

# SOUND TRANSIT FUTURE SERVICE

**Link Light Rail**

**Future service:**

- Everett-Seattle-West Seattle
- Redmond-Seattle-Mainor
- Ballard-Seattle-Tacoma
- Issaquah-Bellevue-South Kirkland
- Tacoma Dome-Tacoma Community College

**In service:**

- Univ. of Washington-Angle Lake
- Tacoma Dome-Theater District

**Sounder Commuter Rail**

**Future service:**

- DuPont-Lakewood

**In service:**

- North Line (Everett-Seattle)
- South Line (Lakewood-Seattle)

**Bus**

**Future service:**

- Bus Rapid Transit (BRT)

**In service:**

- ST Express bus (service re-evaluated annually)

○ New station or bus facility  
 P Added parking  
 Ⓢ Station improvements  
 Ⓢ Major transfer hub  
 ○ Existing station or bus facility  
 ○ Existing parking  
 ○ Provisional light rail station



# Central Link

**Central Link** is a light rail line in Seattle, Washington, United States, and part of Sound Transit's Link light rail system. It serves 16 stations in the cities of Seattle, SeaTac, and Tukwila, traveling 20 miles (32 km) between University of Washington and Angle Lake stations. The line connects the University District, Downtown Seattle, the Rainier Valley, and Seattle–Tacoma International Airport. Central Link carried over 23 million total passengers in 2017, with an average of 72,000 daily passengers on weekdays. It runs for 20 hours per day on weekdays and Saturdays, with headways of up to six minutes during peak hours, and reduced 18-hour service on Sundays and holidays. Trains are composed of two or more cars that each can carry 194 passengers, including 74 in seats, along with wheelchairs and bicycles.

Voters approved Central Link in a 1996 ballot measure and construction began in 2003, after the project was reorganized under a new budget and truncated route in response to higher than expected costs. The light rail line, which followed decades of failed transit plans for the Seattle region, opened on July 18, 2009, terminating at Westlake in the Downtown Seattle Transit Tunnel and Tukwila International Boulevard near Sea–Tac Airport. It was extended south to SeaTac/Airport in December 2009, north to the University of Washington in March 2016, and south to Angle Lake in September 2016. The line is scheduled to be extended north to Northgate in 2021, followed by further extensions to Lynnwood and Federal Way in 2024. East Link will open in 2023, connecting Seattle to the Eastside suburbs and forming a multi-line network via its connection with Central Link. Further expansion under Sound Transit 3 will divide Central Link between two lines, the Red Line from Snohomish County to West Seattle, and the Green Line from Ballard to Tacoma.

## Contents

### History

- Background and early transit proposals
- Light rail planning
- Budget issues and delays
- Construction and testing
- Opening and later extensions

### Route

- Stations
- Notes

### Service

- Ridership
- Fares

### Rolling stock and equipment

### Future plans

### References

### External links

## History

### Background and early transit proposals

Public transit service within Seattle began in 1884, with the introduction of the city's first horse-drawn streetcar line. The system had been replaced with a network of electric streetcars and cable cars by the end of the decade, which spurred the development of new streetcar suburbs across modern-day Seattle.<sup>[2][3]</sup> Interurban railways to Everett, Tacoma, and the Rainier Valley were established after the turn of the century, giving the region an intercity passenger rail system to feed the streetcar lines.<sup>[4]</sup> The interurban systems failed to compete with the increasing popularity of automobile travel, capped by the completion of U.S. Route 99 in the late 1920s, and was shut down.<sup>[5]</sup> By 1941, the streetcars had also been acquired by the municipal government and replaced with a trolleybus network.<sup>[3][6]</sup>

Various proposals for a rapid transit system in Seattle, to replace the streetcar—and later bus—networks, were presented in the 20th century and rejected by city officials or voters due to their cost or other factors. In 1911, urban planner Virgil Bogue proposed a 41-mile (66 km) system of subway tunnels and elevated railways as the centerpiece to a comprehensive plan for the city, which was rejected by voters.<sup>[7]</sup> The

