

The Seattle Department of Transportation

Seattle Center City Connector Transit Study

Locally Preferred Alternative (LPA) Report

Executive Summary

September
2014

 **SDOT**
Seattle Department of Transportation


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Seattle Center City Connector Transit Study

Executive Summary

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LOCALLY PREFERRED ALTERNATIVE REPORT EXECUTIVE SUMMARY

Project Overview

The Center City Connector is a proposed modern streetcar line that will connect the South Lake Union and First Hill Streetcar lines and link over a dozen Seattle neighborhoods and downtown. By linking existing streetcar investments, the Connector will provide a streetcar system that is highly legible, easy-to-use for a variety of trip purposes, and serves major visitor destinations, employment centers, and areas where the city is experiencing significant growth. The system is projected to carry an average of 30,000 weekday riders.

The Center City Connector will serve the City of Seattle's three intermodal hub areas including Westlake Intermodal Hub, Colman Dock Intermodal Hub, and King Street Intermodal Hub. The Connector will provide convenient transfers to the 3rd Avenue Transit Spine at both ends of Downtown, to Link Light Rail via multiple Downtown Seattle Transit Tunnel (DSTT) station entries, and to Sounder Commuter Rail at King Street Station.

Study Overview

A top priority in the City of Seattle's Transit Master Plan (adopted by City Council in April 2012) is to increase transit capacity, enhance transit service quality and reliability, and improve transit options for residents, workers, and visitors traveling between and within Center City neighborhoods and attractions. The Center City Connector Transit Study evaluated a range of potential modes and alignments to provide a high-quality transit connection through downtown Seattle between the South Lake Union Streetcar and First Hill Streetcar lines. The evaluation process consisted of three primary phases of analysis: Initial Screening, Tier 1 Screening, and Tier 2 Evaluation. Each phase of evaluation was accompanied by extensive public outreach activities, which in turn guided the refinement and selection of alternatives. The outcome of the evaluation process is the selection of a Locally Preferred Alternative (LPA), which is summarized in this report.

Evaluation Results

The Initial Screening evaluated five modes and seven alignments identified in the Transit Master Plan (TMP) and through public input at the first Center City Connector open house (February 6, 2013). The alignments were evaluated against criteria tied to the Project Purpose and Need. Mixed-Traffic and Exclusive Streetcar modes on 1st Avenue and 4th/5th Avenue alignments were selected for further study in Tier 1. A streetcar mode would enable seamless integration with existing/planned streetcar services and superior passenger experience.

Tier 1 Screening

The Tier 1 Screening evaluated the alternatives using measures based on the Project goals and objectives. The 1st Avenue alternatives rated more favorably on Project evaluation measures. The evaluation results included shorter streetcar travel time, fewer multimodal conflicts including bus passenger delay, and better placemaking and economic development opportunities. The 1st Avenue Mixed-Traffic Streetcar alternative had the lowest impacts on auto travel time. Both Mixed-Traffic Streetcar alternatives had lower on-street parking and loading impacts compared to the Exclusive Streetcar alternatives. Public and stakeholder input strongly favored the 1st Avenue alternatives. Figure ES-1 summarizes the evaluation results and ratings.

Figure ES-1 Tier 1 Screening Results

4TH/5TH AVENUES		EVALUATION MEASURES	1ST AVENUE	
MIXED-TRAFFIC STREETCAR	EXCLUSIVE STREETCAR		MIXED-TRAFFIC STREETCAR	EXCLUSIVE STREETCAR
12.8 minutes	8.9 minutes	Streetcar Travel Time, PM Peak Jackson - Westlake, average north/southbound, including stops, 2030	11.6 minutes	6.1 minutes
4th: +60% 5th: +40%	4th: -25% 5th: +5%	% Change in Aggregate Bus Passenger Delay, 5-6 PM Daily Hours Compared to No-Build	N/A	N/A
13.2 minutes	12.9 minutes	Auto Travel Time, PM Peak Jackson - Westlake, avg. north/southbound, 2030; "No-Build": 4th/5th 11.6 min; 1st 9.0 min.	8.8 minutes	11.8 minutes
\$12.3 million/year	\$12.0 million/year	Annual Operating & Maintenance Costs Integrated CCC, First Hill, SLU lines, 2013\$	\$12.3 million/year	\$11.2 million/year
\$54-\$66 million	\$58-\$71 million	Total Capital Costs Center City Connector, including vehicles (with end-to-end operating plan), 2013 \$	\$60-\$73 million	\$63-\$77 million
100%	58%	On-Street Parking Impacts % of Block Faces that Retain On-Street Parking	71%	42%
	132,000	Number of Employees, 2030 Within 1/8 mile	93,000	
	7,500	Population, 2030 Within 1/8 mile	10,700	
	6,595	Number of Hotel Rooms, 2012 Within 1/8 mile	4,260	
	1.3 million	Number of Annual Visitors, 2011 Within 1/8 mile	12.6 million	



