

Seattle Department of Transportation

Roosevelt RapidRide Project

LPA REPORT

JUNE 2017



Seattle
Department of
Transportation

The Levy to

MOVE SEATTLE





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INTRODUCTION

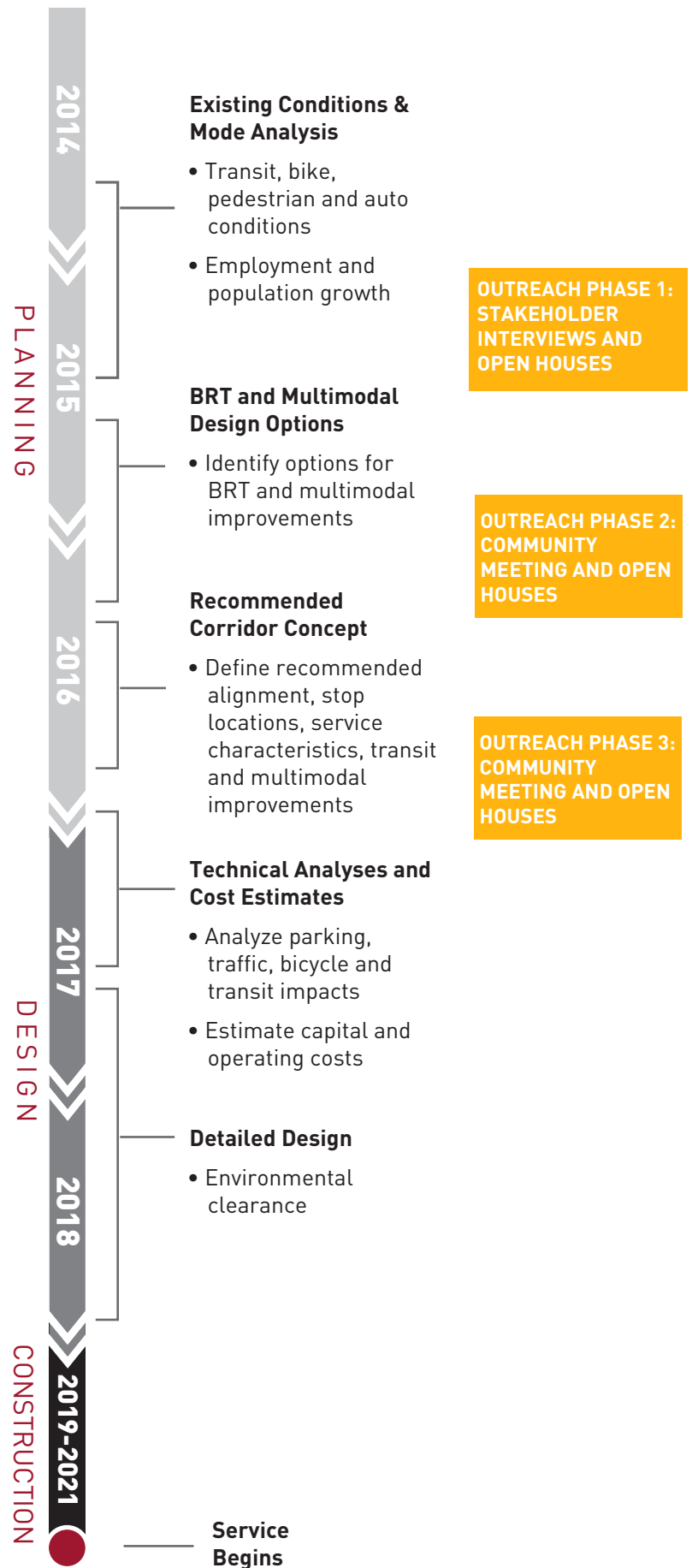


FIGURE 1-1. ROOSEVELT CORRIDOR TIMELINE

The Roosevelt RapidRide Project will provide a high-quality rapid transit service connecting Downtown Seattle with the neighborhoods of South Lake Union, Eastlake, University District, and Roosevelt.

It will increase transit speed, reliability, and passenger carrying capacity, serving high levels of existing ridership and future population and employment growth. This report describes a recommended Locally Preferred Alternative (LPA) for the Roosevelt RapidRide Project.

The purpose of the LPA is to define the transit option that best meets the project's purpose and need, and that will be carried forward to seek federal funding. This LPA was developed through a 2-year planning process that included public and stakeholder outreach efforts. The LPA will be advanced over the next year through design and additional opportunities for community and stakeholder engagement.