### Central Link



A two-car light rail train on an elevated guideway in Tukwila

### Overview

Type	Light rail
System	Link light rail
Status	Operational
Locale	Seattle, Washington, U.S.
Termini	University of Washington (north) <div>Angle Lake (south)</div>
Stations	16
Daily ridership	72,028 (2017, weekdays) <sup>[1]</sup>
Website	soundtransit.org ( <a href="https://www.soundtransit.org/schedules/link-light-rail">https://www.soundtransit.org/schedules/link-light-rail</a> )

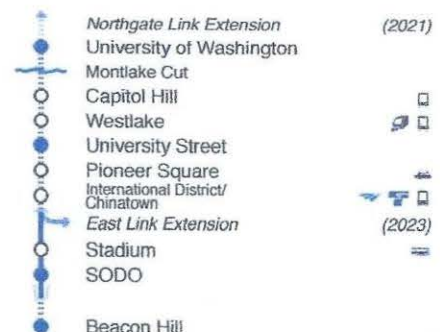
### Operation

Opened	July 18, 2009
Owner	Sound Transit
Operator(s)	King County Metro
Character	At grade, elevated, and underground
Rolling stock	62 Kinkisharyo-Mitsui light rail vehicles

### Technical

Line length	20.35 mi (32.75 km)
Number of tracks	2
Track gauge	4 ft 8½ in (1,435 mm) standard gauge
Electrification	1,500 V DC, overhead catenary
Operating speed	55 miles per hour (89 km/h)

### Route map





Seattle Center Monorail, originally built for the 1962 World's Fair, has been the subject of several unsuccessful expansion proposals backed by Governor Albert Rosellini in the 1960s and Seattle voters in the early 2000s.<sup>[8]</sup> The Forward Thrust Committee of the late 1960s proposed a 47-mile (76 km) rapid transit system, to connect Downtown Seattle to Ballard, the University District, Lake City, Capitol Hill, Bellevue, and Renton. The federal government offered to fund two-thirds of the rail system's capital costs, approximately \$770 million (equivalent to \$4.16 billion in 2016 dollars),<sup>[9]</sup> if \$385 million (equivalent to \$2.08 billion in 2016 dollars)<sup>[9]</sup> in local property taxes were approved by voters.<sup>[10]</sup> The rapid transit initiative was placed on the ballot in February 1968, but failed to receive the necessary supermajority to pass. A second attempt in May 1970, with \$440 million (equivalent to \$2.15 billion in 2016 dollars)<sup>[9]</sup> in local funding and \$870 million (equivalent to \$4.25 billion in 2016 dollars)<sup>[9]</sup> in federal funding,<sup>[11]</sup> failed amid a local economic downturn caused by layoffs at Boeing.<sup>[12]</sup> The federal funding earmarked towards the rapid transit system was granted to Atlanta, Georgia, forming the initial funding for the Metropolitan Atlanta Rapid Transit Authority's rail system.<sup>[13]</sup>



## Light rail planning

Following the failed Forward Thrust initiatives, Metro Transit was created in 1972 to oversee a countywide bus network, and plan for a future rail system.<sup>[14]</sup> In the early 1980s, Metro Transit and the Puget Sound Council of Governments (PSCOG) explored light rail and busway concepts to serve the region,<sup>[15]</sup> ultimately choosing to build a downtown transit tunnel that would be convertible from buses to light rail at a later date.<sup>[16]</sup> The PSCOG formally endorsed a light rail plan in 1986, recommending a system be built by 2020, and include a line between Seattle and Sea-Tac Airport,<sup>[17]</sup> with routing alternatives that served the Rainier Valley.<sup>[18][19]</sup> A 1988 advisory measure on light rail planning was passed in King County, encouraging Metro Transit to accelerate the plan's timeline to open by 2000.<sup>[20]</sup> In 1990, the state legislature endorsed the creation of a regional transit board composed of politicians from King, Pierce, and Snohomish counties, with the goal of implementing the regional transit plan.<sup>[21]</sup>

