination, and efficiency in joint planning of operations and capital infrastructure, marketing of operations, and development of services. Amtrak's Empire Builder and Coast Starlight are intercity long-distance passenger rail services, with only part of their route segments falling in Washington, and are not funded by the State.

Ridership

Amtrak's total ridership (measured in terms of station boardings and alightings) in Washington State in Fiscal Year 2005 jumped by nearly 4 percent from the previous year, to 1.108 million passengers, making the Washington region a key market area for Amtrak's services, as seen in Table 4.

Table 4. Top Amtrak Ridership States
Millions of Passengers

Rank	State	2004 Ridership	2005 Ridership	Percent Change
1	New York	10.385	10.176	-2.0%
2	California	9.332	9.836	5.4%
3	Pennsylvania	4.849	4.948	2.0%
4	District of Columbia	3.744	3.734	-0.3%
5	New Jersey	3.855	3.406	-11.6%
6	Massachusetts	1.962	1.957	-0.3%
7	Maryland	1.779	1.835	3.2%
8	Connecticut	1.392	1.459	4.8%
9	Washington	1.068	1.108	3.8%
10	Virginia	0.803	0.856	6.6%
11	Florida	0.913	0.841	-7.9%
12	Delaware	0.753	0.784	4.2%

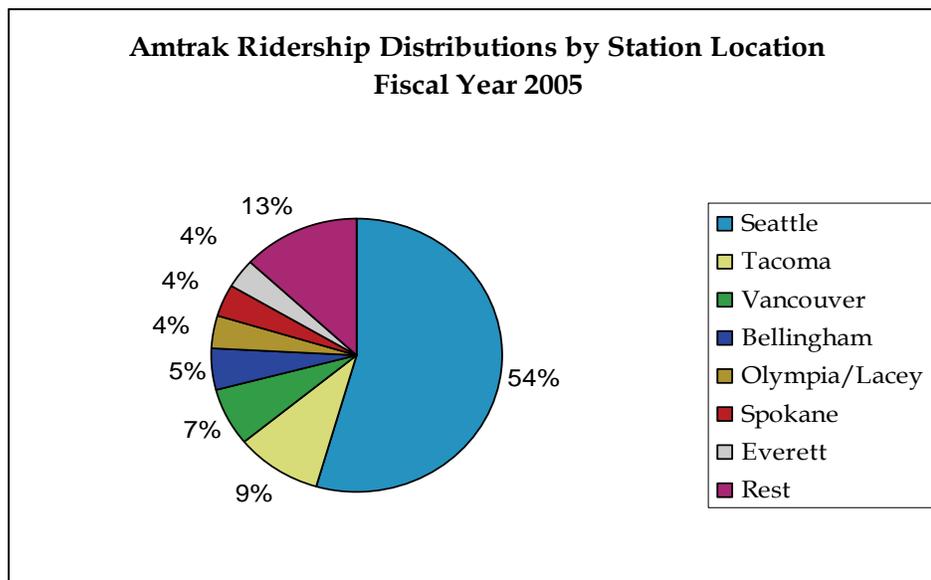
Source: Amtrak.

Note: Northeastern Corridor States are shaded.

Figure 4 and Table 5 summarize Amtrak's ridership in Washington State by station. Seattle accounted for 54 percent of the total passengers in 2005, due to its population and the fact that Seattle is among the few cities in Washington served by all three of Amtrak's intercity passenger rail services: the Empire Builder, Amtrak Cascades, and Coast Starlight. Tacoma had the second highest Amtrak ridership in Washington State, with a 9 percent share. Other cities with significant ridership in Washington are Vancouver,

Bellingham, Olympia/Lacey, Spokane, and Everett, with shares ranging between 4 percent and 7 percent of the State total.

Figure 4. Amtrak Ridership Distributions by Station Location in Washington
Fiscal Year 2005



Source: Amtrak.

Note: “Rest” includes all the locations with FY 2005 ridership less than 30,000.