Tier 2 Evaluation

The Tier 2 Evaluation similarly evaluated the alternatives using measures based on the project goals and objectives. It included more detailed analysis of the 1st Avenue alternatives and analysis of potential east-west alignments to connect the 1st Avenue alignment to the South Lake Union Streetcar. The 1st Avenue Exclusive Streetcar alternative rated more favorably than the Mixed-Traffic Streetcar alternative on several key metrics identified as the most important through the third project open house (October 29, 2013) and through an online survey. These measures included streetcar travel time and reliability, projected ridership, and operating and capital costs. The 1st Avenue Exclusive Streetcar alternative received the strongest public support. The evaluation results are summarized in Figure ES-2.

Figure ES-2 Tier 2 Evaluation Results

MIXED-TRAFFIC STREETCAR	EVALUATION MEASURES	EXCLUSIVE STREETCAR
11.5 minutes	Streetcar Travel Time, PM Peak (Jackson/Occidental - Stewart/Westlake, average north/southbound, including stops, 2018)	7.5 minutes
26%	Streetcar Travel Time Reliability, PM Peak (Variance between streetcar travel times, 2018)	12%
20,000 - 27,000 daily riders	Forecasted Weekday Daily Riders (Integrated CCC, First Hill, and SLU lines, 2018)	23,000 - 30,000 daily riders
\$16.5 million/year	Annual Operating & Maintenance Costs (Integrated CCC, First Hill, and SLU lines, 2018 \$)	\$15.0 million/year
\$110-\$119 million	Total Capital Costs (Center City Connector, including vehicles, 2013 \$)	\$104-\$111 million
6.5 minutes	Auto Travel Time, PM Peak (Jackson/Occidental - Stewart/Westlake, avg. north/southbound, 2018; "No-Build" travel time: 5.7 min)	8.0 minutes
Diversion: < 10% Avg. Delay Increase: 2 sec	Traffic Delay from Diversion, PM Peak (% diversion of vehicles from 1st Avenue and increase in average intersection delay on parallel streets, 2035)	Diversion: up to 50% Avg. Delay Increase: 3.5 sec
Peak-restricted: 80 All-day: 15 Loading: 45	On-Street Parking and Loading Impacts (Approx. number parking stalls and loading zone spaces retained. No-Build: about 145 peak-restricted, 25 all-day parking stalls; 80 general/passenger loading spaces)	Peak-restricted: 5 All-day: 20 Loading: 15



LPA Recommendation and Next Steps

Based on the evaluation results and public input, SDOT recommended that the 1st Avenue Exclusive Streetcar alternative be adopted as the Locally Preferred Alternative (LPA). East-west connection options on both Stewart Street/Olive Way and Pike/Pine Streets were included for further study in the environmental analysis and preliminary engineering phase.

The LPA is a key policy document that provides a description of the Center City Connector Project that the City of the Seattle is planning to construct. Key features of the recommended LPA are shown in Exhibit A. Adoption of an LPA represents the completion of an important local planning phase and an opportunity to enter the Project into formal Project Development with the Federal Transit Administration (FTA) to commence required environmental analyses and preliminary engineering.

The full Seattle City Council approved the LPA on July 21, 2014. The FTA approved the City's application to enter the Project into Project Development on July 21, 2014. The City of Seattle has previously budgeted funds to continue project development and design in 2014 and 2015.

Exhibit A: Center City Connector Transit Study Locally Preferred Alternative

MODE: MODERN STREETCAR

Modern streetcar vehicles¹



¹ Modern streetcar vehicles are known as double-ended trams or light rail vehicles and are commonly used in European Cities; 2.46 meter width, operating at 750V dc.