The Central Puget Sound Regional Transit Authority, later renamed Sound Transit, was created in 1993 to write and present a regional transit plan for voter approval.<sup>[22]</sup> The agency proposed a 70-mile (110 km) light rail network as the centerpiece of a \$6.7 billion transit ballot measure, with a surface line through the Rainier Valley and tunnels between Downtown Seattle, Capitol Hill, and the University District.<sup>[23][24]</sup> The ballot measure failed to pass on March 14, 1995,<sup>[25]</sup> and the light rail line was shortened to 25 miles (40 km), between the University District and Sea-Tac Airport.<sup>[26]</sup> Voters approved the \$3.9 billion package on November 5, 1996, along with increases to sales taxes and motor vehicle excise taxes across the regional transit district.<sup>[26][27]</sup> Sound Transit considered several routing options during a series of public hearings and studies early into the project's environmental impact study,<sup>[28]</sup> which adopted the name "Central Link".<sup>[29]</sup> In 1999, Sound Transit selected the alignment for the light rail project, consisting of a line between the University District and Sea-Tac Airport, with surface segments passing through Tukwila, the Rainier Valley, and SoDo, and tunnels under Beacon Hill, First Hill, Capitol Hill, and Portage Bay.<sup>[30]</sup>

## Budget issues and delays

The Central Link project was originally planned to open in 2006 and projected to cost \$1.9 billion (equivalent to \$2.76 billion in 2016 dollars),<sup>[9]</sup> but the estimates were found to be unrealistic by auditors in November 2000.<sup>[31]</sup> New executives, hired by Sound Transit to replace previous program directors, presented a revised plan with an opening date pushed back three years to 2009, costing \$3.8 billion (equivalent to \$5.17 billion in 2016 dollars).<sup>[9][32]</sup> Planning of the Portage Bay tunnel between Capitol Hill and the University District was suspended due to higher than expected contractor bids, attributed to difficult soil conditions.<sup>[33]</sup> Sound Transit adopted the revised budget and schedule in January 2001, including provisions to re-study routing options between Downtown Seattle and the University District, along with a \$500 million federal grant agreement to fund the construction of an "initial segment" for the project.<sup>[34][35]</sup> The initial segment identified and approved by Sound Transit later that year shortened the line to 14 miles (23 km), between Downtown Seattle and a southern Tukwila station near Sea-Tac Airport. The remaining routes to the airport and University District were sent back to the planning stage, and re-organized into separate light rail projects.<sup>[36][37]</sup>

In November 2001, Sound Transit approved construction of the shortened Central Link light rail project, calling for a summer 2002 groundbreaking.<sup>[38]</sup> Property acquisition in the Rainier Valley began in March 2002,<sup>[39]</sup> but two legal battles delayed the start of construction. In November 2002, the King County Superior Court ruled in favor of Sound Transit in a lawsuit filed by light rail opponents, alleging that it lacked the authority to shorten a voter-approved line.<sup>[40]</sup> The approval of Tim Eyman's Initiative 776 threatened to repeal motor vehicle excise taxes needed to fund Sound Transit's budget, but was declared unconstitutional in February 2003.<sup>[41]</sup> Another routing change requested by the City of Tukwila, placing light rail tracks along freeways in lieu of International Boulevard, was approved by Sound Transit and the Federal Transit Administration in 2002, moving the project closer to construction.<sup>[42]</sup>