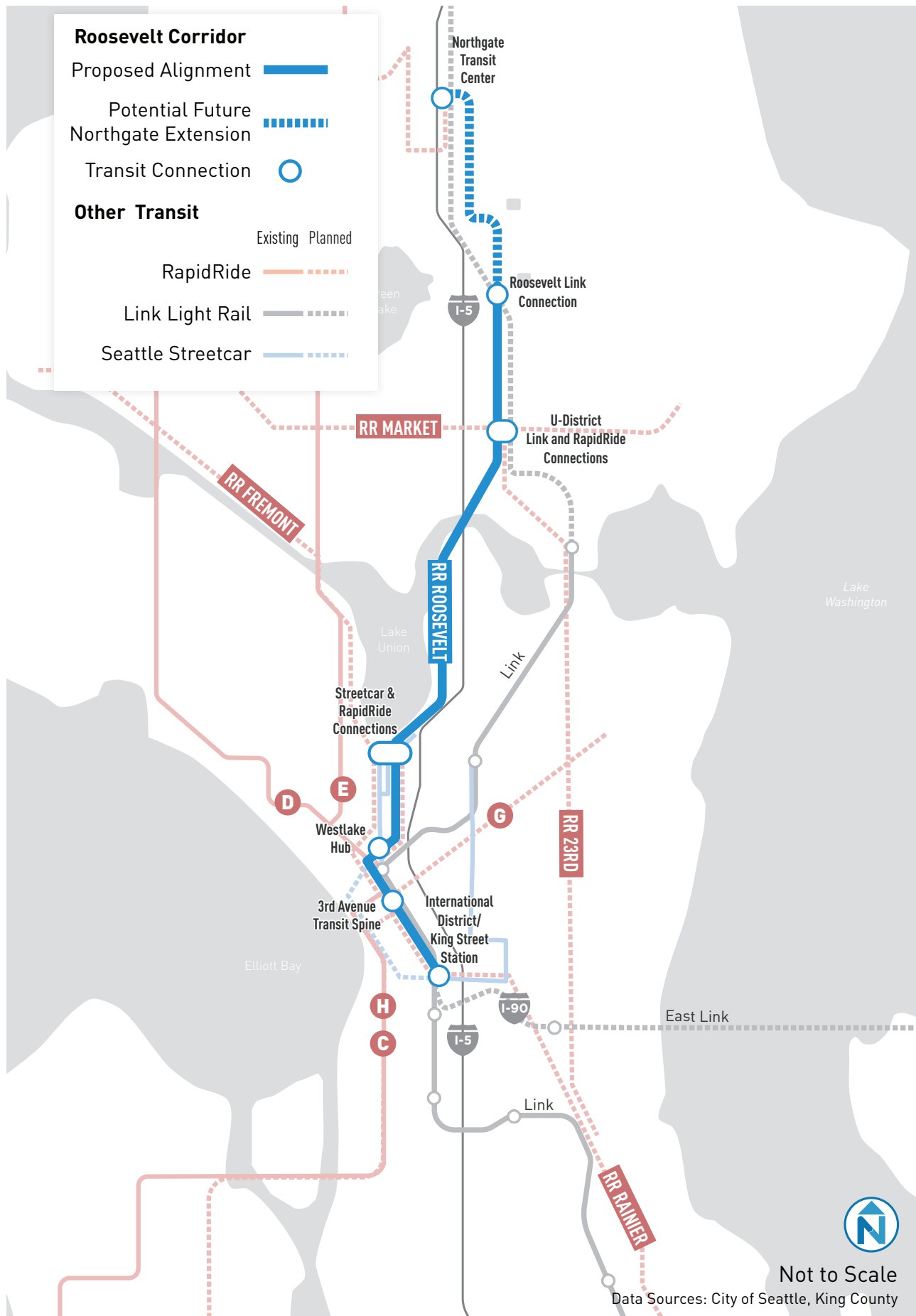
CORRIDOR OVERVIEW

From 2014 to 2016, the Seattle Department of Transportation (SDOT) and King County Metro explored options for high capacity transit along the Roosevelt Corridor. After looking at multiple high capacity transit options, including rail and bus, SDOT is moving forward with the Roosevelt RapidRide Project. RapidRide will operate in its own lane or in mixed traffic and provide faster, more reliable service for more people through a series of targeted investments along the corridor. Service is proposed to begin in 2021, in coordination with the opening of the University District and Roosevelt Link light rail stations.

The initial corridor investment consists of the 6-mile corridor connecting the Roosevelt neighborhood with Downtown Seattle via South Lake Union. Important destinations along the corridor include the Roosevelt neighborhood and Link light rail station, the University District, the Eastlake neighborhood, major employers in the South Lake Union neighborhood, the Central Business District, and the International District. In the future, there is the possibility of an extension from the Roosevelt Link station to the Northgate Transit Center.

The alignment of the recommended corridor concept for the Roosevelt RapidRide Corridor is illustrated on the following page.

FIGURE 1-2. ROOSEVELT CORRIDOR ALIGNMENT



PROJECT PURPOSE AND NEED



PROJECT PURPOSE

The Roosevelt High Capacity Transit corridor is identified for priority implementation in the City of Seattle’s 2016 Transit Master Plan, is partially funded by the Levy to Move Seattle, and is one of seven key corridors being developed through the Seattle RapidRide Expansion Program by SDOT and King County Metro. The purpose of the Roosevelt RapidRide Project is to improve transit capacity, travel time, reliability, connectivity, comfort, visibility, and legibility in the corridor, while also improving pedestrian and bicycle access to and along the corridor and to RapidRide stations. In doing so, the project will improve overall mobility in a dense and rapidly developing corridor that serves several major destinations.

PROJECT NEED

The Roosevelt RapidRide Project addresses the following transportation and community needs:

- **Housing and employment growth.** The corridor connects the dense, rapidly growing urban centers of South Lake Union and Downtown with the Eastlake neighborhood, the University District, and the Roosevelt neighborhood. This corridor is forecast to grow by over 16,000 residents and 84,000 employees by 2035. Seattle’s Urban Village Strategy calls for this growth to incorporate mixed land uses and create a pedestrian-friendly, transit-oriented environment.
- **Network Connectivity.** Critical connections to existing and future Link stations, existing and future RapidRide lines, and regional and local bus routes are provided more frequently and reliably by the Roosevelt RapidRide Project.
- **Travel time improvements.** Transit travel time in the corridor during peak periods is up to 20-30% slower than off-peak hours. Transit travel times with the Project are expected to improve by up to 20% during the peak period.
- **Reliability.** Over 30% of transit trips in the corridor run late during morning and evening peak periods. RapidRide’s enhanced bus stops, off-board fare collection, transit signal priority, and other features will deliver increased reliability.
- **Overcrowding.** Overcrowding occurs on many trips throughout the day and during the morning peak period. Passenger loads exceed seated capacity along this route on 32% of the daily trips and 63% during the morning hours. Increased service frequency delivered by the Project will also increase passenger carrying capacity in the corridor.
- **Development support.** The Roosevelt corridor connects a number of Seattle’s most dense residential and employment centers, which are also areas of high growth. High-capacity transit solutions, such as RapidRide, are essential to supporting dense development.
- **Greenhouse Gas (GhG) emission reductions.** Seattle’s Climate Action Plan relies on high-capacity transit in major corridors, including Roosevelt, to meet targets.
- **Pedestrian and bicycle improvements.** Several intersections in the Roosevelt corridor have above-average rates of bicycle and pedestrian collisions. Improvements to pedestrian and bicycle facilities are planned over much of the corridor.

