Attachment N.1A
Transportation Technical Analysis Methodology

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West Seattle and Ballard

Link Extensions

Transportation Technical Analysis Methodology

October 2020

SoundTransit

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1 INTRODUCTION

This Transportation Methodology Report for the West Seattle and Ballard Link Extensions (WSBLE) Environmental Impact Statement (EIS) describes the methods that will be used to analyze project effects on local, corridor, and regional transportation system elements. The analysis results will be documented in the Transportation chapter of the EIS and the Transportation Technical Report appendix.

The intent of the Transportation Technical Report is to inform the public about the potential transportation effects of the project alternatives, provide an appropriate level of analysis to make informed decisions, and identify areas in which mitigation might be necessary to reduce potential project impacts. With the WSBLE, the environmental analysis will proceed in parallel to a variety of other project development efforts, including but not limited to further refinement of the project alternatives, including conceptual construction plans, as part of concept design; refinement of the transit integration plans between the relevant transit agencies; and station area planning to integrate the project within the surrounding community. These efforts provide additional opportunities for collaboration between Sound Transit, partner agencies, and the community.

This transportation analysis will identify and evaluate the project alternatives' potential impacts for the following transportation elements during both operations and construction:

- Regional transportation, including vehicle miles of travel, vehicle hours of travel, vehicle hours of delay, and mode share
- Transit services, including regional and local services, corridor and station ridership, and transit operations
- Arterial and local street system, including corridor analysis, intersection level of service (LOS), property access and local traffic circulation
- Parking, including the loss of parking due to the alignments and potential hide-and-ride parking impacts near stations
- Non-motorized facilities (bicycle and pedestrian) around stations and on major bicycle or pedestrian trails affected by the alignment(s)
- Safety (all modes)
- Navigation of navigable waterways and airport airspace
- Freight (truck, rail, and water)

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2 GUIDING REGULATIONS, PLANS, AND/OR POLICIES

In addition to the relevant regulations, plans, and policies considered in all environmental analyses, the transportation analysis will be guided by the following laws and regulations:

- Code of Federal Regulations (CFR) 23 Part 450 (implementing United States Code 23 Section 111, which requires the U.S. Secretary of Transportation to approve access revisions to the Interstate System)
- CFR 23 Part 710 (Right-of-Way Regulations for Federally Assisted Transportation Programs)
- City of Seattle Director's Rules
- "Seattle Streets Illustrated," online Right-of-Way Improvements Manual (City of Seattle 2017a)
- City of Seattle Traffic Control Manual, 2018

Analysis of local transportation impacts will also be guided by the policy direction established in the numerous plans and policy documents adopted within the project corridor, including the following:

- *2016 Washington State Public Transportation Plan* (Washington State Department of Transportation [WSDOT] 2016a)
- 2017 Washington State Freight System Plan (WSDOT 2017)
- *The Regional Transportation Plan – 2018* (Puget Sound Regional Council [PSRC] 2018)
- King County Metro Strategic Plan for Public Transportation 2011–2021 (King County Metro 2015)
- 2016 King County Comprehensive Plan (2017)
- City of Seattle Comprehensive Plan: Toward a Sustainable Seattle 2015-2035 (City of Seattle 2017b)
- *Transit Master Plan* (City of Seattle 2016)
- City of Seattle, Washington, 2018-2023 Proposed Capital Improvement Program (2017c)
- Northwest Seaport Alliance Strategic Business Plan (2015)
- Port of Seattle 2018 – 2022 Long Range Plan (Port of Seattle 2017)
- Port of Seattle Container Terminal Access Study (CTAS) Throughput, Rail, and Truck Volumes for Growth Scenarios for Sensitivity Analysis (Heffron Transportation, Inc., 2015)
- Port of Seattle Capital Investment Plan (2019-2023) (Port of Seattle 2018a)
- Terminal 91 2018 Traffic Monitoring Study (Port of Seattle 2018b)
- *City of Seattle Freight Master Plan* (Seattle Department of Transportation [SDOT] 2016)

- Seattle Pedestrian Master Plan (SDOT 2017a)
- Seattle Bicycle Master Plan (SDOT 2017b)
- King County Metro METRO CONNECTS Plan (King County Metro 2016)

3 DATA NEEDS AND SOURCES

A variety of data will be assembled to analyze the transportation-related effects of the project alternatives within the study areas defined in Section 4. These data sets will include the following:

- Existing AM and PM peak hour turning-movement counts for intersections identified per Section 4.3, Arterials and Local Streets. Counts for the existing conditions year will be collected from the local and state agencies (City of Seattle and King County) if available. For locations that do not have counts available or where available data do not include the necessary information to conduct the analysis, new counts will be taken for 2 hours during the AM and PM peak periods. The new counts will include automobiles, trucks, buses, pedestrians, and bicyclists. All peak hour turning-movement counts will be factored to the existing conditions analysis year (2019) using available historical data trends. At non-intersection areas (if any), such as mid-block U-turn locations or mid-block pedestrian crossing locations, a short-duration vehicle count ("short-count"), which is typically 30 minutes or less, will be collected during the AM and/or PM peak periods to understand the impacts of any proposed traffic circulation changes with the project alternatives.
- Daily traffic counts in the study area, as available, will be collected from local jurisdictions. These counts will be factored to the existing conditions analysis year.
- Physical characteristics of the existing street system will be noted, including functional use, lane geometry, traffic signal timing and phasing patterns, and other parameters necessary to conduct traffic operations analysis (such as the proximity of bus stops, speed limits, transit signal priority, other transit-supportive infrastructure such as bus-only lanes and queue jumps, and presence of public and restricted on-street parking). Where available, these data will be obtained from local agencies and will be field-verified as appropriate.
- On- and off-street public parking supply, existing parking restrictions, and weekday public parking utilization survey data will be obtained from the City of Seattle and the Port of Seattle, and augmented by field visits where appropriate. This will include truck parking.
- Pedestrian and bicycle volumes in the study area will be collected from local jurisdictions as available. Where data are not available for areas of high pedestrian and bicycle activity in the study area (including station areas, activity centers, and major non-motorized facilities such as regional trails), AM and PM pedestrian and bicycle volumes will be collected. The data collection effort will cover the intersections identified per Section 4.3, Arterials and Local Streets.
- Existing and planned pedestrian and bicycle facilities in each station area will be inventoried by either field visits or available information from agencies (such as geographic information system [GIS] data). The pedestrian and bicycle facility assessment will be based on the actual road and pathway networks rather than a radius buffer. This inventory will include identification of school walk routes and any barriers (such as waterways and major arterials and freeways with limited crossings) to pedestrian or bicycle travel within each station area.

The general sidewalk condition immediately surrounding station areas will be qualitatively assessed.

- Existing and planned transit route information in the study area will be obtained from the local and regional transit agencies and compiled. This task will include information on selected routes that serve the project corridor. The bus route information will include service areas, hours of service (including schedule/frequency), reliability, and passenger load. Passenger load information will be collected at selected screenline locations. Transit reliability information will be collected for selected routes at key destinations that serve the project corridor. Planned information includes the project Transit Integration Study, which incorporates detailed service information along the project corridor.
- Collision data for the most recent 3-year period will be obtained for the study area intersections (signalized and unsignalized). Collision data for roadway segments (between intersections) will be collected where at-grade or elevated light rail alternatives are running within or immediately adjacent to a roadway and will include vehicles, pedestrians, and cyclists. These data will be collected from local and state agencies.
- Existing truck routes, over-dimension routes, and any truck restrictions will be identified.
- Existing freight rail, facilities, and operational information will be collected as available from BNSF Railway, Union Pacific, and private businesses
- Navigation Impact Reports are being developed separately for the Duwamish and Salmon Bay crossings and will be used for navigable waterways analysis.
- Obstruction Evaluation/Airport Airspace Analysis is being developed separately for the Duwamish Waterway crossing.
- Local, regional, and state agency capital and/or transportation improvement plans (CIPs/TIPs) or transportation facilities plans, and other planned improvements in proximity to a light rail alignment or station area will be reviewed and summarized. This effort will include identification of all “committed” improvements assumed for the No Build Alternative.
- Relevant plans and studies conducted by public agencies and private entities.

4 STUDY AREA AND AREA OF EFFECT

The general study area for the transportation analysis is 0.5 mile from the project alternatives except where noted in this section.

4.1 Regional

Analysis of systemwide traffic impacts will address the project alternatives' regional effects within PSRC and Sound Transit's district boundaries and the project-specific study area (Figures 4-1 and 4-2). The area of effect is expected to be the same as the study area.

4.2 Transit

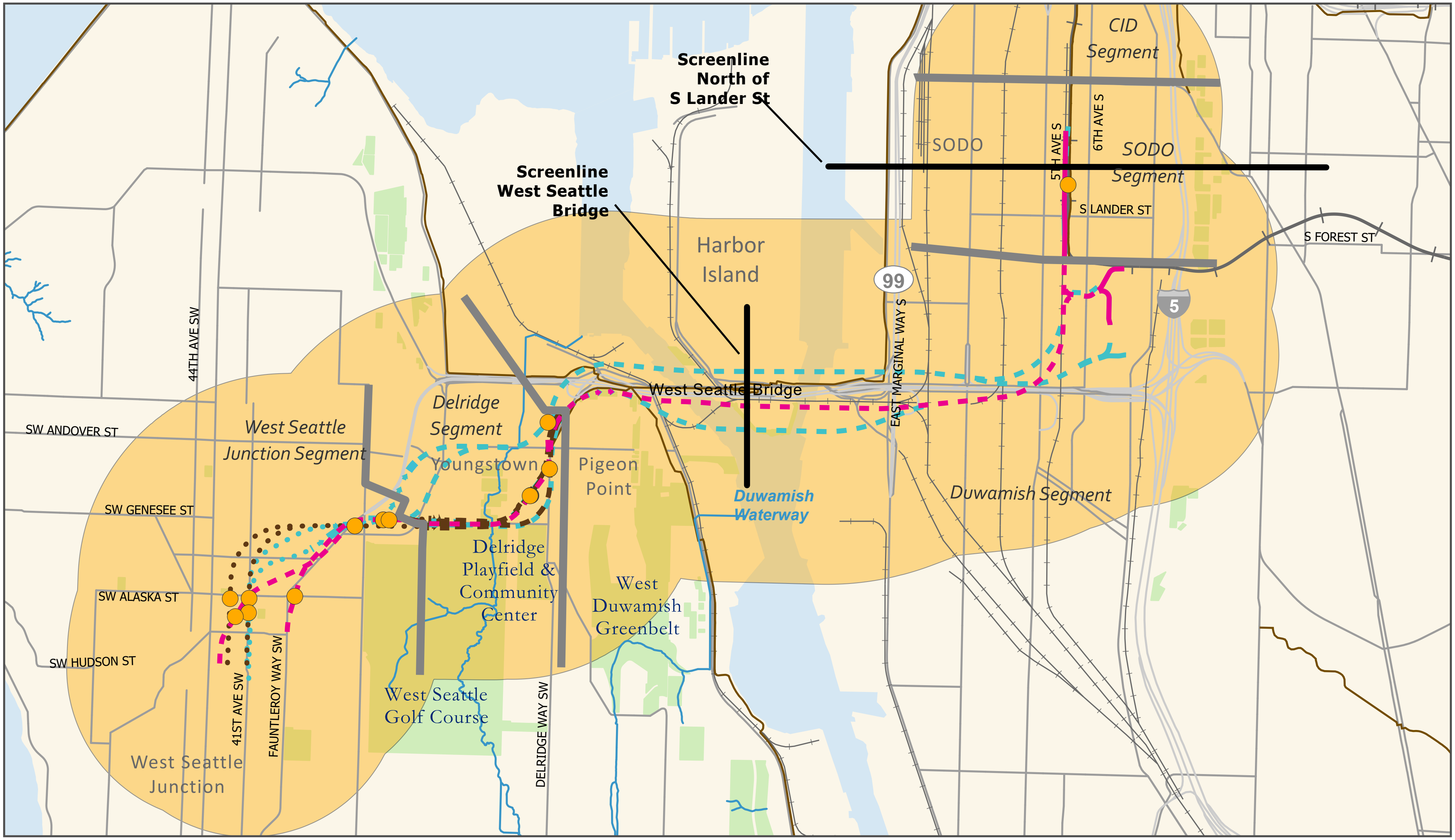
The transit analysis will be conducted for the transit services included in the transit integration plan developed by Sound Transit and King County Metro. The extent of this analysis would only be within the general study area and at the project's screenlines. For more geographically dispersed transit measures, the study area expands to encompass the relevant regional transit system.

4.3 Arterials and Local Streets

The arterial and local street analysis will focus on locations where traffic circulation, access, and operations are most likely to be affected by the light rail alternatives. The specific intersections to be studied will vary by time period and relationship to the project, as described further in this section.

4.3.1 PM Peak Hour Analysis

A preliminary set of 94 study intersections (Figures 4-3 through 4-10 and Tables 4-1 through 4-8) have been identified for quantitative PM peak operational analysis under the existing (2019) and future (2032 and 2042) No Build conditions based on their proximity to station areas and other locations where the project may result in long-term changes to traffic operations. Additional intersections may be added to the intersections identified in these figures and tables if they meet the criteria in Table 4-9. The list of intersections to be studied will be reviewed and finalized in consultation with partner agencies following the Sound Transit Board's identification of alternatives for inclusion in the Draft EIS.



Source: City of Seattle

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Stream
- Trail
- Existing Link Light Rail
- Railroad
- Segment Line
- Park

- Screenline
- Study Area

0 0.5 1 Miles

N

FIGURE 4-1
Combined Study Area and Screenlines
West Seattle Link Extension

West Seattle and Ballard Link Extensions

3/23/2020 StudyAreaScreenline_FullAlignmentBallard

Source: City of Seattle

Alternatives

- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile

- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station

- New
- Existing

- Stream
- Trail
- Streetcar Line
- Existing Link Light Rail
- Railroad
- Segment Line
- Screenline
- Park
- Study Area

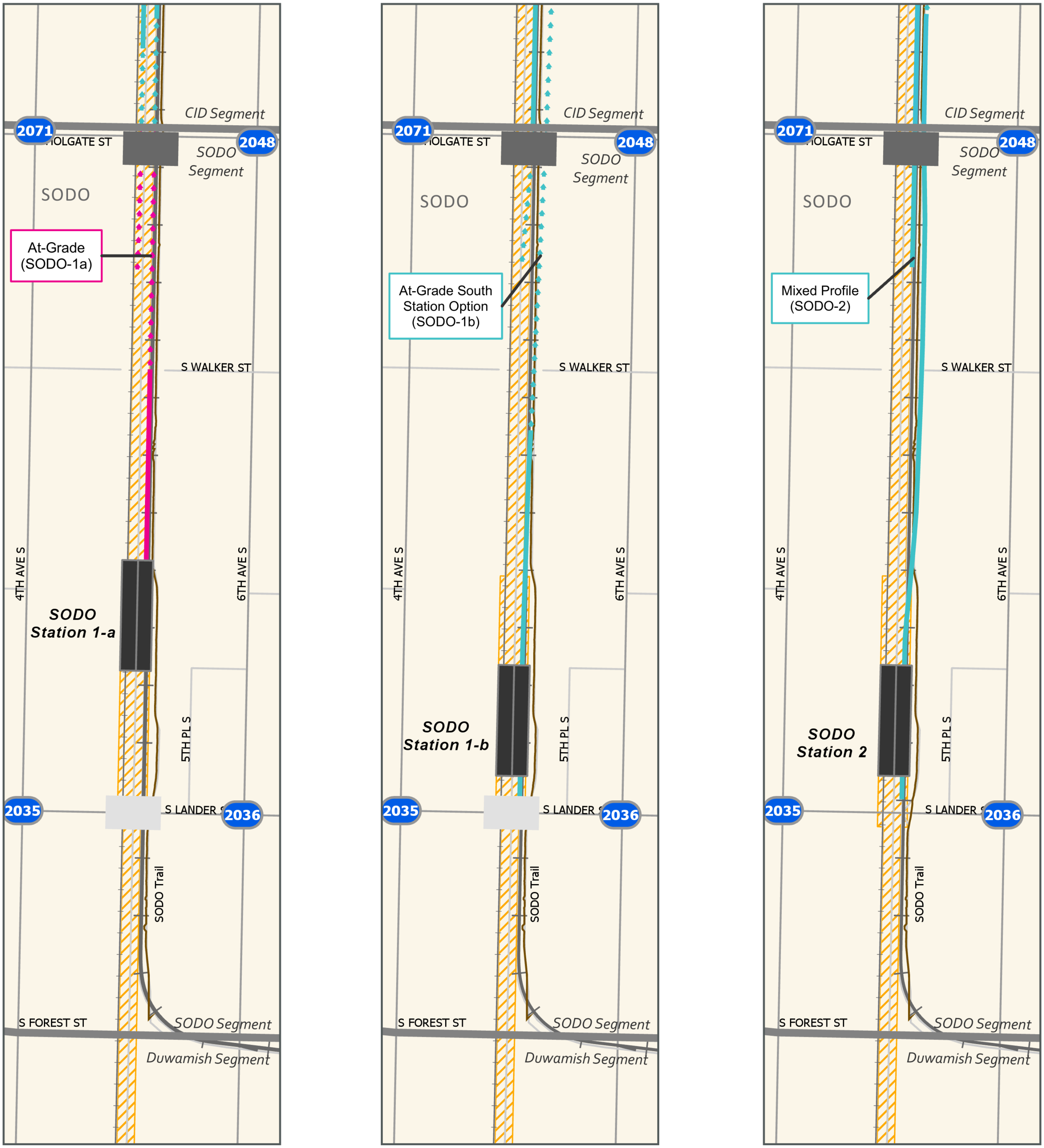
0 0.75 1.5 Miles

N

FIGURE 4-2
Combined Study Area and Screenlines
Ballard Link Extension

West Seattle and Ballard Link Extensions

3/26/2020 I SODO Ballard I LOSStudyArea_SODOBallardWSSegment.aprx



Source: City of Seattle

Alternatives (Alternatives for Ballard Link Extension Shown)
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- Existing

- Trail
- Existing Link Light Rail
- Railroad
- Segment Line
- SODO Busway
- Existing Overpass
- Proposed Overpass

- Analysis Intersection

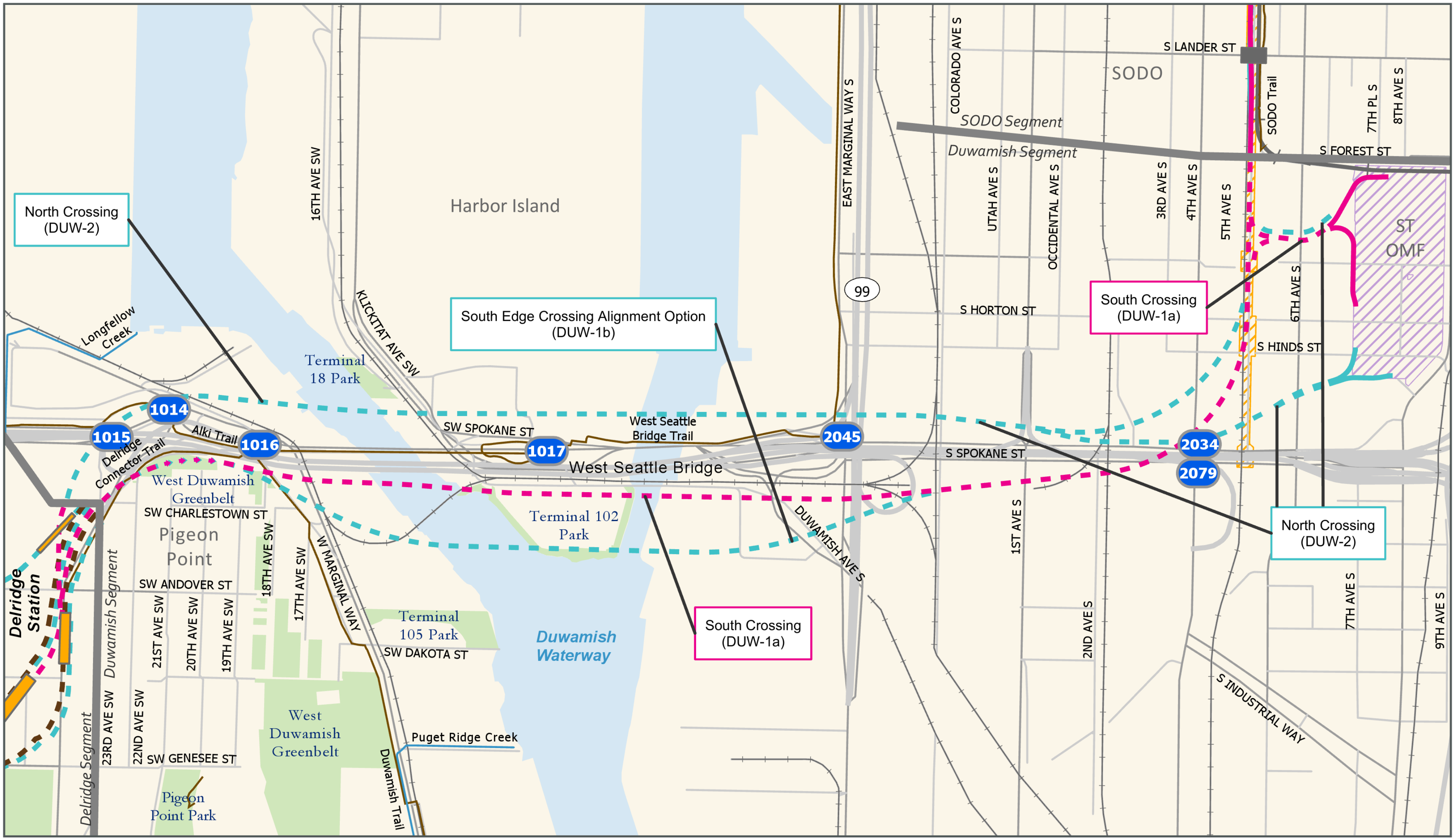
FIGURE 4-3
Intersection Level of Service Analysis Study Area
Ballard and West Seattle Link Extension - SODO Segment

West Seattle and Ballard Link Extensions

0 400 800 Feet
N

Table 4-1. West Seattle and Ballard Extensions Study Intersections -- SODO Segment

Intersection Identification Number	Intersection name
2035	4th Avenue South and South Lander Street
2036	6th Avenue South and South Lander Street
2048	6th Avenue South and South Holgate Street
2071	South Holgate Street and 4th Avenue South



Source: City of Seattle

Alternatives

- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile

- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station

- New

- Stream
- Trail
- Existing Link Light Rail
- Railroad
- Segment Line
- SODO Busway
- Sound Transit OMF
- Park
- Analysis Intersection

FIGURE 4-4

Intersection Level of Service Analysis Study Area

West Seattle Link Extension - Duwamish Segment

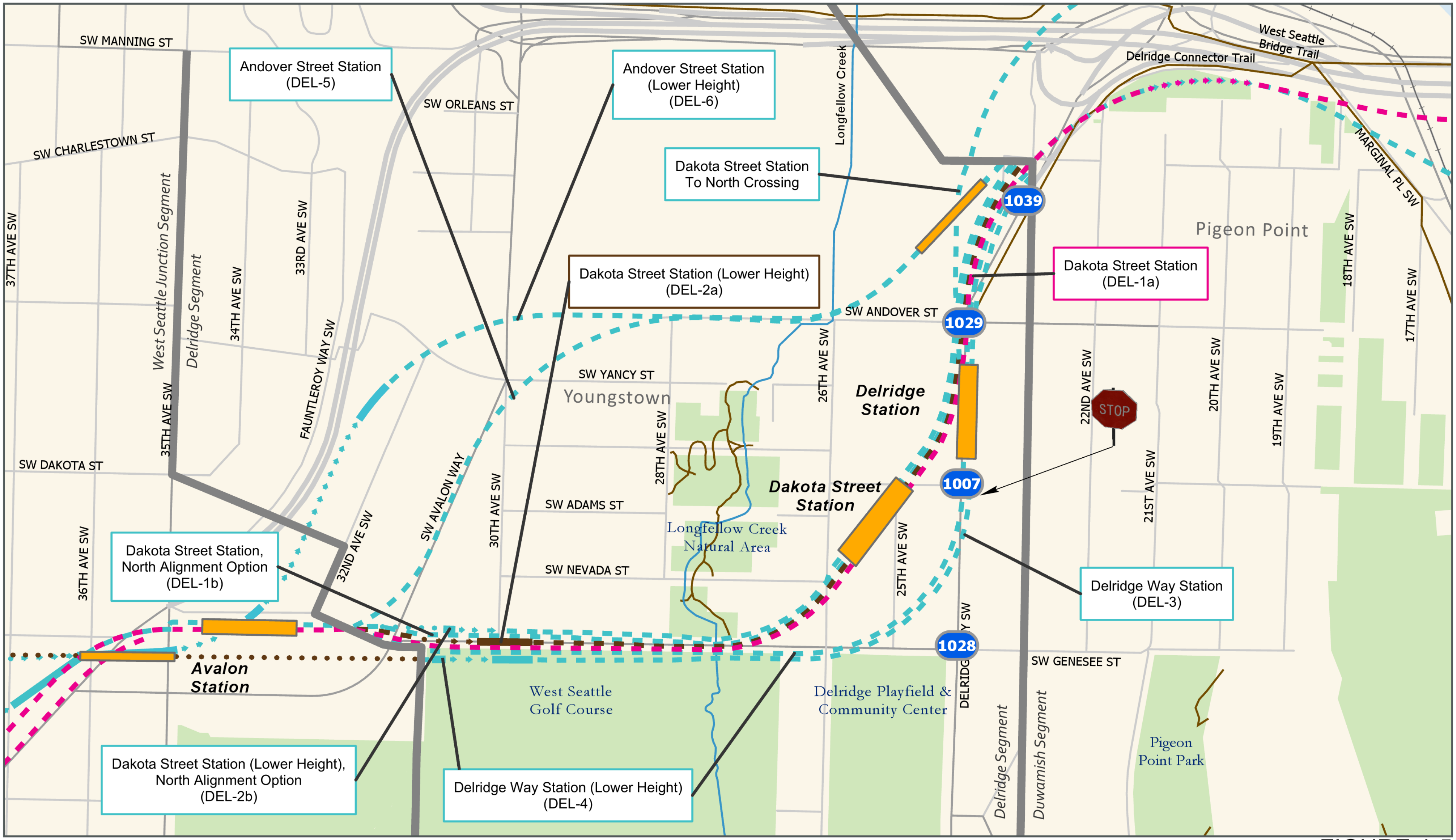
West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N

Table 4-2. West Seattle Extension Study Intersections -- Duwamish Segment

Intersection Identification Number	Intersection name
1014	West Marginal Way/Chelan Avenue and Southwest Spokane Street
1015	Chelan Avenue Southwest and Southwest Spokane Street
1016	Southwest Spokane Street and West Marginal Way/Terminal 5
1017	Southwest Spokane Street and 11th Avenue Southwest
2034	4th Avenue South and South Spokane Street (North)
2045	East Marginal Way and South Spokane Street
2079	4th Avenue South and South Spokane Street (South)



Source: City of Seattle

Alternatives

- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile

- Elevated
- At-Grade
- Tunnel
- Retained Cut

Station

- New

- Stream
- Trail
- Segment Line
- Park
- Analysis Intersection

0 400 800 Feet

N

FIGURE 4-5

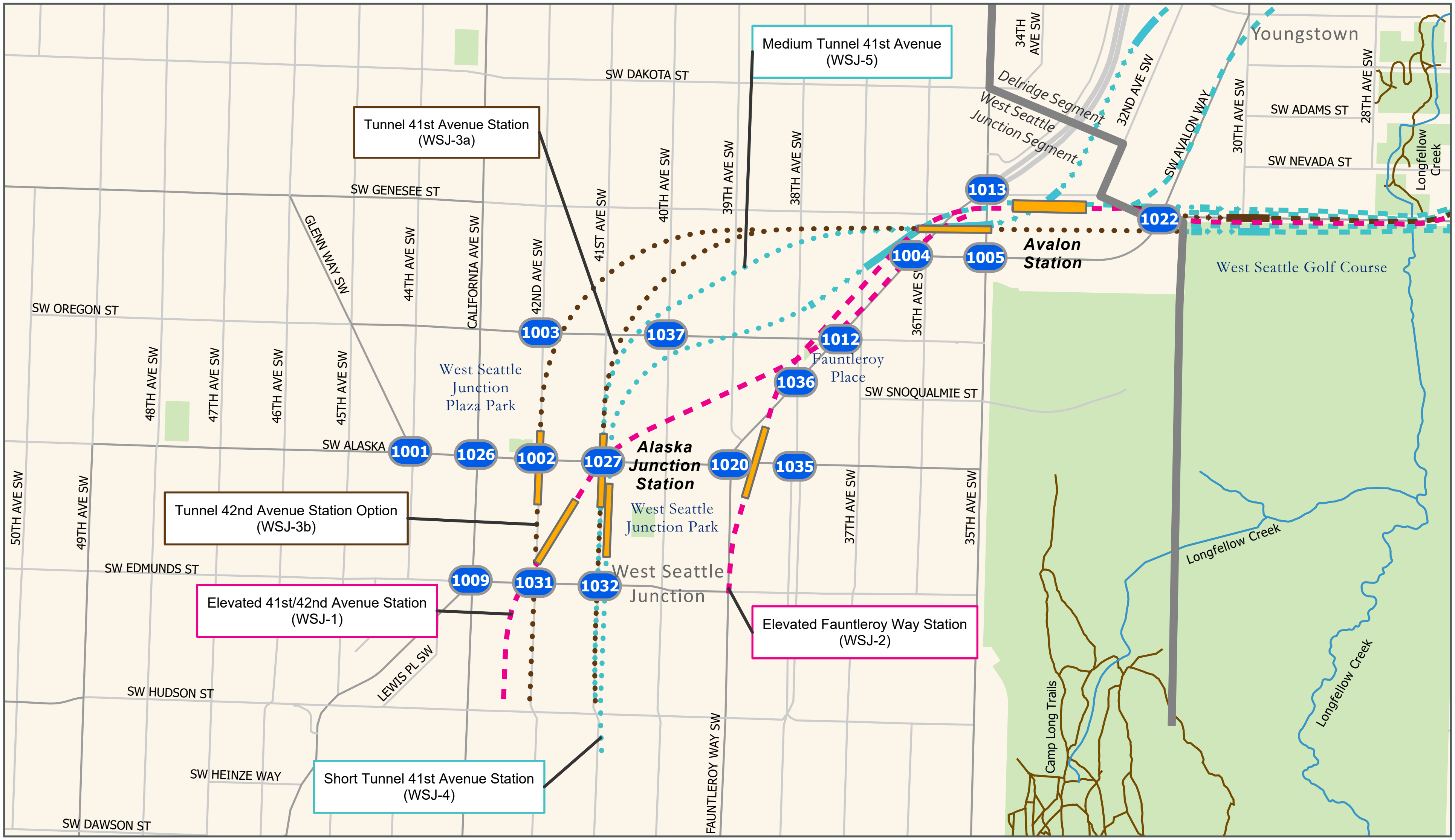
Intersection Level of Service Analysis Study Area