## Construction and testing



The headhouse of Beacon Hill station, seen under construction in May 2009

Sound Transit received its \$500 million federal grant agreement in October 2003,<sup>[43]</sup> and a groundbreaking ceremony was held in SoDo on November 8, 2003.<sup>[44]</sup> Construction contracts for various segments were awarded in 2004 and 2005, coming six percent under Sound Transit's estimates,<sup>[45]</sup> and work began along all parts of the system.<sup>[46][47]</sup> The first rails were installed on August 18, 2005, in the SoDo area;<sup>[45]</sup> a month later, the downtown transit tunnel closed for a two-year renovation to accommodate light rail service.<sup>[48]</sup> Excavation of the Beacon Hill tunnel and station began in 2005, and two tunnel boring machines were launched in early 2006 to bore the twin tunnels between SoDo and the Rainier Valley.<sup>[49]</sup>

The SODO and Stadium stations were completed in May 2006,<sup>[50]</sup> and light rail testing in the SoDo area began the following March.<sup>[51]</sup> Testing was extended to the re-opened downtown transit tunnel in September 2007, initially limited to weekends without bus service,<sup>[52]</sup> and further to the Rainier Valley after the completion of the Beacon Hill tunnel in 2008.<sup>[53][54]</sup> The elevated guideway in Tukwila, including crossings over major freeways and the Duwamish River, was completed in 2007 after the installation of 2,457 precast concrete segments and balanced cantilever bridges.<sup>[55]</sup> During construction in the Rainier Valley, Sound Transit and the City of Seattle offered \$50 million in mitigation funds and development opportunities to affected

businesses.<sup>[56]</sup> Construction of light rail along Martin Luther King Jr. Way South also resulted in utility lines being moved underground, improved sidewalks, street crossings, and landscaping.<sup>[57]</sup>



## Opening and later extensions

Central Link was opened on July 18, 2009, with a community celebration that attracted more than 92,000 riders over the first weekend of free service.<sup>[58]</sup> Trains began operating on the 13.9-mile (22.4 km) segment between Westlake and Tukwila International Boulevard stations,<sup>[59]</sup> along with a bus shuttle to serve Sea-Tac Airport from Tukwila.<sup>[60]</sup> The 1.7-mile (2.7 km) extension to SeaTac/Airport station opened on December 19, 2009, replacing the shuttle and other bus services to the airport.<sup>[61]</sup> Sound Transit added lubrication equipment and rubber mats to segments in Tukwila and the Rainier Valley in 2010 to reduce noise levels that had reached up to 83 decibels, surpassing federal safety standards and triggering noise complaints from nearby residents.<sup>[62]</sup> A contract dispute with the Rainier Valley construction contractor was settled in 2011, bringing the project's total price to \$117 million below the \$2.44 billion budget.<sup>[63]</sup> The opening of light rail service to the Rainier Valley spurred new transit-oriented development, which had initially stalled during the Great Recession but recovered in the mid-2010s.<sup>[64][65]</sup>

Central Link train service was increased to a frequency of six minutes during peak hours, from 7.5 minutes, in 2015 to prepare for the opening of the University Link extension.<sup>[66]</sup> The line was extended north to University of Washington station, via Capitol Hill station, on March 19, 2016, via a \$1.8 billion, 3.15-mile (5.07 km) tunnel.<sup>[67]</sup> The extension opened six months ahead of its scheduled date, and the opening celebrations drew 67,000 people during the first day of service. Sound Transit deployed additional three-car light rail trains to cope with higher ridership after the extension opened.<sup>[68]</sup> The line was extended 1.6 miles (2.6 km) south from Sea-Tac Airport to Angle Lake station on September 24, 2016, including the opening of a 1,120-stall park and ride.<sup>[69]</sup>

## Route

Central Link's northern terminus is University of Washington station, located near Husky Stadium and the campus of the University of Washington in northeastern Seattle. The line heads south in the University Link tunnel, crossing under the Montlake Cut of the Lake Washington Ship Canal and State Route 520 before taking a turn to the southwest. The tunnel climbs Capitol Hill and passes under Interlaken Park and Volunteer Park before turning due south to enter Capitol Hill station on the east side of Broadway.<sup>[70]</sup> The tunnel makes a gradual turn to the west, dipping as far south as East Union Street, and crosses under Interstate 5 at Pine Street.<sup>[71][72]</sup> It merges into the Downtown Seattle Transit Tunnel within the Pine Street Stub Tunnel, joining buses from Convention Place station.<sup>[73][74]</sup>