TRANSIT PRIORITY

EXCLUSIVE TRANSIT RUNNING WAY

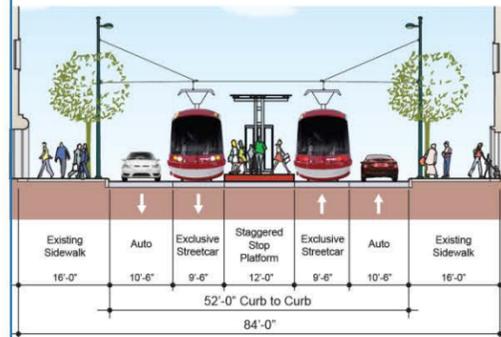
Streetcar would operate in exclusive streetcar lanes (or shared with bus) throughout the Center City Connector alignment.

TRANSIT SIGNAL PRIORITY

The Center City Connector will run in exclusive transit lanes for the full length of the project and employ transit signal priority treatments (TSP) at corridor intersections. Signal priority will be used to hold lights green for approaching streetcars and shorten red times for streetcars stopped at intersections. Separate streetcar signal phases will be employed where streetcars will need to operate across general purpose travel lanes. Details of signal design will be developed as the design is advanced.

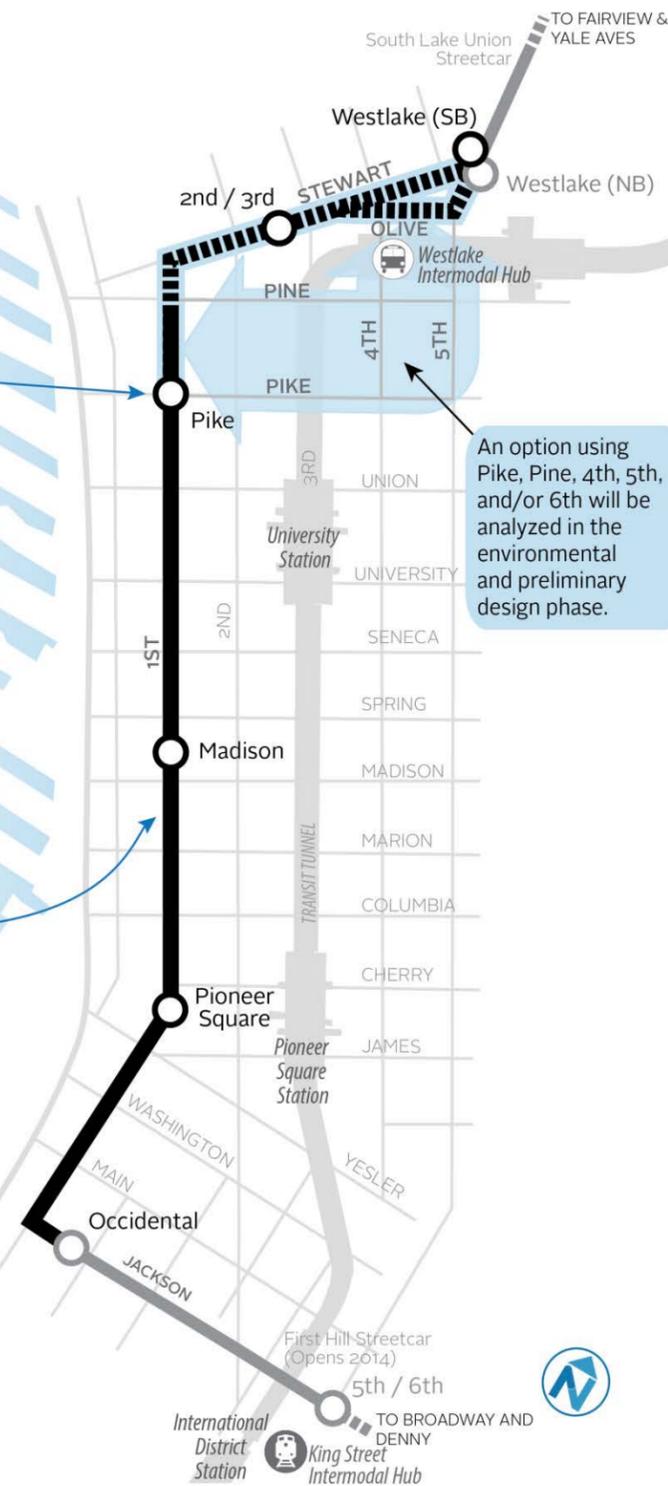
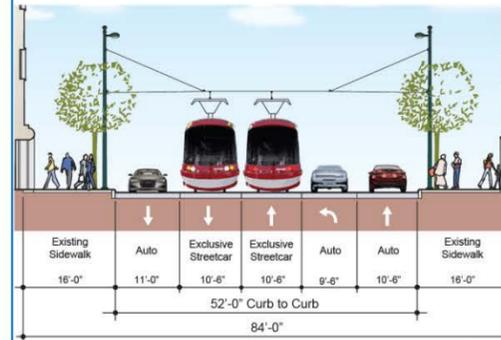
AT STOPS (TYPICAL)

Streetcar stops at Pike, Madison/Spring, and Pioneer Square would be in the median of 1st Ave.



