

Transit Master Plan Amendment



Transit Advisory Board
Michael James, SDOT
December 16, 2015

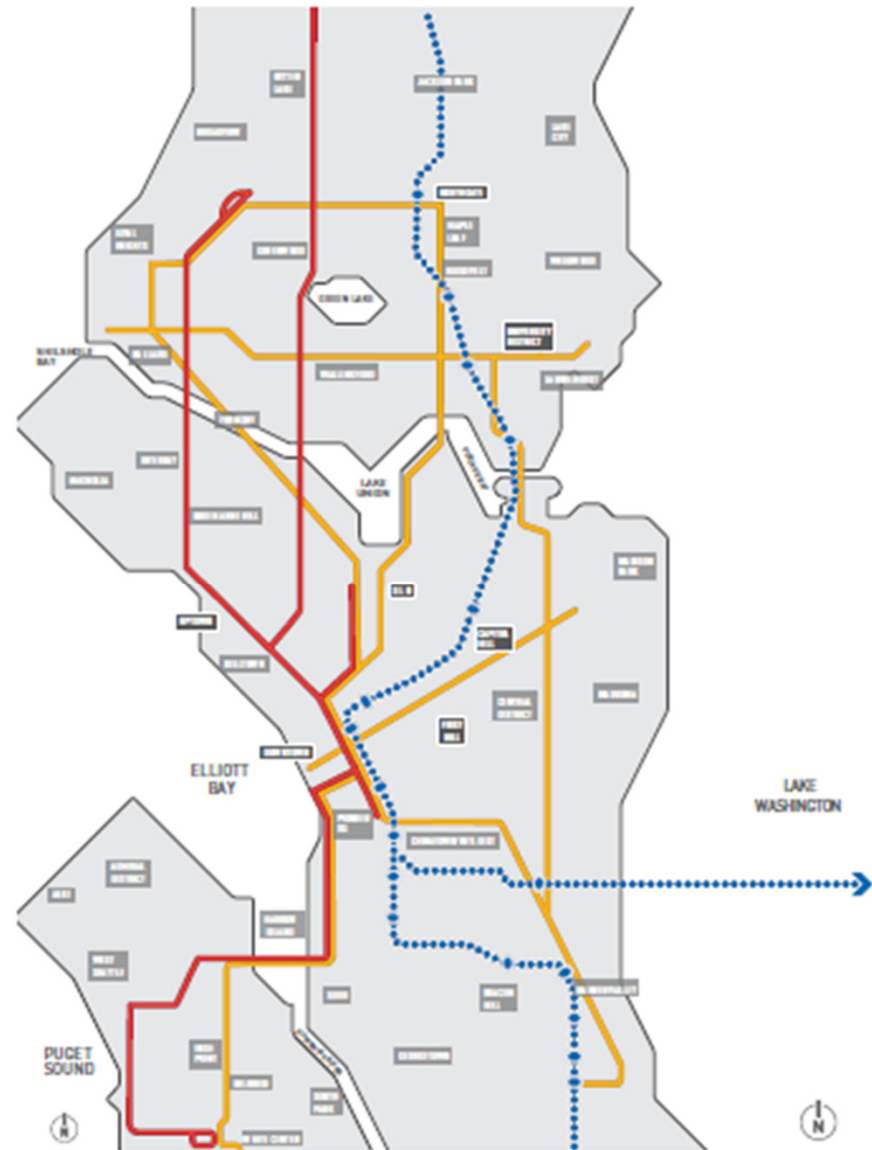
Why amend this plan?

- Many levy transit projects assume grant funding
- The 2016 PSRC grant cycle funds projects in 2018 through 2020
- To be eligible for federal, state, and local grants:
 - Eligible projects must be in Council adopted plans:
 - Eligible projects must be submitted to PSRC for inclusion in the Transportation 2040 (T2040) Plan: and
 - Projects must be submitted to PSRC in March 2016.

What has been refined?