West Seattle Link Extension - Delridge Segment

West Seattle and Ballard Link Extensions

Table 4-3. West Seattle Extension Study Intersections -- Delridge Segment

Intersection Identification Number	Intersection name
1007	Southwest Dakota Street and Delridge Way Southwest
1028	Southwest Genesee Street and Delridge Way Southwest
1029	Delridge Way Southwest and Southwest Andover Street
1039	Delridge Way Southeast and 23rd Avenue Southeast



Source: City of Seattle

Alternatives

- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile

- Elevated
- At-Grade
- Tunnel
- Retained Cut

Station

- New

- Stream
- Trail
- Segment Line
- Park
- Analysis Intersection

0 500 1,000 Feet

N

FIGURE 4-6

Intersection Level of Service Analysis Study Area

West Seattle Link Extension - West Seattle Junction Segment

West Seattle and Ballard Link Extensions

Table 4-4. West Seattle Extension Study Intersections – West Seattle Junction Segment

Intersection Identification Number	Intersection name
1001	44th Avenue Southwest and Southwest Alaska Street
1002	42nd Avenue Southwest and Southwest Alaska Street
1003	42nd Avenue Southwest and Southwest Oregon Street
1004	Southwest Avalon Way and Fauntleroy Way Southwest
1005	35th Avenue Southwest and Southwest Avalon Way
1013	Fauntleroy Way Southwest and 35th Avenue Southwest
1020	Fauntleroy Way Southwest and Southwest Alaska Street
1022	Southwest Avalon Way and Southwest Genesee Street
1026	Southwest Alaska Street and California Avenue Southwest
1027	41st Avenue Southwest and Southwest Alaska Street
1009	California Avenue Southeast and Southwest Edmunds Street
1012	Fauntleroy Way Southwest and Southwest Oregon Street
1031	42nd Avenue Southwest and Southwest Edmunds Street
1032	41st Avenue Southwest and Southwest Edmunds Street
1035	Southwest Alaska Street and 38th Avenue Southwest
1036	Fauntleroy Way Southwest and 38th Avenue Southwest
1037	40th Avenue Southwest and Southwest Oregon Street

3/23/2020 I CID I LOSStudyArea_CIDSegment.aprx

Source: City of Seattle

Alternatives

- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile

- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station

- New
- Existing

- Trail
- Streetcar Line
- Existing Link Light Rail
- Railroad
- Segment Line
- SODO Busway
- Park
- Analysis Intersection

0 700 1,400 Feet

N

FIGURE 4-7

Intersection Level of Service Analysis Study Area

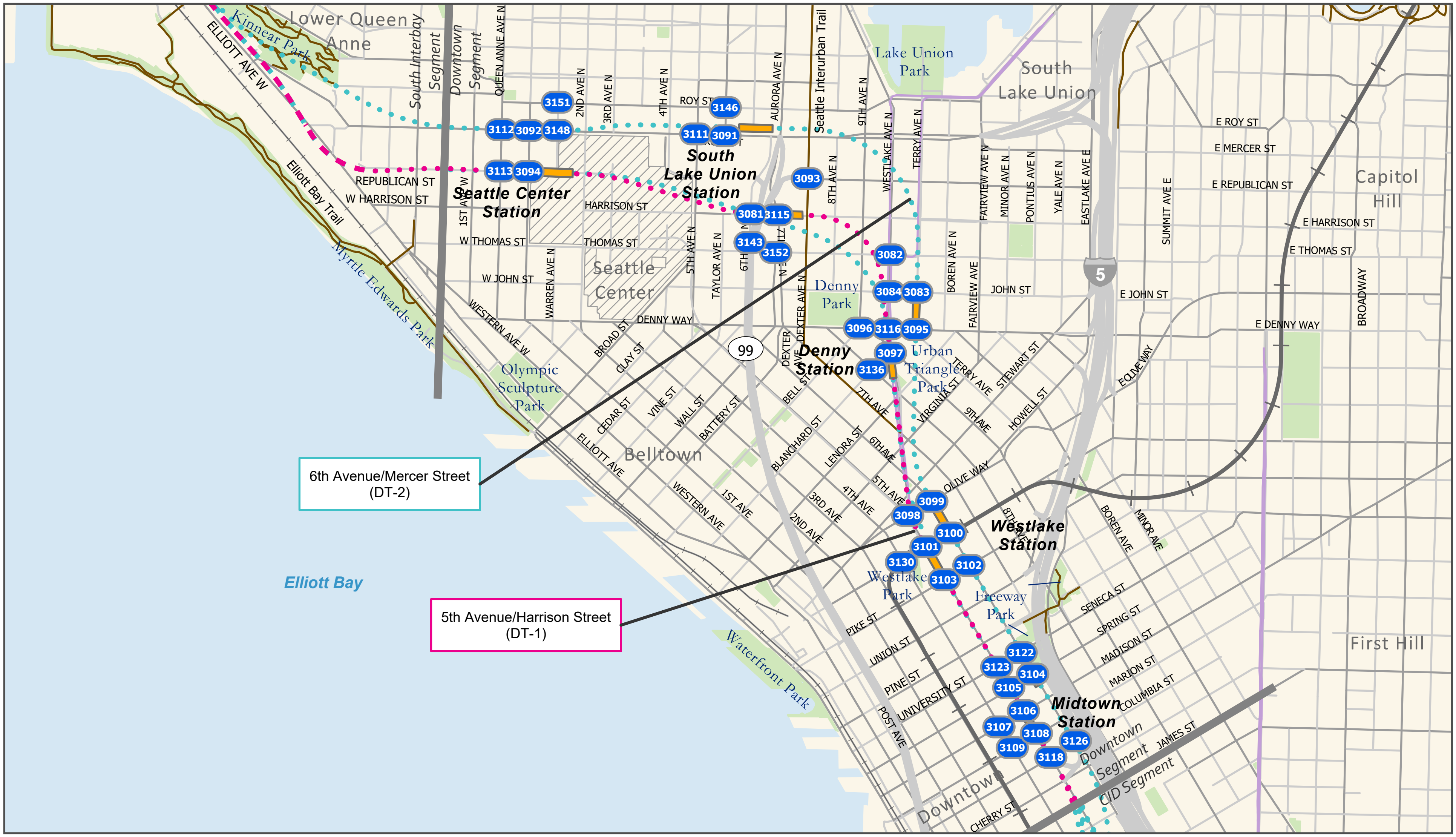
Ballard Link Extension - CID Segment

West Seattle and Ballard Link Extensions

Table 4-5. Ballard Extension Study Intersections -- CID Segment

Intersection Identification Number	Intersection name
2037	4th Avenue South and South Royal Brougham Way
2039	Seattle Boulevard South and 4th Avenue South
2040	5th Avenue South Midblock Crossing south of South Weller Street
2041	4th Avenue South at Weller Street Bridge
2042	South Weller Street and 5th Avenue South
2043	South King Street and 5th Avenue South
2044	South Jackson Street and 5th Avenue South
2069	Edgar Martinez Dr and 4th Avenue South
2072	South Jackson Street and 4th Avenue South
2059	5th Avenue and South Dearborn Street

3/24/2020 I Downtown I LOSStudyArea_DowntownSegment.aprx



Source: City of Seattle

Alternatives

- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile

- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station

- New

- Trail
- Streetcar Line
- Existing Link Light Rail
- Railroad
- Segment Line
- Seattle Center
- Park
- Analysis Intersection

FIGURE 4-8

Intersection Level of Service Analysis Study Area

Ballard Link Extension - Downtown Segment

West Seattle and Ballard Link Extensions

0 1,000 2,000 Feet

N

Table 4-6. Ballard Extension Study Intersections -- Downtown Segment

Intersection Identification Number	Intersection name
3081	6th Avenue North and Harrison Street
3082	Westlake Avenue and Thomas Street
3083	Terry Avenue North and John Street
3084	Westlake Avenue North and John Street
3091	Taylor Avenue North and Mercer Street
3092	1st Avenue North and Mercer Street
3093	Dexter Avenue North and Republican Street
3094	1st Avenue North and Republican Street
3095	Terry Avenue North and Denny Way
3096	9th Avenue North and Denny Way
3097	Westlake Avenue and Blanchard Street
3098	5th Avenue and Olive Way
3099	6th Avenue and Olive Way
3100	6th Avenue and Pine Street
3101	5th Avenue and Pine Street
3102	6th Avenue and Pike Street
3103	5th Avenue and Pike Street
3104	6th Avenue and Spring Street
3105	5th Avenue and Spring Street
3106	5th Avenue and Madison Street
3107	4th Avenue and Madison Street
3108	5th Avenue and Marion Street
3109	4th Avenue and Marion Street
3111	5th Avenue North and Mercer Street
3112	Queen Anne Avenue North and West Mercer Street
3113	Queen Anne Avenue North and West Republican Street
3115	Aurora Avenue North and Harrison Street
3116	Westlake Avenue North and Denny Way
3118	5th Avenue and Columbia Street

Intersection Identification Number	Intersection name
3122	6th Avenue and Seneca Street
3123	5th Avenue and Seneca Street
3126	6th Avenue and Columbia Street
3130	4th Avenue and Pine Street
3136	8th Avenue and Blanchard Street
3143	6th Avenue North and Thomas Street
3146	Taylor Avenue North and Roy Street
3148	Warren Avenue North and Mercer Street
3151	Warren Avenue North and Roy Street
3152	SR 99 and Thomas Street

Source: City of Seattle

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Trail
- Railroad
- Segment Line
- Seattle Center
- Park
- Analysis Intersection

FIGURE 4-9
Intersection Level of Service Analysis Study Area
Ballard Link Extension - South Interbay Segment

West Seattle and Ballard Link Extensions

0 800 1,600 Feet
N

Table 4-7. Ballard Extension Study Intersections – South Interbay Segment

Intersection Identification Number	Intersection name
4130	Alaskan Way West and West Galer Street Flyover
4131	Elliott Avenue West and West Galer Street Flyover
4132	Elliott Avenue North and West Mercer Place
4133	Elliott Avenue West and West Prospect Street
4149	Elliott Avenue and West Galer Street

Source: City of Seattle

Alternatives

- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternative

Alternative Profile

- Elevated
- At-Grade
- Tunnel
- Retained Cut

Station

- New

- Stream
- Trail
- Railroad
- Segment Line
- Park
- Analysis Intersection

FIGURE 4-10

Intersection Level of Service Analysis Study Area

Ballard Link Extension - Interbay/Ballard Segment

West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N

Table 4-8. Ballard Extension Study Intersections – Interbay/Ballard Segment

Intersection Identification Number	Intersection name
4121	14th Avenue Northwest and Northwest Market Street
4122	15th Avenue Northwest and Northwest Market Street
4123	17th Avenue Northwest and Northwest Market Street
4124	15th Avenue Northwest and Northwest 54th Street
4125	15th Avenue Northwest - Northbound Ramps and Northwest Leary Way
4126	15th Avenue West and West Bertona Street
4127	15th Avenue West Northbound Ramps and West Dravus Street
4128	15th Avenue West Southbound Ramps and West Dravus Street
4129	17th Avenue West and West Dravus Street
4148	15th Avenue Northwest - Southbound Ramps and Northwest Leary Way

Table 4-9. Intersection Analysis Screening Process

Parameter	Threshold Value	Description
Critical Volumes	5%	Travel forecasting indicates that the total volume for any movement between the build alternatives and the No Build condition would exceed the threshold value.
Change in Nonmotorized Volumes	A 100% increase or greater at intersections with less than 100 total pedestrians in the peak hour and with total pedestrian volumes greater than 5% of the total entering vehicle volumes at the intersection	The pedestrian and bicycle volume increase over the No Build conditions where it is likely the number of activated pedestrian phases would noticeably increase or have additional conflicts with turning traffic. Intersections with over 100 pedestrians during the peak hour are likely to already exhibit pedestrian walk phases during most, if not all, signal phases and have conflicts with turning traffic. Additional pedestrian activity would have less impact on the existing conditions. Intersections with pedestrian volumes less than 5% of the total entering vehicular volume during the peak hour typically serve all signal phases and would not incur additional delay with more pedestrian activations.
Change in Intersection Geometry	Changes in the number of lanes (and/or designation)	Changes in intersection geometry resulting in the addition or deletion of a lane in any approach would change the capacity of the intersection and could affect LOS.
Change in Intersection Control	Traffic signal installation/modification	The addition of a traffic control device, such as a signal, or signal phasing that would affect the capacity for some traffic movements and could change the overall LOS.
Crosswalk Lengths	Increased crossing distance	Green traffic signal time would be extended, and pedestrian clearances would be longer.
Intersection Level of Service	Intersection operates at or below LOS E or within 10% of LOS E	Locations meeting the threshold criterion with the No Build Alternative would be analyzed in the build condition.

4.3.2 AM Traffic Analysis

Quantitative analysis for the AM period will also be conducted at intersections within the study area for the existing and No-Build conditions. The AM analysis will only be conducted for the 2032 and 2042 build conditions in the following situations:

a) The AM LOS is LOS D or worse and either the intersection delay or the total intersection volumes are higher in the AM peak hour than in the PM peak hour, and

b) Any one of the criteria in Table 4-9 are met.

In other words, if the AM peak has lower volumes and delay than the PM peak and operates at LOS C or better, then the PM analysis will present an adequately conservative assessment of project impacts and an AM quantitative analysis will not be performed for the build conditions.

Final confirmation of intersections to be studied will be documented in updates to this report and coordinated with agencies.

4.3.3 Construction Period Traffic Analysis

Roadways and intersections within the project study area that are likely to be substantially affected by construction-related operational changes will also be analyzed quantitatively for the PM peak hour to represent potential traffic conditions during construction. In cases where the roadway construction impact mainly affects a particular travel direction, an AM peak hour analysis could be conducted, as agreed to between Sound Transit and relevant local jurisdictions.

Traffic forecasts will be prepared for minor arterials or greater that have long-term (1-year or longer) lane closures to determine potential traffic diversion from the project impact, including construction-related truck traffic. Intersections coincident with principal or minor arterial roadway segments will be analyzed further using Synchro software to determine the degree of impact to LOS if they are forecasted to have the following:

a) A volume to capacity (v/c) ratio of 0.9 or higher under the construction condition, and

b) v/c ratio increase of 10% or more from the construction impact

In areas where this screening process results in potential redundancies, such as multiple construction phases or closely-spaced intersections, the construction phase or intersection with the potential for highest impact will be selected for analysis. Locations will be reviewed and finalized in consultation with partner agencies.

In addition to the construction period traffic analysis, construction impacts will be identified for all other modes and elements included in this report. That information is described further in Section 7. Potential economic impacts will be addressed in Draft EIS Section 4.3, Economics.

4.4 Parking

The study area and area of effect for parking will generally be limited to one block on either side of the above-grade light rail alignment and within 0.25-mile walking distance of stations where unrestricted parking exists that could accommodate hide-and-ride use. Parking utilization will not be studied for station areas in the downtown and urban centers where all parking has time restrictions; however, changes to parking supply will be documented wherever they occur. Within the affected areas, on- and off-street public parking supply, existing parking restrictions, and weekday parking utilization survey data will be collected. Off-street public parking is defined as parking that is for public use but not privately owned (i.e., pay lots by private companies will not be inventoried). In addition, parking within designated industrial areas where truck parking can be legally accommodated will be identified.

Data will be collected by parking type (e.g., time-limited parking, free parking, loading zone, or private) and location (e.g., block face). Where available, data from local agencies will be used to populate data inventories near the light rail alignments and station locations. Where data are not available from local agencies, data will be collected through field surveys. Data will include a space occupancy count by block face or lot taken once during weekday mid-morning or mid-afternoon hours. This time period represents typical conditions for peak commute-oriented parking demand.

4.5 Non-motorized

The study area and area of effect for non-motorized facilities will be within 0.5 mile of each station for pedestrian facilities and within 1.5 miles of each station for bicycle facilities as measured along the network. Pedestrian facilities include sidewalks, trails, and other pedestrian facilities such as grade-separated crossings. Bicycle facilities include bicycle lanes and shared use paths.

4.6 Safety

The safety study area is defined as an approximately one-block radius around the alignment and stations (equivalent to a 100-meter buffer).

4.7 Navigation

The study area for navigable waterways will be based on the study area established for the Navigation Impact Report. The area of effect is expected to be from the Ballard Locks to Lake Washington for Salmon Bay and from Elliott Bay to mile 5 of the Duwamish Waterway for the Duwamish Waterway.

The study area for airspace navigation impacts will be defined by the requirements of the Federal Aviation Administration Obstruction Evaluation/Airport Airspace Analysis.

4.8 Freight

The study area for truck freight will be the same or similar to that for regional and local roadways, with the focus on major and minor truck streets, intermodal highway and seaport connectors, and first/last mile connectors where necessary. A selection of intersections along these facilities will be identified for detailed operational analysis depending on the level of impact from the project alternatives; these intersections will be identified using the methodology described in Section 4.3.

The study area for rail freight will include tracks, yards, access points, and associated rail freight infrastructure affected by the alignments within the general 0.5-mile study area buffer. The study area for water-based freight will be similar to or the same as that for navigable waterways, including terminals, marinas, and associated water freight infrastructure. The area of effect is expected to be the same as the study area.

5 ANALYSIS ASSUMPTIONS AND TOOLS

5.1 Transportation Analysis Years and Period

Based on the project's schedule and available traffic forecasting data, the transportation analysis will focus on four distinct years:

- Existing conditions. Reflects land use, roadway, and transit network conditions for the year 2019.
- Construction period – 2032. This is the proposed construction analysis year to account for the West Seattle to Downtown Seattle project (construction through year 2032) and the Downtown Seattle Transit Tunnel to Ballard project (year 2032). This year is near the end of the construction period for the West Seattle to Downtown Seattle project and an approximate mid-point of the Downtown Seattle Transit Tunnel to Ballard project construction period. For the Downtown Seattle Transit Tunnel to Ballard project, the construction analysis assumes West Seattle to Downtown Seattle is in operation. Quantitative analysis will be completed under the conditions described in Section 4.3.3.
- Interim Build condition – 2032. This condition will analyze light rail service between West Seattle and an interim terminus in the South of Downtown (SODO) area. This interim terminus Build condition will only be performed for the West Seattle to Downtown Seattle project. This condition will be based upon PSRC's 2030 land use and roadway network assumptions, and a ridership forecast with the West Seattle Link Extension in service.
- Future horizon year – 2042. This is the proposed horizon analysis year consistent with regional planning. This horizon year is consistent with Sound Transit long-range planning and assumes the full build of Sound Transit's ST3 system, which is planned for completion by 2041. This horizon year would use the PSRC 2040 land uses factored to 2042 and roadway network assumptions.

In the two future analysis years, the PM peak period (4 to 6 PM) will be evaluated and the analysis will focus on the peak hour within that period. This period is considered the timeframe when traffic impacts are the highest; therefore, the analysis will be of the worst-case traffic conditions. The AM peak hour (hour with highest volume between 7 and 9 AM) will be analyzed for the existing and future years under certain conditions (see Section 4.3.2).

5.2 EIS Analysis Conditions

5.2.1 Analysis Conditions

The EIS analysis will be developed for the conditions listed in Table 5-1. The existing and No Build conditions will provide a point of comparison against the build (project alternatives) and construction conditions. This comparison determines project benefits and impacts based on the measures described in Section 7 of this report.

Table 5-1. EIS Evaluated Conditions

Condition	Existing Year 2019	Construction Year[a]	Future Year		Notes
			Interim Year 2032	Horizon Year 2042	
Existing	X				Includes land use, roadway, and transit network conditions for the year 2019.
No Build		X	X	X	Based on travel demand forecasts and an assumed list of constructed background projects and transit service modifications.
Construction		X			A quantitative and qualitative construction year analysis will be conducted based on an estimate of when construction would occur in the future.
Build (Interim Terminus)			X		Reflects the interim terminus condition in which the West Seattle line will end in SODO while construction of the new downtown tunnel is completed.
Build (Project Alternatives)				X	The horizon year condition assumes the full-length project is constructed and operating.

[a] The construction analysis year is assumed to be 2032 for both West Seattle to Downtown Seattle and Downtown Seattle to Ballard Link Extension, including the new tunnel. The 2032 construction analysis year for the Downtown Seattle to Ballard Link Extension assumes West Seattle to Downtown Seattle light rail transit service is in operation.

5.2.2 Background Project Identification

The future year conditions will include state, regional, and local agency projects that are reasonably foreseeable, are in an officially adopted plan, and have either completed environmental review or are funded or permitted. These projects are assumed to be built and in-place before the WSBLE project is completed. This list of background projects provides valuable insight into how the transportation system within and surrounding the project's study area will change from existing conditions. These projects may directly affect transportation conditions, such as by altering travel patterns, affecting roadway operations and safety, and influencing non-motorized access and connections. The assumed background project list is included in Appendix A of this report. The sources for developing the background project list include the following:

- WSDOT Connecting Washington Package and Washington State Highway System Plan (WSDOT 2018)
- 2017 Washington State Freight System Plan (WSDOT 2017)
- PSRC Regional Transportation Plan 2018 (PSRC 2018)
- Seattle Department of Transportation Move Seattle Strategic Plan
- Sound Transit Sound Transit 2 (ST2) and ST3 Programs (Sound Transit 2008, 2016)
- King County Metro METRO CONNECTS Plan (King County Metro 2016)
- WSBLE Transit Service Integration Technical Memorandum (Sound Transit in progress)
- Relevant local agency CIPs/TIPs
- Port of Seattle Long-Range Plan (Port of Seattle 2017)
- *Seattle Pedestrian Master Plan* (Seattle Department of Transportation [SDOT] 2017a) and *Bicycle Master Plan* (SDOT 2017b)
- Port of Seattle Container Terminal Access Study (CTAS) Throughput, Rail, and Truck Volumes for Growth Scenarios for Sensitivity Analysis (Heffron Transportation, Inc., 2015)
- Port of Seattle Terminal 5 Environmental Impact Statement (2016)
- Port of Seattle Duwamish Overnight Truck Parking Study (2018c)
- City of Seattle Freight Master Plan (2016)

Appendix B, Sound Transit 3 Modeling: Background Bus Network, documents the initial network assumptions for the regional transit system that formed the basis of the WSBLE ridership forecasting. Refinements to these assumptions are being made by King County Metro and Sound Transit, and will be documented as part of the WSBLE Transit Service Integration technical memorandum (Sound Transit in progress).

5.3 Analysis Tools and Processes

This section describes the analysis tools and modeling process that will be used to conduct the transportation analysis for the EIS.

5.3.1 Travel Demand Forecasting Models and Process

The transportation analysis will use the following regional travel demand models to support the assessment of future conditions:

a) The Sound Transit Incremental Ridership Model, to produce transit ridership forecasts

b) A PSRC-based regional travel demand model, to calculate regional and project area traffic volume growth and other associated traffic metrics

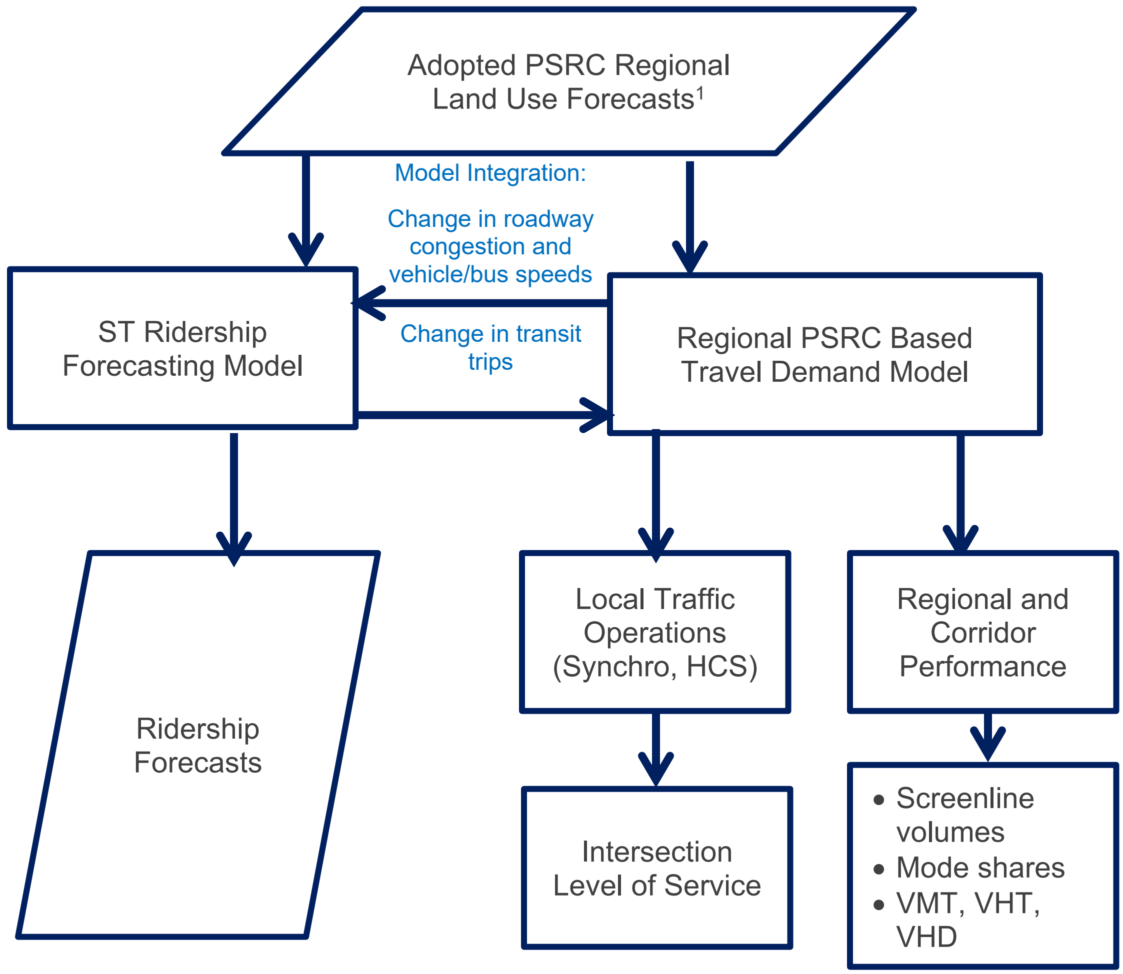
These models provide data included in the regional measures, transit system and local and arterial traffic operations analysis, as well as for a variety of other environmental analyses.

While the transit ridership and travel demand models will be run independently of one another, they use many of the same data sources, including land use, costs and transit networks. Figure 5-1 illustrates the relationship between the two demand models. The Sound Transit Incremental Ridership Model and the PSRC-based regional model formulation and refinements are discussed in more detail in Appendices C and D, respectively.

5.3.1.1 Sound Transit Incremental Ridership Model

The current version of the Sound Transit Incremental Ridership Model uses analytical ridership forecasting procedures developed over three decades of incremental methods applications. During this period, the methods have been subjected to substantial external review, including three independent expert review panels and four cycles of review by the FTA over the course of New Starts grant applications for Link light rail projects (FTA 2013). As previously noted, the Sound Transit and PSRC modeling procedures are the foundation of the transportation technical analysis and are interrelated and complementary. The Sound Transit ridership model uses data from the PSRC modeling process to establish measures of change in external factors, including population and economic growth, and highway congestion. For more detailed information about the Sound Transit Incremental Ridership Model, see Appendix D, Sound Transit's Transit Ridership Forecasting Methodology Report.

The current model version is 2016-based, using new land use data (LUV.2) consistent with the version implemented in the current PSRC planning activities, along with ORCA card tap and passenger count data within the general incremental modeling framework. The version of the model being used was updated using service levels and average weekday ridership counts from late September 2016 to late March 2017, reflecting data after the opening of the University Link (U-link) extension. The Sound Transit model will be used to produce rail and bus ridership forecasts for use in the EIS and will be part of a post-processing step to provide adjustments to the regional traffic model.



[1] This model will be updated to reflect the latest adopted PSRC land use forecasts available at the beginning of the EIS process. It is assumed this will be PSRC's "Land Use Vision version 2" land use scenario released in 2017.

Figure 5-1. Sound Transit Ridership Forecasting Model and PSRC Based Regional Model Relationship

Transit Ridership Forecasting Process

The Sound Transit Incremental Ridership Model will be used to perform the transit ridership (bus and rail) forecasts for the future interim and horizon years of 2032 and 2042, respectively. The transit ridership output from this model is used to analyze transit impacts as well as provide information used to analyze the regional system, traffic and roadway conditions, station areas and non-motorized system.

The existing transit system and future transit system, which includes the planned ST system and a reasonably foreseeable future bus network, is documented as part of the WSBLE Transit Service Integration technical memorandum (in progress) developed by King County Metro and Sound Transit. This technical memorandum is the basis for coding the foreseeable transit services and networks for the No Build and build alternatives in the ridership model. The Sound Transit ridership model will then be run for the No Build and build alternatives to prepare transit forecasts for analysis in the EIS.

For the 2042 horizon year, the Sound Transit ridership model is run to reflect low, base and high future ridership scenarios reflecting varying levels of land use growth and per-mile auto pricing, while maintaining a consistent transit network between the three scenarios. This is similar to how the ridership forecasts were prepared for Sound Transit 3 – The Regional Transit System Plan, where forecasts were presented as ranges rather than a single number (Sound Transit 2016). Specifically, the assumptions are as follows:

- Low transit forecast scenario:
  - Land use change between 2016 and 2035.
- Base transit forecast scenario:
  - Land use changes between 2016 and 2040. The Year 2040 land use forecast was used as an approximate of 2042.
- High transit forecast scenario:
  - Land use changes between 2016 and 2045 (based on extrapolating 2016 to 2040 growth factors for 5 years).
  - Per-mile pricing (7 cents per mile for peak and 2 cents per mile for off-peak) added to base 19-cent-per-mile auto operating costs (Sound Transit 2018).

Automobile operating costs used in the Sound Transit ridership model take into account relevant tolls, driving costs and parking costs. The high forecast scenario includes an additional per-mile driving fee similar to the assumptions in the PSRC travel demand model used for PSRC's ongoing long-term planning work regarding congestion pricing.

For the 2032 interim build year, the Sound Transit ridership model will produce one ridership forecast reflecting assumed land use changes between 2016 and 2030, with no additional per-mile pricing assumptions.

5.3.1.2 PSRC-Based Four-County Regional Travel Demand Model

The regional traffic model that will be used in this analysis has been developed specifically for the four-county PSRC area as a refinement of the PSRC trip-based travel demand model. The model is rooted in the latest PSRC 4k model (v4.1.0, summer 2018) and includes enhancements to the roadway network to reflect conditions within the project corridor. Details related to these enhancements can be found in Appendix C of this report.

The land use inputs used in the regional model, consistent with those used for the Sound Transit ridership model, are based on the PSRC 2017 Land Use Vision, Version 2 (LUV.2). The LUV.2 forecasts are used as control totals for all land use estimates within the region but land use distribution modifications have been made in the regional model based on specific data provided by the City of Seattle. In addition, the traffic forecasts will be reviewed with recent agency development projects, such as the Port of Seattle environmental documents listed in Section 5.2.2, to ensure the forecasts are reasonable.

Regional Travel Demand Model Process

Future No Build (Baseline) Travel Demand Conditions

For the future No Build conditions, the regional traffic demand model will be run and trip tables assigned to networks by time of day. Differences in traffic volumes from the model assignments will be applied to the observed traffic volume counts to develop estimated future PM peak hour and daily traffic forecasts. In addition, volumes will be post-processed in the vicinity of major planned development and redevelopment projects to ensure traffic effects of these developments are adequately represented.