BETWEEN STOPS (TYPICAL)

Streetcar would run in the center of 1st Ave, in transit-only lanes with signal priority. Peak-restricted parking would not be permitted in the curbside lanes.



An option using Pike, Pine, 4th, 5th, and/or 6th will be analyzed in the environmental and preliminary design phase.

CORRIDOR: 1ST AVENUE

The Locally Preferred Alternative corridor is First Avenue, between Pike Place Market and Pioneer Square. Two optional alignments for connecting to the Westlake intermodal hub will be advanced to the preliminary engineering and environmental review phase of the project. These are Stewart/Olive and Pike/Pine.

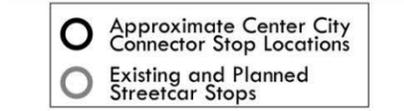


STOP LOCATIONS

Five new streetcar stops will be developed for the project at the following approximate locations:

- Westlake.** Southbound only; existing streetcar stop will serve northbound direction.
- 2nd/3rd Avenues.** Between 2nd and 3rd on Stewart Street or Pike/Pine Streets.
- Pike.** Built as two separate center median platforms on either side of the Pike Street intersection with 1st Avenue.
- Madison.** Center median between Madison and Spring Streets.
- Pioneer Square.** Center median between Yesler Way and Cherry Street.

Streetcar stops will have similar scale, facilities, and amenities as existing streetcar stops in South Lake Union. Center median platforms will be 10.5 to 12 feet (3.2 to 3.6 meters) wide and a minimum of 60 to 70 feet (18 to 21 meters) in length.



Stop locations and design will be refined in subsequent engineering and design phases.

OPERATING PLAN

Operates as two independent, overlapping lines:

- **SLU-King Street ("Red").** One line between South Lake Union (Fairview & Yale Aves) and King Street intermodal hub.
- **Capitol Hill-Westlake ("Blue").** One line operates between Capitol Hill (Broadway & Denny Way) and Westlake Intermodal Hub.

These lines provide overlapping service between these hubs in the downtown core (trains arrive as frequently as every 5 minutes in the core area).

Daily Span:

Mon-Sat: Up to 20 hours (5 am - 1 am)
Sun: Up to 17 hours (6 am - 11 pm)

Headway (per line):