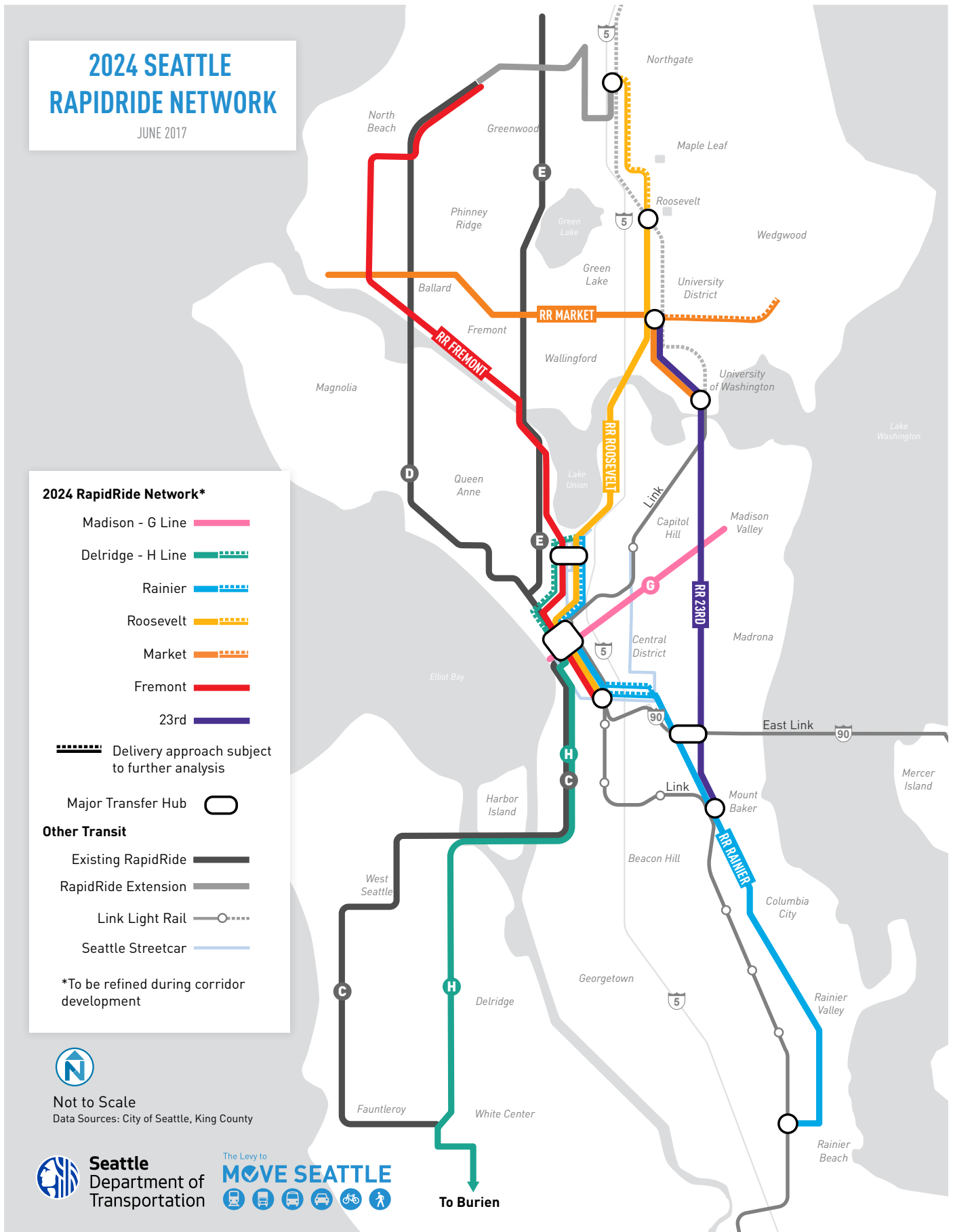
BACKGROUND

RapidRide Expansion Program

SDOT is currently advancing the Seattle RapidRide Expansion Program in partnership with King County Metro to define and develop a comprehensive network of seven new RapidRide Bus Rapid Transit (BRT) corridors in Seattle. Work to date has included a network refinement report that specifies corridor extents, timelines, and performance measures for the seven new RapidRide lines. Through a combination of transit service improvements, capital investment, and design treatments, these corridors will build on the success of existing RapidRide service and help meet local and regional transportation goals.

Delivering an expanded RapidRide network is a key component to creating a safe, interconnected, vibrant, affordable, and innovative city for all. Over the past 20 years, Seattle gained 100,000 new residents and approximately 50,000 jobs and over the next 20 years, an additional 120,000 residents and 115,000 jobs are anticipated. The RapidRide network will help deliver an easy-to-use, interconnected, reliable system that connects people, places, and products by increasing the number of people that can be moved within the existing street network. With such convenient, comprehensive service, over 50,000 additional daily trips are expected on the RapidRide corridors by 2035.

FIGURE 2-1. 2024 SEATTLE RAPIDRIDE NETWORK



Past Studies

The Roosevelt to Downtown Corridor (Roosevelt Corridor) was identified as one of four high capacity transit corridors in the 2012 Seattle Transit Master Plan (TMP) as well as the 2016 TMP update. The corridor was also included as one of seven transit and multimodal corridors in the Levy to Move Seattle, a 9-year transportation improvement program approved by Seattle voters in 2015.

Additional studies of the corridor completed to date include: Roosevelt High Capacity Transit Study, Existing Conditions Report and Mode Analysis Report, all of which have informed the design of the Roosevelt RapidRide Project.

Policy Framework

High-capacity transit service in Seattle's busiest corridors will help Seattle maintain a high quality of life for residents, workers and visitors, and achieve its ambitious goals for ecological sustainability, social equity, and public health.

Seattle, King County, and the Puget Sound Regional Council have developed a series of transportation planning documents in support of these aims. They informed this RapidRide project and include the following:

- VISION 2040 – Puget Sound Regional Council Regional Growth Strategy
- Transportation 2040 – Puget Sound Regional Council Regional Transportation Plan
- Metro Connects Long-Range Transit Plan (2017)
- Seattle Comprehensive Plan
- Seattle Transit Master Plan (2012) and Transit Master Plan Update (2016)
- Move Seattle 10-year Strategic Vision for Transportation
- Seattle Jobs Plan
- Climate Action Plan
- Bicycle Master Plan
- Pedestrian Master Plan
- Seattle Race and Social Justice Initiative (RSJI)
- Freight Master Plan

LOCALLY PREFERRED ALTERNATIVE



3

The Locally Preferred Alternative describes the Roosevelt RapidRide Project. This section summarizes the roadway and transit capital improvements and operating characteristics of the recommended LPA.

Overview

The recommended LPA includes initial operations from downtown to the future Roosevelt Link light rail station. The corridor provides connections to local and regional transit service and major intermodal facilities, including:

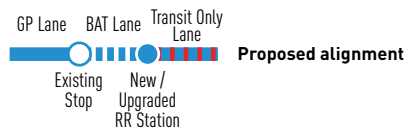
- A southern terminal at the International District Transportation Hub located on S. Main St. between 3rd and 4th Ave, with access to Link light rail, Sounder commuter train, First Hill Streetcar, and Amtrak service at the historic King Street Station
- RapidRide lines and regional and local bus service
- Regional rail, bus and Monorail service at the Westlake Transportation Hub
- Seattle Streetcar network, including the South Lake Union Streetcar line at Aloha and Fairview, the First Hill Streetcar at International District/Chinatown Transportation Hub, and the planned Center City Connector at Westlake Transportation Hub
- A northern terminus at NE 65th Street and Roosevelt to provide access to Link service at the Roosevelt station and stops near NE 45th Street to provide access to the University District station (when Link Northgate extension opens in 2021)

Alignment details can be found on the following pages.