Future Build Travel Demand Conditions

The regional traffic demand model will be used to generate traffic volumes for the build conditions based on the integration of transit ridership forecasts developed for the project alternatives from the Sound Transit Incremental Ridership Model. The projected changes to transit demand associated with the project alternatives will be incorporated into the regional traffic demand model. This is accomplished by adjusting the vehicle trip demand matrices from the regional model and reassigning those trips to reflect changes in travel patterns and volumes. This process is illustrated on Figure 5-1. This process will only be used to produce traffic volumes for the build condition at the regional and corridor and sub-area system levels (e.g., vehicle miles of travel [VMT], vehicle hours of travel [VHT], vehicle hours of delay [VHD], and screenline data).

To develop traffic volumes for the build condition used in the arterial and local level analysis (i.e., intersection analysis near stations), the traffic volumes developed for the No Build condition will be used as a base, with additional volumes added to reflect the vehicle traffic anticipated to be generated by the project. This is explained further in Section 7.

5.3.1.3 Station Area Trip Generation

Park-and-rides are not proposed at light rail transit stations for this project. However, trip generation at transit stations and other Sound Transit facilities will be developed for various modes of travel, including the following:

- Auto trips – Drop-off/pick-up, and transportation network company trips (e.g., taxis and ride-sharing companies)
- Transit trips – Number of buses serving a station
- Walk/bike trips – Bus transfers and walk to transit/bike to transit trips

The trip generation estimates will be based on several sources. One consideration is the Sound Transit mode of access survey for the U-link light rail extension to be collected in spring 2019. The mode of access survey will collect data for the full length of the light rail line from University of Washington Station to Angle Lake Station. In addition, national data from such sources as the Bay Area Rapid Transit (BART) Station Profile Study (BART 2015) will be considered. The BART study is a comprehensive mode of access and egress survey of BART rail users in the

San Francisco Bay area. Available research and data related to transportation network company trips to and from transit stations will also be considered.

Information on bus service for each station will be developed by Sound Transit and King County service planners as part of the project's transit service integration plan, which relies on the METRO CONNECTS service vision, modified as needed to reflect the characteristics of each alternative. This plan includes changes in local transit circulation to and from the station area, which will be incorporated into the overall trip generation.

The vehicle and non-motorized (pedestrian and bicycle) trips associated with the light rail station ridership forecasts for the alternative with the highest ridership at that station will be used for evaluating the station area effects. Exceptions may be made at locations where there are substantial differences between alternatives (e.g., one has bus transfer opportunities and one does not); in these cases, two different trip-generation scenarios may be developed at these locations. Trips will be assigned to the non-motorized and vehicular networks around the station locations based on existing and anticipated future circulation patterns.

5.3.1.4 Construction Condition

The effects of construction will be assessed both quantitatively and qualitatively (see Sections 7.2 through 7.11). Estimates of future roadway volumes under the construction period condition for the quantitative analyses will be estimated using the 2032 travel demand forecasts (see Section 5.2). The travel demand model roadway network will be modified to reflect construction period conditions, including reroutes and capacity-reducing rechannelizations with durations of greater than 1 year. See Section 4.3.3 for more details about the construction study area.

5.3.2 Traffic Operations Analysis Tools

The study area intersections listed in Section 4.3 will be assessed using Synchro software (version 10). Synchro is a traffic modeling program designed for analyzing intersection traffic operations and optimizing traffic signal timings. Synchro reports average vehicle delay, allowing calculation of LOS consistent with the *Highway Capacity Manual* (HCM) (Transportation Research Board 2016) definitions. Synchro also estimates average and 95th percentile queue lengths.

5.3.3 Other Tools

Mode-of-access tools including GIS-based software will be used to define the study areas described in Section 4. As existing travel behaviors continue to change and travel behaviors emerge that provide mobility options and choices for travelers, such as rideshare vehicles, additional analysis software and/or tools may be developed to provide support for evaluation measures related to these behaviors. Depending on the nature of project impacts, VISSIM could also be used to further understand traffic operations in future project phases as agreed to by Sound Transit and relevant agencies.

6 AFFECTED ENVIRONMENT

The affected environment for transportation will document existing conditions in year 2019 for each element of the transportation system evaluated within the study area. These elements include Regional and Corridor Traffic, Transit, Arterials and Local Streets, Parking, Non-motorized Facilities and Modes, Safety, Navigation, and Freight. Particular focus for these modes will be on transportation facilities in the vicinity of proposed transit stations because these will be the primary site-specific traffic generators.

The detailed means for documenting the existing conditions for these transportation elements are discussed in the Environmental Impact section because the methods and measures to assess the existing conditions, No Build alternative, and project alternatives are largely the same. Existing conditions information will be both quantitative and qualitative and will be displayed both graphically and in a tabular format as appropriate.

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7 TRANSPORTATION RESOURCE ANALYSIS AND MEASURES

This section discusses the transportation analysis and measures that will be documented in the EIS to understand the Affected Environment and the direct impacts of the No Build and build alternatives. Direct impacts include measures to assess the long-term impacts as well as short-term impacts during construction. This section also includes the analysis and measures used to determine Indirect and Cumulative Impacts on the transportation system.

7.1 Assessment Methods and Analysis Thresholds

The analysis and measures in this section are presented by the specific transportation resource that will be documented in the Transportation chapter and Transportation Technical Report of the EIS. The transportation analysis presented in these documents will be performed at three assessment levels, depending on resource: regional, corridor and sub-area, and local.

Regional measures are defined as within the project area and beyond and are considered region-wide (e.g., King County or beyond). Measures at the corridor and sub-area level are intended to provide information for the project area or a specific segment within it. Measures at the local level would provide information specific to a certain location, transit route or transportation facility. Table 7-1 summarizes the transportation analysis measures; the following sections of provide more detail on individual modes.

Table 7-1. Transportation Measures by Transportation Resource

Transportation Resource	Assessment Level	Measures
Regional and Corridor Traffic	Regional	Growth rate, VMT, VHT, VHD
	Corridor and sub-area	Growth rate, vehicle volumes, v/c ratio/LOS, person trips, mode share
Transit	Regional	System-wide annual and daily transit trips and boardings, total annual and daily light rail boardings, transit travel-shed
	Corridor and sub-area	Project boardings, station and station area boardings and alightings
	Local	Coverage, frequency, span, passenger load, reliability, stop and layover modifications, transfers, route performance

Transportation Resource	Assessment Level	Measures
Arterials and Local Streets	Local	Access and local circulation, intersection LOS, and queue lengths
Parking		Parking impact near stations and elevated and at-grade guideways. Includes spaces removed, current parking supply and restrictions, estimated parking demand, and assessment of drop-off/pick-up areas needs based on estimated forecasts
Non-motorized Facilities and Modes		Pedestrian and bicycle access, circulation and facility gaps surrounding stations, barriers, Americans with Disabilities Act accessibility, school walk route impacts, pedestrian LOS and bicycle parking at stations
Safety		Historical intersection and roadway collision type and frequency; safety assessment of project effects on all modes
Navigation		Impact to waterway navigation and an Obstruction Evaluation/Airport Airspace Analysis
		Impact to navigable airspace for nearby airports
Freight		Impact of the alignment on freight terminals, access, delays, routing, marine waterways, rail facilities, business loading zones and access, and truck parking
Construction		Quantitative and qualitative assessment of impacts to traffic operations, circulation and access, transit operations, property access, non-motorized travel, parking supply, freight, and marine navigation (if applicable) associated with transportation facility closures; include estimation of construction-related traffic, truck routes, and staging areas

Measures for assessing these transportation elements, discussed in the following sections, will be both quantitative and qualitative, and results will be displayed both graphically and in tabular format as appropriate.

7.2 Regional and Corridor Traffic

7.2.1 Operations

7.2.1.1 Regional Traffic

Evaluation Measures

Information from the regional model developed for this study will be the key data source for this analysis. The following types of data will be produced for interim year 2032 and horizon year

2042 to analyze the effect of project alternatives on regional or system-wide traffic characteristics:

- Growth rate – the annual growth rate for vehicle traffic in the region
- VMT – Total average daily vehicle miles traveled on the regional roadway system
- VHT – Total average daily vehicle hours traveled on the regional roadway system
- VHD – Total average daily vehicle hours of delay on the regional roadway system, which indicates the total level of congestion

Evaluation Approach

Information from the regional model will be used to generate the long-term-condition VMT, VHT, and VHD data for the No Build Alternative and build alternative(s). This model will be run in an iterative process with the Sound Transit Incremental Ridership Model, with roadway traffic volumes reflecting changes in transit ridership as described in Section 5.3.1. Matrices of vehicle trips and travel times on an origin-destination pair level from the model will be used to quantify estimated VHT, and matrices of vehicle trips and hours of delay per trip will be used to quantify the impact of project alternatives on VHD.

Short-term changes in regional traffic during construction will not be assessed unless there are direct construction impacts on a regional facility, such as state highways.

7.2.1.2 Corridor Traffic

Evaluation Measures

- Growth rate — Vehicle traffic demand within the WSBLE project area will be forecasted and presented as an annual growth rate.

Additional measures used to evaluate effects within a corridor and/or sub-area of the study area will be based on a screenline-level analysis for the PM peak hour. Screenlines are imaginary lines drawn across one or more roadways to compare aggregate changes in traffic conditions. The following data will be included for each screenline:

- Vehicle volumes
- Vehicle v/c ratio/LOS
- Person trips – The number of person trips across screenlines
- Mode share – The proportion of vehicle and person trips at screenlines taken by transit (bus and rail) versus personal auto

Evaluation Approach

The analysis of traffic impacts in various segments of the corridor will involve comparing traffic conditions on the highway and local street system at selected screenlines for each alternative, with the exception of the growth rate measure, which is an area measure based on transportation analysis zones (TAZs) within the study area.

The screenline comparisons will provide a snapshot of traffic operations along each corridor. A map and table will be used to present data at five screenline locations, as shown in Figures 4-1 and 4-2:

- West Seattle Bridge (north-south)
- North of South Lander Street (east-west)
- South of South Main Street (east-west)
- North of Denny Way (east-west)
- Ballard Bridge (east-west)

Information for each screenline will be generated from the project's regional model and Sound Transit's ridership model and will include PM peak hour and daily values. The v/c ratio at the screenlines may be expressed as a generalized facility-based LOS.

7.2.2 Construction

Construction impacts will be qualitatively and quantitatively assessed to determine if the project's construction would have any impact on the regional and corridor traffic measures.

7.3 Transit

7.3.1 Operations

7.3.1.1 Regional Transit

Evaluation Measures

The following measures will be considered for assessing effects of the project on system-wide bus and rail transit for interim and horizon years 2032 and 2042:

- Annual transit ridership (linked trips)
- Daily transit ridership (linked trips)
- Annual Link light rail boardings
- Daily Link light rail boardings
- Transit travel-shed

Evaluation Approach

The Sound Transit ridership model will be used to produce system-wide linked trip and boardings estimates. The network will be coded to reflect the No Build and build alternatives, and then the model will be run to produce transit forecasts for each alternative. Ridership forecast results will be provided as direct outputs from the ridership model. See Appendix A for a list of projects assumed for the No Build conditions.

Transit travel-shed will estimate the distance that a rider can travel from one or more points along the project alignment in a given length of time (e.g., 30 minutes). It may be accompanied by demographic data such as estimated housing and employment within that area served.

7.3.1.2 Corridor Transit

This section describes the corridor and sub-area analyses that will evaluate projected changes to transit services (light rail and bus) by the build alternatives.

Evaluation Measures

The following evaluation measures will be considered to understand the corridor and sub-area effects on transit service for interim year 2032 and horizon year 2042:

- Project boardings (daily, AM peak, PM peak)
- Station and station area boardings and alightings (daily, AM peak, PM peak)

Evaluation Approach

The Sound Transit incremental ridership model will be used to produce ridership data (in boardings) for the project. Ridership will be estimated for the AM peak, PM peak and daily periods. Corridor daily bus ridership will be estimated to represent the No Build conditions.

AM peak, PM peak, and daily station boardings and alightings by alternative will be produced from the Sound Transit incremental ridership model. Each alternative will have a specific transit integration plan and parking capacity for drop-off/pick-up developed along with transit travel times (light rail and bus) within the WSBLE corridor and other key areas.

7.3.1.3 Local Transit

The transit quality of service assessment will analyze the expected project effects on the existing and future bus and light rail services within the WSBLE study area using both qualitative and quantitative information. The approach will follow the methodology and guidelines presented in the Transit Capacity and Quality of Service Manual (Transportation Research Board 2013), and supplemented with the King County Metro service standards and guidelines, where appropriate. Transit quality of service information will either be reported at the screenlines, or at station areas within the WSBLE study area.

Evaluation Measures

The evaluation will document the transit service effects for existing conditions and No Build and build alternatives. This will include:

- Service coverage/circulation and facilities
- Transit LOS for:
  - Frequency
  - Span (daily hours of service)
  - Passenger load
  - Reliability
- Temporary or permanent closures or relocations of stops and layover spaces

- Transfer conditions (i.e., bus/rail, rail/rail)
- Route performance, for key routes near affected station areas and where the alignments impact street operations

Evaluation Approach

Expected changes in transit service and routing with the build alternatives will be identified and compared to the transit service and routing under No Build conditions. These changes will also identify temporary or permanent changes to transit facilities and equipment (e.g., stops and stations, overhead catenary system (OCS), layover, and similar) and will be developed in conjunction with King County and Sound Transit service planners as part of the Transit Service Integration technical memorandum (Sound Transit in progress).

The comparison will focus on changes in transit coverage within the project study area and potential effects on speed and reliability (based on existing reliability information from the transit agencies, traffic operations results, and/or other traffic analysis data). Frequency will be reported at screenlines for the AM and PM peak hours. Span will be reported for transit lines crossing screenlines and serving proposed stations, for the weekday and weekend. Reliability will be reported by transit line, at screenlines, for the AM and PM peak hours. Passenger load data will be provided from the Sound Transit incremental ridership model and will be reported for the AM and PM peak hours, at screenlines (see Figures 4-1 and 4-2). Where applicable, results will be presented along with the LOS thresholds from King County Metro and the *Transit Capacity and Quality of Service Manual* to understand the changes with the project.

7.3.2 Construction

This analysis will evaluate the potential short-term impacts to regional, corridor and local transit together. Transit impacts during construction will be coordinated with Sections 7.2, Regional and Corridor Traffic; 7.4, Arterial and Local Street Traffic; and 7.6, Non-motorized Facilities and Modes. Construction impacts to transit will consider both the transit service and transit rider. This assessment will evaluate the potential modifications to roadway capacity and operations during construction on transit service and the ability to access the system during construction. This would include construction activities that could require closure or relocation of transit stops, and impacts to the OCS.

7.4 Arterial and Local Street Traffic

7.4.1 Operations

7.4.1.1 Property Access and Local Circulation

This evaluation will assess permanent local area traffic circulation impacts including access to properties affected by the build alternatives. Refer to Section 7.4.2 for construction impacts to property access and local circulation.

Evaluation Measures

The evaluation will document any physical change to the traffic patterns and movements along with changes in property access. This will evaluate only vehicle movements; refer to Section 7.3, Transit, and Section 7.6, Non-motorized Facilities and Modes, for how those modes will be evaluated for the project.

Evaluation Approach

This assessment will include such factors as:

- Effect of potential street closures on localized traffic movement
- Loss of access (such as left turns) to and from driveways
- Changes in property access

7.4.1.2 Intersection Operations (including Station Area Traffic Analysis)

Evaluation Measures

Effects on intersection operations will be evaluated between the No Build and the project conditions based on the analysis years identified in Table 5-1. LOS measures the quality of traffic operations at an intersection. As described in Table 7-2, LOS ratings range from A to F. LOS A represents the lowest amount of delay and LOS F the highest amount of delay. Queue lengths will be reported at intersections that operate below (failing) the agency's LOS threshold.

Agency transportation goals and LOS standards are developed as part of each agency's comprehensive planning efforts. Although agencies accept different levels of congestion, a delay-based intersection LOS analysis is typically conducted for impacts analyses and is proposed for this project. Delay is expressed in terms of average delay (in seconds) per vehicle as a result of the intersection operations.

In the absence of an adopted City of Seattle LOS threshold policy for intersection operations, LOS E will be used as a guide to determine when coordination with the City of Seattle is required to discuss project-related impacts on intersections. This threshold was selected in coordination with City of Seattle.

Table 7-2. Level of Service Definitions for Signalized and Unsignalized Intersections

LOS	Average Control Delay (seconds per vehicle)		Traffic Flow Characteristics
	Signalized Intersections	Unsignalized Intersections	
A	≤ 10	≤ 10	Virtually free flow; completely unimpeded.
B	> 10 and ≤ 20	> 10 and ≤ 15	Stable flow with slight delays; less freedom to maneuver.
C	> 20 and ≤ 35	> 15 and ≤ 25	Stable flow with delays; less freedom to maneuver.
D	> 35 and ≤ 55	> 25 and ≤ 35	High density but stable flow.
E	> 55 and ≤ 80	> 35 and ≤ 50	Operating conditions at or near capacity; unstable flow.
F	> 80	> 50	Forced flow; breakdown conditions.

Source: Transportation Research Board (2016).

Evaluation Approach

Synchro (version 10.0) software will be used to determine the projected peak hour LOS for the analysis years identified in Table 5-1 at the intersections identified in Section 4.3. The HCM report from the Synchro software will be used to summarize average intersection delay, LOS, and v/c ratios (HCM 2010 6th Edition will be used unless unavailable for the configuration under study, in which case HCM 2000 will be used). The signalized intersections' LOS will be defined in terms of average intersection delay. The LOS at an unsignalized intersection is also defined in terms of delay, but only for the worst operating movement, which is typically on the minor street (i.e., stop) approaches. For unsignalized intersections that are stop-controlled on each approach, the average intersection delay is reported. Vehicle queue lengths will be reported from Synchro for intersections not meeting agency LOS standards or with direct physical project impacts, as agreed to with the relevant jurisdictions, to understand if the Build alternatives impact vehicle queues beyond the storage length. The impacts of special events would be described qualitatively, with descriptions of when and how frequently they would occur and assessments of congestion levels during those periods.

Default assumption values for the analysis will be developed for intersections where actual values are not available. These will include assumptions with respect to saturation flow rates, geometry, traffic, and signalization conditions. Table 7-3 provides assumptions for existing and future year (No Build and build alternatives) input values and assumptions when data are not available.

Table 7-3. Default Synchro Parameters and Assumptions

Arterial Intersection Parameter	Existing Year 2019	Future Analysis Years
Peak Hour Factor	From count and for entire intersection; otherwise: If total entering vehicles ≥1000, 0.92. If total entering vehicles <1000, 0.90.	Use 0.95 for all intersections except where existing peak hour factor (PHF) is greater than 0.95 or less than 0.70. Use existing PHF in cases where the PHF is greater than 0.95. If existing PHF is less than 0.70, then increase factor by 0.20.
Conflicting Pedestrians per Hour	From traffic count, otherwise assume 10 pedestrians in both AM and PM periods.	For the No Build Alternative, apply growth rate calculated from ridership model. For the build condition, add the number of pedestrians based on the station ridership and mode of access forecasts.
Area Type	Capacity adjusting inputs will be based on field data to account for reduce roadway capacities in urban areas. "CBD" used in some CID areas if the Ideal Saturation Flow rate was set at 1,750.	Same as existing.

Arterial Intersection Parameter	Existing Year 2019	Future Analysis Years
Ideal Saturation Flow (for all movements)	Varies by project segment. 1,200 in Downtown Seattle and 1,400 in South Lake Union and Chinatown/ International District (CID) area; 1,200 for main West Seattle corridors, otherwise 1,750.	Same as existing.
Lane Utilization	Default software assumptions unless data/engineering judgment suggests otherwise.	Same as existing.
Lane Width	Existing lane widths. Assume 11 feet if no information available.	Same as existing, unless improvements proposed; then use agency standards/plans.
Percent Heavy Vehicles	From count, otherwise 3%.	Same as existing. Except at locations where Heavy Vehicles are added due to background projects.
Percent Grade	From field/elevation data OR Flat approach = 0%. Moderate Grade on approach = 3%. Steep grade on approach = 6%	Same as existing.
Parking Maneuvers per Hour	Assume 15 maneuvers per hour wherever street parking exists.	Same as existing.
Bus Blockages	From count, otherwise headway information provided by transit agencies.	Same as existing unless there is a noticeable change in number of peak hour buses (based on future KCM/ST bus networks developed for project).
Intersection Signal Phasing and Coordination	From agency signal phasing sheets or their existing analysis files.	Signal co-ordination for existing signals: same as existing (optimized offsets). Signal phasing for existing signals: Optimized based on LOS and access/geometry. Signal timings for intersections constructed due to the project: ITE methodology. Left turn adjustments: Left turns, if permitted in existing, will be examined for a protected phase based on LOS, access/geometry, safety, and agency guidance. For build: Any left-turn conflict with at-grade light rail will include a separate lane and have protected phasing. Left turns will be restricted (or protected with a gate or similar treatment) at

Arterial Intersection Parameter	Existing Year 2019	Future Analysis Years
		unsignalized intersections. For elevated light rail, mid-block left turns will be restricted.
Transit Queue Jumps	From agency signal-phasing sheets.	Same as existing.
Intersection Signal Timing Optimization Limits	Not applicable.	Between 60 and maximum of 180 seconds.
Minimum Green Time	Per signal timing cards.	Existing signals: Same as existing. New signals: Based on pedestrian times (minimum of 7 seconds walk time and 3.5 feet per second for flashing don't walk clearance). If no crosswalk: 10 seconds.
Yellow and All Red Time	Per signal timing cards.	Existing Signals: Same as existing. New signals: Yellow = 4 seconds, and All Red = 1 second.
High-occupancy Vehicle (HOV) Lanes	Lane Utilization Method. [b]	Same as existing.
Right Turn on Red	Allow (unless signed otherwise). No right turn on red in downtown Seattle, based on observed peak hour congestion levels and number of pedestrian crossings.	Same as existing.
Right Turn Overlaps	Per signal timing cards.	Identify if used.

Note: Delay-based LOS results will be reported from Synchro's HCM 6th Edition or HCM 2000 Reports.
[a] Percent grade assumed for at-grade intersections only.

[b] This methodology assumes intersection lane designations will be coded exactly as shown in the field. Shared through (HOV) and right turn lanes will be coded as a general-purpose traffic lane because Synchro does not have a special method for HOV lane analysis. To account for lower HOV lane volumes, the lane utilization factors will be adjusted to reflect this condition.

7.4.2 Construction

The assessment of construction-related transportation impacts on local and arterial streets will focus primarily on corridors near the light rail alignment or on streets that could be substantially affected by construction with any of the build alternatives. For the purposes of impact assessment on local and arterial streets, the construction phase considered to be most disruptive to traffic operations in the corridor will be the one assessed in the most detail. This phase will be identified in coordination with Sound Transit staff and staff from local jurisdictions, as appropriate. Depending on the agreement with local jurisdictions, a limited traffic analysis during the construction periods within the WSBLE study area would be considered based upon the thresholds described in Section 4.3.3.

The construction analysis on local and arterial streets will consider the following:

- Changes in roadway capacity, including potential lane closures, roadway modifications, areas of construction activity adjacent to travel lanes, or other reductions to capacity as a result of project construction activity
- Identification of access and impacts from potential construction staging areas on roadway operations
- Assessment of potential for traffic diversion related to road closures, and options for traffic detours
- Estimation of construction truck traffic along potential haul routes
- Impacts on emergency services

The analysis will be summarized in a tabular format to identify the following:

- Impact location(s).
- Street characteristics.
- Type of construction activity, including likely duration of impact to roadways (characterized as full or partial closures for short-term or long-term periods) on local and arterial roadways.
- Level of construction traffic (characterized as high, moderate, or low); high truck traffic is generally associated with major fill, excavation, and concrete work.
- Availability and identification of potential detour routes including ability to accommodate oversize loads if needed.
- Potential for detoured traffic to affect a residential neighborhood. (This is characterized as high, medium, or low and is related to both potential for road closures and options for traffic detour.)
- Loss of on- and off-street public parking. (This may be characterized as “yes” for parking loss and “no” for no parking loss, including loading zones.)

7.5 Parking

Demand for parking by transit riders will likely vary depending on location throughout the study area, with relatively high demand at major stations near the northern and southern ends of the alignment (such as Alaska Junction, Avalon, Delridge, Ballard, and Interbay), with lower demand in the other areas of the project with limited parking supply (i.e., Downtown Seattle). While park-and-ride lots are not planned with this project, an assessment of drop-off/pick-up activity and informal parking near station areas will be conducted through analysis of existing mode-of-access survey information and data from Sound Transit for similar station areas. These data will be used to estimate the impact of driving and/or parking for stations along the corridor.

7.5.1 Operations

7.5.1.1 Evaluation Measure

Analysis of the impacts of the project on existing on- and off-street public parking will consider roads where permanent facilities would be in the right of way and roadways around stations. The analysis will consider the loss of existing public on- and off-street parking supply and the potential for hide-and-ride parking.

7.5.1.2 Evaluation Approach

The evaluation of parking impacts will include an inventory of parking supply, types of restrictions, and utilization in locations where parking is anticipated to be affected by the project. The information will be compared to the changes the build alternatives would make in the parking supply and the potential for hide-and-ride parking. Survey data from Sound Transit related to station access via auto modes will be used to assess the impact these modes will have in and around station areas along the alignment.

Along the alignment, the assessment of parking loss will be based on review of the inventory of parking supply and demand coupled with an evaluation of the conceptual drawings for each build alternative. Comparison between existing demand and the supply remaining after construction of each build alternative will form the basis for identifying parking loss associated with each alternative. This comparison will also consider that loss in relation to parking utilization and will facilitate the identification of possible mitigation strategies. The potential loss of existing parking spaces will be presented by both location and type. Off-street parking lots will be considered as additional supply for the loss of on-street parking in the analysis. The propensity of station areas to attract hide-and-ride parking will be analyzed based on ridership forecasts, parking restrictions, and potential walkshed to available on-street parking.

7.5.2 Construction

The assessment of construction-related parking impacts will consider the following:

- Changes in roadway parking restrictions
- Impacts to on- and off-street public parking supply, including truck parking
- Potential additional temporary loss of off-street parking due to construction staging, as well as construction worker parking

7.6 Non-motorized Facilities and Modes

7.6.1 Operations

7.6.1.1 Evaluation Measures

The non-motorized facility and modes will evaluate pedestrian and bicycle access, circulation and facility gaps surrounding stations, barriers, Americans with Disabilities Act accessibility, and school walk route impacts. The assessment of future non-motorized (pedestrian and bicycle) facilities will address the following issues:

- Pedestrian access and circulation within 0.5 miles of the proposed station in relation to the forecasted ridership.
- Direct (physical) effects on pedestrian and bicycle facilities along the alignment of each alternative. This would include identifying any barriers the build alternatives might create to non-motorized movements.
- Identification of existing physical barriers for non-motorized (pedestrian and bicycle) movements accessing proposed stations, such as topography, waterways, and major arterials with limited crossings.
- Identification of currently missing and funded new sidewalk sections for city arterials within the study area.
- Qualitatively describe, where appropriate, special event non-motorized conditions at stations.
- Impacts on designated school walk routes.
- Identification of deficiencies in the existing and funded regional bicycle paths and routes within 1.0 mile of proposed station locations, and a general quantification of how major multi-use trails/paths are used (i.e., by commuters or recreational users).
- Bicycle parking needs

7.6.1.2 Evaluation Approach

The evaluation of non-motorized facilities and modes will be conducted through an inventory of the existing and planned future non-motorized facilities surrounding each proposed station as identified in the evaluation measures (planned future facilities will be limited to those reasonably-foreseeable projects that have funding or are otherwise committed). This will identify existing and future gaps in the non-motorized network, and other barriers as applicable (e.g., topography). In coordination with the regional travel demand and transit ridership forecasts, future estimated non-motorized volumes will be generated for each station and assigned to the non-motorized facilities within the station non-motorized study area. This will be conducted for both No-Build and Build alternatives. This assignment of the pedestrian and bicycle forecasts will identify any physical barriers limited access to the stations.

A quantitative pedestrian LOS analysis will also be conducted for sidewalks and intersection corners and crossings within one block (approximately 300 feet) of each proposed station entrance (the study area may exceed one block or 300 feet from the station depending on the location of transfer points or nearby pedestrian generators). The *Transit Capacity and Quality of Service Manual* (Transportation Research Board 2017) and HCM methodology for determining sidewalk LOS will be used for this analysis. This methodology produces a score that indicates the pedestrian's perception of the travel experience and is based on the average pedestrian space and average flow rate.

7.6.2 Construction

Non-motorized construction analysis will be coordinated with Section 7.4, Arterial and Local Street Traffic, considering the potential pedestrian or bicycle facility impacts on roadways or non-motorized facilities as a result of project construction activity that could close or modify these facilities. This analysis will summarize the impact location, type of facility and construction activity, including likely duration of impact (i.e., short-term versus long-term).

7.7 Safety

Potential effects of the project on safety will be assessed qualitatively and, where appropriate, quantitatively, for all modes within the study area, including general traffic, transit, freight, bicycle, pedestrian and waterway vessel modes.

7.7.1 Operations

7.7.1.1 Evaluation Measures

Evaluation measures will include the following:

- Intersection and roadway collision histories (type, severity, and frequency)
- Qualitative effects on general-purpose traffic, transit, freight, and non-motorized safety

7.7.1.2 Evaluation Approach

A safety analysis will assess historical collisions/crashes within the project limits in terms of type, severity, and frequency. Collision data from the latest 3 years will be compiled and summarized to identify any current safety deficiencies. Unique collision patterns (e.g., high frequency of a specific pattern) will be noted. The collision data will be collected for any directly affected local intersections and roadways.

A safety assessment of the intersection and roadway design will be conducted only where the build alternatives are proposed to be within the roadway right of way, substantially increase traffic volumes, or result in a physical change to the roadway geometrics or channelization. To minimize conflicts during operations, the project does not include light rail within active road right of way. Along these streets, a qualitative discussion of how the project may directly affect the existing collision type and frequency will be developed and documented.

Safety effects on general vehicle traffic and truck freight travel due to station trip activities will be qualitatively assessed based on projected changes in traffic volumes and queue lengths, modal conflicts, and proposed roadway design.

Safety effects on bicycle and pedestrian travel will also be qualitatively assessed based on changes in the number of conflicts with motorized modes, as well as changes in facilities provided for their travel. This assessment will consider school walk routes and school bus zones.

7.7.2 Construction

Construction impacts will be qualitatively assessed to determine if the project's construction would have any impact on the safety of the transportation system. This will include assessing the safety of transit riders, general purpose traffic, non-motorized modes (pedestrians and bicyclists) and freight travel.

7.8 Navigation

Navigation Impact Reports will be prepared for the Duwamish Waterway and Salmon Bay, and the findings will be summarized in the Transportation Technical Report. The Navigation Impact Reports will be based on information from agency coordination, waterway user interviews and surveys, historical navigation patterns, and additional economic or freight cargo research if needed. The reports will document existing and future navigational needs as well as potential impacts to navigation from each alternative, including effects on navigation channels and navigation to and from the shoreline where applicable.