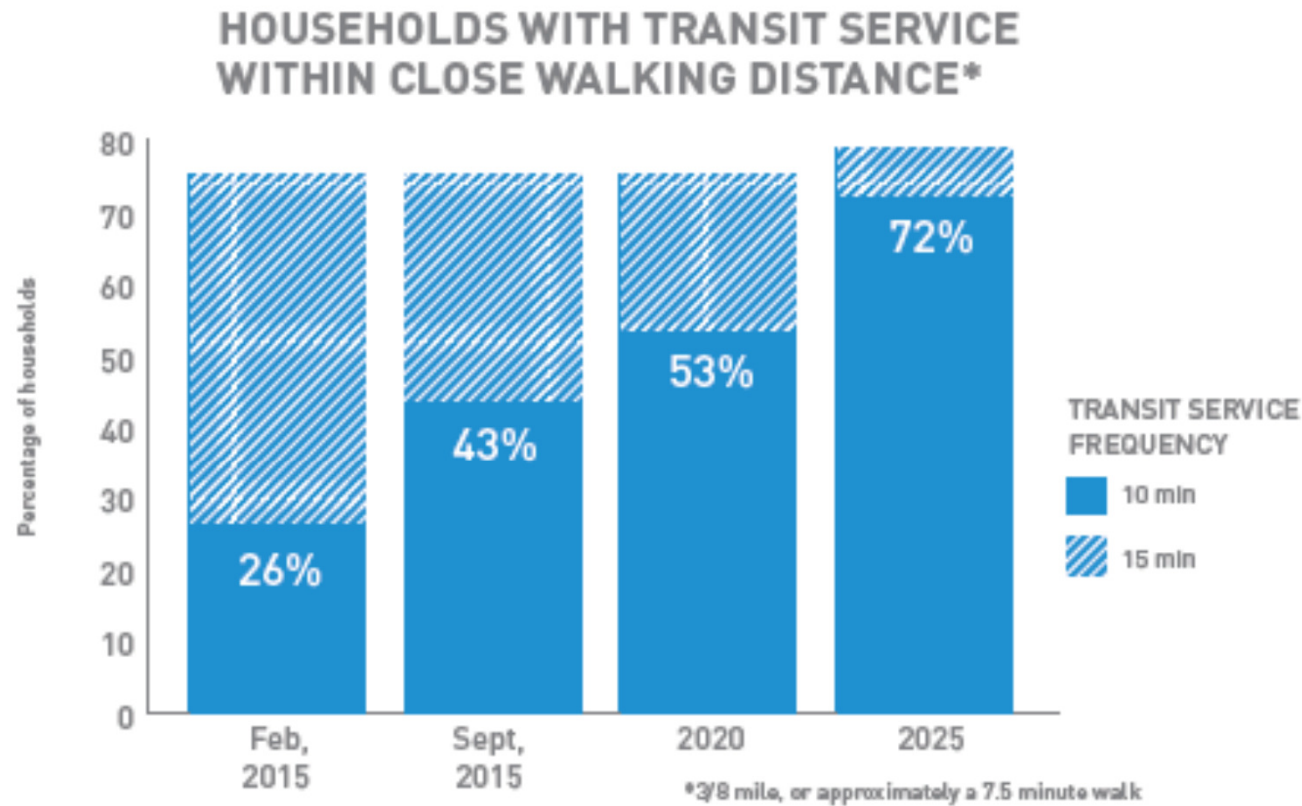
Seven RapidRide Corridors

- Madison
- Delridge
- Rainier/Jackson
- 23rd Avenue
- Market/45th
- Eastlake/Roosevelt
- Fremont, Ballard, & Northgate via Westlake



The Move Seattle Transit Promise:

Provide 72% of households with a 10 minute or better all-day transit service, within a 10-minute walk from their home



ELEMENTS OF RAPIDRIDE BUS RAPID TRANSIT



A TRANSIT SIGNAL PRIORITY

Intersection improvements including transit signal priority (TSP) allow buses to bypass congestion. TSP does so by giving buses earlier and/or longer green lights.



B RAPIDRIDE BRANDING

Unique designs make buses and stations more visible, raising awareness of RapidRide and increasing customer expectations for higher levels of service.