Table 5. Washington Amtrak Ridership by Station Location

Station	2004	2005	Percent Change	Absolute Change
Seattle	590,041	604,888	2.5%	14,847
Tacoma	106,479	104,993	-1.4%	-1,486
Vancouver	71,474	74,170	3.8%	2,696
Bellingham	54,378	56,058	3.1%	1,680
Olympia/Lacey	42,362	42,664	0.7%	302
Spokane	37,082	40,793	10.0%	3,711
Everett	35,760	39,566	10.6%	3,806
Edmonds	25,710	27,987	8.9%	2,277
Kelso-Longview	20,499	21,448	4.6%	949
Mount Vernon	17,003	20,306	19.4%	3,303
Pasco	17,875	19,889	11.3%	2,014
Centralia	20,184	19,118	-5.3%	-1,066

Table 5. Washington Amtrak Ridership by Station Location (continued)

Station	2004	2005	Percent Change	Absolute Change
Wenatchee	12,838	15,714	22.4%	2,876
Tukwila	11,163	13,535	21.2%	2,372
Ephrata	2,483	2,747	10.6%	264
Wishram	1,056	2,410	128.2%	1,354
Bingen-White Salmon	1,381	1,786	29.3%	405

Source: Amtrak.

Overall Amtrak ridership in Washington State increased by 3.8 percent from FY 2004 to 2005. Some of the factors contributing to increased ridership have been attributed to stronger economy, improved service delivery and marketing, and rising gas prices. Seattle experienced the greatest absolute growth in Amtrak ridership from FY 2004 to FY 2005, nearly 15,000 passengers, translating to an annual average daily increase of more than 40 passenger boardings and alightings. Several of the lower volume stations (e.g., Mount Vernon, Wenatchee, Tukwila, Wishram, and Bingen-White Salmon) exhibited rapid growth from 2004 to 2005. Only two stations, Tacoma and Centralia, had a decline in ridership during this timeframe.

Economic Impacts

Amtrak's intercity passenger rail services in Washington State have notable economic impacts in the State. In FY 2005, Amtrak employed 546 residents in Washington State in various intercity passenger rail operations, and during this period, the total wages of Amtrak employees amounted to more than \$23 million. During FY 2005, Amtrak expended nearly \$18 million in goods and services in Washington State, with significant expenditures in Seattle, Tacoma, and Renton of \$8.4 million, \$6.8 million, and \$1.3 million respectively. Most of the Seattle expenses went to Talgo Inc. for the maintenance of Talgo train sets used in Amtrak Cascades service, while Tacoma money went to Associated Petroleum Products for the supply of diesel fuel, also for Amtrak Cascades service. Amtrak also operates a large maintenance facility in Seattle, used for the maintenance and servicing of Talgo train sets, locomotives, and passenger cars. This maintenance facility also provides turnaround service functions for two daily long-distance trains.

■ Commuter Rail Services

Sound Transit

History

Sound Transit, the Regional Transit Authority (RTA) for the Central Puget Sound region, was established in 1993 by the Washington Legislature authorizing King, Snohomish, and Pierce counties to create a single transit agency to plan, build and operate high-capacity transit systems in the Puget Sound area. Sound Transit was created to implement a Regional Transit System Plan developed by the Joint Regional Policy Committee (JRPC) that put forth the plan to the three county councils and recommended the formation of a Regional Transit Authority. The original JRPC plan was too ambitious, so the Sound Transit Board set forth to reduce the scope while trying to retain most of the plan's benefits. This work led to the development of a 1995 proposal for implementation of the first phase of a new regional rail and express bus network over 16 years, with an estimated cost of \$6.7 billion. This plan, however, did not get voter approval. Consequently, Sound Transit developed a revised Regional Transit Plan named Sound Move (essentially a downsized version of the 1995 proposal), which received voter approval in November 1996. A key component of the Sound Move plan was the development of a peak-period commuter rail system (Sounder Commuter Rail) between Lakewood and Everett.

In line with the plan outlined by Sound Move for the development of commuter rail in the Puget Sound, Sounder Commuter Rail service began operations in September 2000, with two morning trains from Tacoma to Seattle, and two evening trains from Seattle to Tacoma every weekday. In September 2002, a third morning and evening weekday train was added to the service between Tacoma and Seattle, and a fourth morning and evening weekday train was added in September 2005. Sounder commuter rail service between Everett and Seattle began in December 2003, with one morning train from Everett to Seattle, and one evening train from Seattle to Everett every weekday. A second morning and evening weekday train was added to the Everett-Seattle service in June 2005.

Current Operations

Sound Transit currently operates Sounder commuter rail daily weekday service through three counties in the Puget Sound area between the cities of Tacoma and Seattle (South Corridor), and Everett and Seattle (North Corridor), covering a total distance of 82 miles.

Everett to Seattle Service

Sounder commuter rail traffic currently is two trains per day each way between Seattle and Everett (two trains in the morning from Everett to Seattle, and two trains in the evening from Seattle to Everett.) These trains also serve the intermediate station at Edmonds. The total travel time from the Everett Station to Seattle's King Street Station is about an hour. The route is displayed in Figure 5.