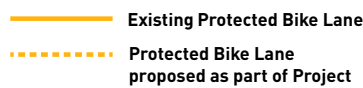
FIGURE 3-1. SOUTHERN CORRIDOR ALIGNMENT



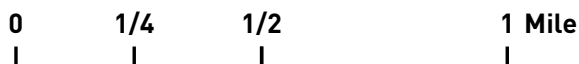
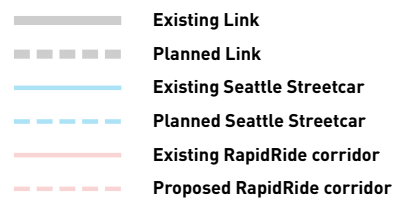
Corridor Treatment



Bike Improvements

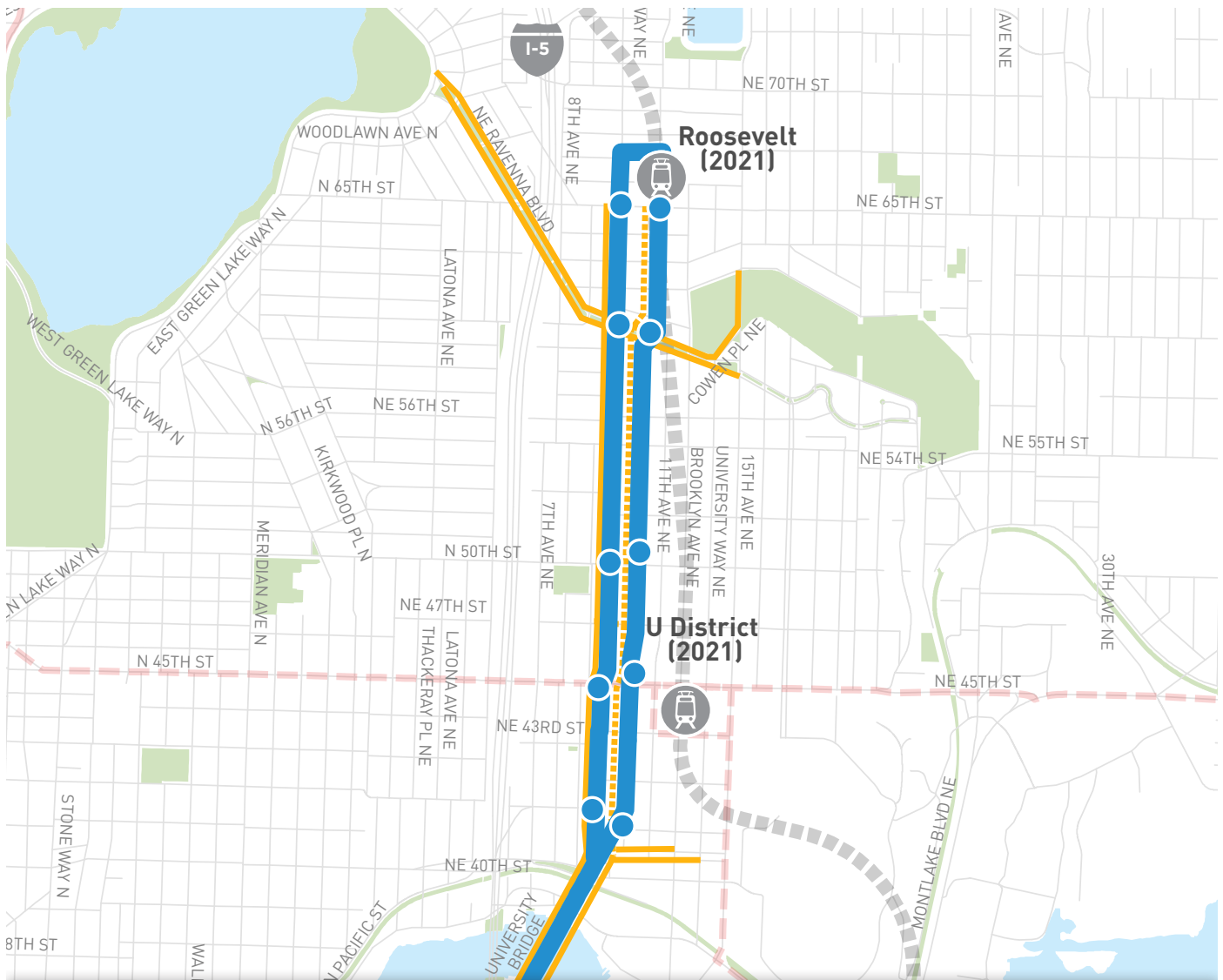


Other Transit Facilities

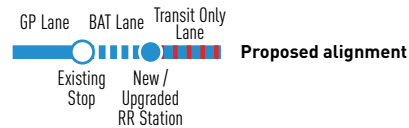


The southern terminus of the corridor is adjacent to the International District Transportation Hub. From a RapidRide station on S. Main Street between 3rd and 4th Avenues, the alignment follows the 3rd Avenue transit spine north through downtown Seattle to Belltown where northbound buses will use Virginia Street and southbound buses will run on Stewart Street. From the Virginia/Stewart couplet, the route travels on Fairview Ave N through South Lake Union.

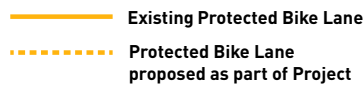
FIGURE 3-3. NORTHERN CORRIDOR ALIGNMENT



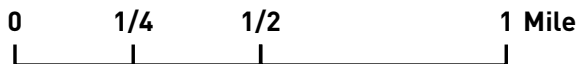
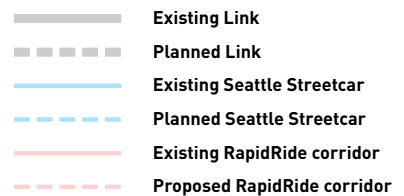
Corridor Treatment



Bike Improvements



Other Transit Facilities



North of the University Bridge, the alignment travels through the University District and Roosevelt neighborhoods along 11th Avenue NE to 12th Avenue NE for northbound buses, and Roosevelt Way NE for southbound buses. The northern terminus is on Roosevelt Way at NE 65th St at the future Roosevelt Link light rail station. Buses will layover on NE 67th St while transitioning from northbound to southbound service.