C ENHANCED STATIONS

RapidRide stations include raised platforms, off-board fare payment, real-time arrival information, larger shelters, and other passenger amenities.



D ENHANCED FARE COLLECTION SYSTEMS

Off-board fare collection using ticket vending machines, card readers, and other tools at stations allow passengers to load without waiting in line to pay their fares.



E SPECIALIZED VEHICLES

Custom buses provide more capacity, more doors, and lower floors for easier loading and unloading, and unique designs.



F DEDICATED RUNNING WAY

Bus-only lanes separate transit from traffic and are clearly marked to increase visibility.



Seattle RapidRide Corridor Sheets

RapidRide Corridor 5

Ballard – U-District – Laurelhurst via Market Street and 45th Street

Key Characteristics

Length: 6.27 miles

Major Stations: Market Street/24th Avenue, Market Street/15th Avenue, 45th Street/Wallingford Avenue, 45th Street/Roosevelt Way, Brooklyn Avenue/U-District Link Station, Sand Point Way/40th Avenue

Average Stop Spacing: 0.39 miles

Key Connections

- Market Street/24th Avenue (RapidRide Corridor 6 connection)
- Market Street/15th Avenue (E Line connection)
- 46th Street/Aurora Avenue (D Line connection)
- I-5 at NE 45th Street Freeway Station
- 45th Street/Roosevelt Way (RapidRide Corridor 7 connection)
- Brooklyn Avenue (Connection to U-District Link Station and RapidRide Corridor 4)

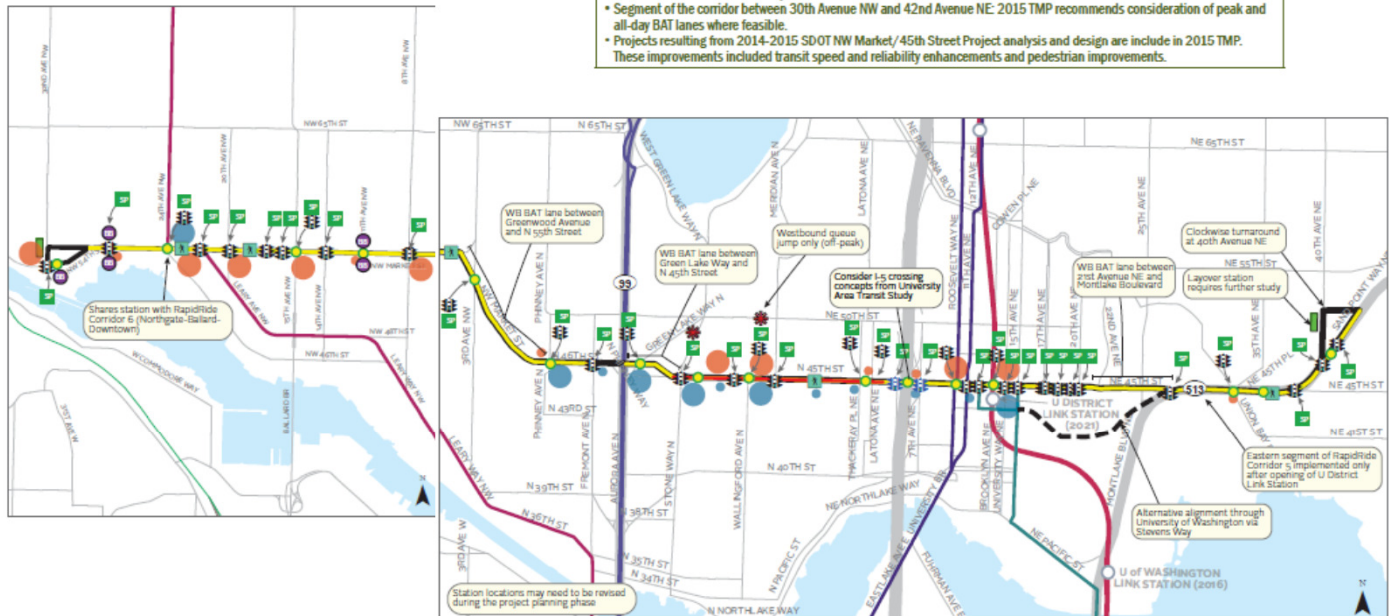
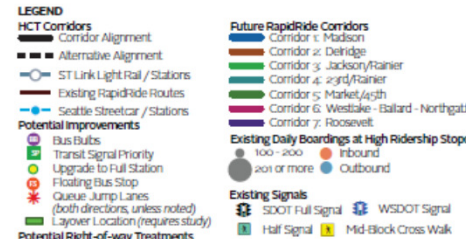
Permitted Development:

Office Commercial: 823,258 sf
Retail: 445,160 sf
Residential: 3,703 units

Service Design

Alignment Alternatives: Potential routing through University of Washington via E Stevens Way
Potential for Dual-Sided Vehicles: No

RapidRide Scorecard		
CRITERION	SCORING METRIC	SCORE
The Elements		
Dedicated Runningway (all-day)	% of corridor	71%
Bus Lane Alignment (limited transitions)	Yes/No	Yes
Intersection Treatments	% of signalized intersections have transit priority treatments	84%
The Network		
Intermodal Connections	# of connections to Link, RapidRide, Ferry, streetcar, and local/regional bus	Link: 1 RapidRide: 5 Local/regional bus: 11
Stop Spacing	Average stop spacing	0.39 miles
The Stations		
Full-Feature Stations	# of stations being upgraded to full featured stations	31
The Connections		
Move Seattle Walking and Biking Improvements	# of Move Seattle pedestrian/bicycle projects in corridor	14











Recommended RapidRide corridor improvements are conceptual in nature and will require future public outreach, technical analysis, and detailed design work.

Market/45th Street

RapidRide Corridor 5

Ballard – U-District – Laurelhurst via Market Street and 45th St

Metric	Score	Details
 <p>Ridership <i>(Weekday riders [2035] and Net New Riders)</i></p>	<p>16,200 (6,900 net new riders)</p>	<p>Ridership potential in 2035 is based on service improvements and projected land use changes: Weekday riders (2035) estimated from Spring 2015 stop/route-level boardings assigned to each corridor. Net new weekday riders equal 2030 estimate of potential ridership minus current (2015) ridership estimate for the corridor.</p>
 <p>Productivity</p>	<p>81 riders/hour</p>	<p>Efficiency with which provided transit capacity is utilized. Productivity equals weekday ridership divided by weekday revenue hours: A "revenue hour" includes time when a transit vehicle is available to carry passengers. It includes layover time, but excludes "deadhead" time such as when a bus travels to the start of a route. Weekday hours of revenue service calculated through development of corridor-specific operating plan.</p>
 <p>RapidRide Initial Investment Level</p>	<p>\$30.0-\$37.0M (\$4.8-\$5.9M per mile)</p>	<p>Expected level of initial investment required to provide transit speed, reliability, passenger comfort, and access improvements in the corridor. Based on initial planning level assessment conducted as part of the 2015 TMP update. Future analysis will identify the most cost-effective capital project elements and levels of investment appropriate to different right-of-way configurations and land use environments along the corridor. Higher level of investment may be possible based on potential additional local, regional, state and federal funding identified during detailed corridor planning and design process. Vehicle costs not included.</p>
 <p>Cost/Rider</p>	<p>\$2.80</p>	<p>Value of investment over time, including cost of operation and annualized cost of capital investment, fleet replacement, and maintenance: Annualized operating and capital cost per rider equals annual operating cost plus annualized capital costs divided by annual boarding rides. Operating cost adjusted for inflation by 2.4% annually. Infrastructure life held constant. Assumed vehicle life is 15 years for electric trolley bus.</p>
 <p>O&M Cost</p>	<p>\$13.6M</p>	<p>Annual total cost to deliver service on the proposed line. Annual operating cost based on the number of hours of revenue service, calculated through development of corridor-specific operating plan, multiplied by the 2015 operating cost for RapidRide. The 2015 operating costs are based on King County Metro operating cost factors and assumptions from the Madison Corridor BRT Study. Does not include cost reductions from repurposing of existing bus service hours.</p>
 <p>Operating Cost/ New Ride</p>	<p>\$2.57</p>	<p>Operating cost to deliver a new boarding ride considering potential cost savings: Calculated as planned weekday operating cost minus weekday operating cost savings, divided by the number of net new boarding rides projected for 2035. Analysis of cost savings is conceptual.</p>
 <p>Travel Time Savings</p>	<p>19%</p>	<p>In-vehicle travel time savings (compared to current service) for a passenger riding between two terminus stations: Projected 2035 corridor travel time with current road design - estimated travel times under each mode, alignment, and design.</p>
 <p>GhG Savings</p>	<p>1,122 MT CO₂e</p>	<p>Annual reduction in greenhouse gas emission equivalents from reduced vehicle miles traveled and net change in transit emissions: Emissions savings from reduced VMT based on an assumed rate of displaced light duty vehicle trips per new transit rider, average trip length by corridor, average fuel economy, and resulting fuel savings. Emissions savings from net change in transit emissions equals planned service minus existing service (based on conceptual operating plans). Emissions factors applied based on known emission assumptions for electric trolley bus and diesel hybrid bus.</p>