Tacoma to Seattle Service

Sounder commuter rail traffic currently is four trains per day each way between Tacoma and Seattle (four trains in the morning from Tacoma to Seattle, and four trains in the evening from Seattle to Tacoma). These trains also serve the intermediate cities of Puyallup, Sumner, Auburn, Kent, and Tukwila. The total travel time from the Tacoma Dome Station to Seattle’s King Street Station is exactly an hour. The route is displayed in Figure 6.

Figure 5. Sounder Commuter Rail Service Route Map
Seattle to Everett

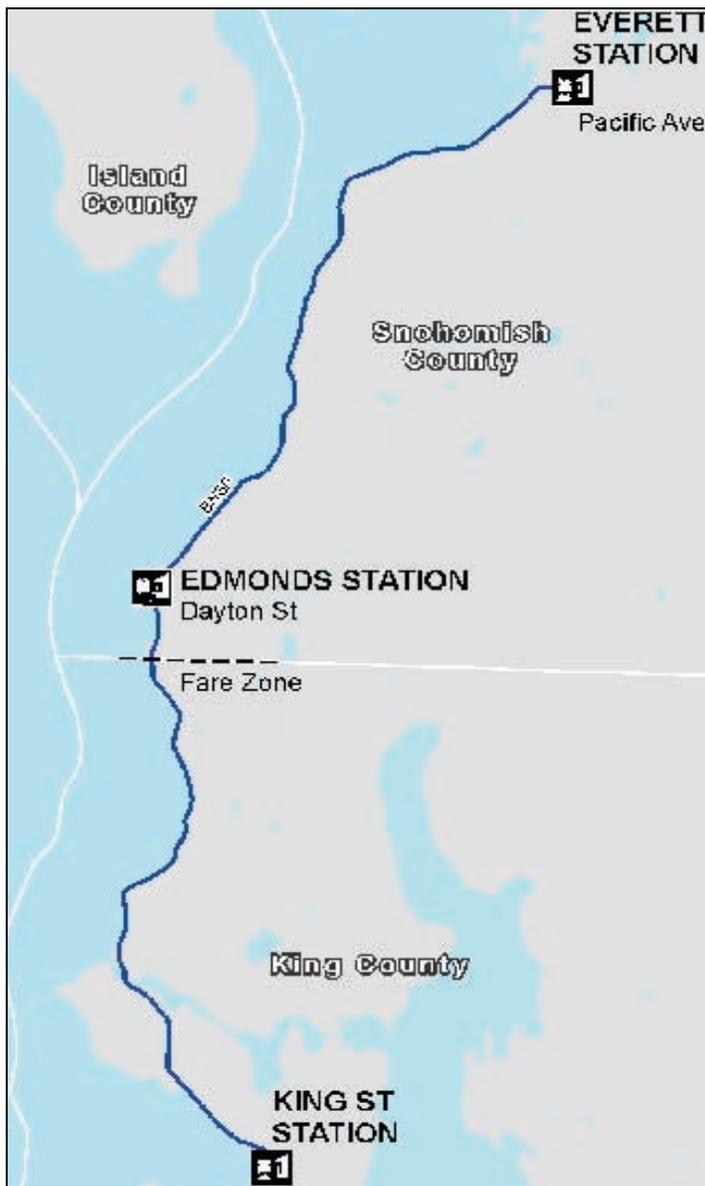


Figure 6 Sounder Commuter Rail Service Route Map
Tacoma to Seattle



Sounder commuter trains operate on BNSF railroad tracks between TR Junction (north of Tacoma) and Everett, and on Tacoma Rail tracks between Tacoma and TR Junction. (Table 6). Sounder commuter trains are operated by BNSF, and maintained by Amtrak, while Sound Transit owns the stations, and provides security.¹

¹ Source: http://www.soundtransit.org/pdf/FACT_Sounder.pdf.