Stations

The project will include construction of 24 RapidRide stations – 12 stations per direction of travel. Roosevelt RapidRide service will also serve eleven existing stations along the corridor, for a total of 35 stations (enhanced and existing). RapidRide stations will include real-time arrival information, off-board payment, weather protection, and lighting.

Transit Priority

SDOT has recommended that the Roosevelt RapidRide Project provide dedicated transit lanes along Virginia Street in Downtown Seattle and along Fairview Avenue N in South Lake Union north of Valley Street, as well as Business Access and Transit (BAT) lanes on Fairview Avenue N between Denny Way and Valley Street. The project will utilize the existing BAT lanes on Stewart Street.

Transit signal priority will also be provided at most intersections between South Lake Union and the Roosevelt terminus. Transit signal priority holds green lights for approaching RapidRide vehicles and shortens red light times for RapidRide vehicles stopped at intersections.

Transit priority is a key component of improving transit travel time and reliability in the corridor. Transit travel time is projected to improve by up to 20% and schedule reliability will exceed the 85% threshold for on-time performance. These performance enhancements will significantly increase ridership. The Roosevelt RapidRide Project is projected to carry approximately 13,400 average weekday riders in the year of opening--7,100 more than travel the corridor today (estimated based on current ridership, population and employment growth, and frequency and travel time improvements).

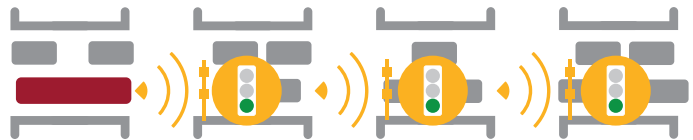
ENHANCED BUS STOPS

RapidRide stations include real-time arrival information, larger shelters, lighting, and other amenities.



SMART SIGNALS

Transit signal priority extends or activates green lights to reduce waiting times for buses at signals.



DEDICATED BUS LANES

Bus-only lanes and queue jumps separate buses from traffic, increasing speed and reliability.



Service Plan and Fleet

The proposed Roosevelt RapidRide operating plan will provide service every 10 minutes all day and every 15-20 minutes during evenings and weekends. Current service in the corridor operates using an electric trolleybus fleet (ETB) every 10-15 minutes all day long and every 15-20 minutes during evenings and weekends. The RapidRide Project will continue to operate an all-electric service and will repurpose vehicles from the existing King County Metro Transit trolleybus fleet, which was replaced in full over the last year. This will significantly reduce fleet purchase requirements and capital costs to implement the Project. It has further been assumed that all vehicles could be accommodated at an existing King County Metro base used for storage and maintenance of ETB vehicles.

Fare Collection

Roosevelt RapidRide service will employ a fare policy consistent with existing RapidRide policy and priorities, based on off-board fare payment and all-door boarding. This will serve to greatly reduce dwell times throughout the corridor.

Pedestrian and Bicycle Improvements

The Project will include a number of improvements for pedestrians and bicyclists, including:

- Protected bicycle lanes along 11th/12th Avenue, Eastlake Avenue, and Fairview Avenue, connecting to existing bike facilities in South Lake Union and Roosevelt Way, as defined in the Bicycle Master Plan (2014)
- Streetscape improvements
- ADA-compliant curb ramps
- Other intersection improvements to improve comfort and safety for people walking

SPECIALIZED BUSES

All-electric RapidRide buses offer more capacity.



OFF-BOARD FARE COLLECTION

Off-board fare collection helps buses move faster as riders can pay fares without waiting in line.



BIKE AND PEDESTRIAN CONNECTIONS TO TRANSIT

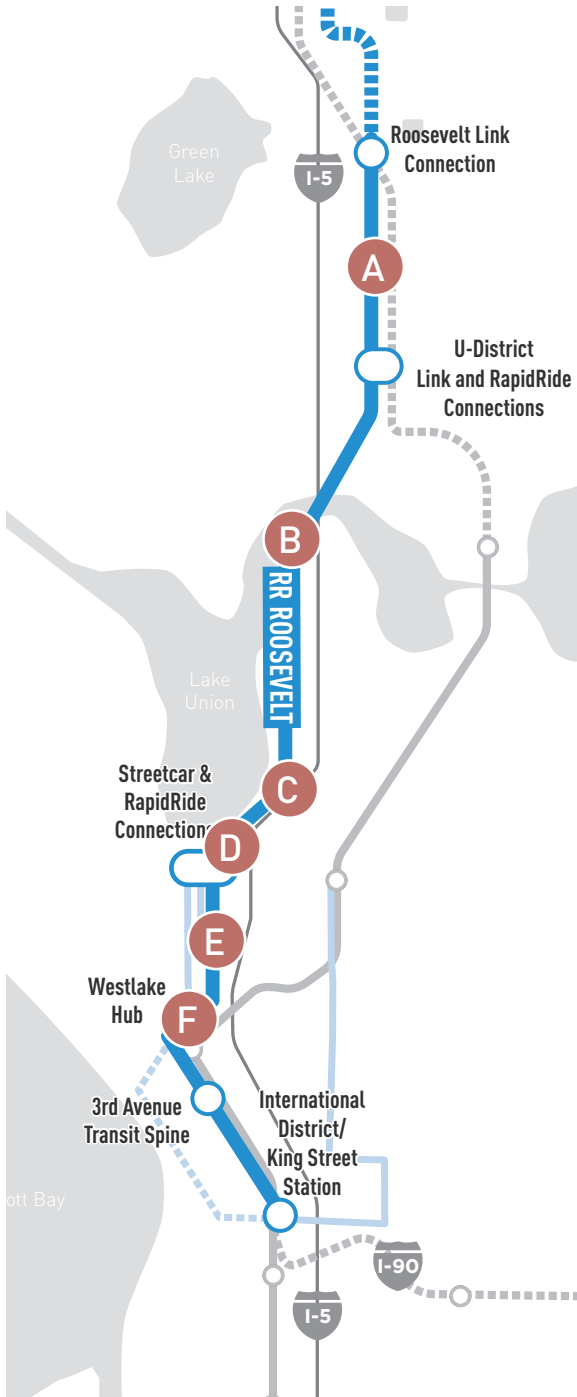
Improvements to crossings, neighborhood greenways, and bike lanes will help people access new RapidRide lines and improve safety along the corridor.