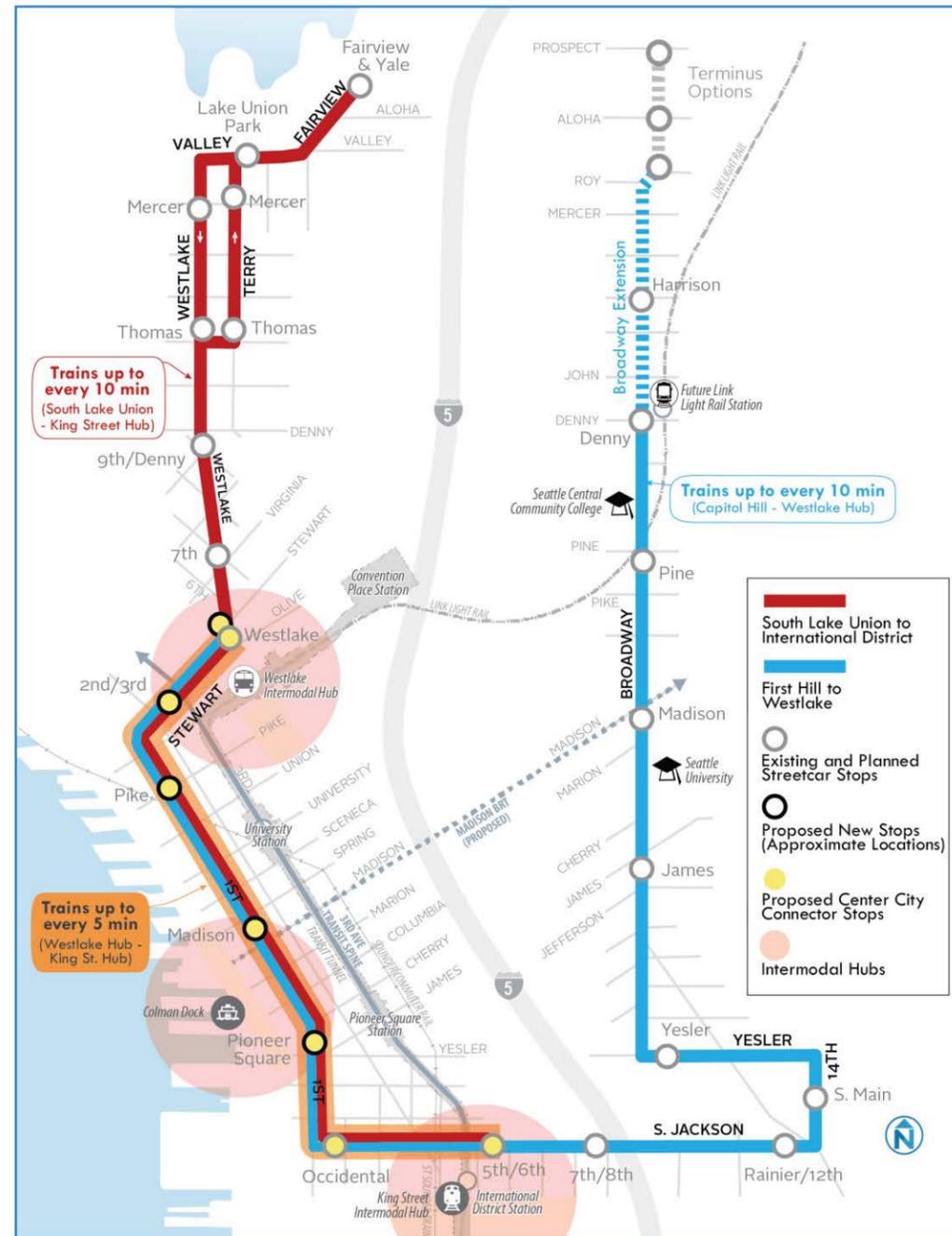
10 min: 7 am - 7 pm weekdays
8 am - 7 pm weekends
15 to 20 min: Other times

CONNECTIVITY

The Center City Connector will link over a dozen Seattle neighborhoods with a Seattle Streetcar system that stretches from Capitol Hill and First Hill, to the International District and South Downtown, and north to the Denny Triangle and South Lake Union, passing through the heart of downtown. By linking existing streetcar investments, the Connector will provide a streetcar system that is highly legible and easy-to-use for a variety of trip purposes serving areas where the City is experiencing intense urban development.

The Center City Connector will link the City of Seattle's three Intermodal Hub areas including, Westlake Intermodal Hub, Colman Dock Intermodal Hub, and King Street Intermodal Hub. The Connector will provide convenient transfers to the Third Avenue Transit Spine at both ends of Downtown, to Link Light Rail via multiple Downtown Seattle Transit Tunnel station entries, and to Sounder Commuter Rail. Future transit investments such as Madison Street Bus Rapid Transit would bisect the Center City Connector.

The Center City Connector will be highly accessible to pedestrians using Seattle's well developed downtown sidewalk system. The Pike Street stop will be accessible from all points of the intersection via the current "all walk" or "barn dance" intersection design. All streetcar platforms will be accessed at signalized intersections or marked mid-block crossings and will be ADA accessible.



FARE COLLECTION

Seattle Streetcar system will be fully integrated with ORCA, the regional transit fare system. ORCA card readers will be installed at stop platforms and on trains. Other fare media will be available for purchase at each streetcar stop.



MAINTENANCE FACILITIES

The Center City Connector will require storage capacity for six additional streetcar vehicles. The City of Seattle owns a streetcar operating and maintenance base in South Lake Union and is developing a second facility for the First Hill line in the International District. Existing capacity and new storage tracks at one or both of these existing maintenance facilities will allow the Center City Connector to be built and operated without constructing new facilities to maintain vehicles.

Costs for expanding the existing maintenance facility or facilities (land purchase, design, construction) are included in the overall project cost estimates.

The specific site will be selected in the next phase of project development.



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9.29.2014