An Obstruction Evaluation/Airport Airspace Analysis will be developed per Federal Aviation Administration requirements.

This assessment of potential impacts will include direct long-term impacts during operations as well as impacts during construction on marine and air transportation and navigation.

7.9 Freight

7.9.1 Operations

7.9.1.1 Evaluation Measures

Evaluation measures will include the following:

- Truck operations – Changes in congestion levels and/or intersection delay along potentially impacted facilities (see Section 4.8).
- Truck access – Physical impacts on truck routes, loading zones, parking, and access to Port terminals and local businesses
- Freight rail impact – Physical impacts to freight rail corridors or port intermodal facilities, and other impacts that may affect rail operations
- Water-based freight – Physical impacts on water-based freight-related properties, both upland and in-water (when applicable), and other impacts that may affect water-based freight operations. The nature and degree of those impacts will be addressed primarily in the Navigation Impact Reports (see Section 7.8).

7.9.2 Evaluation Approach

Traffic impacts of the build alternatives on facilities in the freight study area (see Section 4.8) will be quantitatively assessed per the methodology described in Section 4.3.3 Other aspects of freight operations will be qualitatively assessed. This assessment will focus on truck movement and truck routing impacts as well as the potential impact to freight rail corridors and facilities, port terminals and marine freight traffic.

The assessment of freight mobility will focus on designated major truck routes and truck service areas, access to these freight terminals, loss of on-street loading zones or truck parking, and/or modifications of truck access to local businesses.

The assessment of freight rail impacts will focus on physical changes proposed within, above or below railroad right of way.

The assessment of water-based freight will be coordinated with the information in Section 7.8, Navigation.

7.9.3 Construction

The assessment of freight impact during construction will include analysis of freight trucks, freight rail, and water-based freight. The construction impacts will consider the impacts on intermodal and port terminal facilities, including access and circulation. This assessment will be coordinated with the construction impacts identified in Sections 7.4, Arterial and Local Street Traffic, and 7.8, Navigation. See Section 4.3.1 for more details on the construction condition roadway analysis.

7.10 Indirect Effects

Indirect effects are those project effects that occur later in time or some distance from the project. Typical indirect transportation effects are those associated with changes in land use development over time. The land use changes are described in the EIS Land Use chapter. The associated potential impacts to transportation will be discussed qualitatively.

7.11 Cumulative Effects

The cumulative transportation effects of the project are already generally analyzed through traffic modeling and ridership modeling that incorporates past and reasonably foreseeable future actions and projected growth.

A qualitative assessment will address additional cumulative transportation effects for specific reasonably foreseeable future plans or proposals that have not completed environmental review or are not fully funded for construction (and therefore are not directly accounted for in the modeling), but could foreseeably be built by the horizon year. These may include, but are not limited to, consideration of effects from actions such as the following:

- Highway/lane management, such as from the implementation of tolls on state and/or local facilities, that could further alter travel behavior in the corridor
- Construction activities from other transportation projects that could affect or be influenced by the project construction activities
- Local developments and public infrastructure projects that could contribute to cumulative traffic delays on local arterial streets over the construction period

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8 MITIGATION MEASURES

The development of potential mitigation measures options will be coordinated with the relevant federal, state and local agencies and jurisdictions to identify strategies that may already be under consideration but that could benefit the project.

8.1 Regional

Mitigation would be determined if any substantial impacts were identified to the measures evaluated within Section 7.2, Regional and Corridor Traffic. A substantial impact is defined as an increase of 10 percent or greater.[1]

8.2 Transit

The performance of the transit system will be assessed under the build, No Build, and construction conditions using analysis results and LOS standards as stated in Section 7.3.

The objective of the transit service integration plan collaboratively developed between King County Metro and Sound Transit is to be revenue neutral or positive, therefore potential mitigation for transit service hours or fleet is not expected with the project. Project-related operational delays, facility impacts, and mitigation identified as part of the traffic analysis conducted near the station areas and alignments will be reviewed to determine if there are needed transit improvements to maintain transit speed and reliability through these impacted locations (see Section 8.3).

At these locations, impacts will be reviewed and potential mitigation, design changes, and/or service revisions will be determined collaboratively by King County Metro and Sound Transit.

8.3 Arterials and Local Streets

Potential mitigation to property access and local circulation will be developed to address impacts to the roadway system and individual properties caused by the project. This could include project impacts that create substantial out-of-direction travel or that would substantially limit access to areas or properties through road closures or direct barriers created by the project.

For intersection operations, if the intersection LOS is D or higher under the build condition, then that intersection is considered to meet City of Seattle best practices guidance. If traffic changes associated with the build condition cause an intersection to degrade from LOS D or higher to LOS E or F, Sound Transit will coordinate with the City of Seattle on potential improvements, if

[1] Threshold is based on model calibration guidance from the Federal Highway Administration. Variations of up to 10 percent from observed volumes are considered typical for an appropriately calibrated model. An increase of greater than 10 percent would exceed this threshold and would therefore be considered an effect of the project.

feasible, that could be implemented as potential mitigation. If the intersection already operates at LOS E or worse in the No Build Alternative, then Sound Transit would coordinate with the City of Seattle on potential improvements, if feasible, if the overall intersection delay and/or LOS noticeably degrades (i.e., greater than 10 percent increase in the delay) with the build alternative. In these situations, if mitigation is agreed to by the relevant agencies, then the project is only obligated to bring the operating condition back to the overall intersection delay levels in the No Build condition.

In addition, depending on the agreement with the relevant jurisdictions, potential mitigation may be determined if the project extends queue lengths further than in the No Build Alternative and beyond the storage provided. Potential mitigation might include operational changes to signal phasing or timing, use of intelligent transportation systems or upgraded signal infrastructure, turn movement modifications, transit improvements, or physical modification such as restriping, extending or adding turn lanes.

Mitigation measures will be developed to address construction impacts on the local and arterial roadway system with respect to property access and circulation, arterial and local roadway operations, and on- and off-street public parking. The limitation of impacts to special events will be a consideration in the development of the conceptual construction plan.

8.4 Parking

Potential parking mitigation will be identified where the project permanently or temporarily (e.g., during construction) removes public parking, including loading zones, and where there is the potential for hide-and-ride parking activity in neighborhoods surrounding the stations. Areas with a high potential for hide-and-ride activity will be identified, with potential mitigation strategies to reduce the likelihood of this activity. Parking loss for private parking will be addressed as a property acquisition impact.

8.5 Non-motorized

Potential improvements will be identified to mitigate potential direct (long-term and construction) impacts from the build alternatives on the non-motorized system. This will consider degradation or lack of pedestrian and bicycle conditions surrounding station areas and direct impacts to the pedestrian and bicycle facilities such as the loss or restriction of bikeways and Americans with Disabilities Act-accessible pedestrian routes.

8.6 Safety

Potential improvements will be identified to mitigate potential direct (long term and construction) impacts from the build alternatives on the safety of the transportation system. This will consider degradation of safety to transit riders, arterial and local streets, non-motorized modes (pedestrians and bicyclists) and freight travel

8.7 Navigation

Any mitigation measures identified in the Navigation Impact Report or the Obstruction Evaluation/Airport Airspace Analysis necessary to address impacts to navigation during operations or construction will be identified.

8.8 Freight

Potential improvements will be identified to mitigate potential direct (long-term and construction) impacts from the build alternatives on freight. This will consider impacts to freight operations, including access and circulation along affected roadways, commercial load zones, rail and intermodal facilities, Port terminals, and waterways.

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9 PROPOSED FIGURES, MAPS OR OTHER DATA

Potential figures include the following, but are not limited to, the following:

- Study area(s)
- Screenlines
- Freight infrastructure including routes, facilities, yards, and rail lines
- Transit routes and services
- Intersection level-of-service
- Walk, bike, and transit-sheds
- Existing and future non-motorized facilities

Potential tables and graphs include the following, but are not limited to, the following:

- Screenline information, such as v/c ratio
- Station mode of access
- Station ridership
- Pedestrian LOS

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10 DOCUMENTATION

For the WSBLE EIS, the transportation discipline will develop the following documentation:

- EIS chapter
- Transportation Technical Report

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11 DATA DEVELOPED FOR USE BY OTHER DISCIPLINES

Specific types of transportation data will also be developed for use in analyzing project impacts on other environmental resources.

11.1.1 Air Quality Analysis Data

To support the air quality impact analysis, the following types of data will be produced:

- Daily VMT estimates by speeds for two areas: WSBLE study area and regional system. These estimates will be provided in a tabular format for greenhouse gas analyses.

The above information will be provided for existing conditions (2019) and the horizon year (2042)

11.1.2 Noise Analysis Data

To support the noise impact analysis, the following types of data will be produced:

- Existing (2019) and horizon year (2042) PM peak hour Synchro model files and general system-wide vehicle classification information (i.e., heavy vehicle percentage)

11.1.3 Energy Analysis Data

To determine operational energy impacts, the following types of data for year 2042 will be produced:

- Daily regional VMT and VHT
- Daily light rail transit VMT

11.1.4 Economics

To support the economics analysis, the following information will be provided:

- Changes in business access
- Parking and loading zone impacts
- Construction detour routes
- Long-term effects on general and freight mobility
- Changes in freight navigation

11.1.5 Environmental Justice and Social Impact Analysis Data

To support the environmental justice and social impact analysis, a variety of data will be produced, including the following:

- Estimated travelsheds, derived from the travel demand model, to assist in the identification of study areas for the environmental justice and social impact analyses
- Estimated travel times to selected destinations (e.g., Seattle-Tacoma International Airport, Seattle central business district, University of Washington, Northgate, Lynnwood, Redmond and Bellevue) for use in the analysis of access to employment centers, educational institutions and medical services for environmental justice populations
- Analysis of relevant temporary and permanent impacts, such as relocation of disabled parking spaces or designated parking at social services
- Permanent and temporary changes in transit and traffic operations, circulation, and access on corridor roadways and potential mitigation

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APPENDIX A

Future Transportation Project List

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Attachment A-1
Levy to Move Seattle Program
Future Project Assumptions

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Sponsor	Project ID	Project Title	Description	2032	2042
SDOT	TC-367200	Fauntleroy Way SW Boulevard Project	• Fauntleroy Way between 35th Ave SW and SW Alaska St • Maintains two lanes of traffic in each direction on Fauntleroy Way • New sidewalks, crosswalks, and shortened crossings at side streets, created by realigning skewed intersections • One-way protected bike lane on either side of the street (0.29-mile), connecting to the existing bike network at Avalon Way and Alaska St	x	x
SDOT		RapidRide H Line	Delridge Way SW is one of seven new corridors where SDOT is partnering with King County Metro to upgrade existing bus routes to Metro RapidRide service and improve connections for people walking and biking (Upgrading Metro Route 120 into the RapidRide H Line). As part of this project: • Sidewalks, street crossings, and paths for getting to stop will be improved for pedestrians and bikes, and for those with limited mobility. • SDOT plans to improve access to transit along Delridge Way SW and is including bicycle and pedestrian improvements as part of the project. These may include upgraded crosswalks and intersections, new crosswalks, better connection to nearby greenways, and a possible protected bike lane on Delridge Way SW.	x	x
SDOT	SEA-213	RapidRide Rainier Line	SDOT will build a new bus rapid transit (BRT)/RapidRide corridor along Rainier Ave S. Key features of the project include a series of roadway improvements that are expected to improve transit travel times by approximately 22%: business access and transit (BAT) lanes or exclusive transit-only lanes, signal modifications, channelization changes, and transit signal priority (TSP). The scope of work will also include transit stop amenities and supporting bicycle and pedestrian infrastructure that improve the customer	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			experience for all users and help draw choice riders to transit: real-time arrival information, lighting, wayfinding, off-board fare payment options, sidewalks, and bicycle facilities, payment options, sidewalks, and bicycle facilities.		
SDOT		Center City Bike Network	The Center City Bike Network supports a vibrant Seattle by designing a safer, more predictable traveling experience for people walking, biking and driving downtown. SDOT is studying and prioritizing locations for a protected bicycle lane network in downtown Seattle. This work builds on outreach and data collected as part of Seattle's 2014 Bicycle Master Plan. This includes two-way protected bicycle lane on 4th Ave from Main St to Vine St, and 2nd Ave protected bike lane extension to Dearborn.	x	x
SDOT	SEA-215	Roosevelt RapidRide	A new bus rapid transit(BRT)/RapidRide corridor along Roosevelt Way, Eastlake Ave, and Fairview Ave: This project will expand King County Metro's RapidRide brand. The project includes key features such as business access and transit (BAT) lanes or exclusive transit-only lanes, signal modifications, channelization changes, bus stop consolidation, parking changes, bus bulbs, transit signal priority (TSP), bicycle and pedestrian access improvements, and protected bike lanes and/or parallel neighborhood greenways. Improvements will also include transit stop amenities such as real-time arrival information, lighting, wayfinding, off-board fare payment options, and bicycle and pedestrian access, lighting, wayfinding, off-board fare payment options, and bicycle and pedestrian access improvements.	x	x
SDOT		SW Avalon Way & 35th Ave SW	Redesign SW Avalon Way (SW Spokane St - Fauntleroy Way SW) to add protected bike lanes, remove the center turn lane, maintain the transit lane, remove 12 parking spaces, add time restrictions to 23 parking spaces, pedestrian improvements and other	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			infrastructure upgrades on all streets including accessible curb ramps and sidewalks, and upgraded street crossings.		
SDOT		East Marginal Way Corridor Improvement Project	• North Segment (S Atlantic St to S Spokane St): 2-way protected bike lane on the east side of the street between S Atlantic St and S Horton St, Multi-use path on the west side of the street between S Horton St and S Spokane St • Central Segment (S Spokane St and S Nevada St, where the SR-99 structure returns to the surface): TBD • South Segment (Duwamish Ave S to 1 Ave S- it is part of SR 99): A new multi-use path on the west side of the street from north of Duwamish Ave S to Diagonal Ave S, Pedestrian improvements at each existing traffic signal, constructing missing sidewalks on the east side of the street, Transit stop improvements	x	x
SDOT	SEA-203	Lander St Bridge	From 1st Ave S and 4th Ave S: Build an east-west bridge over the north-south BNSF mainline railroad, including a bridge structure with 4 vehicle travel lanes (2 in each direction), pedestrian and bicycle facilities, intersection improvements, ITS elements to improve signal operations, and other infrastructure enhancements.	x	x
SDOT		23rd Ave E Vision Zero Project	23rd/24th Ave E between E John St and E Roanoke St: • two southbound travel lanes • center turn lane • two northbound lanes reduced to one northbound lane	x	x
SDOT	SEA-222	Bell St Protected Bike Lane	The project includes construction of a protected bike lane (PBL) on Bell St from 5th Ave to Denny Way, and	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			traffic calming features to support 2-way bicycle travel in Bell Street Park from 5th Ave to 2nd Ave.		
SDOT		NW Market St 2020 Paving	32nd Ave NW / NW 54th St / NW Market St between 32nd Ave NW / NW Market St and 24th Ave NW- (06-mile)-BL (will be coordinated with project Burke Gilman Trail Missing Link)	x	x
SDOT		Burke Gilman Trail Missing Link	Burke-Gilman Trail between 11th Ave NW / NW 45th St and NW Market St /NW 54th St- 1.42-mile TRL	x	x
SDOT	TC367810	Delridge Multimodal Corridor	This project improves pavement conditions, enhances safety, and improves traffic operation for all modes. The project will add transit lanes and improve transit speed and reliability. It includes protected bike lanes, sidewalk improvements, and amenities for walkers and transit riders along the corridor. It will streamline traffic operations and improve multimodal connections between transit, freight, pedestrians, and general-purpose vehicles.	x	x
SDOT	SEA-205	Center City Connector	The Center City Connector will link two existing streetcar lines: The First Hill and South Lake Union Streetcars. The project includes the purchase of 10 new streetcar vehicles as well as new streetcar tracks, sidewalk upgrades, and various streetscape improvements. Project scope includes deployment of new zero-emission vehicles, roadway re-channelization to provide exclusive streetcar right-of-way, and new transit stations to enhance connections to existing and planned transit corridors. Construction in this project is a multiyear phase.	x	x

Attachment A-2
Future State Transportation Improvement Plan Project Assumptions

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Sponsor	Project ID	Project Title	Description	2032	2042
SDOT	SEA-168	First Hill Streetcar - Broadway Extension	Implement the First Hill Streetcar Line segment from Denny Way north to E Aloha St and extend the protected bike lane on east side of street. Streetcar service will provide connections to Pioneer Square, China Town/International District, First Hill, Link Light Rail, and Capitol Hill. The project phase from S Jackson St to Denny Way is in operation.	x	x
SDOT	SEA-200	Madison Corridor Bus Rapid Transit	Construct a high-capacity transit project from the Downtown and First Hill-Capitol Hill regional urban centers to Madison Valley, including dedicated transit lanes, level-boarding stations, left-door boarding, off-board fare payment, and real-time arrival information. Project scope includes transit signal priority, deployment of new zero-emission vehicles, and pedestrian/bicycle infrastructure improvements including protected bike lanes as well as sidewalk repairs and upgrades. In addition to the termini on Madison from 1st Avenue to Martin Luther King Jr Way, the project route also runs from 1st Avenue at Madison to 1st Avenue at Spring Street, Spring Street from 1st Avenue to 9th Avenue, and Spring Street at 9th Avenue to Madison at 9th Avenue (from 1st Ave to Martin Luther King Jr Way).	x	x
SDOT	SEA-195	N 34th Street Protected Bicycle Lanes and Protected Intersections	N 34th St: Design and build a protected bicycle facility for 0.34 miles on N 34th St, comprised of protected bicycle lanes for the full extent and protected intersections at Stone Way N and Troll Avenue N.	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
SDOT	SEA-202	Melrose Avenue E Protected Bicycle Lanes and Neighborhood Greenway	From University St to Harvard Ave E: Design and build a continuous bicycle facility approximately 2 miles along Minor Avenue, Melrose Avenue E, and Lakeview Boulevard E. The facility will be comprised of a protected bicycle lane on Minor and Melrose Avenues between University Street and E Denny Way, a neighborhood greenway on Melrose Avenue E between E Denny Way and E Roy Street, an upgraded trail between E Roy Street and Lakeview Boulevard E, and upgraded bicycle lanes on Lakeview Boulevard E between the Melrose Trail and Harvard Avenue E. The project will upgrade existing facilities between E Roy Street and Harvard Avenue E and extend these bicycle facilities south through the Capitol Hill and First Hill neighborhoods. The project will be phased; the current construction funding completes the protected bicycle lane on Minor and Melrose Avenues between University St and E Denny Way and the neighborhood greenway on Melrose Ave E between E Denny Way and E Roy St.	x	x
WSDOT	WDNW-1140	I-405/NE 132nd Street Interchange - New Interchange	Construct half-diamond interchange with pedestrian and bicycle improvements and with ramps to and from the north at NE 132nd Street.	x	x
WSDOT	WDNW-1114	I-405/Renton to Bellevue - Corridor Widening & Express Toll Lanes (Stage 2)	This project continues the widening of the I-405 corridor between Renton and Bellevue, including the implementation of Express Toll Lanes (ETL) and rebuilding impacted interchanges. Project improvements include the following: - The I-405 Renton to Bellevue ETL project will create a dual lane express toll lane system between SR 167 and NE 6th Street in Bellevue. The project will add one	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			lane in both directions from the SR 167 interchange to the I-90 interchange and add a northbound lane from the I-90 interchange to NE 6th Street. This new lane will be paired with the existing HOV lane to create the dual-lane express toll lane system. - Construct a transit/HOV direct access ramp at NE. 44th Street in Renton (MP 8.00) in coordination with Sound Transit. - Improve four interchanges: NE Park Drive, NE 44th Street, 112th Avenue SE, and Main Street. - Replace four bridges: I-405 over May Creek, NE 44th, 112th Avenue SE, and Main Street. - Construct one new bridge: southbound I-405 over Coal Creek Parkway. - Widen three existing bridges: Sunset Boulevard NE, NE Park Drive, and SE 8th Street. - Improve fish passage crossing barriers as identified through the environmental process; potentially two at Gypsy Creek, and at two unnamed streams near I-405 MP 7.80. - Construct a new pedestrian/bicycle path in areas where the existing Lake Washington Loop trail will be impacted. - This project will modify local roadways and pedestrian and bicycle facilities related to the interchange improvements and I-405 widening, install sign bridges, install ITS, install a toll system, install and/or replace noise walls, and construct storm water management facilities.		
WSDOT	WDNW-1138	I-5/Everett to SR 528 - Peak Use Shoulder Lane & Interchange Improvements	NB I-5 between Everett and Marysville experiences severe congestion during peak travel periods. Widening the outside shoulder (right shoulder) by 1' and re-striping NB I-5 to create a peak use shoulder lane and installing an Active Traffic Management system will improve mobility and increase highway capacity by allowing motorists to use the outside shoulder for driving during peak traffic	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			hours. This project will also complete the half-interchange at SR 529 by constructing a new NB I-5 Off-ramp to SR 529 and a new SB on-ramp from SR 529 to I-5.		
WSDOT	WDNW-2006	I-90/SR 18 Interchange to Deep Creek - Widening & Interchange Improvements	The I-90/SR 18 interchange experiences severe congestion during peak traffic periods at the existing ramp terminal locations. This project constructs improvements to the I-90/SR 18 interchange and widens SR 18 to four lanes between I-90 and Deep Creek with pedestrian and bicycle improvements.	x	x
WSDOT	WD520-3	SR 520/I-5 to Floating Bridge - Bridge Replacement and HOV	SR 520 from I-5 to Lake Washington: The project will reconstruct the SR 520 corridor from I-5 to the new Evergreen Point Floating Bridge, resulting in a 6-lane corridor including two HOV lanes and a new, second bascule bridge across the Montlake Cut. This is a multiyear project and the programming reflects the funds available within the span of the regional TIP.	x	x
WSDOT		SR 518 Des Moines Interchange Improvement	WSDOT is working with the city of Burien to add a new two-lane off-ramp (pdf 135 kb) from eastbound SR 518 to Des Moines Memorial Drive	x	x
WSDOT		SR 167/SR 509 Puget Sound Gateway	The SR 167 and SR 509 extensions will complete the missing highway system links to I-5 that offer commuter and freight mobility benefits through added capacity and improved connectivity.	x	x

Attachment A-3
PSRC 2018 Regional Transportation Plan Future Project Assumptions

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The transportation modeling and analysis is based on the most current version of the Puget Sound Regional Council Regional Transportation Plan (2018). The project list for the Regional Transportation Plan – 2018 includes local, regional and State projects in the Puget Sound Region.

For this analysis the project assumed as part of the No-Build (background) condition only include projects in PSRC's financial "constrained" plan. These background projects are considered to be reasonably foreseeable in the future and are either approved, conditionally approved, or candidate projects. The full list can be found at the following location: https://www.psrc.org/sites/default/files/rtp-appendixg-regionalcapacityprojectlist.pdf.

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Attachment A-4
Sound Transit (ST2) Future Project Assumptions

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Sponsor	Project ID	Project Title	Description	2032	2042
Sound Transit	E01-02	Link LRT: Seattle to Downtown Bellevue/Overlake Hospital/Redmond Terminal Station	This project extends light rail from International District/Chinatown Station in downtown Seattle to Redmond Technology Center. The project includes ten new stations at I-90/Rainier (Judkins Park), Mercer Island P&R, South Bellevue P&R, East Main Street, Bellevue Transit Center, N.E. 8th Street (Wilburton), Spring District/120th, Bel-Red/130th, Overlake Village P&R and Overlake Transit Center (Redmond Technology Center). Project includes new parking facility at Bel-Red/130th Station (+/- 300 spaces) and expanded parking at South Bellevue and Redmond Technology Center stations (totaling +/- 1500 and +/- 300 spaces respectively).	x	x
Sound Transit	N06	Link LRT - Extension from University of Washington to Northgate (Seattle)	This project extends light rail from University of Washington Station to Northgate in Seattle, with new stations at University District, Roosevelt and Northgate Transit Center. Expanded parking is included at Northgate Station.	x	x
Sound Transit	N39	Link LRT: Northgate to Lynnwood TC	This project extends light rail from Northgate Station to Lynnwood Transit Center. The project includes four new stations at N. 145th Street, N. 185th Street, Mountlake Terrace Transit Center and Lynnwood Transit Center. A new parking facility is included at N. 185th (+/- 500 spaces), and expanded parking is included at N. 145th and Lynnwood stations (by +/- 500 spaces at each).	x	x
Sound Transit	S28	Link LRT: Extension from South 200th to Kent-Des Moines Road via SR 99 [1]	Construct an approximately 2.3-mile extension of the Central Link light rail system from S. 200th Street to a new station near Kent-Des Moines Road (S. 240th St). The project will include all necessary components such as infrastructure, systems, and stations. For prototypical cost estimating purposes, the alignment is assumed to be aerial structure primarily along SR-99. The Kent-Des Moines Station will include a new 500 stall regional park-and-ride. The final alignment and station location will be determined through project level design and environmental review.	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
Sound Transit	S29A	Link LRT: Extension from Kent-Des Moines Road to S 272nd Street via SR 99 [2]	Continue extension of the Central Link light rail system for 2.5 miles from Kent-Des Moines Station (S. 240th St) to S. 272nd Street (at existing Redondo Heights Park-and-Ride lot), including a new station at S. 272nd Street. The project will include all necessary components such as infrastructure, systems, and stations. For prototypical costing purposes, the alignment is assumed to be aerial along SR 99. The S. 272nd St Station will include a new 500 stall garage (within Redondo Heights Park-and-Ride). The final alignment and station locations will be determined through project level design and environmental review.	x	x
Sound Transit	S7b	Link LRT: Extension of Tacoma Link to Tacoma General Hospital with Tacoma Link Technology (Hilltop Tacoma Link Extension)	This project will more than double the length of Tacoma Link, starting with a relocated Theater District station, and adding six new stations. These will connect to popular destinations such as Old City Hall, the Stadium District, Wright Park and major medical facilities before reaching its new Hilltop neighborhood terminus. Tracks will run in existing road lanes and will be compatible with on-street parking and existing bicycle facilities. Platforms will be located in the center roadway. The project also includes expansion of the Operations and Maintenance Facility located on East 25th Street to accommodate storage of five new light rail vehicles.	x	x
Sound Transit	S18b	Sounder - Auburn Station Access	Station/transit center access improvements. Make new improvements or modifications at or adjacent to the station/transit center that improve access for transit users. Potential improvements include pedestrian and bicycle support facilities, parking management and capacity expansion (up to 500 spaces), facilities and systems that enhance operation and access to the station/transit center by bus and other public transport systems, and information and wayfinding systems.	x	x
Sound Transit	S109	Sounder - Kent Station Access	Station/transit center access improvements. Make new improvements or modifications at or adjacent to the station/transit center that improve access for transit users. Potential improvements include pedestrian and bicycle support facilities,	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			parking management and capacity expansion (up to 450 spaces), facilities and systems that enhance operation and access to the station/transit center by bus and other public transport systems, and information and wayfinding systems.		
Sound Transit		S. 200th Park and Ride	630 new stalls	x	x
Sound Transit	S21	Puyallup Station improvements	Station/transit center access improvements. Make new improvements or modifications at or adjacent to the station/transit center that improve access for transit users. Potential improvements include pedestrian and bicycle support facilities, parking management and capacity expansion (up to 600 spaces), facilities and systems that enhance operation and access to the station/transit center by bus and other public transport systems, and information and wayfinding systems.	x	x
Sound Transit	S22	South Tacoma Station improvements	Station/transit center access improvements. Make new improvements or modifications at or adjacent to the station/transit center that improve access for transit users. Potential improvements include pedestrian and bicycle support facilities, parking management and capacity expansion (up to 400 spaces), facilities and systems that enhance operation and access to the station/transit center by bus and other public transport systems, and information and wayfinding systems.	x	x
Sound Transit	S23b	Lakewood Station improvements	Station/transit center access improvements. Make new improvements or modifications at or adjacent to the station/transit center that improve access for transit users. Potential improvements include pedestrian and bicycle support facilities, parking management and capacity expansion (up to 600 spaces), facilities and systems that enhance operation and access to the station/transit center by bus and other public transport systems, and information and wayfinding systems.	x	x
Sound Transit	S20	Sumner Station improvements	Station/transit center access improvements. Make new improvements or modifications at or adjacent to the station/transit	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			center that improve access for transit users. Potential improvements include pedestrian and bicycle support facilities, parking management and capacity expansion (up to 400 spaces), facilities and systems that enhance operation and access to the station/transit center by bus and other public transport systems, and information and wayfinding systems.		