IMPLEMENTATION STRATEGIES

- **Strategy RR 5.1:** Explore additional eastern route terminus routing and layover options in the vicinity of Sand Point Way.
- **Strategy RR 5.2:** Evaluate feasibility of Business Access and Transit (BAT) lanes east of I-5.
- **Strategy RR 5.3:** Integrate spot improvements west of I-5 as recommended by Route 44 Enhancements Study.
- **Strategy RR 5.4:** Build off success of SDOT spot improvements constructed as part of the NW Market/NE 45th Street Transit Priority Corridor Improvement Project and continue to implement public realm elements of the project.
- **Strategy RR 5.5:** Work with corridor business stakeholders to evaluate tradeoffs between transit speed and reliability and on-street parking needs.
- **Strategy RR 5.6:** As a primary east-west route, ensure seamless connections to north/south RapidRide routes and future U-District Link Station.
- **Strategy RR 5.7:** Evaluate sidewalk width in station areas for potential right-of-way needs for ADA-compliant station design.
- **Strategy RR 5.8:** Engage King County Metro to evaluate a route extension east to Sand Point Way/NE 50th Street.
- **Strategy RR 5.9:** Coordinate with King County Metro and the University of Washington to evaluate potential campus routing options.

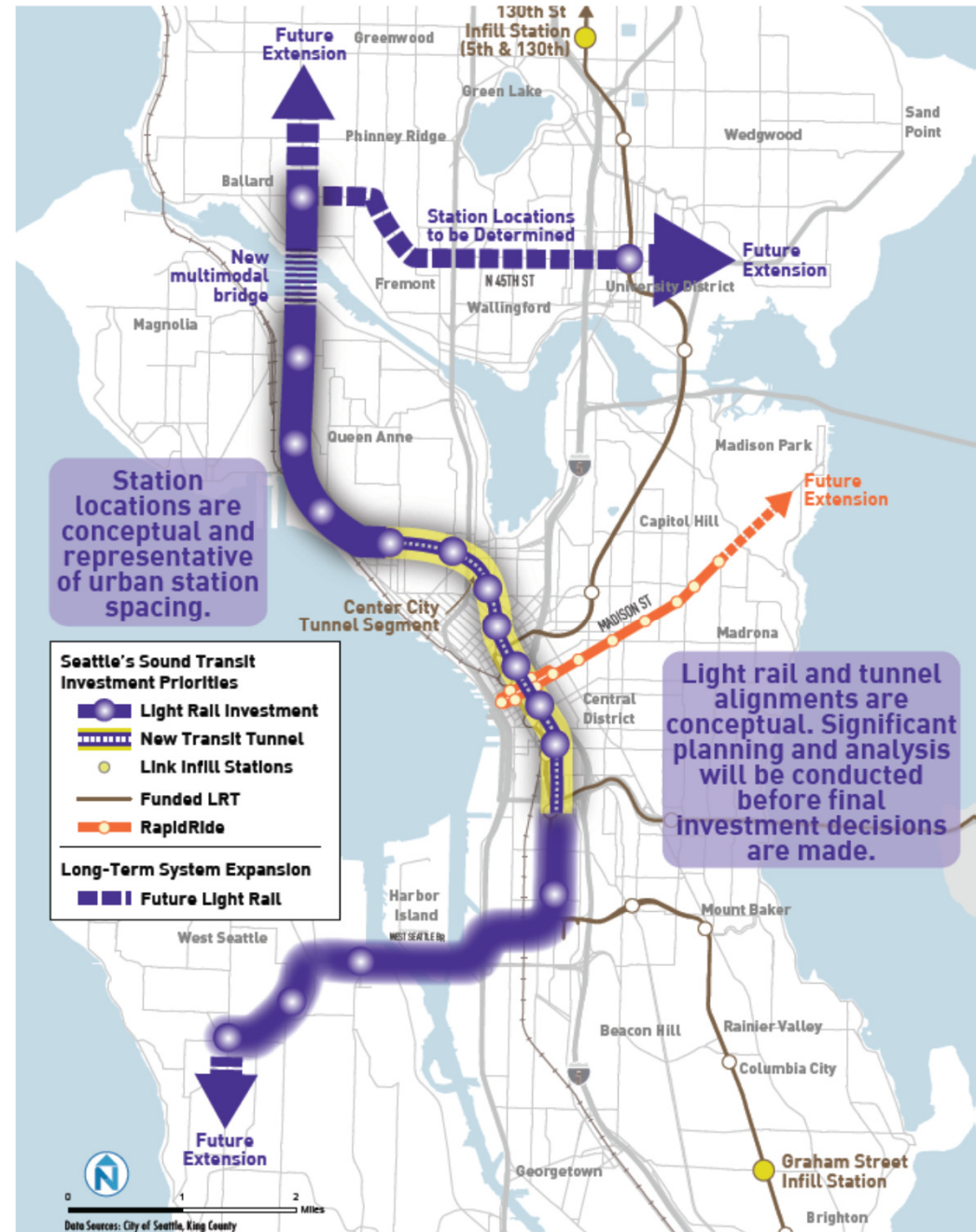
MULTIMODAL PROJECT COORDINATION