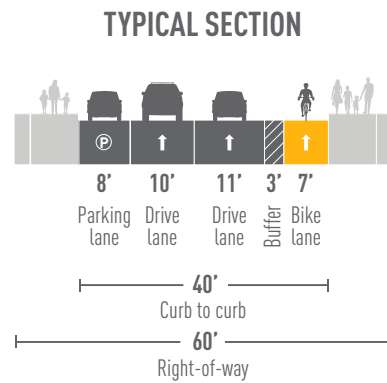
Cross-Sections

Cross-sections will vary depending on right-of-way constraints as well as project design (e.g. transit only lanes). Lane widths will also vary, but general-purpose travel lanes will be ten to eleven feet throughout most of the corridor, while transit-only and BAT lanes will be twelve feet wide.

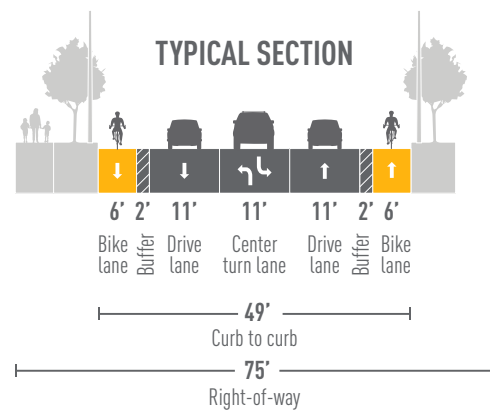
Six-foot wide bike lanes with a two to four-foot buffer are existing or proposed along much of the corridor from South Lake Union to Roosevelt.



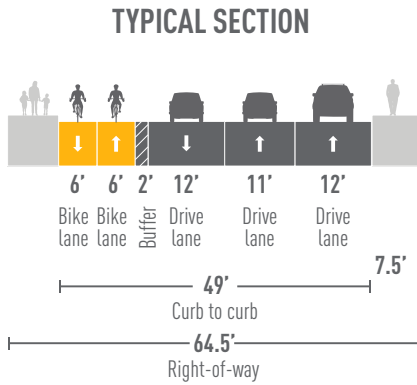
A 11th Ave NE between NE 65th St and NE 40th St facing north



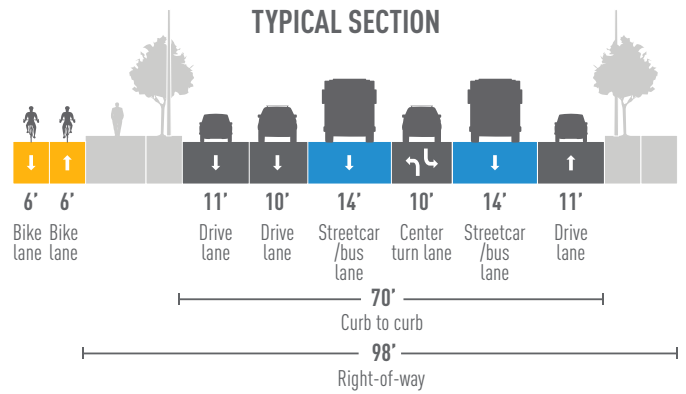
B Eastlake Ave E between Fuhrman Ave E and Fairview Ave N facing north



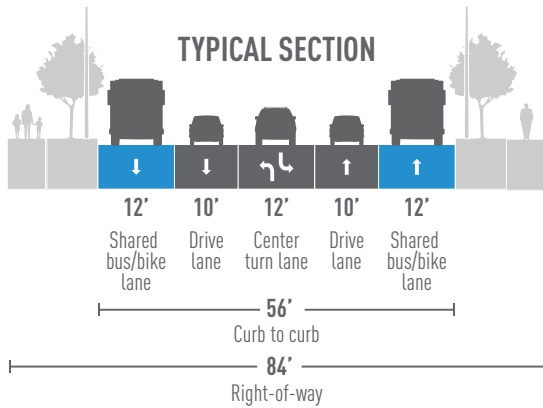
C Fairview Ave N between Eastlake Ave E and Yale Ave N facing northeast



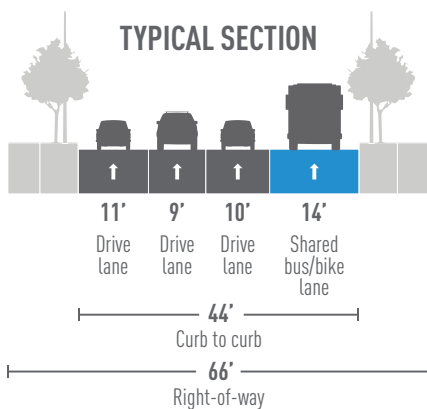
D Fairview Ave N between Yale Ave N and Valley St facing northeast



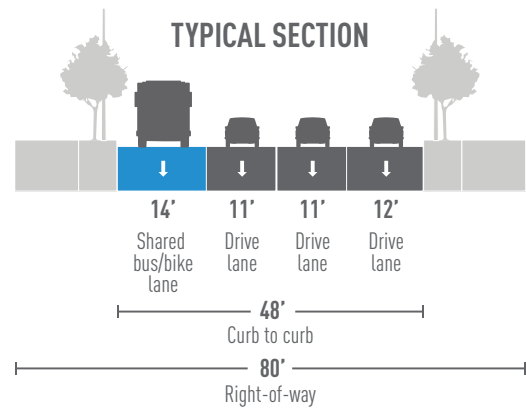
E Fairview Ave N between Valley St and Denny Way facing north



F Virginia St between Boren Ave and 3rd Ave facing north



Stewart St between Boren Ave and 3rd Ave facing north



DECISION PROCESS



4

The Roosevelt High Capacity Transit (HCT) Study was a local planning process that defined the capital project and operations for the corridor.

A management decision-making body was utilized within SDOT to advance key project decisions within the agency. SDOT deputy directors and division directors of Policy and Planning, Transportation Operations, Transit and Mobility, Project Development, and Capital Projects and Roadway Structures approved key decisions and endorsed the Locally Preferred Alternative (LPA) recommendation. In addition, key SDOT technical staff provided input and consultation throughout the planning process. The Roosevelt HCT Study also involved SDOT's partner King County Metro throughout the planning phase.

Approval of the LPA by the Seattle City Council is required to advance the Project through the Federal Transit Administration's Small Starts funding process. Review by the City Council Sustainability and Transportation Committee is anticipated in Summer 2017.