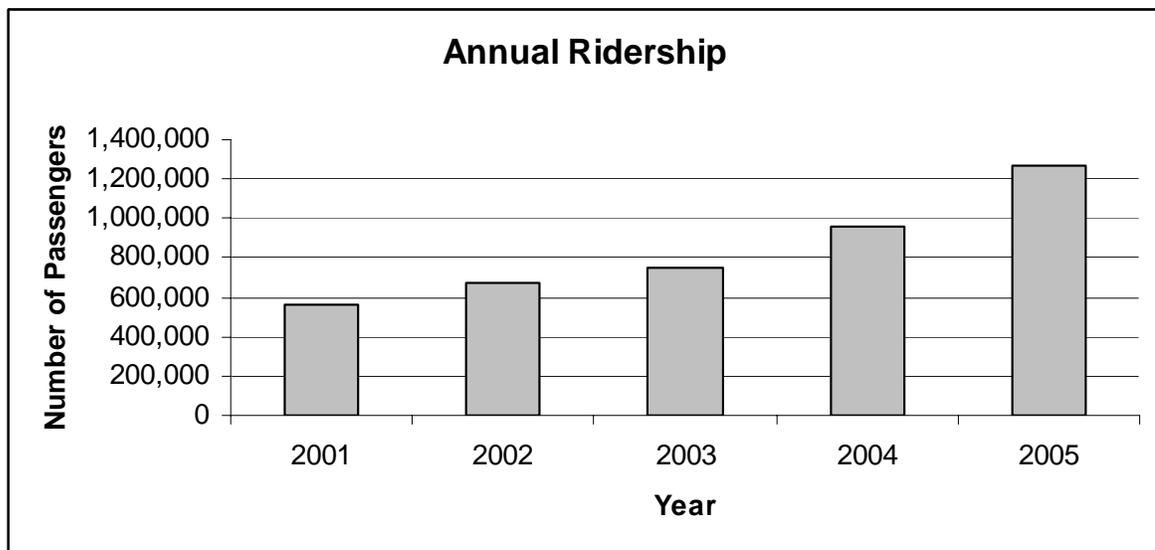
Table 6. Sounder Commuter Train Schedules for Tacoma-Seattle and Everett-Seattle Services

Service	Departure Location	Departure Time	Total Transit Time
Tacoma to Seattle	Tacoma Dome Station	5:45 a.m.	1 hour
		6:20 a.m.	
		6:45 a.m.	
		7:10 a.m.	
	Seattle King Street Station	4:20 p.m.	
		4:45 p.m.	
		5:10 p.m.	
		5:40 p.m.	
Everett to Seattle	Everett Station	6:10 a.m.	58 minutes
		6:40 a.m.	
	Seattle King Street Station	4:33 p.m.	
		5:13 p.m.	

Ridership

Sounder commuter rail service has seen steady growth in annual ridership since its inception in September 2000. In the first year of Sounders operation (last quarter of 2000), the service attracted more than 100,000 passengers. In the subsequent years of operation, Sounders experienced an increase in ridership from more than 500,000 in 2001 to over 1.2 million in 2005, an annual average growth of 22 percent. Figure 7 shows Sounders annual ridership since the start of operations in 2000.

Figure 7. Sounder Commuter Rail Annual Ridership
2001 to 2005



Source: http://www.wsdot.wa.gov/transit/library/2004_summary/11-Sound.pdf.
http://www.wsdot.wa.gov/transit/library/_2002_summary/10-Sound.pdf.
http://www.soundtransit.org/pdf/newsroom/Q4%20_2005_ridership.pdf.

Current average daily ridership on Sounder trains is around 4,300 to 4,500 passengers, continued realization of which will result in annual ridership of over \$1.5 million at the end of the year.

Other Rail-Based Transit Systems in Washington State

In addition to Sounder Commuter Rail, the following rail-based passenger transportation systems operate in Washington State:

- **Seattle Center Monorail**, an elevated monorail line in Seattle, provides passenger transit service over a one-mile route along Fifth Avenue, from Westlake Center in Downtown Seattle to Seattle Center in Lower Queen Anne. The service operates daily, departing every 10 minutes, and covers the one-mile distance in around two minutes. Each monorail train has the capacity to carry 450 passengers. The service claims to be the only self-sufficient public transit system in the United States, and with a top speed of 50 mph, also the fastest monorail system in the country. The Seattle Center Monorail system currently is closed for repairs, and is scheduled to reopen in August 2006.
- **Tacoma Link** is a 1.6-mile light rail system operated by Sound Transit connecting Tacoma Dome Station to downtown Tacoma. Tacoma link trains, which operate every

10 minutes from Monday to Saturday and every 10 to 20 minutes on Sunday, are free of charge.

Passenger Rail Service Plans and Developments in Washington State

The following section discusses imminent developments, and plans currently in consideration for improvement and/or development of passenger rail services in Washington State. The realization of passenger rail plans for the achievement of incremental goals for future passenger rail services in Washington is dependent on available funds, as well as success of agreements and/or partnerships with freight railroads, especially BNSF, for expanded passenger rail operations on freight rail lines.