- **Strategy MMC 5.1:** Coordinate with WSDOT on Market Street/I-5 crossing improvements and access control that will enhance transit and non-motorized trips.
- **Strategy MMC 5.2:** Coordinate with Sand Point Way Safety Corridor project to integrate and optimize RapidRide operations and facility design with approved roadway safety improvements between Montlake Boulevard NE and 50th Street NE.
- **Strategy MMC 5.3:** Develop a street concept plan for the Sand Point Way, 45th Street, 46th Street, and Market Street corridor, considering previous work on the NW Market/NE 45th Street Transit Priority Corridor Improvement and Sand Point Way Safety Corridor projects.
- **Strategy MMC 5.4:** Ensure 46th Street and 17th Avenue neighborhood greenway connections provide safe access across the corridor and to proposed RapidRide stations.
- **Strategy MMC 5.5:** Provide clear wayfinding to direct people walking and biking to RapidRide stations.
- **Strategy MMC 5.6:** Identify overlap and coordinate with Pedestrian Master Plan improvement projects along each corridor that have shared design elements with RapidRide such as enhanced intersection crossings, curb bulbs, and improved sidewalks.

What else has been refined?

Sound Transit Priorities

- Light rail serving Ballard & West Seattle
- Downtown transit tunnel
- Madison BRT
- Infill stations: Graham St. and 130th
- Recognizing a future Ballard to U. District light rail connection