Attachment A-5
ST3 Plan Future Project Assumptions

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Sponsor	Project ID	Project Title	Description	2032	2042
Sound Transit	5681	Infill Light Rail Station: South Boeing Access Road	This project builds a new infill station on the Link light rail line in the vicinity of South Boeing Access Road and I-5.		x
Sound Transit	5680	Infill Light Rail Station: South Graham Street	This project builds a new infill station on the Link light rail line in the vicinity of South Graham Street.		x
Sound Transit	2524	Redmond Technology Center Station to Downtown Redmond Light Rail	This project extends East Link to downtown Redmond, as described in Sound Transit Board Resolution R2013-09 and the FTA and FHWA Record of Decision. The project would include two new stations, one with parking at southeast Redmond and a second in downtown Redmond.	x	x
Sound Transit	2529	South Kirkland to Issaquah Light Rail	This project builds light rail from south Kirkland to Issaquah with four new stations at south Kirkland, the Richards Road area, Eastgate near Bellevue College, and central Issaquah, with one provisional station in the Lakemont area. This provisional station would require identification of additional funding not currently included in the ST3 System Plan in order to be built.		x
Sound Transit	2519	Lynnwood to Everett Light Rail	This project extends light rail from the Lynnwood Transit Center to Everett Station via the Southwest Everett Industrial Center with both elevated and at-grade sections. The project includes six new stations at West Alderwood Mall, Ash Way, 128th /Mariner, Southwest Everett Industrial Center, SR 526/Evergreen and Everett Station. The project also includes one provisional station, at SR 99/Airport Road. This provisional station would require identification of additional funding not currently included in the ST3 System Plan in order to be built.		x
Sound Transit	5679	Infill Light Rail Station: Northeast 130th Street	This project builds a new infill station at I-5 and NE 130th Street along the Lynnwood Link Extension.		x
Sound Transit		Kent/Des Moines to Federal Way Transit Center Light Rail	This project extends light rail south from Kent/Des Moines to Federal Way, with stations serving South 272nd Street and the Federal Way Transit Center. The scheduled opening from Angle Lake to Kent/Des Moines has been adjusted to open at the same time as the extension to Federal Way.	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
Sound Transit		Federal Way Transit Center to Tacoma Dome Light Rail	This project extends light rail from the Federal Way Transit Center to Tacoma via I-5 with four new stations in the south Federal Way, Fife and east Tacoma areas, and at the Tacoma Dome Station.	x	x
Sound Transit	4075	Tacoma Link Extension to Tacoma Community College	This project extends Tacoma Link from downtown Tacoma to Tacoma Community College with six new stations.		x
Sound Transit		Sounder North Parking	This project would provide an early deliverable within the ST3 System Plan by providing additional parking at Mukilteo and Edmonds Sounder Stations.	x	x
Sound Transit	4087	Sounder South Capital Improvements Program	This project establishes a program of capital elements that would be used to meet growing demand for Sounder South. Access elements could include improvements for pedestrians, bicyclists, buses, and private vehicles, prioritized per Sound Transit's Access Policy. Additional program elements include extending platforms to accommodate trains up to 10 cars in length, track and signal upgrades, and other related infrastructure to facilitate additional capacity.		x
Sound Transit	2533	Sounder Expansion to DuPont	This project extends Sounder commuter rail service from Lakewood to DuPont with two new stations at Tillicum and DuPont.		x
Sound Transit	2527	I-405 Bus Rapid Transit	This project establishes Bus Rapid Transit (BRT) from the Lynnwood Transit Center to the Burien Transit Center via I-405 and SR 518. The project relies on the I-405 express toll system where available, and Business Access Transit (BAT) lanes on SR 518 from Tukwila to Burien. Project elements include parking, station access improvements, and ten stations, including a new transit center in South Renton and new stations at Northeast 85th Street with BAT lanes extending toward Downtown Kirkland and at Northeast 44th Street in Renton.	x	x
Sound Transit	5359	Northeast 145th Street and SR 522 Bus Rapid Transit	This project establishes Bus Rapid Transit (BRT) from the Link station at I-5 and Northeast 145th Street to UW Bothell, with	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			service continuing at lower frequencies to Woodinville. On Northeast 145th Street, this project includes transit priority spot treatments to facilitate BRT movement through corridor bottlenecks. On SR 522 the majority of the corridor through Lake Forest Park, Kenmore and Bothell will feature Business Access Transit (BAT) lanes, with transit-supportive enhancements on arterials from downtown Bothell to UW Bothell. This project includes nine pairs of stations with additional parking at Lake Forest Park, Kenmore and Bothell and an expanded transit center at UW Bothell.		
Sound Transit		North Sammamish Park-and-Ride	This project builds a surface park-and-ride in north Sammamish. The site for the park-and-ride will be determined in coordination with the City of Sammamish.	x	x
Sound Transit		King County Metro Rapid Ride C and D and Madison Street Capital Improvements Bus	This project provides a capped contribution to help design and implement transit priority improvements along King County Metro’s Rapid Ride C and D lines that provide BRT service to Ballard and West Seattle as early deliverables to provide improved speed and reliability in advance of light rail starting operations to these areas. The project also includes a contribution to funding for Madison Street BRT in Seattle.	x	x
Sound Transit		Proposed Bus on Shoulder Program: Opportunities along I-5, I-405, I-90, SR 518, and SR 167	This program provides opportunities for buses to use shoulders on freeway and state route facilities during periods of congestion in general traffic and/or HOV lanes. This program will require coordination and further study with transit partners, WSDOT, and Federal Highway Administration in order to determine locations that may be feasible.	x	x
Sound Transit		Bus Capital Enhancements for Speed, Reliability and Convenience along Pacific Avenue (Tacoma)	This project provides a capital contribution to Pierce Transit for bus capital enhancements for speed, reliability, and convenience along Pacific Avenue in Tacoma.	x	x
Sound Transit		ST Express Bus Service	This project funds operations for ST Express regional bus service maintaining interim express bus service in future High Capacity Transit (HCT) corridors, with an emphasis on long-haul	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			connections between population and employment centers and providing riders with access to rail hubs. Frequent service between Lakewood and Tacoma Dome Station is included.		
Sound Transit		Capital Enhancements to Improve Bus Speed and Reliability between East Pierce County Cities and Sumner Sounder Station	This project provides capital improvements to facilitate the efficient flow of new and expanded bus connections to Sumner Station.	x	x
Sound Transit		Bus Operations and Maintenance Facility	This project would construct a new bus operations and maintenance facility to accommodate a portion of the existing and future bus fleet required for ST3 BRT and ST Express bus service. The facility would be located in the vicinity of the I-405/SR 522 corridors.	x	x

Attachment A-6
King County Metro METRO CONNECTS Plan Future Project Assumptions

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Sponsor	LRP Route ID	Description	2030	2040
King County Metro	RR 40	To Lake City/ From Seattle CBD/ Via Ballard. Upgrade Route 40 to RapidRide line.	x	x
King County Metro	1012	To Ballard/ From Children's Hospital/ Via Wallingford. Upgrade Route 44 to RapidRide line.	x	x
King County Metro	RR 120	To Burien TC/ From Seattle CBD/ Via Westwood Village. Upgrade Route 120 to RapidRide line.	x	x
King County Metro	1059	To Madison Valley/ From Seattle CBD/ Via E Madison St. Madison Street RapidRide line.	x	x
King County Metro	1071	To SLU/ From Mount baker/ Via Seattle CBD. New RapidRide route.	x	x
King County Metro	C Line	To SLU/ From Westwood/ Via West Seattle. Route revisions and improvements.	x	x
King County Metro	D Line	To Northgate/ From Seattle CBD/ Via Ballard. Route revisions and improvements.	x	x
King County Metro	E Line	To Shoreline/ From Seattle CBD/ Via SR 99. Route revisions and improvements.	x	x
King County Metro	1010 (D Line)	To Fremont/ From Lake City/ Via Ballard. Route revisions and improvements.		x
King County Metro	1012	To Ballard/ From Children's Hospital/ Via Wallingford. Route revisions and improvements.		x
King County Metro	1043 (C Line)	To Alki/ From Burien/ Via West Seattle. Route revisions and improvements.		x
King County Metro	1059	To Madison Valley/ From Seattle CBD/ Via E Madison St. Route revisions and improvements.		x

Sponsor	LRP Route ID	Description	2030	2040
King County Metro	1061	To Uptown/ From Madison park/ Via Capitol Hill. Upgrade route to RapidRide.		x
King County Metro	1202	To Seattle CBD/ From Sand Point/ Via Green Lake. Upgrade route to RapidRide		x
King County Metro	1993 (Route 40)	To Northgate/ From Seattle CBD/ Via Ballard. Upgrade route to RapidRide.		x

Attachment A-7
Seattle Capital Improvement Plan (CIP) Future Project Assumptions

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Sponsor	Project ID	Project Title	Description	2032	2042
SDOT	TC367070	Cheshiahud Lake Union Trail Project	This project completes Fairview trail improvements and establishes the History Trail. The project addresses the challenges presented along the Fairview Avenues N and E corridors. This may include implementing a new separated bike/pedestrian path along Fairview Avenue N to the south of the old steam plant to Lake Union Park and improving the shared route along Fairview Avenue E to the University Bridge. This will substantially complete the needed physical improvements along the trail. Three street-end parks will be improved through volunteer efforts. The Museum of History and Industry (MOHAI) and the Center for Wooden Boats (CWB) will implement interpretive elements for the History Trail. A cycle track will be constructed on Westlake Avenue North.	x	x
SDOT	TC367640	Columbia Two-Way Street Improvements	his project consists of reconstructing Columbia between 1st & 3rd to a two-way roadway. Elements of the design and construction project will include, but is not limited to, pavement reconstruction/overlay, striping, signals, curb, sidewalk, drainage and other elements necessary to deliver a two-way roadway for transit	x	x
SDOT	TC367110	Mercer Corridor Project West Phase	This project converts Mercer Street to a two-way street between Dexter Ave and Elliott Ave West. The Mercer underpass at Aurora Ave will be widened to allow for six travel lanes and a bicycle/pedestrian shared use path between Dexter Ave and 5th Ave North. Roy Street, between Fifth Ave N and Queen Anne Ave, will also be converted to a two-way street with on-road bicycle lanes.	x	x
SDOT	TC366050)	Alaskan Way Viaduct Replacement/Waterfront Rebuild	This project designs and constructs the rebuilt Alaskan Way/Elliott Way surface streets and the adjoining pedestrian promenade along the Seattle waterfront following the demolition of the Alaskan Way Viaduct. The project also includes replacement of and improvements to four key connections impacted by the Viaduct removal, namely Seneca Street, Columbia Street, and the Marion Street and Lenora pedestrian bridges.	x	x

Sponsor	Project ID	Project Title	Description	2032	2042
			Seattle's waterfront following the removal of the Alaskan Way Viaduct A 2-way protected bike lane from S King St to Pine St		
SDOT	TC367630	Overlook Walk and East-West Connections Project	Removing the Alaskan Way Viaduct provides the opportunity for the City to improve key connections between the downtown core and the waterfront. The specific east/west streets targeted for improving connections include: Bell Street, Union Street, Pike Street, Pine Street, Main Street, Washington Street, and Railroad Way. In addition to these east/west street connections, the waterfront improvement program also includes Overlook Walk, which would provide a pedestrian oriented connection between the waterfront, the Aquarium and Pike Place Market with ADA access, views, and public open spaces. This project is part of the overall waterfront improvement program.	x	x

Attachment A-8
SDOT Implementation Plans Future Project Assumptions

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SDOT Plan Type	Project Title	Description	2032	2042
Ped	Various locations	Various pedestrian enhancements city-wide. Pedestrian improvements within the WSBLE study area will be included in project assumptions.	x	x
Bike	Pike-Pine Mobility Improvements	• from 8th Ave to Broadway (2021) • All bike facilities are on the left-hand side of the street to reduce conflicts with transit and general traffic	x	x
Bike	Chinatown / International District- Judkins Park Neighborhood Greenway	S King St / 7th Ave (N-S connection to S Dearborn St) between 5th Ave S and 20th Pl S- NGW (1.25-mile)	x	x
Bike	Valley Street PBL	Valley St between 9th Ave N and Fairview Ave N- PBL (0.25-mile)	x	x
Bike	SoDo Trail Extension	SoDo Trail / E3 Busway between S Forest St and S Spokane St - TRL (0.42-mile)	x	x
Bike	West Seattle Neighborhood Green Way	34th Ave SW between SW Roxbury St and S Edmunds St- NGW (3.61-mile)	x	x
Bike	12th Ave S PBL	12th Ave S between E Yesler Way and S Charles St -PBL (0.53-mile)	x	x

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APPENDIX B

Sound Transit 3 Modeling: Background Bus Network

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Sound Transit 3 Modeling

Background Bus Network

Draft | *Updated: 07 April 2016*

Summary

For the System Plan model update, the background bus network has been updated to reflect:

- ST3 Sound Transit Express bus network
- 2025 King County Metro (KCM) Long-Range Plan concept network
- 2040 King County Metro (KCM) Long-Range Plan concept network

The ST3 Sound Transit Express bus networks for Baseline and Build are similar to the existing bus network, though reflecting changes due to light rail extensions. Corridors with rail extensions generally have reductions in service with reinvestments going to non-rail corridors, as shown in the ST3 Baseline network in Figure 1. In both the north and south, most all ST Express routes would no longer duplicate rail service to downtown Seattle. Further detail is provided later in this document.

The 2040 long-range plan network from KCM is substantially different than what is operated today, though fewer changes are planned for 2025.

- The 2025 KCM network is here: https://platform.getremix.com/map/08fd047
- The 2040 KCM network is available here: https://platform.getremix.com/map/aaedf09

The routes that make up the 2040 frequent network are presented in Figure 2 at the end of this document. This network assumes the light rail spine extending to Tacoma, Everett, and Redmond in addition to light rail to Ballard and West Seattle; the 2025 network only assumes the spine. The KCM LRP also assumes a 20-30% increase in service hours above what is provided by KCM today. Because of the scale of the changes to the network and the desire to understand the effect of the network changes, only selected elements were brought into the ST3 Baseline and Build networks, as described below. The net effect is that in areas with ST3 projects, the modeled network will reflect the KCM LRP.

For Community Transit and Pierce Transit, the updated background network for the updated model are the same as the Baseline and Build networks used in generating results for the templates (presented to the board on December 4).

ST3 Baseline Network

The Baseline background network reflects completion of the ST2 light rail network to Lynnwood, Kent-Des Moines, and Redmond Technology Center.

The ST Express network was updated to reflect some key changes from the previous ST3 Baseline:

- Truncation of ST Express services from Tacoma at Kent-Des Moines Station, except for ST 595.
- Higher service investments between Issaquah & Bellevue, Redmond & the U District, and Bothell/Woodinville & North Seattle.

Relative to the earlier Baseline network, this network reflects some KCM-related changes. The 2025 network from KCM was used to identify changes for their services in the Baseline network. Key changes included:

- Updated central and northeast Seattle networks, reflecting the adopted University Link integration bus routes while and changes associated with the Northgate and Lynnwood Link Extensions (with an emphasis on the frequent network).
- Modest headway changes to bus routes in the Kirkland area, reducing SR 520 bus volumes (KCM 252, 255, 257) and increasing local service from Kirkland to Bellevue (KCM 234, 235), Kirkland to Redmond (KCM 245), Bellevue to UW (KCM LRP route 2004), and Kirkland to UW (KCM LRP route 2516).
- Improved south King service with a new frequent route connecting Auburn to Renton via Kent and a route from KDM to Kent East Hill, though with some reductions to existing parallel duplicative routes.
- Changes related to the seven RapidRide+ routes included in the Move Seattle levy, including Madison BRT, such as improved headways and realignments. The includes the realignment of routes proposed by Seattle and shown in the KCM networks, including:
    - connecting the 67, 70, and 7N via downtown
    - connecting the 7S with the 48S via 23rd Ave
    - connecting the 36 and 49 via 12th Ave and Broadway

ST3 Build Network

The Build network adds onto the ST3 Baseline network described above, with network changes based on light rail and bus rapid transit investments.

For ST Express, the Build network removes all bus service between Tacoma and Kent-Des Moines (except for ST 595), between Everett and Lynnwood, and between Bellevue and Burien/Lynnwood; each of these bus service reductions is dependent on replacement HCT service. This allows for a reallocation of bus service hours to corridors not directly served by rail or bus rapid transit, such as Lakewood to Tacoma, Issaquah to Bellevue, and Everett to Bellevue.

KCM bus changes were focused on three key areas, targeting modified and new frequent routes that provide local connections while also serving light rail stations:

- Ballard. Existing services between northwest Seattle and downtown were reduced or eliminated to provide frequent connections on several routes within Ballard and to Greenwood and Magnolia.
- West Seattle. Existing services between West Seattle and downtown were reduced or eliminated to provide frequent connections on several routes within West Seattle and to Burien and the Duwamish industrial area.
- Federal Way. Some express service was reduced and reinvested in a few more-frequent local connections in the Federal Way and Auburn area.
- Kirkland. Reduction in parallel service with a corresponding increase in connecting bus service.

Figure 1: ST Express Network for ST3 Baseline

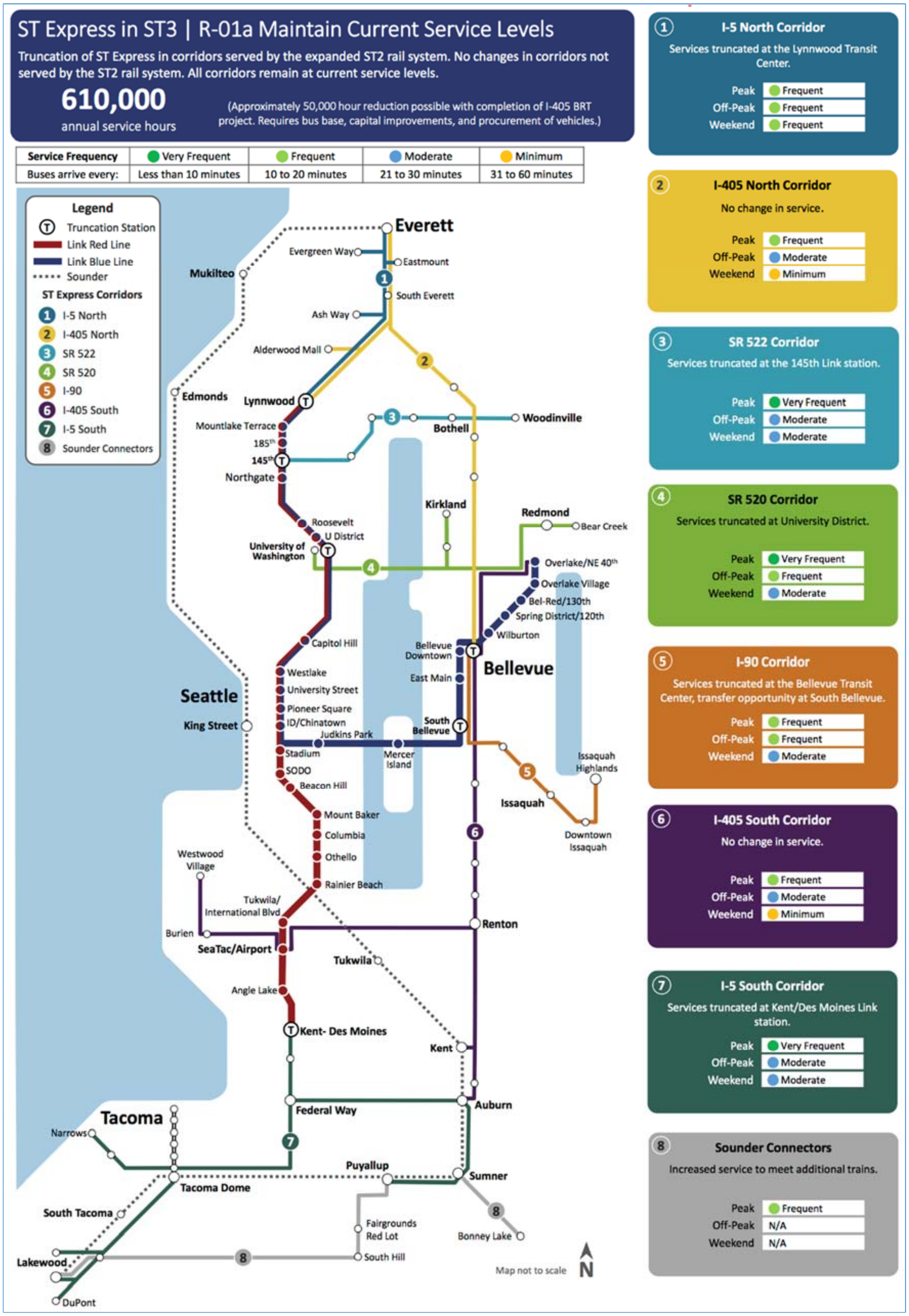
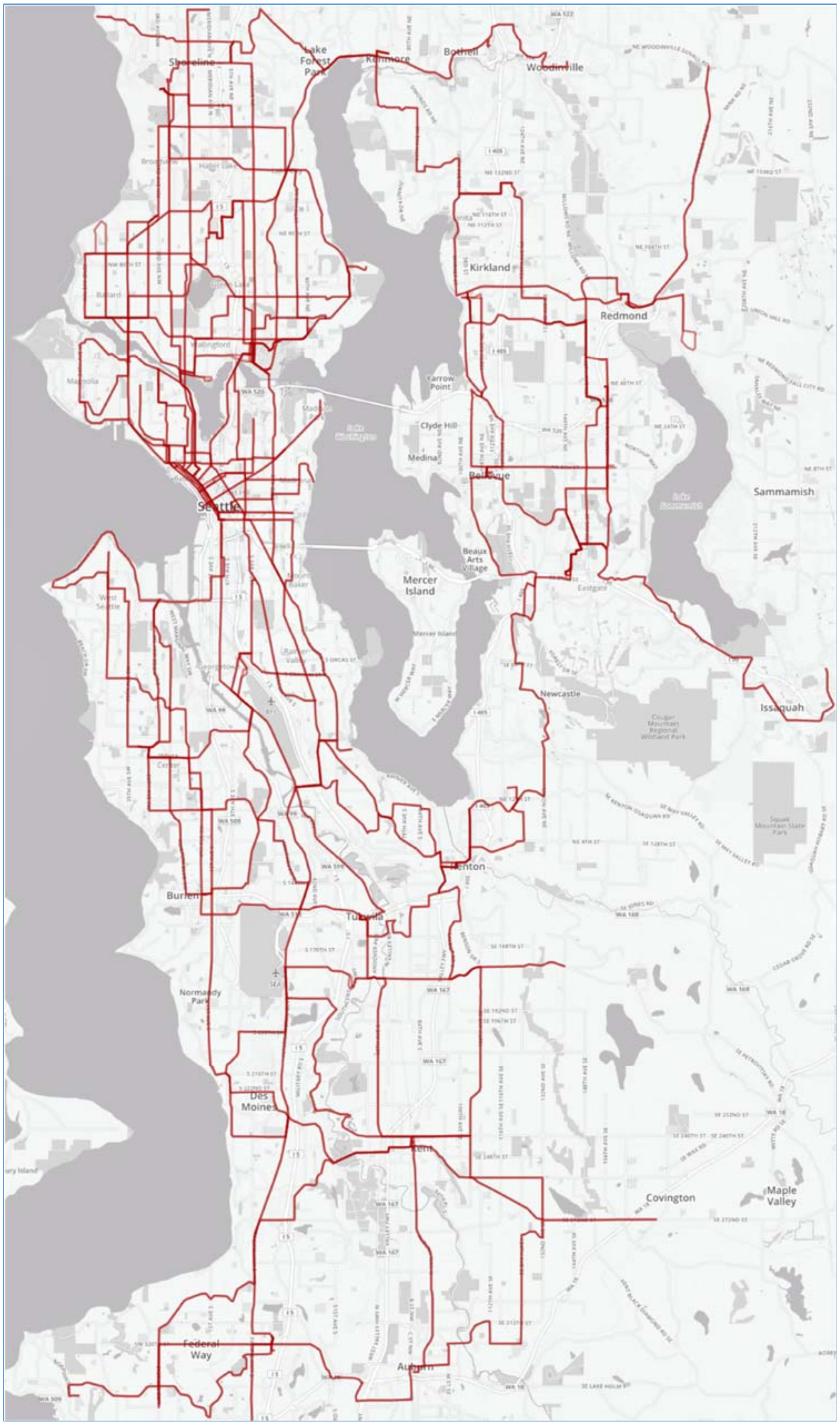


Figure 2: KCM LRP Frequent Service Network



APPENDIX C

Regional Model Details

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APPENDIX C
REGIONAL MODEL DETAILS

The following information provides additional details related to the use of the regional model that has been developed for projects in the Seattle area for the West Seattle and Ballard Link Extensions Project (WSBLE).

C.1 List of Projects that Utilized Regional Model

The regional model has been used in several regional and local jurisdictional analyses since 2015 including the following projects:

- I-405 Tolling Corridor Analysis
- SR 509 and SR 167 completion projects
- Washington State Department of Transportation (WSDOT) Gateway project
- FastTrack (or new name) grant application

In addition, the regional model has recently been used to provide multi-modal travel forecasts to support the following studies:

- Seattle Comprehensive Transportation Plan
- SR 99 Toll and Revenue Study
- Alaskan Way Viaduct Replacement Project
- I-90/Front Street Interchange Justification Report (Issaquah)

C.2 Land Use, Highway, and Modeling Assumptions

The regional model base year for this project will be 2019. The City of Seattle has created year 2015 and 2035 socioeconomic land use estimates for various planning activities, including their Comprehensive Plan, mandatory housing affordability analysis, and the Key Arena environmental impact statement. The year 2019 assumptions for land use will combine the latest land use estimates developed by the City of Seattle with the Puget Sound Regional Council (PSRC) LUV.2 forecasts for the rest of the four-county region (King, Pierce, Snohomish, and Kitsap Counties). The regional 2019 forecast analysis zone land use distribution may be modified to be consistent with jurisdictional assumptions on smaller area (transportation analysis zone [TAZ]) land use distribution.

The base and future year regional model will be modified for the WSBLE analysis to reflect the unique characteristics of the study area and the inputs to the model that represent these characteristics. The TAZ system will be refined/expanded to provide enhanced network detail for traffic forecasts and analysis, including estimation of active transportation trips and extraction of turning movement forecasts at the key intersections to be analyzed.

The underlying regional model includes 1,293 TAZs overall, with 218 TAZs within the city of Seattle. The number of TAZs within Seattle has been expanded to 260 TAZs for this study, each of which includes boundaries that will allow for easy incorporation of the latest City of Seattle current and future land use estimates.

Detail in the network will be added to reflect the 260 TAZs in Seattle. In addition to TAZs and connectors that provide for the assignment of trips onto the network, expanded network detail will include Seattle's Vision Zero Plan refinements that reduce speed limits to enhance street safety and mobility. Network modifications will include reducing the speed limit on all residential streets from 25 to 20 miles per hour, and on streets in the center city from 30 to 25 miles per hour.

C.3 Highway Model Calibration and Validation

The examination of the existing highway conditions will be based on the observed travel data collected for this study during the fall of 2018 and spring of 2019. The data to be collected are described in Section 3, Data Needs and Sources.

The base year data will also be used to support the regional model's validation effort. The base year auto volume estimates from the regional model will be validated using the 2018-2019 counts in the study area. The validation will be done across several screenlines in the study area. Potential vehicle and person trip screenlines for highway validation, which are different than those used for project evaluation purposes, are:

- Lake Washington bridges
- Ship Canal
- N and NW 85th Street
- Madison Street
- Spokane Street/West Seattle Bridge
- South of Cloverdale

C.4 Future No Build (Baseline) and Build Highway Conditions

The future year highway conditions will be the same for both the build and no build assumptions. Table C-1 provides a high-level look at some of the key project assumptions in 2032 and 2042 networks. The project list (Appendix A) includes state, regional, and local projects that are anticipated to be funded within the 2040 timeframe, as well as other projects that are part of PSRC's *Regional Transportation Plan – 2018* (adopted May 31, 2018). Some of the projects are not currently funded but have been reviewed through an environmental process and would not likely influence the travel patterns and operations along the study corridors. The WSDOT Gateway Program is a major infrastructure improvement that is not fully funded but that is included in the network.

The regional 2042 future year full build assumptions for transit include the following:

- Light rail: 5 lines, 116 miles, with 80+ stations (Sound Transit)
- Commuter rail: 2 lines, 89 miles, with 15 stations (Sound Transit)
- Passenger-only ferry: 8 routes (King County Department of Transportation and Kitsap Transit)

- Bus rapid transit: 42 lines (Sound Transit and King County Metro)
- Streetcar: 3 lines (Seattle Department of Transportation)

Table C-1. Build Alternative Regional Network Components

Projects/Programs	Horizon Years 2030 (Construction)	Horizon Years 2040 (Build)	Comments
Roadway			
User fees (PSRC policy)			The financial strategy includes road usage charge system combined with express toll lanes and other pricing mechanisms. *The Regional Transportation Plan - 2018* (PSRC, 2018)
SR 520 – I-5	X	X	Montlake Blvd. to I-5 (2029).
I-405 express toll lanes	X	X	(pending tolling authorization)
Puget Sound Gateway program	X [a]	X [b]	SR 167, SR 509, and I-5.
Local Agencies			
Seattle: South Lander Street	X	X	Grade separation.
Capital Improvement Programs/Transportation Facilities Plans	X	X	Typically, 6-year (or near-term) funding commitments.
Comprehensive/Transportation Plans	X	X	Typically, 15- to 20-year list of funded and unfunded projects. Funded projects included as part of capital improvement plan/transportation facilities plan lists.
Puget Sound Regional Council			
Regional Transportation Plan 2018	X	X	See project list in Appendix A.
Transit			
Sound Transit:			
ST3 Program	X	X	Approved November 2016.

Table C-1. Build Alternative Regional Network Components

Projects/Programs	Horizon Years 2030 (Construction)	Horizon Years 2040 (Build)	Comments
ST2 Program	X	X	Approved November 2008.
King County Metro:			
6-year Service Implementation Plans	X	X	
METRO CONNECTS (2025/2040) [c]	X	X	

[a] Phase 1 of Gateway Program.
[b] Completion of Gateway program.
[c] Metro CONNECTS components to be included in future scenarios will be identified in collaboration with King County Metro

APPENDIX D

Transit Ridership Forecasting Methodology Report

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Transit Ridership Forecasting Methodology Report

SOUND TRANSIT
401 South Jackson Street
Seattle, WA 98104-2826

March 2018

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Acronyms and Abbreviations

AAZ	Alternatives Analysis Zones
ACS	American Community Survey
APC	Automatic Passenger Count
AVL	Automatic Vehicle Locator
CT	Community Transit
CTR	Commute Trip Reduction
DRAM	Disaggregated Residential Model
EIS	Environmental Impact Statement
EMPAL	Employment Allocation Model
FAZ	Forecast Analysis Zone
FTA	Federal Transit Administration
IIA	independence from irrelevant alternatives
JTW	journey-to-work
KCM	King County Metro
PSRC	Puget Sound Regional Council
PT	Pierce Transit
RTA	Regional Transit Authority
RTP	Regional Transit Project
ST	Sound Transit
WSDOT	Washington Department of Transportation

1 Introduction

This report summarizes the methods used in the current Sound Transit (ST) incremental model to produce ridership forecasts in support of the ongoing project planning and development activities. It describes reliance on the new and emerging data that were not previously available. This includes data from the ORCA smart cards,[1] recent surveys, actual point-to-point speeds[2] and detailed ridership counts. The current model benefited profoundly from the new data - particularly, from the ORCA data which:

- Is rich and internally consistent with a statistically acceptable 30% representation of transit travel at origin-to-destination level and by time of day;
- Provides realistic transit trip length distribution as well as transfer rates for each time period; and
- Is a significantly improved alignment of the transit travel patterns (represented by the seed matrix) to the actual counts data that results in a more accurate Base Year transit demand.

The current (2017) version of the ST ridership model was developed using analytical ridership forecasting procedures refined over three decades of incremental methods applications. Over this time period, the methods have been subjected to substantial external review, including three independent Expert Review Panels, and four cycles of review by the Federal Transit Administration (FTA) over the course of New Starts grant applications for Link light rail projects. The fourth review cycle is still ongoing, in support of the proposed New Starts grant for the Federal Way Link Extension.

These reviews have included comments FTA provided with respect to the ST incremental modeling procedures and assumptions described in earlier versions of this report. This report incorporates changes reflecting all of FTA's comments. The following presents a brief history of ST transit ridership forecasting.

1.1 History of transit forecasting at Sound Transit

The history of transit forecasting analysis at ST began at Seattle Metro (now King County Metro) in 1986. Work by Brand and Benham[3] led to Metro's consideration of "a quick-responsive incremental travel demand forecasting method," based on the concept of staged forecasting analysis. In 1986, Metro developed and applied "logit mode-choice equations for pivot-point analysis"[4] (as described by Ben-Akiva and Atherton;[5] Koppelman;[6] Nickesen, Meyburg and Turnquist;[7] and many others) on EMME software. In 1988, Metro staff highlighted the relationship[8] between Metro's transit forecasting methods and the Puget Sound Council of Governments regional model.