Amtrak Cascades

Future developments and plans for expanded Amtrak Cascades service in Washington State are as follows:

- From July 2006, the Amtrak Cascades train service between Seattle and Bellingham will be extended to operate between Portland and Bellingham, through Seattle, thereby increasing the number of trains serving Portland to Seattle to four.
- The future pair of trains operating between Portland and Bellingham will be extended to Vancouver, British Columbia, after the completion of a British Columbia supported infrastructure project at Colebrook that will provide the additional capacity required for this train.
- Washington State DOT's *Draft Short-Range Plan for Amtrak Cascades* (February 2006) describes a number of additional improvements along the Pacific Northwest Rail Corridor through the year 2015, including additional main line tracks, siding upgrades, junction improvements, high-speed crossovers, and new storage tracks. Funding has been secured for most of these projects, although project cost estimates are conceptual and could change over time.
- Washington State DOT's *Draft Long-Range Plan for Amtrak Cascades* (February 2006) describes the following intercity passenger rail service expansions along the Pacific Northwest Rail Corridor through the year 2023:
 - Going from four trains per day each way between Portland and Seattle to 13 trains per day each way;
 - Going from one train per day each way between Seattle and Vancouver, British Columbia to four trains per day each way; and
 - Grade crossing upgrades, speed increases, enhanced train signals and communication systems, new passenger trains, upgraded passenger rail stations, and improved tracks and facilities.

- Cost estimates have been developed for the long-range improvements, but no long-term financial commitments have yet been made. Analysis indicates that implementing the long-range improvements would increase ridership along the corridor from about 500,000 annually in 2004 to nearly three million annually in 2023.

Sounder Commuter Rail

Future developments and plans for expanded Sounder Commuter Rail service in Washington State are as follows:

- Improvements currently are underway at the temporary Edmonds station, served by two Sounder trains every weekday between Seattle and Everett. Sound Transit also is working with local jurisdictions to develop a permanent Sounder station at the Edmonds Crossing multimodal project at SR 104;
- Commuter rail services will be added to Mukilteo after the completion of BNSF track improvements, by developing a permanent station at the location. Mukilteo station is scheduled to be fully operational for commuter rail service by mid-2007;
- Four weekday round-trip commuter trains will be implemented in the future between Seattle and Everett, as soon as necessary track improvements are completed (including construction of double tracks in many locations). The additional trains are scheduled to start operations in the fourth quarter of 2007;
- Nine weekday round-trip commuter trains will be implemented in the future between Seattle and Tacoma, after a two phase completion of track and signal improvements; and
- Sound Transit will expand commuter rail operations south of Tacoma to Lakewood, by constructing two stations – South Tacoma and Lakewood, scheduled for completion by end of 2007. In addition to stations, Sound Transit will perform track and signal improvements on a 7-mile rail right-of-way purchased from BNSF, and construct a new 1.2-mile track from Tacoma Dome Station to the M Street overpass at South Tacoma Way for expanding the service south of Tacoma to Lakewood.

Link Light Rail

Sound Transit is planning a light rail line, with service scheduled to begin in 2009. It will operate between Tukwila and downtown Seattle with a travel time of approximately 30 minutes. The trains will run every 6 minutes during the peak-periods, and every 10 to 15 minutes in off-peak-periods (midday and evenings). Extensions to this initial segment will include service to the Sea-Tac airport, a 1.7-mile extension, which is scheduled for implementation by December 2009. Future extensions of the Link light rail system are proposed to include services to the Capitol Hill, University District, Roosevelt, and Northgate Neighborhoods, which are potentially high-ridership corridors. Construction of the first phase of North Link, connecting these neighborhoods, is expected to begin in 2008/2009.

■ Conclusions

Intercity passenger rail in Washington State operates on three services all operated by Amtrak. The Empire Builder offers east-west service on both northern and southern cross-state routes, linking the State with major cities in the upper Midwest all the way to Chicago. The Cascades and Coast Starlight trains offer north-south service, linking cities on the western portion of Washington with Vancouver, British Columbia, Portland, Oregon, and California. Ridership continues to grow, up 3.8 percent from 2004 to 2005, prompting both short- and long-range plans for increased service and infrastructure expansion. Nearly all of this expansion is planned for the north-south Cascade service.

Commuter service is provided by the relatively new Sounder trains, operated by Sound Transit. Covering a total distance of 82 miles, Sounder provides two trains per day each way between Seattle and Everett and four trains per day each way between Tacoma and Seattle. Ridership has more than doubled since inception, going from 0.5 million riders in its first year of operation in 2001, to 1.2 million riders in 2005. Service expansions and new stations are being planned to support this rapid growth.