Additional Map Refinements

FIGURE 3-5 RAPIDRIDE BUS RAPID TRANSIT NETWORK

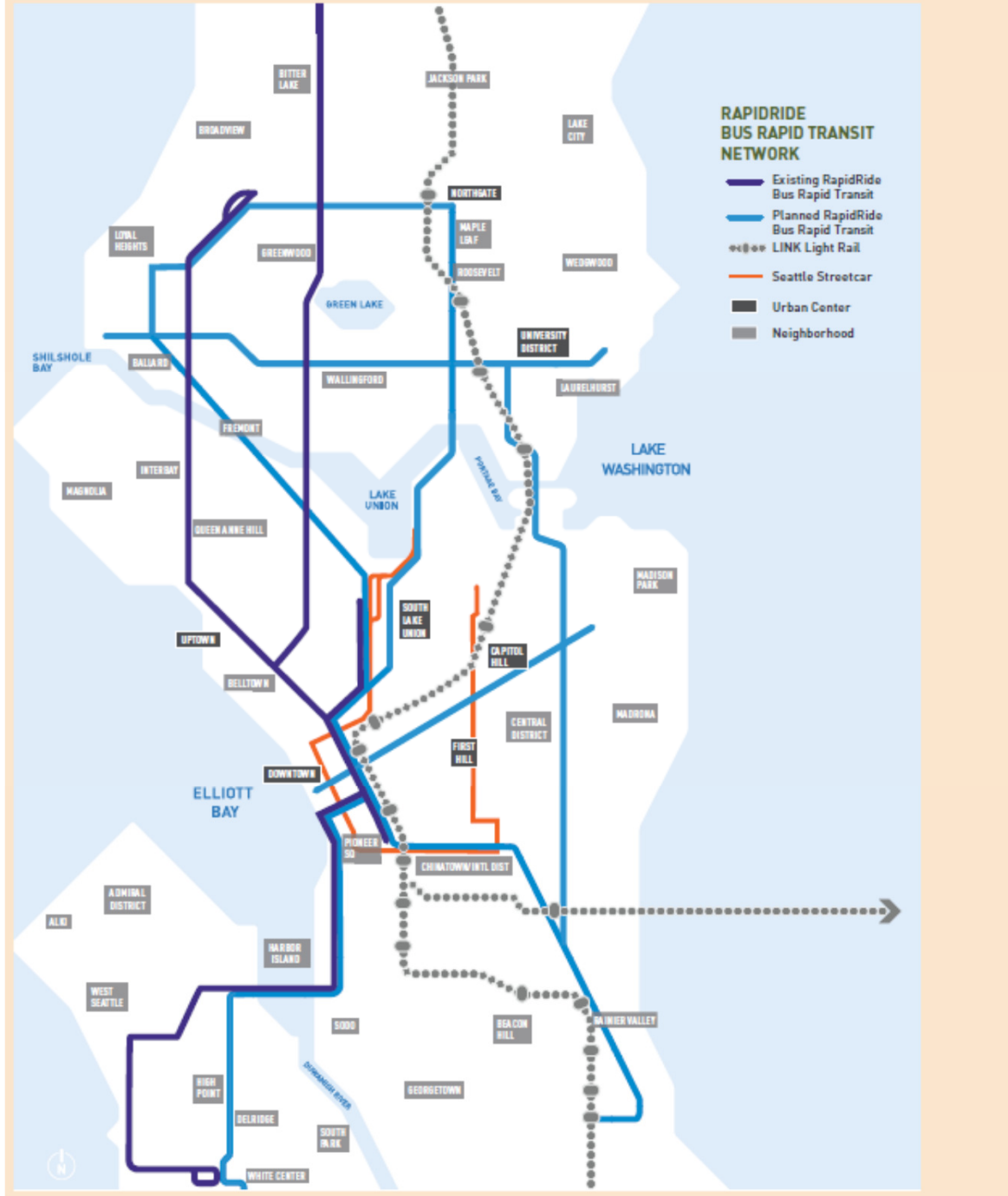


FIGURE 3-10 PRIORITY BUS CORRIDORS



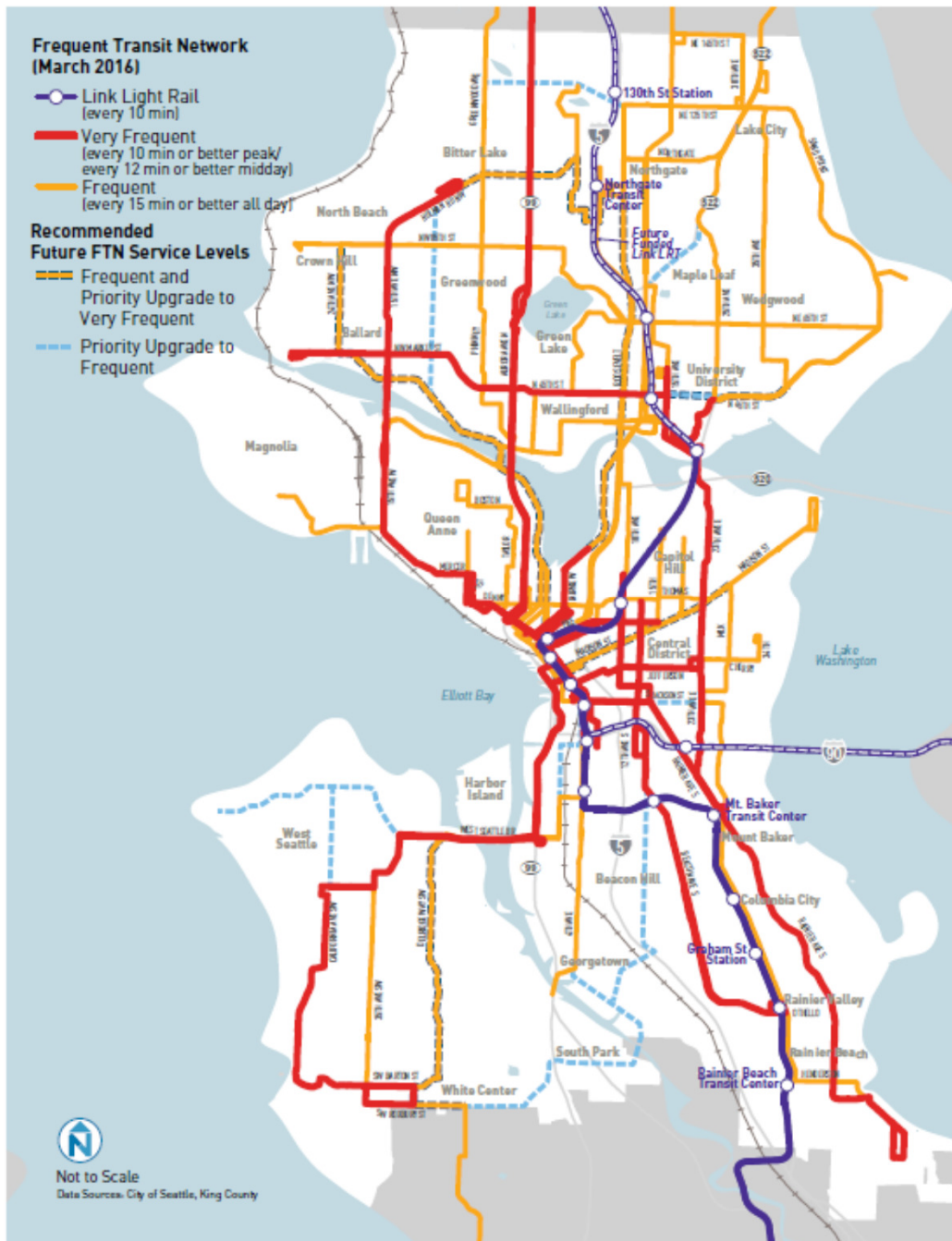
FIGURE 3-11 CENTER CITY TRANSIT CAPITAL IMPROVEMENT PRIORITIES



FIGURE 3-12 CENTER CITY KEY SERVICE ST IMPROVEMENTS



FIGURE 4-1 FREQUENT TRANSIT NETWORK



Next steps

Date	Activity/action
November 24	Initial Transportation Committee briefing
December 16	Presentation to Transportation Advisory Board
January 2016	Seek Council Adoption
January to March	Prepare project definitions and project scoring for PSRC
Summer 2016	Submit projects to PSRC for inclusion in T2040

Questions?

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www.seattle.gov/transportation