The Regional Transit Project, incorporated as Sound Transit in 1993, further developed forecasting analysis procedures using incremental methods in the early 1990s, prior to the November 1996 voter

[1] ORCA smart card is the primary fare medium for all transit operators in the Puget Sound region.
[2] Actual Vehicle Locator (AVL) provides point-to-point actual speed data.
[3] Brand, D., and J.L. Benham, "Elasticity-Based Method for Forecasting Travel on Current Urban Transportation Alternatives," Transportation Research Record No. 895, 1982.
[4] Harvey, R., "Pivot-Point Analysis of Transit Demand Using EMME/2," an Internal Paper, Municipality of Metropolitan Seattle, May 1986.
[5] Ben-Akiva, M., and T. Atherton, "Methodology for Short-Range Travel Demand Predictions," Transportation Economics and Policy, v.7, 1977.
[6] Koppelman, F., "Predicting Transit Ridership in Response to Transit Service Changes," ASCE 109, 1983.
[7] Nickesen A., A. Meyburg, and M. Turnquist, "Ridership Estimation for Short-Range Transit Planning," Transportation Research B, v.17B, 1983.
[8] Harvey, R., "Comparison of Metro and PSCOG Modeling," a Memorandum to File, March 7, 1988.

approval of *Sound Move: The Ten-Year Regional Transit Plan*. An Expert Review Panel—formed in 1990 under the auspices of the Legislative Transportation Committee, the Secretary of Transportation, and the Governor—oversaw development of the first generation of the ST incremental model. This model is described in the November 1993 *Travel Forecasting Methodology Report* published by the Regional Transit Project.

The ST model was updated in the late 1990s in support of the Central Link Light Rail Transit Project Environmental Impact Statement (EIS) and the North Link Light Rail Transit Project Supplementary EIS, including respective Full Funding Grant Agreements with FTA. The underlying ST model procedures used to perform transit ridership forecasting analysis in support of the North Link Light Rail Projects were documented in the *Transit Ridership Forecasting Technical Report,* issued in November 2003 by ST. The ST model was further updated in the mid-2000s in support of the ST2 transit system expansion program and subsequently in 2012 for the EIS phases of the Lynnwood Link Extension and in 2014 for the ST3 system planning work.

The ST model has now been updated again in 2017 in support of the ST3 project planning and development activities and this report describes this latest update. Table 1-1 illustrates more clearly the historical development of the current model, showing refinements in both data sources and structure over the past two decades.

1.2 Report organization

This report contains three chapters and four appendixes. Chapter 1 summarizes the methods used to produce ridership forecasts for ST and discusses important methodological considerations. Chapter 2 describes the individual methods used for each step of the ridership forecasting process. Chapter 3 describes validation of the ST model to 2016 conditions. The current model validation exercise has two purposes: (1) to highlight problems with past forecasting process that might have otherwise been overlooked and (2) to incorporate changes that could improve the forecasting results.

1.3 Sound Transit incremental transit model

The ST incremental model has been updated to a new base year (2016). Development of the base-year transit-trip tables involved a rigorous analysis of actual ridership volumes along each transit route and a realistic simulation of observed transit service characteristics for peak and off-peak periods.

For future year forecasts, external changes in demographics, highway travel time, and costs are distinctly incorporated into the process in stages, prior to estimating the impacts of incremental changes in transit service. In the first stage of ridership forecasting analysis, only changes in Puget Sound Regional Council (PSRC) land use forecasts are considered. In the second stage, other external non-transit changes, such as highway travel time (congestion) and costs (including parking costs) are taken into consideration. For forecasts of external changes, the ST model relies on the version of the PSRC regional model in current use by the Washington State Department of Transportation (WSDOT) on major highway projects. The first two stages of ridership forecasting analysis result in a forecast of future year zone-to-zone transit trips within the Regional Transit Authority (RTA) district boundaries, absent any changes in the transit system itself. For current year analyses, these first two stages are not necessary.

Table 1-1. Sound Transit incremental models history

	Survey based model (1992 to 2004)	Counts based model (2005 to 2011)	Counts based model (2012 to 2016)	Counts based model (2017 to present)
Data Sources	▪ 1992 on-board surveys, collected by bus drivers on all transit lines – Lumpy 36% one-day sample of inbound trips (mostly AM), or about 18% of daily trips – Peak and off-peak line boardings control totals for survey expansion ▪ 1990 U.S. Census Journey-to-Work (JTW) used for base transit shares ▪ No reliable data for transfer rates, checked against 1992 surveys ▪ Sparse on-board survey data used for auto-access shares ▪ After 2000: 1992 survey demand adjusted with about 100 screen-line segment 1999 ridership counts on select locations around the region	▪ 1,700 line-segment ridership counts for each time period for all lines, mostly collected by validated Automatic Passenger Count (APC) systems (2004 average weekday) ▪ 2000 U.S. Census JTW for base transit shares ▪ 2004 ST on-board surveys ▪ PSRC modeled transit trip distribution to open additional non-zero cells ▪ Little reliable data for transfer rates, checked against 1992 and 2004 surveys ▪ Sparse on-board survey data for peak auto-access shares	▪ 1,800 line-segment ridership counts for each time period for most routes, collected by most transit agencies by validated APC systems (2011 average weekday) ▪ Washington Commute Trip Reduction Surveys (CTR) 2007 to 2014 data and American Communities Survey (ACS) 2010 data used for base transit shares ▪ 2009, 2011, and 2012 ST on-board surveys added to base year matrix development ▪ 2007 to 2014 CTR Survey transit trip patterns added to base year matrix development ▪ Transfer rate estimates validated against PSRC Travel Diary Survey (2006) and ST on-board surveys (2004–2012) ▪ Relied on segment counts near park-and-ride lots for peak auto-access shares	▪ 2,400 bus line-segment ridership counts for combined time periods and for all lines, collected by all transit agencies by validated APC systems (2016 average weekday) ▪ Stop-level boarding and alighting ridership counts for each period and for Link, Sounder and high ridership bus routes collected by all transit agencies by validated APC systems (2016 average weekday) ▪ 2016 ORCA smart card database data was primarily used to create peak and off-peak seed matrices. 2011-2016 ST on-board and CTR surveys were incrementally added to open new cells. ▪ 2011-2016 CTR Surveys data and most recent available American Communities Survey (ACS) data used for base transit shares ▪ 2016 ORCA smart card database provided actual transfer rates ▪ Relied on segment counts near park-and-ride lots for peak auto-access shares ▪ Actual Vehicle Locator (AVL) database was used to develop base year (2016 actual transit speed on each link for peak and off-peak

Table 1-1. Sound Transit incremental models history (continued)

	Survey based model (1992 to 2004)	Counts based model (2005 to 2011)	Counts based model (2012 to 2016)	Counts based model (2017 to present)
Structure	▪ 737 zones ▪ FAZ demographics from 2002 PSRC model DRAM/EMPAL + negotiation with locals ▪ Highway skims via blind adoption of PSRC matrices created with erroneous cost coefficient ▪ structural error ▪ Use of eight transit trip classes forced very thin demand matrices (not technically a structural error, but generally a poor practice) – PM time periods: 3-hour peak and ½ day off-peak – Trip purpose: commute and non-commute – Mode of access: walk and auto for peak and off-peak ▪ Transit Trip Tables – Base year demand derived directly from on-board surveys – Non-zero cells only 0.05% to 2% across the eight trip tables – After 2000: single-step Matrix Adjustment on non-zero cells of 0.5% to 3% for eight trip tables ▪ Fares in 2nd stage with auto-mode equation	▪ 780 zones (splits near rail stations) ▪ FAZ demographics from 2006 PSRC model DRAM/EMPAL ▪ Highway skims prepared directly by project team using a current PSRC model – Used a validated model that has been refined in major WSDOT projects – Aligned transit service levels in the PSRC model with those assumed in the ST model – Rigorous convergence criteria ▪ Use of only three transit trip classes allowed very robust demand matrices – Time periods: 6-hour peak and 18-hour off-peak with 24-hour daily counts as control totals – Mode of access: walk and auto for peak-period and walk only for off-peak ▪ Transit Trip Tables – Base year demand derived directly from detailed ridership counts by route segment, time-period, and direction – Single-step Matrix Estimation on non-zero cells of 15% for peak and 17% for off-peak ▪ Fares in 2nd stage with non-transit-mode equation	▪ 785 zones (splits for Ballard study) ▪ FAZ demographics from PSRC 2013 Land Use Targets and 2016 Vision I Forecasts ▪ Highway skims prepared directly by project team using a current PSRC model ▪ Used a recent model version refined and validated for major WSDOT projects ▪ Aligned transit service levels in the PSRC model with those assumed in the ST model ▪ Rigorous convergence criteria ▪ Use of only three transit trip classes allowed very robust demand matrices ▪ Time periods: 6-hour peak and 18-hour off-peak with 24-hour daily counts as control totals ▪ Mode of access: walk and auto for peak-period and walk only for off-peak ▪ Transit Trip Tables ▪ Base year demand derived directly from detailed ridership counts by route segment, time-period, and direction ▪ Five-step Matrix Estimation Fares in 3rd stage with transit-mode equation In transit assignment, used logit function on connectors to improve distribution of zone access.	▪ 807 zones (splits near Capitol Hill, SW Everett, Federal Way, Fife, Issaquah) ▪ FAZ demographics from PSRC 2017 Land Use Vision II Forecast ▪ Highway skims prepared directly by project team using a current PSRC trip-based model – Used a recent model version refined and validated for major WSDOT projects – Aligned transit service levels in the PSRC model with those assumed in the ST model – Rigorous convergence criteria ▪ Use of only three transit trip classes allowed very robust demand matrices – Time periods: 7-hour peak and 17-hour off-peak with 24-hour daily counts as control totals – Mode of access: walk and auto for peak-period and walk only for off-peak ▪ Transit Trip Tables – Base year demand derived directly from detailed ridership counts by route segment, time-period, and direction, plus stop-level boardings and alightings for major routes. – Six-step Matrix Estimation ▪ Fares in 3rd stage with transit-mode equation ▪ In transit assignment, used logit function on all connectors to improve distribution of zone access.

In the third and final stage, incremental changes in the transit level of service (e.g., access, wait, and ride travel times) and user costs (i.e., fares) are considered, resulting in final transit demand estimates for each transit network alternative under consideration.

Like all travel forecasting models, the ST model has some limitations. Because it uses average daily ridership, it is not particularly strong at assessing the effects of weekend special events, such as sporting events or major festivals. Furthermore, the ST model is ill-suited for analyzing structural changes in regional land use beyond those already included in PSRC demographic forecasts or for forecasting in outlying areas of the three-county region where there is minimal existing transit service.

1.4 Important considerations and constraints

This section discusses six important considerations and constraints in travel forecasting methods. Most of these are derived from many years of FTA guidelines on transit project planning that culminated in the current policy guidance.[9] The following considerations reemphasize the use of best professional practice:

- Careful standards for validation
- Consistent application of policy assumptions across alternatives
- Use of identical land use plans and constant overall travel demand patterns across alternatives
- Generic attributes of modes
- Analysis of service levels and travel forecasts for reasonableness
- Maximum possible reliance on detailed data rather than output from other models

1.4.1 Careful standards for validation

Validation is a vital component of any travel forecasting effort. It demonstrates that the forecasting procedures can replicate observed travel patterns in a region to support reliable forecasts of future travel patterns. The ST model primarily relies on the ORCA fare card data and detailed ridership counts to establish current transit travel patterns. In project planning, travel forecasting methods are expected to predict changes in travel patterns that are caused by general changes between the base year and a forecast year and by specific transit service changes introduced by each alternative.

1.4.2 Consistent policy assumptions across alternatives

A large number of inputs to the travel forecasting process are at least partially subject to the policy decisions of local and state agencies. To isolate the differences generated by a specific proposed project (e.g., a fixed guideway rail transit system), all conditions that are not directly attributable to the proposed project must be held constant. It is therefore required that the forecasts hold the policy setting constant across all alternatives evaluated. These policies include:

- Fare level and structure
- Levels of service provided by the background transit system
- Zoning policies
- Parking policies and prices

[9] Final Interim Policy Guidance—FTA Capital Investment Grant Program (June 2016).

This constraint means that forecasts prepared for FTA evaluation and EIS documentation should only contain differences between alternatives that are primarily caused by the transit alternatives themselves. For example, service levels on feeder buses should reflect a general service policy and investment level that is applied consistently across alternatives. Assumptions on all external inputs—land use, regional income, parking costs, and other external variables—should also be held constant.

1.4.3 Constant travel patterns across alternatives

Forecasts of the overall travel demand for which transit competes can involve confounding factors. The FTA guideline that land-use policies be consistently applied removes some sources of variability in population and employment forecasts. In basic forecasts for modes that have differing degrees of grade separation, it eliminates guessing about the extent to which a particular alternative might shift residential and commercial development. Note that the forecasts provided to FTA by ST hold travel patterns constant. Supplementary analyses external to the modeling process are used to address potential development changes related to the various transit investment proposals.

1.4.4 Generic attributes of modes

It is widely acknowledged that perceived differences between transit technologies, independent of travel time and cost, may contribute to choice of mode. These differences are often discussed in terms of comfort, security, reliability, legibility, and other characteristics that are difficult to quantify. Data to support direct inclusion of these variables in the analysis is limited. The ST model uses a conservative assumption and, for the most part, treats transit modes generically. Current FTA guidance on methods indicates that FTA will accept forecasts that account for measurable differences in some of these attributes, such as reliability between modes (e.g., bus and rail).

The ST model includes small quantified mode-specific variations in the perception factors (i.e., weights) for transit line boarding and waiting times (see Table 3-2 in Chapter 3).

1.4.5 Analysis of transit service levels and travel forecasts

The development of forecasts results in the production of a variety of additional types of information beyond ridership volumes. Examples include ridership changes in specific subareas, changes in roadway congestion levels, travel time savings created by new transit investments, and transit's share of various travel markets. All of these needs careful review for quality control purposes, as well as an understanding of what the forecasts reveal about changes between the present and the future and differences among the transit alternatives.

1.4.6 Reliance on data

This model version increases the reliance on detailed data by incorporating newly available data detail. Major new sources of data include ORCA fare card boarding and alighting data, Google highway travel time data, Automatic Vehicle Locator (AVL) data, and additional Automatic Passenger Count (APC) data on passenger activity at major stops. All of these data source additions reduce dependence on inputs from external models.

2 Procedures for Travel Forecasting

This chapter describes the methods and procedures used in the ST transit forecasting model, including the input data required by the ST model and its relationship to the PSRC model.

Section 2.1 describes the methodology used to develop transit forecasts, the data requirements, and the data available. Section 2.2 describes the relationships between the ST and PSRC models. For instance, this section provides an overview of the methodology used by PSRC to produce land use forecasts that are critical to any future year ridership forecasting analysis. The transportation analysis zone system is described in Section 2.3. The mode choice model structure, specification, and coefficients are presented in Section 2.4. Summary descriptions of the process used to develop base-year transit-trip tables are provided in Section 2.5. Possible changes in population and employment, highway congestion, and cost (i.e., the application of the staged build-up forecasting analysis) are discussed in Sections 2.6 and 2.7. A discussion on changes in transit service is included in Section 2.8.

2.1 Methodology

2.1.1 Incremental vs. synthetic methods

There are two different approaches to developing transit forecasts: synthetic methods and incremental methods. Synthetic methods estimate existing transit travel patterns by using separate sequential models to estimate

- An allocation of regional population and employment projections to zones
- The total number of trips to and from these zones
- The origin/destination patterns of these estimated trips
- The travel mode share likely for each estimated origin/destination pattern
- Which specific links and lines in the highway and transit systems are used by these synthesized trips

Incremental methods are simpler and more efficient for transit ridership forecasting and analysis because they

- Are directly based on observed (rather than estimated) baseline travel patterns of transit users
- Allow for concentrating efforts on transit network analysis, for studies whose primary goals are answering questions about alternative transit networks
- Are more conducive to the separate and transparent evaluation of population and employment changes, highway congestion and cost, and transit services through the three stages of the forecasting process
- Focus on direct comparisons related to specific changes rather than on complete simulations of travel behavior
- Are more usable for intermediate evaluation and error identification
- Eliminate the often laborious and time-consuming calibration of sub-choice models, since they do not require replication of base-year travel patterns for these markets.

The FTA guidelines on transit project planning have identified three strong characteristics of the incremental approach that make it attractive for many applications. According to FTA, the incremental method "is well grounded in the reality of baseline travel patterns; it deals only with marginal changes; and it focuses attention on the changes in land-use and transportation that drive the evolution of travel patterns over time."[10]

One limitation that could render incremental methods less desirable in some situations is their weakness in estimating future transit markets in locations where there is no existing transit market from which to build estimates. This is not an issue within the ST RTA district, since both ridership and transit service coverage within the district are highly developed. The use of incremental methods would only have limitations if applied to exurban or rural areas beyond the district boundary.

Incremental methods rely on data collection, not travel demand theory, to describe base-year travel patterns. In recent years, data availability has increased dramatically, with large quantities of revealed preference data no longer requiring expensive surveys or special counts. The ORCA smart card data, coupled with the detailed route-level data by time-of-day from the ridership counts from each transit agency now available, provide complete observed baseline travel patterns within the RTA district.

In the incremental model approach, the coefficients and sensitivities are the same as in the synthetic approach. The incremental methods are mathematically derived from and parallel to the synthetic methods and are applied at the same level of network detail that would be used in a synthetic approach.

2.1.2 Data available for Sound Transit planning

The key sources of data available for ST planning include

- PSRC land use forecasts
- PSRC regional travel model version adopted by WSDOT for major highway projects
- Service levels and detailed route-level counts from transit operators in the three-county area—Sound Transit, King County Metro, Pierce Transit, Community Transit, and Everett Transit
- ORCA smart card database
- Automated Vehicle Locator (AVL) speed data
- Location-to-location highway travel time from the Google Distance Matrix database
- Sound Transit Surveys (2011–2016)
- Commute Trip Reduction surveys (2011–2016)
- Most recent available American Community Surveys
- The National Transit Database (2016)
- State and local agencies

[10] Procedures and Technical Methods for Transit Project Planning, Federal Transit Administration, 2004.

PSRC's land use forecasts are key input to the modeling effort for future years. The ST model uses the most current land use forecasts available from PSRC at the start of a project. The PSRC regional forecasting model, the version used by WSDOT for travel forecasting in support of major capital projects and tolling analysis, provides changes in highway travel times for past and future years. This WSDOT highway model also provides changes in traffic volumes on regional highway facilities for traffic impact analysis, and local jurisdictions provide traffic counts on local arterials for station impact analysis, as required.

The following sections discuss how these various databases were developed and include more detail on how they are being used.

2.2 Relationship to PSRC modeling

2.2.1 Summary comparisons of the PSRC travel demand model and the ST transit ridership model

PSRC maintains a four-step conventional synthetic travel-demand modeling system consisting of trip generation, trip distribution, mode choice, and trip assignment models.[11] Zonal trip ends are estimated using a set of trip rates classified by home-based work, home-based college, home-based shop, home-based other, home-based school, non-home-based work, non-home-based other, and three truck types. Trip distributions are estimated using a traditional "gravity" model. The PSRC mode-choice model structure is a logit-based model comprised of two transit modes, three auto modes, and two non-vehicle modes.

The ST and PSRC modeling procedures are closely inter-related and highly complementary. The ST model uses measures of regional change in travel demand and highway congestion derived from the PSRC model. Summary comparisons and interrelationships of the PSRC and ST modeling procedures are highlighted below:

- The PSRC model is a four-county synthetic modeling system comprising land use, trip generation, trip distribution, modal split, and assignment models. It also includes several feedback loops based on intra-regional accessibility.
- The ST model is a three-county, three-stage, fully incremental system purposely designed for detailed corridor-level transit planning and transit ridership forecasting.
- PSRC's regional population and employment forecasts are used to predict travel demand growth for future years.
- ST uses an incremental mode choice procedure that is consistent with PSRC's multinomial logit mode choice model.
- The current PSRC model version used by WSDOT for travel and toll forecasting in support of major highway projects is adopted for interface with the ST model. This highway model has been recently refined and validated for use on several WSDOT tolling analyses. Figure 2-1 highlights the relationship between the PSRC and ST models.

[11] Puget Sound Regional Council, 4K Travel Model Documentation, June 2015.

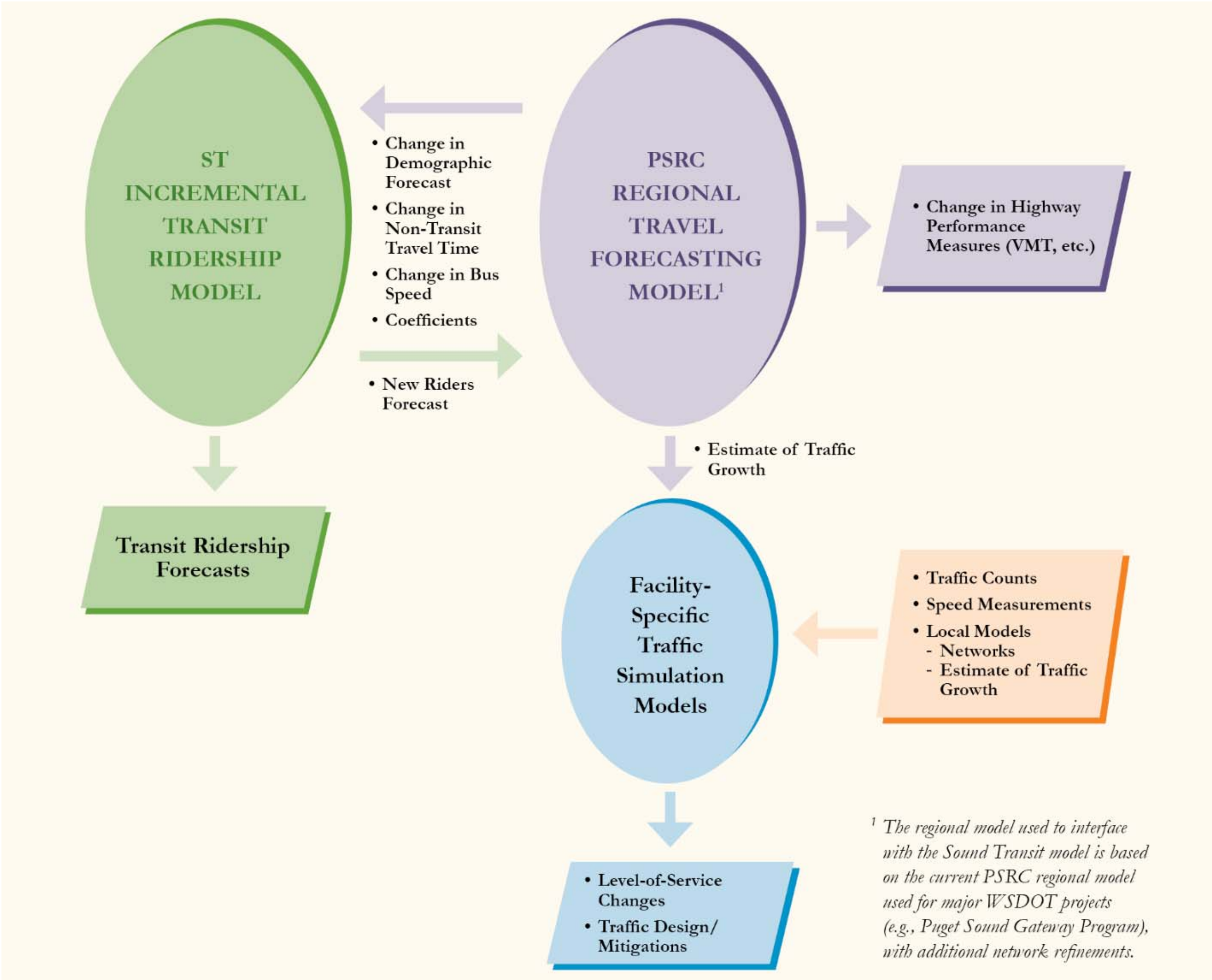

Figure 2-1. ST incremental transit ridership and PSRC regional models relationship

2.2.2 Preparation of demographic forecasts

This section summarizes the procedures used by PSRC to forecast regional population and employment. The current demographic forecasts are referred to as Land Use Vision (LUV). The development of demographic forecasts process is described by PSRC in the *Land Use Vision (LUV) Dataset Metadata Documentation (May 2017)*.

Land Use Vision Development Process

The LUV projects growth for places in the Central Puget Sound region in 5-year increments, 2015–2040. The process includes four general steps (Figure 2-2). The regional totals for population, households, and jobs come from the PSRC Regional Macroeconomic Forecast. PSRC has used numeric policy guidance from the VISION 2040 Regional Growth Strategy and adopted local growth targets to apportion the Regional Forecast to cities and unincorporated areas to create annual control totals. Resulting control totals are then used in the PSRC's land use simulation model, UrbanSim, to distribute projected growth on developable land.

Figure 2-2. Land use vision development process

The UrbanSim model results are reported at different geographies, including at the forecasting analysis zone (FAZ) level for review and consultation feedback by local jurisdictions. These forecasts are also circulated for review by a wide variety of public and private organizations. After the review process is completed, these forecasts and allocations are widely used by the state as well as by local governments, public agencies, and private organizations.

2.3 Development of zone and district systems

The ST travel forecasts are produced for an 807-zone system of Alternatives Analysis Zones (AAZ) developed specifically for the ST model but based directly upon PSRC's current zonal system. Summaries of inputs and forecasts are prepared using 26 summary districts or other levels of aggregation (e.g., by corridor or by county) as needed. Zone and district maps are shown in Appendix A.

2.3.1 Forecast analysis zone and traffic analysis zone systems

PSRC's FAZ structure is the basic land-use zone structure and consists of 219 FAZs that cover all the land area within the four-county region. It is usually at this level of detail that local jurisdictions, through PSRC, agree upon allocations of future population and employment throughout the region.

2.3.2 Alternatives analysis zone system

The AAZ system used to produce the ST travel forecasts is based on the zones maintained by PSRC for regional forecasts of travel demand within the four-county central Puget Sound region. The ST zone system differs from PSRC's system in two aspects.

Most importantly, the ST system does not have the same geographic boundary as the PSRC system. Whereas PSRC includes a four-county region (Snohomish, King, Kitsap, and Pierce Counties), the 1993 state-established RTA excludes the largely rural areas of North and Northeast Snohomish, South and Southeast Pierce, and East King Counties, as well as all of Kitsap County, Vashon Island, and the Gig Harbor peninsula. Areas outside the RTA district are external to the ST model. The 807-zone system includes smaller zones within transit corridors of interest, especially around potential station locations, as well as 17 external zones to represent highway connections outside the RTA boundaries.

Keeping the PSRC and ST zone structures as similar as possible reduces the level of data manipulation required for interface between the two models.

Summary districts were created from the AAZ system in order to

- Provide a consistent basis for aggregation of certain model inputs, when such aggregation is appropriate
- Calculate the modal shares required in the model validation and application phases
- Prepare summary reports on trip tables and travel time skims

These districts were carefully constructed to provide distinctive summary travel patterns by geographical area and corridor.

2.4 Sound Transit mode choice model methodology

2.4.1 Model structure

The ST mode-choice model structure, which is an incremental logit model, uses a pivot approach in the development of forecasts and uses the PSRC regional mode choice coefficients.

Incremental logit model

The incremental approach predicts changes in travel behavior based on existing travel behavior and changes in level of service. The incremental form of the logit model is derived from the standard logit formulation, which is[12]

$$(1) \qquad S_i = \frac{\exp(\mathrm{V_i})}{\mathrm{SUM_j}^{\mathrm{m}}\,[\exp(\mathrm{V_j})]}$$

Where

V_i = utility of mode i in choice set m (j=1,2,3, .., i, ..m)
Contains measurable components of transportation systems such as travel time and cost as well as socio-economic attributes of trip makers.

S_i = share of demand using mode i

[12] Domenich, T., and D. McFadden, "Urban Travel Demand—A Behavioral Analysis," North Holland, Amsterdam, 1975.

Ben-Akiva and Lerman indicate that "using elasticities is one way to predict changes due to modifications in the independent variables. For the linear-parameters multinomial logit model, there is a convenient form known as the incremental logit model which can be used to predict changes in behavior on the basis of the existing choice probabilities of the alternatives plus changes in the independent variables." The incremental form of the logit model is[13]

(2) $$S_i^f = \frac{S_i \text{ x } \exp(\text{DIFF } V_i)}{\text{SUM}_j{}^m\, [S_j \text{ x } \exp(\text{DIFF } V_j)]}$$

where

S_i = base-year observed probability of using mode i from choice set m

S_i^f = new share (i.e., forecast year) of using mode i (interzonal average)

DIFF V_i = change in utility of mode i (interzonal average)

= V_i^f—V_i = (DIFF CONST_i) + B_k x (DIFF $\text{VAR}_{i,k}$)

and

DIFF CONST_i = difference (future vs. base) in mode-specific constant for mode i,

B_k = coefficient for attribute k

DIFF $\text{VAR}_{i,k}$ = difference in numeric variable VAR k of alternative i

f = variable with superscript "f" represents value in forecast year.

All transportation models, including the PSRC synthetic model, assume that the difference between the unmeasured attributes (e.g., comfort and image) between transportation systems in the base year and future years is negligible. As a result, the term representing the difference in mode-specific constants (i.e., DIFF CONST_i) falls out of the computations. The only terms remaining in Equation 2 pertain to those attributes (e.g., travel times and costs) for which a measured change might occur, as well as Equation 3:

(3) DIFF $V_i = B_k$ x DIFF $\text{VAR}_{i,k}$

The mode-specific constants in a synthetic model theoretically represent the effects of unmeasured attributes and often account for over half of the explanatory power in synthetic mode choice models. In practice, these constants are quite large and compensate for all types of errors in synthetic models, even network coding idiosyncrasies. They are used as overall adjustment factors to move the base year model results closer to targeted base year totals. Mode-specific constants are not present in incremental logit equations.

[13] Ben-Akiva, M., and S.R. Lerman, "Discrete Choice Analysis Theory and Application to Travel Demand," The MIT Press, Cambridge, MA, 1985.

Nested logit model

According to the independence from irrelevant alternatives (IIA) assumption, logit models require that all of the modes defined in the choice set m (for travelers) be independent of one another. However, the IIA requirement is usually difficult to maintain in a simultaneous structure. In practice, a sequential (or nested) logit model that is less restrictive than the simultaneous form is often used. The nested logit model groups appropriate submodes under the primary modes (i.e., transit), as shown in Figure 2-3. For peak trips, the transit mode in the ST model, the sub-choice is between access to transit by walking or by automobile. Suggestions from FTA on the appropriateness of nesting can be found in the FTA presentation by Jim Ryan at the January 2004 Transportation Research Board Annual Meeting.[14]

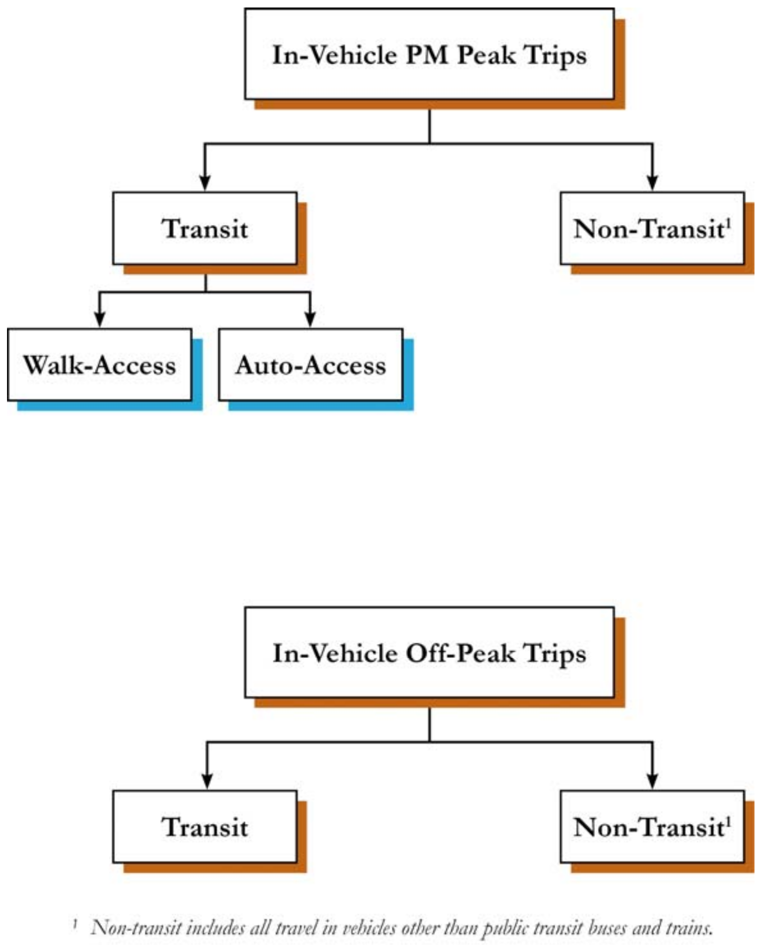

Figure 2-3. Incremental mode choice model structure

[14] Travel Forecasting for New Starts Projects, Transportation Research Board 83rd Annual Meeting, Session 501, January 13, 2004.