PUBLIC OUTREACH

Public and stakeholder involvement has been integral to decision-making at each stage of the Roosevelt RapidRide Project and will continue to shape the project moving forward. Outreach strategies to date have included three rounds of public open houses, an online survey, stakeholder interviews, and a series of forums with community partners.

Phase 1: Mode Analysis and Existing Conditions (November 2014 - June 2015)

The first phase of outreach began with stakeholder interviews focused on current use of and experience along the corridor, as well as opportunities for improvement. Following the stakeholder interviews, the first round of public open houses was held in May of 2015. The public was presented with project goals, timeline, existing conditions, and transit modes being considered. Nearly 100 people attended two open houses.

Phase 2: Characteristics of BRT and Multimodal Components (June 2015 - March 2016)

The second outreach phase focused on incorporating BRT design and operational elements in the Roosevelt to Downtown Corridor. Forums of key stakeholders and community partners provided early input. A second round of public open houses was held in December of 2015. Nearly 120 people attended the two open houses and another 300 people participated in an online open house and survey to provide input on priority investments for the corridor.

The following three levels of potential corridor investments were shared during this phase:

- RapidRide Station and Service Upgrades
- RapidRide Station and Service Upgrades
+ Targeted BRT Investments
- Full BRT Improvements

Given community feedback on priorities and an evaluation of funding options, the targeted BRT investments approach was chosen for the Roosevelt RapidRide Project. This approach to corridor design includes all existing Metro RapidRide design elements as a starting point and incorporates Full BRT design elements at select locations to improve speed and reliability, as well as the incorporation of multimodal elements such as bike facilities.

A business access survey was also completed in March of 2016 along Eastlake Avenue E and 11th Avenue NE/12th Avenue NE in the Roosevelt corridor. Data from this survey, as well as existing conditions data collected for the project were used to address loading needs.

Phase 3: Recommended Corridor Concept (May - July 2016)

The third outreach phase of the project solicited feedback on the corridor concept, which included a mix of targeted transit improvements, protected bicycle lanes, and signal and roadway operational changes.

DECISION POINTS

Following development of project alternatives and the public outreach process described above, an evaluation of the following major decision points was completed as part of LPA development.

South Lake Union Alignment: Fairview Avenue N or Westlake Avenue N

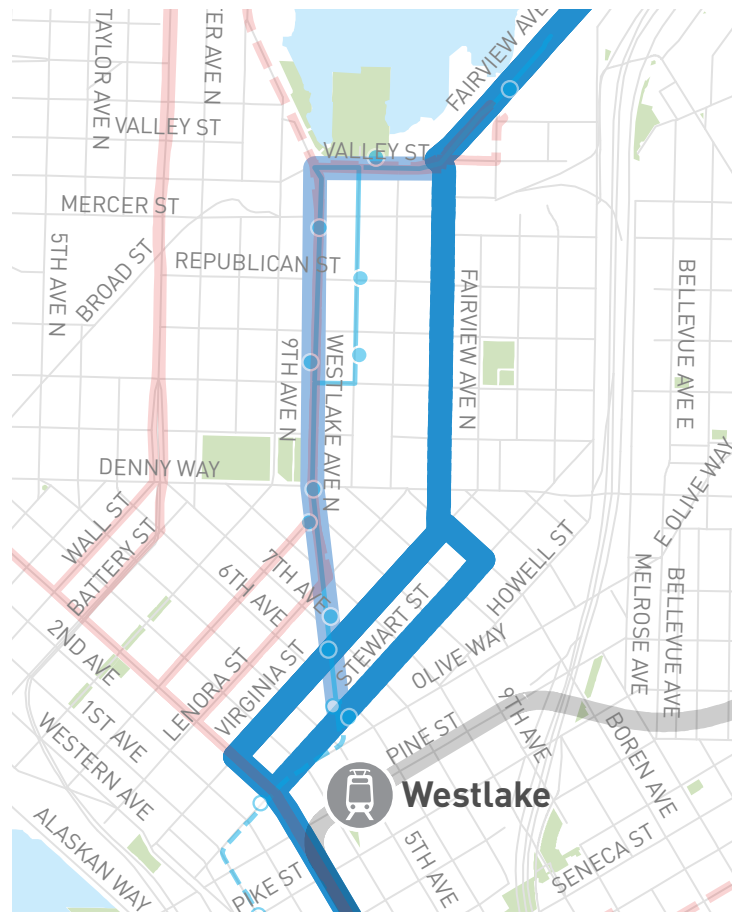
The initial route alignment was based on the primary routing identified in the Transit Master Plan, which indicated the route would travel along Westlake Avenue N in South Lake Union. A potential alignment alternative was also identified in the Transit Master Plan along Fairview Avenue N.

The South Lake Union route alignments were assessed based on existing transit planning projects that would impact service, access and connections. Two alignment options were considered for the southern segment of the corridor, between the Westlake Hub and the current South Lake Union streetcar terminus, including:

- Westlake Avenue N: Westlake Avenue N and Valley Street
- Fairview Avenue N: Fairview Avenue N and Boren Avenue

Given that three high frequency routes already use Westlake Avenue N and there is limited capacity to accommodate an additional high frequency/high capacity route, the Fairview Avenue N alignment was selected as the preferred route.

FIGURE 4-1 SOUTH LAKE UNION OPTIONS



Roosevelt Corridor

- Proposed alignment
- Alternate alignment considered

Other Transit Facilities

- Existing Link
- - - Planned Link
- Existing Seattle Streetcar
- - - Planned Seattle Streetcar
- Existing RapidRide corridor
- - - Proposed RapidRide corridor