The downtown transit tunnel, shared between light rail trains and buses,<sup>[75]</sup> travels west under Pine Street through Westlake station and south on 3rd Avenue through University Street and Pioneer Square stations in Downtown Seattle.<sup>[74]</sup> The tunnel ends at International District/Chinatown station, adjacent to King Street Station (served by Amtrak and Sounder commuter rail),<sup>[76]</sup> with buses continuing onto the SODO Busway and other streets. Central Link parallels the busway through Stadium and SODO stations, traveling through several gated crossings.<sup>[51]</sup> From SODO station, the track ascends to an elevated guideway traveling east along South Forest Street,<sup>[71][77]</sup> passing the line's railyard and maintenance facility.<sup>[78]</sup> The elevated trackway passes over Airport Way and comes to rest on an embankment under Interstate 5, entering the Beacon Hill tunnel.<sup>[79][80]</sup>

The Beacon Hill tunnel travels approximately one mile (1.6 km) under Beacon Hill, serving a station at Beacon Avenue South.<sup>[81]</sup> Trains exit the tunnel on the east side of the hill, turning southeast and approaching the elevated Mount Baker station at the intersection of Rainier Avenue South and Martin Luther King Jr. Way South.<sup>[82]</sup> Light rail trains descend from Mount Baker station onto the median of Martin Luther King Jr. Way South, running at-grade with signal priority at 28 street crossings.<sup>[83][84]</sup> Central Link passes through the Rainier Valley and serves three at-grade stations, Columbia City, Othello, and Rainier Beach, before leaving Seattle.<sup>[71][85]</sup>

The line enters Tukwila and crosses west over Interstate 5 and a mainline railroad at Boeing Access Road, near Boeing Field, before making a southward turn over East Marginal Way South. Central Link continues south over the Duwamish River, traveling non-stop through Tukwila on a 4.7-mile (7.6 km) elevated guideway.<sup>[86]</sup> The guideway runs along the west sides of State Route 599 and Interstate 5 towards Southcenter Mall, where it turns west along State Route 518. The line passes through Tukwila International Boulevard station, home to a 600-stall park and ride facility, and turns south into the median of the Airport Expressway towards SeaTac. Light rail trains continue along the east side of Seattle-Tacoma International Airport, stopping at SeaTac/Airport station near the airport's terminals, before reaching Angle Lake station, where it terminates.<sup>[71][77]</sup>

Central Link, while officially a "light rail" line, has also been described as a "light metro" hybrid by transit experts due to its grade separated sections and use of larger trainsets than typical American light rail systems.<sup>[83]</sup> Approximately 6.4 miles (10.3 km) of the 20.35-mile (32.75 km) line is at-grade, including segments along freeways that are separated from intersecting roads.<sup>[87][88] 6–7</sup>

## Stations

Central Link stations are spaced approximately one mile (1.6 km) apart in most areas and are built with 380-foot-long (120 m) platforms to accommodate four-car train sets.<sup>[88] 6[89]</sup> Some stations are grade separated, with underground or elevated platforms connected to surface entrances by stairs, escalators, and elevators, while others were built at street level.<sup>[88] 6</sup> The line's sixteen stations include bus connections,<sup>[90] 16</sup> ticket vending machines, public art, and bicycle parking.<sup>[91]</sup> Stations are also designed with clear sight lines on platforms, emergency phones and lights, and are monitored with surveillance cameras.<sup>[92]</sup> As of 2016, there are only two stations with park and ride facilities (Angle Lake and Tukwila International Boulevard); for other stations, Sound Transit and local governments are encouraging alternative means of transportation to and from stations, including bus riding, walking, or bicycling.<sup>[93][94]</sup>

Link light rail



A map of Central Link, showing the current line and future Northgate extension