The natural logarithm of the denominator of a logit model (Equation 1) is a single "inclusive" index I_m[15] indicating the desirability of the main mode m and taking into account the attributes of access modes. This index is often called "LogSum" and calculated from

(4) $\text{LogSum} = \text{Ln}\ \{\text{SUM}_j^m\ [\exp(V_j)]\}$

where

V_j was defined before for Equation (1)

McFadden[16] has identified the coefficients K for the LogSum variable as indices of similarity among the sub-mode choices comprising the overall price or cost.

For the transit, lower level, the composite disutility of the sub-modes (walk- and auto-access) represents transit to the upper level choice. For transit mode t, the LogSum is

(5) $\text{LogSum}^t = \text{Ln}\ [\exp(V_{walk}) + \exp(V_{auto})]$

where

V_{auto} = utility of the auto-access mode
V_{walk} = utility of the walk-access mode

The structure for PM peak period shown in Figure 2-3 is fully incremental[17] because it uses the incremental logit model at both the lower-level and upper level nests. The incremental form is highly desirable because it relies on observed data that describes current conditions, rather than using models to estimate these current conditions.

Derivation of changes in LogSum variable

In the fully incremental ST mode choice model, the changes in ridership between future and base-year conditions are calculated based on the incremental logit formulation (Equation 2) both at the primary level of hierarchy (i.e., transit vs. non-transit) and at the lower level (i.e., mode of access).

Because the incremental model requires the difference in the values of LogSum variable (i.e., DIFF LogSum^t for the mode of access), the underlying components of this difference need to be spelled out first within the context of standard logit formulation (Equation 1). The derivation process starts by using the definition of difference in the LogSum values and ends up with a simple formula consisting of the logarithmic summation of the exponential difference in the utility of each mode (i.e., future minus base year), weighted by the respective base year observed share. The mathematical derivation is presented below.

[15] McFadden,E., A. Talvities and Associates, "Demand Model Estimation and Validation, Urban Travel Demand Forecasting Project (UTDFP) Final Report," Vol. V, University of California, Berkeley, CA, 1977.
[16] McFadden,E., A. Talvities and Associates, "Demand Model Estimation and Validation, Urban Travel Demand Forecasting Project (UTDFP) Final Report," Vol. V, University of California, Berkeley, CA, 1977.
[17] Dehghani, Y., and R. Harvey, "A Fully Incremental Model for Transit Forecasting: Seattle Experience," Transportation Research Board, Record #1452, 1994.

Incremental change in $LogSum^t$ of Equation 5 can be represented by

(6) $\text{DIFF LogSum}^t = \text{Ln}[\exp(V^f_{walk}) + \exp(V^f_{auto})] - \text{Ln}[\exp(V^b_{walk}) + \exp(V^b_{auto})]$

Incremental change in LogSum for mode m (i.e., transit or auto), representing the upper-level of the nested logit structure, can be written as

(7) $\text{DIFF LogSum}^m = \text{Ln}\ \{\text{Sum}^n_i[\exp(V_i + \text{DIFF } V_i)]\} — \text{Ln}\ \{\text{Sum}^n_i\ [\exp(V_i)]\}$

or

$$= \text{Ln}\ \left[\frac{\text{Sum}^n_i\ [\exp(V_i + \text{DIFF } V_i)]}{\text{Sum}^n_i\ [\exp(V_i)]}\right]$$

$$= \text{Ln}\ \left[\frac{\text{Sum}^n_i\ [\exp(V_i) \times \exp(\text{DIFF } V_i)]}{\text{Sum}^n_i\ [\exp(V_i)]}\right]$$

$$= \text{Ln}\ [\text{Sum}^n_i\ (S_i \times \exp(\text{DIFF } V_i))]$$

where

DIFF LogSum^t	=	difference in LogSum term for transit mode t (future–base year)
V^f_{walk}, V^f_{auto}	=	the utility of walk and auto access modes in future
V^b_{walk}, V^b_{auto}	=	the utility of walk and auto access modes in the base year
DIFF LogSum^m	=	difference in LogSum term for mode m (e.g., auto or transit) in the upper level of the nested structure (future–base year)
V_i	=	the utility of submode i (e.g., walk or drive access attributes) under nest n (e.g., transit)
S_i	=	base-year observed share of using submode (e.g., walk or drive access) under nest n
$\text{DIFF } V_i$	=	difference in the utility (e.g., travel time) of submode i under nest n (future–base year).

The coefficients of variables (e.g., travel time) included in the utility of a sub-mode i are equal to comparable mode-choice coefficients from the upper-level nest for the same variables (e.g., travel time), scaled by the corresponding LogSum coefficient (K^i).

Values for DIFF LogSum variables resulting from Equation 7 are used in the incremental logit formulation (Equation 2) to estimate new interzonal modal shares. Nesting coefficients vary between 0.0 and 1.0 and measure the degree of similarity and dissimilarity of a group of sub-modes from other modes in the upper-level nest. For example, a nesting coefficient (K) of 1.0 on the transit nest of Figure 2-3 would indicate that auto- and walk-access sub-modes are dissimilar (independent) from each other, implying that they should have been structured simultaneously instead of within a nested form. In the absence of any information to inform the selection of a nesting coefficient, an assumption of 0.50 is neutral. This nesting coefficient of 0.50 is used for the PM peak mode-of-access nest in the ST model.

2.4.2 Model specification and coefficients

As indicated in the previous section, since the mode-choice model structure is fully incremental, the mode-specific constants fall out of the computations. Therefore, it is not necessary to estimate values for modal constants. The model includes

- Travel time and cost variables in the utilities of the transit sub-modes, walk and drive access (e.g., in-vehicle, out-of-vehicle times, transit fares)
- Travel time and cost variables in the utility of non-transit mode representing all travel in vehicles other than public transit buses and trains.

The travel time and cost coefficients used in the ST model include the following:

- -0.025 for in-vehicle travel time (which falls within the FTA's recommended range of -0.02 to -0.03 and is also used in the PSRC mode choice model) with a relative ratio of 1.5 for out-of-vehicle over in-vehicle transit travel times, as derived from the base year (2016) model validation analysis.
- -0.00075 for travel cost (in 2016 dollars).

These coefficients imply a value of in-vehicle time of $20 (in 2016 dollars), which is about two-thirds of average hourly wage rate for the Puget Sound Region. This value of travel time is also compatible with values used over the last decade for tolling analysis on major WSDOT projects such as SR 520,[18] SR 99, and Puget Sound Gateway.

2.4.3 Base year mode shares

Equation 2 illustrates the need for a reasonable estimate of S_i (the existing shares for transit relative to alternative modes), including existing mode-of-access shares. Development of these base shares, used in the ST incremental model, is described below.

Transit shares

For the 2017 ST model version, a combination of data from the Washington Commute Trip Reduction (CTR) Act surveys and the American Communities Survey (ACS) is used to establish base year transit shares.

The State of Washington passed the CTR Law in 1991 to encourage commuters to consider transportation alternatives to driving alone. Under this law, employers with 100 or more employees are required to conduct a survey once every two years to record the commute options used by their employees. The ACS is conducted on an on-going basis in order to provide up-to-date information for planning. Further information about the CTR surveys and the ACS is provided in Appendix B.

The CTR (2011-2016) surveys provide transit shares at the zonal level with some limitations. These limitations include an over-representation of transit users, related to employer size because the sample excludes small employers.

The ACS data also has some limitations as it represents a sample of residences—only about 1 in 40 households annually. The Census Bureau produces three ACS data series: *one-year, three-year, and*

[18] SR 520 Bridge Investment Grade—Traffic and Revenue Study Report, August 29, 2011.

five-year estimates. Five-year estimates of ACS home-to-work flow by mode are currently available at the County or Census Place geographies. To address the ACS data limitations, transit shares were aggregated at the 6-district level for maintaining statistical confidence in the share values.

A 6-district level summary comparison of transit shares in the ST service area indicated that

- As expected, CTR transit shares are higher than those obtained from the ACS
- Most recent available ACS shares are slightly higher than those obtained from the 2000 U.S. JTW data

Based on the findings from the above analysis, it is reasonable to adjust CTR transit shares relative to ACS shares in the following manner in order to retain the CTR geographic detail:

- Aggregate CTR 2011-2016 surveys to the 26 districts at the work ends and 26 districts at the home end and calculate transit shares accordingly. Calculating the shares at this level (i.e., 26-district to 26-district) preserves the variation in current mode-choice behavior for PM peak and, therefore, the elasticities in the incremental logit model.

Adjust 26-district-to-district base transit shares based on using the 6-district-to-6-district transit shares calculated from the most recent ACS five-year estimates as follows:

- Since the aggregated CTR shares are higher than the ACS shares at the 6-by-6-district level, reduce the CTR shares proportionately using the ratio of the ACS share to the aggregated CTR share.

For calculating off-peak base shares, a procedure similar to the one described above was used with the following exceptions:

- Aggregate CTR surveys at 26-district-to-26-district level and calculate shares accordingly
- Adjust CTR shares based on using 6-district level ACS shares similar to the method for peak shares.
- Balance the resulting 26-district-to-26-district share matrix by adding its transpose and dividing by 2
- Apply a factor of 0.5 to reflect the difference in base off-peak transit share relative to peak—this factor was calculated based on recent ST 2011 through 2016 small-sample transit on-board survey data.

Access shares

The 2017 ST model version relies on a matrix estimation process for the development of base-year trip tables that is based on using a seed matrix with a high number of non-zero cells. The process includes posting of ridership counts on appropriate segments and stops to capture existing demand at each park-and-ride facility. These considerations, together with the fact that existing park-and-ride facilities are adequately represented throughout the region provide a good database from which to calculate access shares. Steps used to estimate access shares are summarized below:

- Perform a select segment analysis on segments representing potential PM peak demand to park-and-ride facilities
- Aggregate the resulting demand matrix for PM peak auto-access trips and the total PM peak transit trip table at 26 districts (work ends) and 165 FAZs (home ends)

- Divide the aggregated trip tables to provide existing auto-access shares at a 26-district-to-165-FAZ aggregation level.

2.4.4 Discussion of staged build-up analysis application

For future year forecasts, the ST incremental ridership forecasting modeling procedures are applied in three distinct stages as highlighted in Figure 2-4. This application method explicitly recognizes a build-up approach to the ridership forecasts and encourages the analysis of intermediate results in the process as well as the checking of intermediate results for reasonableness. Specific contributions to changes in ridership at each stage are calculated and analyzed separately as they build on each other. The three stages are:

- Overall growth in travel related to population and employment growth
- Changes in ridership related to changes in highway congestion and costs
- Changes in ridership related to transit service changes, including transit fare changes, if any

By applying forecasting analysis in stages, the method also ensures that only those changes that are important to the study transit alternatives will be considered. For example, it is common in ridership forecasting (and preferred by the FTA) that only the changes in transit service be considered in the future year comparisons of transit ridership. Therefore, all demographics, such as land use, trip distributions, and gas and parking prices, are effectively held constant when comparing ridership on transit alternatives.

FTA now considers transit benefits measures related to economic development effects and to land use entirely separately from the ridership estimating process. Furthermore, by requiring current year ridership estimates, with future years optional, FTA is de-emphasizing future year forecasts in favor of simple network-based comparisons. As the FTA Policy Guidance points out, "Use of current year data increases the reliability of the projected future performance of the proposed project by avoiding reliance on future population, employment, and transit service levels that are themselves forecasts."[19]

Staging the forecasts in an incremental model explicitly isolates sources of error, makes consistencies in the non-transit assumptions transparent, and reduces superfluous calculations. When only variations in the transit service are under consideration, Stage 3 of the incremental model is the only step needed to evaluate each proposed variation in transit service. This method does not preclude varying inputs other than the transit service (i.e., for sensitivity testing) but allows such variation to be addressed simply and specifically, rather than as a hidden piece of a very large and complex model.

2.5 Base-trip table development

The essential basis for incremental mode choice modeling analysis is the reliance on actual transit travel patterns. Capturing existing travel patterns is achieved in the ST model by using available, pertinent data that provide a complementary balance between origin-destination (O-D) data and detailed route-level transit ridership information by direction and time-of-day for the base year. Chapter 3 includes a detailed discussion of the process used to develop base year (2016) peak and off-peak transit-trip tables.

[19] Final Interim Policy Guidance—FTA Capital Investment Grant Program (June 2016).

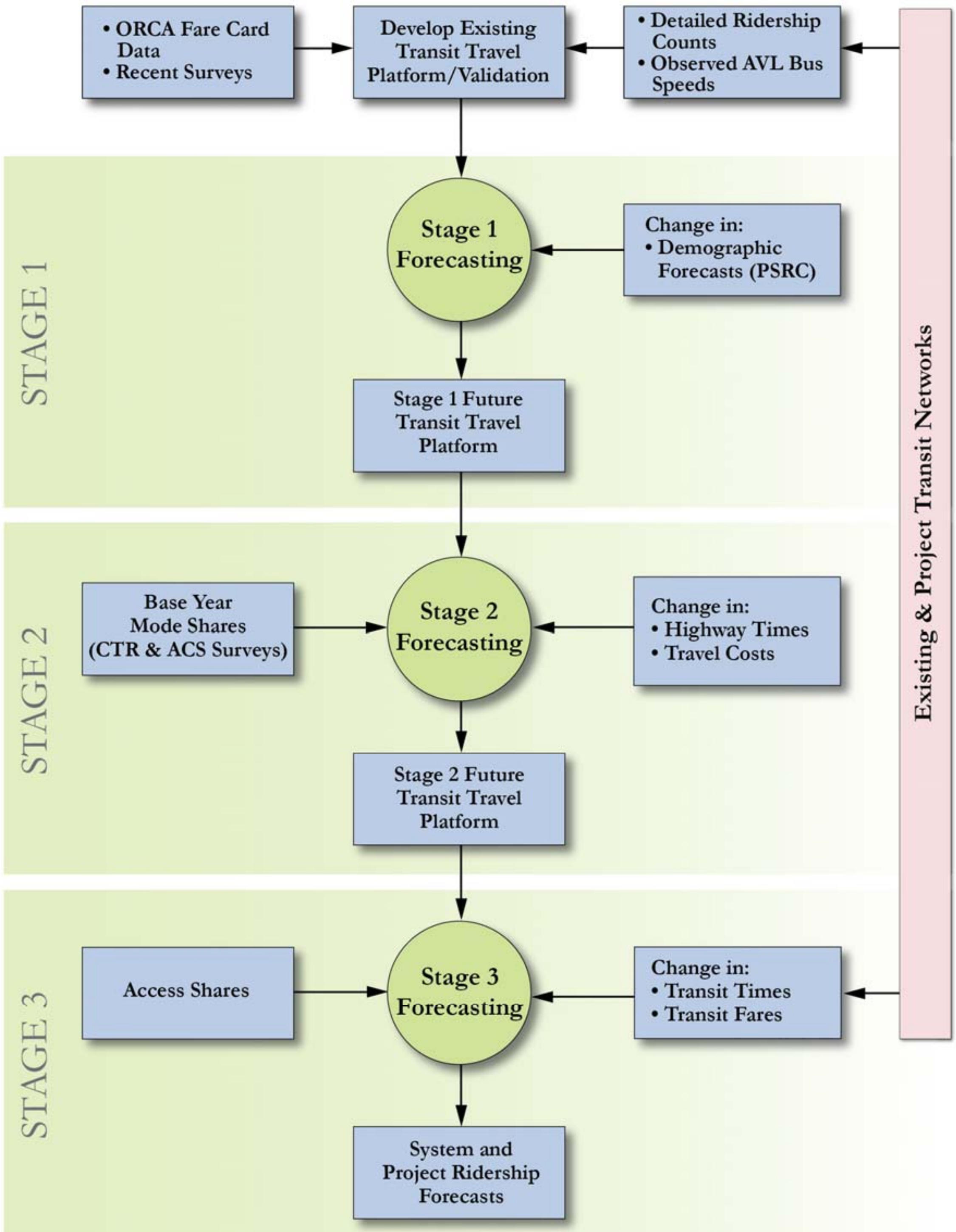

Figure 2-4. Staged ridership forecasting process

FTA now considers transit benefits measures related to economic development effects and to land use entirely separately from the ridership estimating process. Furthermore, by requiring current year ridership estimates, with future years optional, FTA is de-emphasizing future year forecasts in favor of simple network-based comparisons. As the FTA Policy Guidance points out, “Use of current year data increases the reliability of the projected future performance of the proposed project by avoiding reliance on future population, employment, and transit service levels that are themselves forecasts.”[20]

Staging the forecasts in an incremental model explicitly isolates sources of error, makes consistencies in the non-transit assumptions transparent, and reduces superfluous calculations. When only variations in the transit service are under consideration, Stage 3 of the incremental model is the only step needed to evaluate each proposed variation in transit service. This method does not preclude varying inputs other than the transit service (i.e., for sensitivity testing) but allows such variation to be addressed simply and specifically, rather than as a hidden piece of a very large and complex model.

2.6 Stage 1—Changes in demographics

2.6.1 Formulation of Stage 1 forecasting analysis

The ST ridership forecasting analysis depends on PSRC model databases for the overall growth in travel demand when performing future year forecasts. Growth estimates could either be derived from PSRC model trip distribution results or directly based on forecasts of demographics. Travel growth factors for the ST model are derived from published PSRC forecasts of households and employment growth.

Growth in total households and employment between 2016 and a future year is calculated at a FAZ level and applied to the base year (2016) transit-trip tables using a two-dimensional matrix balancing method (i.e., similar to a Fratar calculation). The results of the Stage 1 analysis are the estimated transit trips for a future year. The secondary impacts of growth on transit demand (e.g., increased highway congestion or costs) are not yet accounted for at the end of Stage 1.

A combination of households and employment is used in establishing the zonal growth factors applied at the origin and destination end of the base year (2016) trip tables.

- For the PM peak period, a combination of 20 percent households and 80 percent of employment is used to calculate the growth in PM peak transit origins and the reverse is used to calculate growth in PM peak transit destinations.
- For the off-peak period, a combination of 50 percent households and 50 percent employment is used to calculate growth for both origins and destinations.
- These factors are derived from ST on-board surveys conducted over the years 2011 through 2016.

[20] Final Interim Policy Guidance—FTA Capital Investment Grant Program (June 2016).

Because of earlier concerns about a supposed tendency of two-dimensional balancing to artificially increase trip lengths, an examination is performed to determine any alteration in average trip length for every application of the Stage 1 process. As highlighted in Figure 2-5, the balancing method has only slightly changed the underlying average trip length frequency distribution exhibited in the base year (2016) transit trip table. In fact, the average trip length and the standard deviation of the trip lengths increase slightly upon application of the two-dimensional balancing. While this check on trip lengths is performed for each new application of the Stage 1 balancing, the results of the checks have consistently shown the process to be neutral for trip lengths.

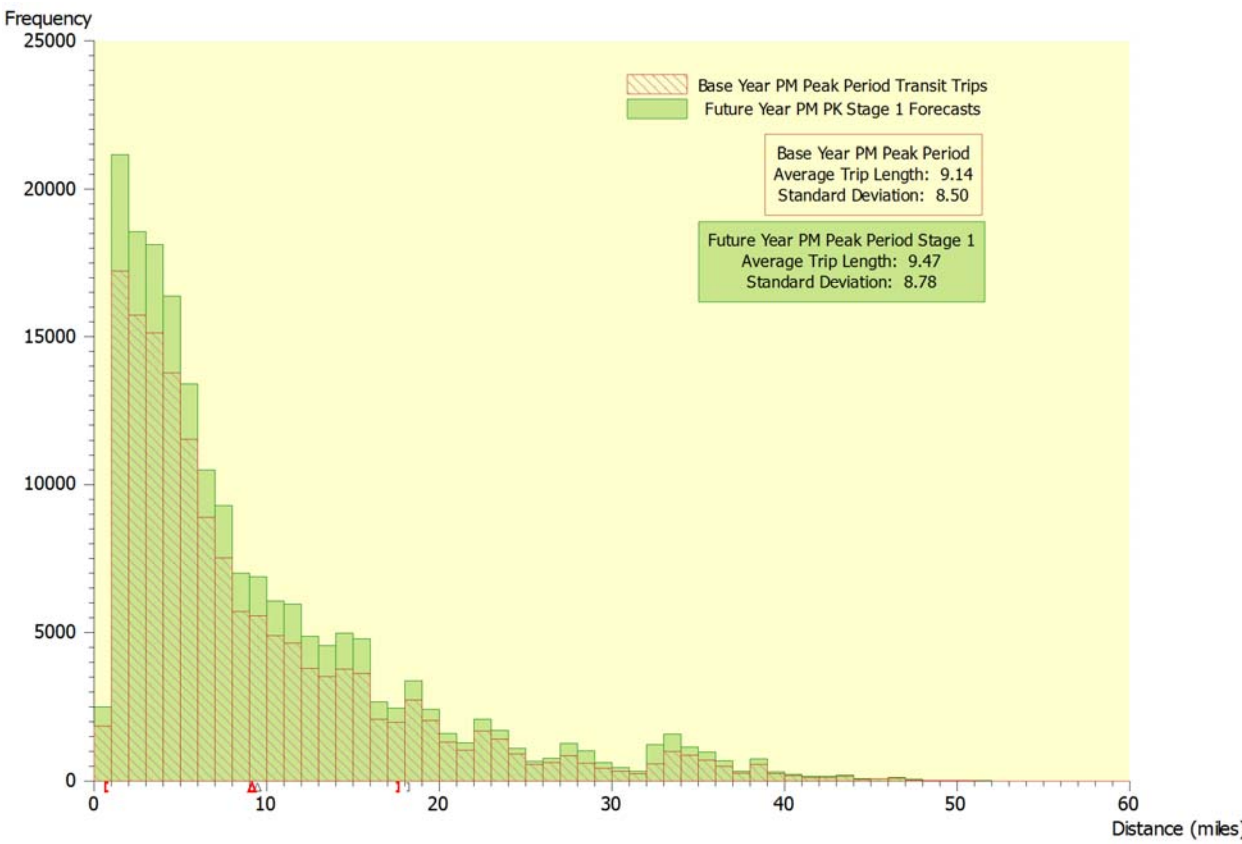

Figure 2-5. Average trip length frequency distribution comparison

2.7 Stage 2—Changes in highway congestion and cost

2.7.1 Formulation of Stage 2 forecasting analysis

Stage 2 considers how changes in highway congestion and auto costs (including parking, operating, and insurance) will influence mode choice.

The ST ridership forecasts use the PSRC model version, as adopted by WSDOT for travel forecasting in support of major highway projects, to estimate highway travel times. This highway model has been refined and validated in recent years for use on the SR 99 Alaskan Way Viaduct & Seawall Replacement project, the I-90 tolling analysis, Puget Sound Gateway project, the Lynnwood Link and Federal Way Link Extensions (see Appendix C). Base year (2016) zone-to-zone highway travel times are obtained directly from Google travel time data (see Appendix B). Rate of change in highway travel times is obtained using the PSRC model and applied to actual base year highway travel times to establish future year zone-to-zone highway travel times. This incremental process is executed on the FAZ-to-FAZ highway travel times.

When a transit alternative significantly affects the highway system (e.g., taking freeway lanes for transit facilities), additional analysis of future highway networks and congestion using the PSRC highway model is required. Likewise, when a Build alternative has significantly higher ridership in a corridor than the No Build alternative, an additional highway model application may be necessary to account for slightly higher highway volumes in a No Build alternative.

In the Puget Sound region, transit fares and auto costs (except parking costs) are usually assumed to increase only at the rate of overall inflation; therefore, they are usually immaterial to the ST model. The ST model, however, includes these variables for use in sensitivity tests that are not directly part of project planning ridership forecasts.

Stage 2 transit trip forecasts are calculated using the following incremental logit equation:

(8) $$\mathrm{Stg2Trn} = \frac{\mathrm{Stg1Trn}}{\mathrm{S_t} + (1 - \mathrm{S_t})\mathrm{X}[\exp(\mathrm{K} \times \mathrm{DIFF\ LogSum_h})]}$$

where

Stg2Trn	=	Stage 2 transit trip forecasts
Stg1Trn	=	Stage 1 transit trip forecasts
S_t	=	the base year observed transit shares
K	=	nesting coefficient on the auto nest
DIFF $\mathrm{LogSum_h}$	=	Difference in the LogSum values due to changes in highway congestion and auto costs (future vs. base year). Data from the ACS and CTR surveys (for the baseline share), highway skims, and auto costs are used in Equation 8 to estimate the DIFF $\mathrm{LogSum_h}$ on the auto side.

Stage 2 transit-share forecasts (Stg2Shr) are also calculated as follows:

(9) $$\mathrm{Stg2Shr} = \frac{\mathrm{Stg2Trn} \times \mathrm{S_t}}{\mathrm{Stg1Trn}}$$

Resulting from the Stage 2 forecasting analysis are the transit trips for a future year, having accounted for factors external to the transit service itself. These results then serve as a platform for analysis of ridership on alternative transit networks. Note that bus speed degradations are used in the Stage 3 forecasting analysis. They are, however, based on changes in the level of highway congestion estimated using the Stage 2 PSRC model runs.

Note also that the final distance skim matrices from Stage 2 are saved for subsequent calculation of vehicle-miles traveled when estimating the environmental effects of various transit alternatives. This simple multiplication of a vehicle miles' matrix by a New Riders matrix is now incorporated in the FTA's Final Policy Guidance for estimating the environmental effects for New and Small Starts evaluations.[21]

In most project planning ridership forecasting, Stages 1 and 2 need not be calculated as often as Stage 3. It is only when a transit alternative is presumed to have a strong effect on external factors, such as the regional highway network, that the entire process would have to be cycled through. However, for the New Starts project rating purposes, FTA discourages forecasts that are based on different externalities for different alternatives.[22]

2.7.2 Estimation of parking costs

For the purpose of representing daily and hourly parking costs more accurately, a survey of parking costs scattered around the parts of the region that have paid parking was conducted in 2017. Based on the findings from this survey, base year daily parking costs were updated. This update compared target daily values with observed hourly parking rates, showing that the ratio of hourly-to-daily parking averaged around 25 to 30 percent, with a range from 10 percent in South Lake Union to 42 percent in downtown Seattle and around Seattle Center.

According to the limited historic information available, real parking costs have averaged an annual growth of approximately 1.5 percent since 1960. This is primarily attributable to changes in employment density, which has averaged similar growth over the last five decades. Forecast increases in employment density at the FAZ-level are used to estimate future year changes in real parking costs. This results in parking cost increases around the region varying between 0.5 and 2.0 percent per year between 2016 and 2040. The average for all zones for which there are parking cost increases is around 1.0 percent annually, with the weighted average being considerably lower.

2.7.3 Estimation of other costs and median income

Because auto operating costs in the Puget Sound region are usually assumed to increase only at the rate of overall inflation, they are less significant to ST models. Base-year (2016) and future auto operating costs are estimated at about $0.19 per mile (in 2016 dollars). Auto operating costs also include any relevant tolls or driving fees. The ST model assumes a conservative 0.5-percent annual (real) growth in income.

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[21] Final Interim Policy Guidance—FTA Capital Investment Grant Program (June 2016).

[22] Final Interim Policy Guidance—FTA Capital Investment Grant Program (June 2016).

2.8 Stage 3—Changes in transit service

2.8.1 Formulation of Stage 3 forecasting analysis

In the third and final stage of the forecasting analysis, the incremental changes in the transit level of service, including transit fares, are considered. This change (as indicated in Section 2.4.1) is reflected in the resulting relative values of the LogSum_t variable using the base-year and future transit networks.

The Stage 3 transit shares and ridership forecasts are calculated as follows:

$$\text{(10)} \qquad \text{P}'\text{ac} = \frac{\text{P}_{\text{ac}} \times \text{LOS}_{\text{ac}}}{\text{P}_{\text{ac}} \times \text{LOS}_{\text{ac}} + (1 - \text{P}_{\text{ac}}) \times \text{LOS}_{\text{wlk}}}$$

and

$$\text{(11)} \qquad \text{Stg3Trn} = \frac{\text{Stg2Trn} \times [\exp(\text{K} \times \text{DIFF LogSum}_t)]}{\text{Stg2Shr} \times [\exp(\text{K} \times \text{DIFF LogSum}_t)] + [1 - \text{Stg2Shr}]}$$

where

LOS_{ac}	=	Difference in (future vs. base year) utility of the park-and-ride access submode
LOS_{wlk}	=	Difference in (future vs. base year) utility of the walk-access submode
ac	=	Forecasted Stage 3 shares for the auto-access mode
P_{ac}	=	Base-year observed shares for the auto-access mode, derived from the base year trip table development process reflecting actual counts on park-and-ride facilities.
K	=	Nesting coefficient
DIFF LogSum_t	=	Difference in the LogSum values due to changes in transit level-of service (future vs. base year)

Transit service that is taken into consideration in the ST model Stage 3 forecasting analysis is represented by means of a coded network. Details on transit network preparation are included in Appendix D. Treatment of bus speeds in the ST model includes the degradation of bus speeds due to roadway congestion, estimated by the PSRC model in a manner developed in consultation with the FTA.[23] Bus speed degradation is considered in Stage 3 forecasting analysis and held constant among alternatives. It is applied only to bus run time in mixed traffic (excluding high-occupancy vehicle lanes) and not to dwell and lay-over time components.

2.8.2 Transit fares

Any changes in transit fares are considered in Stage 3 of the ST model, along with changes in transit service. However, fares are always held constant among alternatives. Transit fare matrices were developed for the ST model and were assumed to be:

- The zone-to-zone averages in effect in 2016 (for the base year)
- The zone-to-zone averages in effect at the start of a project (for all future years)

[23] Billen, D., Sound Transit, "Updated Treatment of Bus Speeds in the Sound Transit Model," Memorandum to Eric Pihl of FTA, dated August 1, 2002. A copy of this memorandum is included in Appendix D.