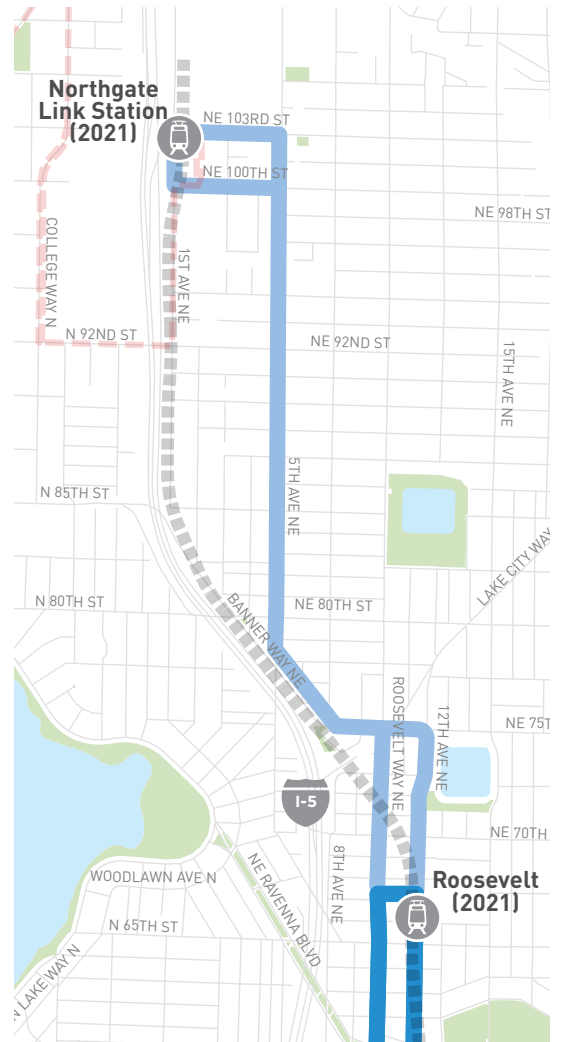
Northgate Extension Alignment

As part of the planning study, an extension of the corridor to the Northgate Transit Center was evaluated. The 2012 TMP identified 65th and Roosevelt as the terminus, but recommended study of terminus options at Brooklyn Station or Northgate Transit Center on the basis of projected future population and job growth and a planned Link light rail station. The Northgate extension would travel along Roosevelt/12th Avenue NE to NE 75th Street to Banner Way NE to 5th Avenue NE. Along 5th Avenue NE the route would use NE 100th Street and NE 103rd Street to connect to the Northgate Transit Center.

Through further evaluation of cost, performance, funding opportunities, review of adopted plans, and consideration of community input, the Locally Preferred Alternative locates the northern terminus at NE 67th Street, adjacent to the Roosevelt Link light rail station for the following reasons:

- Best meets the purpose and need of the Project by:
 - » Providing frequent, reliable, high capacity transit from north Seattle neighborhoods to future Link light rail stations and South Lake Union and Downtown
 - » Improving pedestrian and bicycle access along the corridor, specially by investing in protected bike lanes from Valley Street, through Eastlake, and along 11th and 12th Avenue to the Roosevelt Link Station
 - » Extending the overhead trolley network to expand zero-emissions transit to support Greenhouse Gas emission reduction targets
- Aligns with community input received throughout the planning process, including an interest in improving north-south transit connections to South Lake Union and creating a multimodal corridor
- Advances Levy to Move Seattle commitments, including integrating transit investments with non-motorized improvements, including protected bike lanes and safety improvements at intersections along the corridor
- Balances capital investment with potential for increased ridership and transit benefit to maximize grant funding opportunities
- Consistent with the 2016 Seattle Transit Master Plan Update and King County's Metro Connects Long Range Plan

FIGURE 4-2 NORTHGATE EXTENSION



Roosevelt Corridor

- █ Proposed alignment
- █ Alternate alignment considered

Other Transit Facilities

- █ Existing Link
- █ Planned Link
- █ Existing Seattle Streetcar
- █ Planned Seattle Streetcar
- █ Existing RapidRide corridor
- █ Proposed RapidRide corridor

CAPITAL COSTS

The estimated capital cost for the draft LPA is \$70 million. This is a year-of-estimate (2017) cost. This estimate includes:

- Bus Stations (including amenities) - \$12.9 M
- Pedestrian, Safety, and Bike Facilities - \$1.4 M
- Roadway and Operations Investments - \$17.2 M
- Transit Signal Priority and ITS (TSP vehicle costs not included) - \$20.6 M
- Trolley Infrastructure - \$17.9 M

FUNDING PLAN

SDOT has developed a funding plan to advance the Roosevelt RapidRide project. SDOT will seek a combination of local, regional, and federal sources, as outlined in the table below.

Funding Source	Amount
Levy to Move Seattle (secured)	\$13.7 M
Regional Partnerships and Grants	\$21.3 M
FTA Small Starts Grant	\$35 M
TOTAL	\$70 M



NEXT STEPS



5

The adoption by the Seattle City Council of a Locally Preferred Alternative is a critical step for the Roosevelt RapidRide Project and represents completion of an important local planning phase.

Adoption of the LPA demonstrates City Council support to pursue federal funding and regional grants and partnerships. The FTA's approval to enter Project Development will enable the City to commence preliminary engineering and required environmental analyses as part of the FTA Small Starts program.

The following are key next steps in advancement of the Roosevelt RapidRide Project.

- **Entry into FTA Project Development (Spring 2017) -** SDOT submits a letter to the FTA requesting entry into Small Starts Project Development. Once FTA approves the City's request to advance into Project Development, the project sponsor has two years to complete the National Environmental Policy Act (NEPA) process and submit sufficient information on the cost, financial commitments, and project rating to qualify for a Project Construction Grant Agreement (PCGA).
- **City Council Adoption of the LPA (Summer 2017) -** The Seattle City Council considers adoption of the LPA in Summer 2017.
- **Submit the project for FTA Small Starts funding (September 2017) -** The FTA Section 5309 Grant Program provides funding for transit capital projects on a competitive basis. The Roosevelt RapidRide Project fits into the Small Starts category under this program. Fifty percent of the FTA Small Starts Project rating is based on the strength of the City's capacity to finance and deliver the Project, while the remaining 50 percent is based on an assessment against the following six criteria (each valued

equally): land use, cost-effectiveness, mobility improvements, congestion relief, environmental benefits, and economic development.

- **Commence Preliminary Engineering and Final Design (2017-2019)** - The City of Seattle has an experienced project team that has successfully completed local transit project design, construction, and operational startup. King County Metro is a delivery partner, providing staffing and technical resources from their service, capital development, technology, and finance groups. Involved King County Metro staff have direct experience implementing six existing RapidRide corridors throughout King County.
- **Project Construction (late 2019-2021)** - Project construction would begin in 2020 and conclude in 2021. A plan for construction phasing and mitigation of impacts would be developed during the Preliminary Engineering and NEPA process.
- **Project Opening (2021)** - Roosevelt RapidRide Project opens for service concurrent with opening of the Northgate Link light rail extension.

PROJECT INFORMATION AND CONTACT

For project updates and community engagement opportunities, please see the project page at <http://www.seattle.gov/transportation/RooseveltHCT.htm>

For questions or more information please contact Garth Merrill, Project Manager, RooseveltToDowntown@Seattle.gov or (206) 684-5184

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