- Independent of transit path choices

Independence from path choice is a reasonable approach to fares with the RTA District. The path-independent approach to transit fares also aligns with FTA's guidance to keep any fare-related utility differences between alternatives to a minimum. Upon the introduction of the ORCA smart card as the primary fare medium for all transit operators in the District, zonal fares are more appropriate than path-based fares. For most trips within the District, the fare implications of path choice and transfers have become less critical for forecasting. This is due to the very high market penetration of the regional employer pass programs, to the wide use of ORCA smart cards and to the refined agreements among the transit operators for assigning cash value to trips involving more than one transit vehicle or more than one transit agency.

3 Base Year Transit Trip Table Development and Validation

Before a model can be used for transit travel analysis, it must be validated. The process of validation involves comparing the performance of the model to the most recent observed data sources available to confirm that the model is accurately replicating current transit travel patterns.

An incremental approach, which is used in the ST model, generally reduces the need for validation because it relies not on travel behavior theory, but on current data. However, it is still useful to check the overall performance of the model against current known conditions.

This model version represents a departure from previous versions, primarily because of a significant increase in the amount of data available in the Puget Sound Region for describing current transit travel. The most significant of these is the availability of ORCA fare card transaction data, which removes the need for an ad hoc assembly of disparate seed matrix sources.

The availability of detailed and accurate system-wide peak and off-peak transit speed data from AVL systems enables a complete revision to previous methods for posting transit speeds. Of further significance, has been the increased detail and improved sample rates for the APC data, including stop-to-stop volumes and boarding and alighting details by stop.

This chapter is organized into three sections. Section 3.1 describes the data preparation, including network data, ridership count data, and seed matrix data. Section 3.2 describes the base year matrix estimation process. Section 3.3 describes the base year (2016) validation results and the final transit demand matrices.

3.1 Data preparation

3.1.1 Transit network

To facilitate translation of speeds and other geographic data to and from the model networks, all model networks are now converted to the XY coordinate base used in most local GIS and transportation applications (i.e., *Washington State Plane North* coordinates). Documentation of this shift of the coordinate system is provided in Appendix D.

Transit operating speeds are no longer estimated from posted schedules and spot data from terminus-to-terminus reliability reports, but directly from AVL systems managed by the transit operators. Thus, average speeds for every stop-to-stop segment within the RTA district boundaries are posted from the measured average speeds directly to the ST Model transit network. Documentation of this direct translation of operating data to model speeds is also provided in Appendix D.

Regional transit agencies currently implement two service changes each year, in late September and late March.

- This model version is constructed on a transit network base covering the winter 2016-2017 service levels (late September 2016 to late March 2017). We refer to this network as the 2016 Base Year network even though it spans six months over portions of two calendar years.

- The Base Year transit network thus includes the two recently opened Link light rail extensions—north to the University of Washington in March 2016 and south to Angle Lake in September 2016.
- The Base Year transit network also includes associated King County Metro (KCM) bus service changes implemented in response to those Link extensions.
- The Base Year transit network reflects all bus service as operated by all operators throughout the ST District for this winter 2016-2017 Base Year service period.
- Bus and rail headways are still obtained from agency posted schedules.
- Headway management data is now available stop-by-stop only for rail lines but are not available for bus lines. Such data may be useful in the future for adjusting model headways to data-driven perceived headways.
- All fixed-route fixed-schedule public transit services within the ST District are included, except for lines with fewer than six scheduled trips per weekday.
- Demand-response services, dial-a-ride services, employer provided services, and ferry services are omitted from the transit network.

3.1.2 Passenger counts data

Current passenger counting techniques have improved greatly, both in their accuracy and their level of available detail. This may be especially true here in the Puget Sound Region, although the technologies used are now widely available. The sampling rate for counts in this region is now over 25 percent on local bus lines, 30 percent on Link light rail, 50 percent on bus rapid transit lines, and 100 percent on commuter rail lines. Likewise, the detail available includes all stops, all segments, and all times of day by direction and vehicle trip.

The resulting data, averaged over a half year or over a quarter, should be considered perfectly reliable as a precise snapshot of current transit travel. Use of this level of existing detail resolves a significant portion of potential Base Year error. Detailed ridership counts were obtained from all transit operators within the RTA district boundaries. For the winter 2016-2017 service period described above, these operators are

- King County Metro
- Pierce Transit
- Community Transit
- Everett Transit
- Sound Transit

All the above operators supply complete ridership data from on-board APC systems. This data includes boardings and alightings by stop or station, by line, by direction, by trip, and by time of day. For use in the ST Model, the counts data is consolidated into segment volumes by line and by direction for peak and daily volumes and peak and daily boardings and alightings by stop or station. Off-peak counts are calculated from daily counts so that the daily counts remain control totals for all APC data. The consolidated counts data is processed directly into various stages of the matrix estimation process as described in Section 3.2.

- The PM peak period is defined as 3:00 p.m. to 6:30 p.m. for the partitioning and consolidation of the counts. This time-period allows specification of the peak-only services and peak-specific train and bus frequencies.
- For the ST model, an AM peak period is not defined or used directly in the model.
- Daily counts are consolidated into 24-hour totals for an average weekday within the six-month period described above.
- The daily counts always represent control totals for the boarding, alighting, and segment volume counts.
- Off-peak counts for use in the off-peak matrix estimation process are calculated as daily counts minus the PM peak counts minus the inverse of the PM counts, then balanced by direction.
- Detailed boarding and alighting counts by stop or station, line, direction, and time-period are retained for use in Matrix Estimation Quality Control (QC) exercises.
- QC methods include both machine error trapping and direct inspection of results on the model network.
- Further QC efforts are undertaken during the matrix estimation process as issues and inconsistencies arise in transit demand assignments produced over many iterations of matrix estimation.

The number of counts posted and the precise locations of the postings changes somewhat during the iterative matrix estimation process in response to issues arising in the QC process. Therefore, the number and types of posted counts are described in Section 3.2.

3.1.3 Data for seed matrices

Because of the difficulties inherent in attempting to accurately estimate or synthesize the shape of travel demand O-D matrices, the ST Model now uses primarily ORCA fare card data to construct the shape of the Base Year transit trip tables. This source substantially replaces the sparse and outdated rider O-D data from on-board surveys used in previous model versions.

- The widespread use of regional fare cards provides a very large sample of transit travel patterns (over 60 percent regionally and over 75 percent on ST rail and bus services). Not all of this ORCA data is directly usable for the seed matrices for a variety of reasons related to fare collection anomalies. However, the usable data sample remained very large, about 50 percent.
- Additional transit rider data from recent Washington CTR peak commute surveys and recent ST on-board rider surveys are also used, to the extent that they open new cells in the seed matrices.

The ORCA data has some specific advantages compared to sources of O-D patterns used in previous model versions. These include

- The data contains all types of transit trips, regardless of trip purpose, and is not skewed toward commute trips or long trips.
- The trip sample is so large that the potential response bias is minimal, compared to the sparse surveys used by ST over many years.
- The data is very detailed regarding time-of-day.
- The data is the first reliable large-sample information on transfer rates and transfer locations, now using a consistent regional definition of transfers.
- Because of its detailed information on transfer behavior, ORCA data provide data-driven rather than model-estimated totals of observed linked-trips for peak, off-peak, and daily transit travel, now using a consistent definition of what constitutes a linked-trip.

Data analysis and trip table preparation is a cooperative effort between ST and the Washington State Transportation Center (TRAC) at the University of Washington. Details of the ORCA data processing and geocoding to the ST Model 807-zone system are provided in Appendix B.

Some relevant basic information on the ORCA data details presented in Appendix B would include

- ORCA data is obtained for all transit operators on all lines operating within the ST District.
- The data chosen covers weekdays over a 9-week period from March 26, 2016, through May 28, 2016, after the University Link extension opened but prior to the Angle Lake station opening.
- Trips included in the resulting seed matrices account for 20.4 million weekday boardings, of which 4.9 million boardings involve transfers. This translates into an average weekday transfer rate of 1.32.
- The ORCA data comprises 97 percent of all trips in the two resulting (PM peak and off-peak) seed matrices and accounts for 90 percent of the O-D open cells. Total open cells amount to 29 percent of the available cells in the two 807-by-807 seed matrices.

3.2 Matrix estimation

Matrix Estimation (ME) in the ST transit model creates Base Year transit demand matrices, which replicate measured existing average weekday transit flows.[24] The methodology requires well-validated networks, precise ridership counts, and seed matrices of peak and off-peak transit demand in a zone structure tailored to the transit networks. The method uses an iterative gradient-reduction approach to minimize the differences between estimated and observed ridership counts posted at designated locations on the network.

The objectives of the ME process are to achieve a close match between estimated and actual peak and daily

- Transit volumes
- Boardings and alightings at all stations and at major BRT and high ridership bus stops

[24] The updated ST model was implemented in the current EMME Software (version 4.3.3). The Matrix Estimation process in the current EMME Software was used to develop base year (2016) demand matrices.

- Boardings by line
- Average trip length by operating agency and mode and by line for rail lines and BRT lines

3.2.1 Stepwise matrix estimation

It is possible to run ME in a single process which considers all routes at once and to achieve reasonable R-squared, slope, and intercept results for the major transit lines at their high-volume locations. The gradient-reduction measures with this method may indicate relative closure after about 25 iterations showing an apparent equilibrium between the lines and the matrices.

This apparent equilibrium is deceptive because closer examination of results of a single-step approach reveals that low-volume and medium volume lines and some low-volume segments on high-ridership lines may show serious mismatches in the resulting volumes. In the type of detailed analysis ST requires from this model, such relatively minor errors in the Base Year validation and in forecasting situations can seriously detract from the usefulness of the model.

Therefore, the ME is performed in a sequential and cumulative manner. Performing the ME in this manner mitigates the dominance of high-volume routes and allows better alignment of the counts data within subareas and within service types. The specification of the matrix estimation process in steps is shown in Table 3-1.

Table 3-1. Specification of matrix adjustment in steps

Step No.	Count Posting Type	Routes Considered
Step 1	Segments	Include segment counts from Pierce Transit, Everett Transit, Community Transit (excluding SWIFT line), and KCM 900 routes
	Boardings/Alightings	Bus boardings/alightings on RapidRides A/C/D, ST express bus, and KCM mid-town mid-range routes
Step 2	Segments	Step 1 + KCM local routes and street car + ST routes 541/556/566/596
	Boardings/Alightings	Same as Step 1
Step 3	Segments	Step 2 + KCM mid-town, mid-range routes
	Boardings/Alightings	Same as Step 1
Step 4	Segments	Step 3 + CT SWIFT + all ST and KCM routes excluding C/D/E/545/550/Sounder/Light Rail
	Boardings/Alightings	Same as Step 1
Step 5	Segments	Step 4 + RapidRides C/D/E + ST routes 545/550
	Boardings/Alightings	Step 4 + boardings/alightings for Sounder
Step 6	Segments	Same as step 5
	Boardings/Alightings	Step 5 + boardings/alightings for Light Rail

The segment counts are first grouped based on the markets and the service type. Then, the matrix adjustment is performed on each group by cumulatively including the segment loads from all the previous groups and using the previous result matrix as a new seed matrix. Such a step-wise matrix estimation process allows adjusting the transit-trip table for low volume segments before including the next level of higher volume segments. This allows the ME adjustment method an opportunity to adjust segments or stops with low volumes as well as segments with high volumes. The adjustments to low-volume segments or stops are not greatly modified as the higher-volume segments are brought in, so low-volume information is retained.

3.2.2 Calibration of path parameters

The approach to ME outlined above is complemented by an extensive and rigorous path analysis effort. This effort involves comparisons over many runs of ME against all available data, including agency data on line boarding and alighting locations, average trip lengths, route segment volumes, and other data available for the Base Year.

The parameters used in path-building are of critical importance in estimating path changes between an existing network and a proposed network, whether the proposed network postulates minor or major changes. These parameters include walking speeds, "escalator" link lengths, auto-access parking lot walk link lengths, boarding penalties, and weights or perception factors applied to the various components of out-of-vehicle time.

Previous ST model versions used a variety of weakly-calibrated assumptions, often postulated from external sources. The wealth of detail available for this model calibration enabled the first serious check of those postulated parameters. Since the parameters should be held constant through Matrix Estimation, Base Year assignments, mode choice skims, and final assignments, they are calibrated during the ME process.

The calibration involves many iterations through ME and final assignments. This requires constant checks against aggregate data, such as actual transfer rates, and detailed data, such as route-level and bus-stop-level boardings and alightings. An extensive analysis of outlier routes using scatterplots of estimated vs. actual boardings/route and average trip lengths is particularly productive in parameter calibration. These checks also provide as a byproduct, extensive QC checks on minor errors in the counts data and minor network coding errors. Table 3-2 shows the more important resulting path-building parameters.

The iterative check of assignment result details also includes review of important transfer locations, with emphasis on locations of existing rail transfers, and bus transfer activity at likely future rail transfer locations. Virtually all likely future rail transfer locations are on existing BRT or ST Express Bus lines.

Finally, the iterative ME calibration process allows adjustment of the count data posting locations, including moving or adding segment count locations to capture minor variations in the market profile along individual routes. For this model version, it allows posting boarding and alighting data at all rail stations and the major BRT and ST Express Bus stops. The final PM peak ME relied on posted actual ridership values at 1140 line segments and 180 stations or stops. The off-peak ME used about 80 percent of these, reduced by the presence of some having no off-peak service, e.g., Sounder Commuter Rail.

Table 3-2. Boarding penalty, wait time factor, and escalator link parameters

Description	Value
Regular Bus Stops	
Boarding penalty	4.0 minutes
Wait time factor	0.60
Escalator link	NA
Transit Centers[1]	
Boarding penalty	3.0 minutes
Wait time factor	0.50
Escalator link	NA
Downtown Bus Tunnel	
Boarding penalty	3.0 minutes
Wait time factor	0.50
Escalator link	1.4 minutes
Rail Stations (surface)	
Boarding penalty	1.5 minutes
Wait time factor	0.50
Escalator link	1.2 minutes
Rail Stations (tunnel or elevated, excluding Downtown Seattle Transit Tunnel stations under joint operations)	
Boarding penalty	1.5 minutes
Wait time factor	0.50
Escalator link	1.4–2.4 minutes

[1] List of Major Transit Centers (TC):

1) Bellevue TC
2) Federal Way TC
3) Northgate
4) Burien TC
5) Kent Station TC
6) Auburn Station TC
7) Kirkland v
8) Overlake TC
9) Aurora Village TC
10) Renton TC
11) Lynnwood TC
12) Tacoma Dome Station
13) Lakewood TC
14) Everett Station
15) Tacoma Community College
16) Tacoma Commerce St
17) Tukwila International Boulevard
18) Tukwila Station
19) Lakewood Station
20) Sumner Station
21) Puyallup Station
22) Issaquah TC
23) West Seattle
24) Ballard

Related Assumptions:

- Walk speed = 2.5 mph
- Weight factor on out-of-vehicle travel times = 1.5
- Weight factor on the auxiliary walk times on 1st, 2nd, 3rd and 4th Avenues in downtown Seattle leading to King Street Station = 1.0

3.2.3 Sensitivity test using ST3 build network

Understanding the performance of this model version compared to the previous version, i.e., the 2014 Base Year version used for the ST3 planning work, suggests applying a Current Year sensitivity test using the ST3 Build network. This requires a Current Year forecast using the new model version for comparison with the previous Current Year forecast for ST3 performed using the 2014 model version. Not only does this provide additional QC opportunities, especially on the network specifications, but it enables several checks on the model application to future networks, which include significant expansion of the rail system and realignment of the bus systems.

This is particularly important for understanding the relevance of unassigned trips. These trips are short trips which are in the seed matrix and therefore known to have occurred on transit, but which are assigned as walk-only paths. The trips therefore never appear as transit boardings or segment volumes.

The change in the transit path times between the Base Year network and a future network, such as the ST3 Plan network, results in some of these short trips having efficient paths using rail segments in the future network, even though they were erroneously assigned as walk-only trips in the Base Year network. Identification and analysis of unassigned trips is necessary to minimize discrepancies between the trip tables and the resulting transit network values.

3.2.4 Identification and removal of unassigned trips

Unassigned trips are analyzed by network analysis of the assignment results, especially network analysis of those trips assigned by themselves. Because EMME transit assignments are multi-path, unassigned trips in the ST model tend to be unassigned portions of trip values within certain O-D pairs, in particular closely adjacent zones.

Careful examination of the transit paths and fine-tuning of network elements in areas of dense transit demand and dense network structure enables the reduction of the total unassigned trips from 14,000 to 6,700, when correcting path elements on the Base Year network. In the application of the sensitivity test described above as a Current Year forecast on the ST3 Build network, the unassigned trips are reduced to 3,800. This includes the removal of 2,000 ferry trips double-counted upon the introduction of ORCA data as the primary source for transit travel patterns.

The final effect of the matrix estimation on the travel patterns in the initial seed matrix is summarized in the trip length frequency distribution comparison shown in Figure 3-1. This comparison is between the seed matrices at the start of ME and the resulting final Base Year demand matrices. Trip lengths in this figure are for entire zone-to-zone linked-trips. For consistency, the transit trip lengths for this comparison are based on a common neutral highway distance between zones.

As shown, the ME process has not impacted original shape exhibited in the seed matrix. It has only reduced the number of transit trips longer than 6 miles and increased the number of trips shorter than 6 miles. It has correspondingly reduced average transit trip length to 8.36 miles from almost 10 miles in earlier model versions.

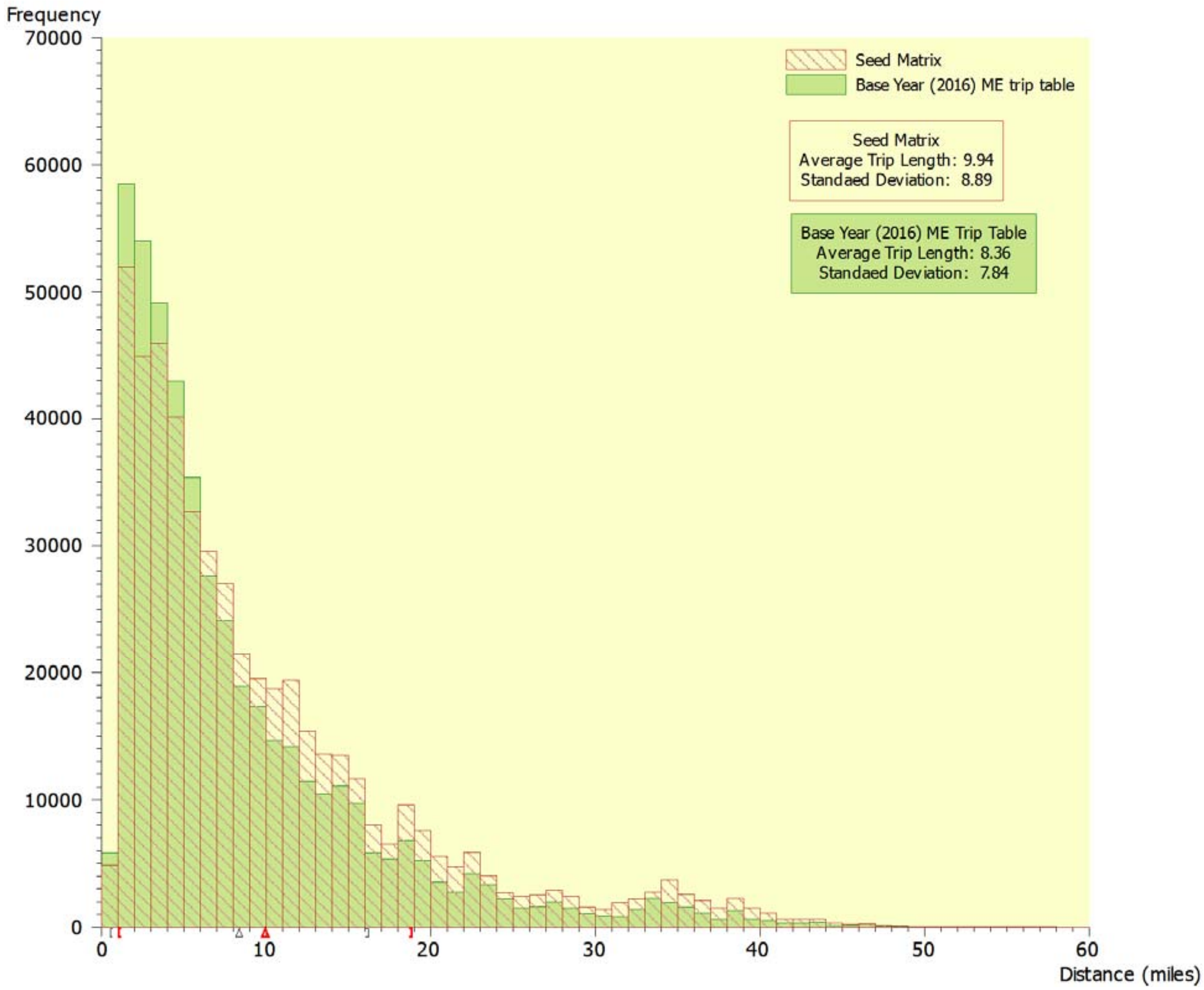

Figure 3-1. Average weekday (2016) trip length frequency distribution comparison: Seed matrix vs. matrix-estimated trip table

The validation analysis results for Base Year (2016) transit-trip table development are discussed below.

3.3 Base Year (2016) validation results

The validation analysis focuses on evaluating both the transit trip tables from the matrix estimation process and the accuracy of the assignment results. These are reflected in

- System-wide linked and unlinked trips and the system-wide transfer rate
- Transit boardings comparison by agency and mode
- Rail station boardings comparison for all existing stations
- Transit ridership volumes in locations relevant to major ST3 projects
- Average transit trip length comparison by operator
- Peak and daily boardings by transit line

Table 3-3 presents system-wide linked transit trips and unlinked transit trips by operator and mode. The estimated trips closely match the actual trips in all cases, reflecting the breadth and quality of the network inputs, the counts, and the seed matrix travel patterns from ORCA data.

Table 3-3. Systemwide 2016 linked and unlinked transit trips comparison: PM peak period and average weekday

	PM Peak Period (3:00–6:30 PM)			Average Weekday		
	Actual[1]	Estimated	Est/Act	Actual[1]	Estimated	Est/Act
Linked transit trips	145,500	151,900	1.04	467,000	466,900	1.00
Total Boardings by Operator						
KC Metro	119,500	122,200	1.02	397,000	384,200	0.97
Sound Transit	51,300	52,500	1.02	151,600	151,600	1.00
Pierce Transit	6,700	7,200	1.07	27,000	28,800	1.07
Community Transit	11,100	11,600	1.05	34,000	32,600	0.96
Everett Transit	2,000	1,900	0.95	7,000	7,000	1.00
Three-county total boardings	190,600	195,400	1.03	616,600	604,200	0.98
Systemwide transfer rate[2]	1.31	1.31	1.00	1.32	1.32	1.00
Rail and Regional Bus Boardings						
Central Link Light Rail	22,100	21,800	0.99	68,400	67,700	0.99
Tacoma Link Light Rail	900	900	1.00	3,600	3,100	0.86
Commuter Rail	8,500	8,400	0.99	16,600	16,900	1.02
ST Express Bus	19,800	21,500	1.09	63,000	63,900	1.01

[1] Actual boardings are the actual counts for the winter 2016/2017 obtained from transit agencies.
[2] Transfer rates are calculated by excluding unassigned trips.

The total estimated PM peak linked transit trips are 151,900, which is 32.5 percent of the total weekday 467,000 linked transit trips.

In this model version, the actual transfer rates of 1.32 for average weekday and 1.31 for PM peak are known for the first time, due to the availability of ORCA fare card data, as described above in Section 3.1.3. These observed transfer rates are also the basis of the 467,000 (for average weekday) and 145,500 (for PM peak) actual linked trips shown in the first row of Table 3-3 for the transit system. The definition of what exactly constitutes a linked trip is now closely tied to the regional agreement on fares and transfer policies, managed by Sound Transit and agreed upon with the other transit operators. The primary purpose of the regional agreement is revenue sharing among the operators, for which transfer information is an important input.

The close match between estimated and actual boardings by agency and mode is evident in Table 3-3. Both estimated and actual boardings reflect the same model Base Year period and bus service period, late September 2016 through late March 2017.

Table 3-4 and Table 3-5 show station-by-station comparisons of estimated versus actual station boardings for the same period. The closeness of the estimates to the counts at this level of detail is explained by the introduction of boarding and alighting counts, augmenting the segment line volume counts in the ME process.

Table 3-4. Average weekday (2016) light rail station boardings comparison

Station Name	Actual	Estimated	Est/Actual
UW	9,400	9,400	1.00
Capitol Hill	8,000	8,000	1.00
Westlake	10,200	9,900	0.97
University Street	5,300	5,200	0.98
Pioneer Square	4,100	3,900	0.95
International District	5,600	5,500	0.98
Stadium	1,300	1,400	1.08
SODO	1,900	2,000	1.05
Beacon Hill	2,900	2,900	1.00
Mount Baker	2,300	2,200	0.96
Columbia City	2,400	2,500	1.04
Othello	2,400	2,500	1.04
Rainier Beach	1,900	1,900	1.00
Tukwila International Blvd	2,900	2,800	0.97
Sea-Tac Airport	5,000	4,900	0.98
Angle Lake	2,900	2,700	0.93
Total Station Boardings	**68,500**	**67,700**	**0.99**

Table 3-5. Average weekday (2016) commuter rail station boardings comparison

Station Name	Actual	Estimated	Est/Actual
Everett	300	300	1.00
Mukilteo	200	200	1.00
Edmonds	400	400	1.00
King Street	6,800	7,000	1.03
Tukwila	1,000	1,000	1.00
Kent	1,900	2,000	1.05
Auburn	1,500	1,600	1.07
Sumner	1,200	1,200	1.00
Puyallup	1,500	1,500	1.00
Tacoma Dome	1,200	1,200	1.00
South Tacoma	200	200	1.00
Lakewood	400	300	0.75
Total Station Boardings	**16,600**	**16,900**	**1.02**

Table 3-6 compares estimated and actual bus ridership volumes at eight locations in major transit corridors. These locations are chosen for their relevance to major rail and BRT projects in the ST3 System Plan. The comparison illustrates that the existing base year volumes are closely approximated by the Base Year model in corridors which will be of interest over the term of this model version.

Table 3-6. Comparison of 2016 estimated and actual average weekday volumes—locations relevant to major ST3 Projects

ST3 Projects	Actual	Estimated
Link Extensions		
Everett Extension: Routes 510/512/513/532 & Sounder, north of Ashway	4,700	4,400
Tacoma Extension: Routes 574/586/590/592/594/595 & Sounder, at county line	14,600	14,600
Ballard: RapidRide D at Magnolia Bridge	6,700	7,100
West Seattle: RapidRide C at West Seattle Bridge	7,000	7,100
I-405/SR 522 BRT Projects		
I-405 BRT: Routes 532/535, at county line	2,500	2,500
I-405 BRT: Routes 560/566/567, at Coal Creek	2,300	2,200
I-405 BRT: Route 560 at Tukwila	900	800
SR 522 BRT: Route 522 at Kenmore	2,400	2,400

Table 3-7 and Table 3-8 contain summaries of the Base Year PM peak and daily trip tables at 10 x 10 districts. A map of the 10 districts is shown in Figure 3-2. Note that the totals for each of these matrices are the same as the totals presented in Table 3-3. These tables are the result of the matrix estimation process, representing a snapshot of the Base Year transit demand within the 3-county ST district. The matrices are the platform for subsequent work using the staged incremental transit demand model as described in Chapter 2.

Estimated and actual base year average in-vehicle trip lengths are compared in Table 3-9. Actual trip lengths shown are for the length of travel in each transit vehicle, derived from agency-reported total passenger-miles and boardings by mode. Thus, these trip lengths are not directly related to the overall zone-to-zone linked-trip lengths shown in Figure 3-1. The shorter average trip lengths on ST Express bus lines (8 percent low) are indicative of matrix estimation process estimating greater than actual rider turnover on some of the longer of these lines. The directional volumes on segments along these lines match the volume counts very closely.

Table 3-7. 10-district base year (2016) PM peak period transit trip table

ORIGIN \ DESTINATION		Everett 1	SW Snohomish 2	Shoreline 3	North Seattle 4	Seattle CBD 5	South Seattle 6	East King 7	South King 8	Tacoma 9	Pierce 10	Origin totals	Origin shares
Everett	1	1,700	300	100	100	–	–	100	100	–	–	2,400	1.6%
SW Snohomish	2	500	1,500	100	200	100	100	100	–	–	–	2,600	1.7%
Shoreline	3	100	200	200	400	100	100	100	–	–	–	1,200	0.8%
North Seattle	4	200	1,500	1,200	11,700	2,200	4,600	1,600	900	300	200	24,400	16.1%
Seattle CBD	5	900	4,000	1,200	10,200	2,100	17,900	7,100	7,000	1,200	1,300	52,900	34.8%
South Seattle	6	400	1,600	600	6,400	5,300	13,800	2,300	5,200	600	1,200	37,400	24.6%
East King	7	300	1,000	100	1,100	1,000	1,500	7,200	900	–	100	13,200	8.7%
South King	8	–	100	–	300	900	1,800	200	7,400	400	900	12,000	7.9%
Tacoma	9	–	–	–	–	–	100	–	200	2,600	1,100	4,000	2.6%
Pierce	10	–	–	–	–	–	–	–	100	800	900	1,800	1.2%
Destination totals		4,100	10,200	3,500	30,400	11,700	39,900	18,700	21,800	5,900	5,700	151,900	100.0%
Destination shares		2.7%	6.7%	2.3%	20.0%	7.7%	26.3%	12.3%	14.4%	3.9%	3.8%	100.0%	

Table 3-8. 10-district base year (2016) average weekday transit trip table

ORIGIN	DESTINATION	Everett 1	SW Snohomish 2	Shoreline 3	North Seattle 4	Seattle CBD 5	South Seattle 6	East King 7	South King 8	Tacoma 9	Pierce 10	Origin totals	Origin shares
Everett	1	6,200	1,600	200	400	1,100	600	400	100	–	–	10,600	2.3%
SW Snohomish	2	1,600	6,100	700	2,100	4,600	1,800	1,300	100	–	–	18,300	3.9%
Shoreline	3	200	700	1,000	2,700	1,800	1,000	300	100	–	–	7,800	1.7%
North Seattle	4	400	2,100	2,700	38,500	17,900	16,200	4,300	1,900	400	200	84,600	18.1%
Seattle CBD	5	1,100	4,600	1,800	18,000	6,600	37,000	10,300	11,500	1,500	1,600	94,000	20.1%
South Seattle	6	600	1,800	1,000	16,200	37,000	46,100	5,400	11,000	900	1,400	121,400	26.0%
East King	7	400	1,300	300	4,300	10,300	5,400	22,400	1,700	–	100	46,200	9.9%
South King	8	100	100	100	1,900	11,500	11,000	1,700	25,900	1,100	1,300	54,700	11.7%
Tacoma	9	–	–	–	400	1,500	900	–	1,100	10,000	3,700	17,600	3.8%
Pierce	10	–	–	–	200	1,600	1,400	100	1,300	3,700	3,400	11,700	2.5%
Destination totals		10,600	18,300	7,800	84,700	93,900	121,400	46,200	54,700	17,600	11,700	466,900	100.0%
Destination shares		2.3%	3.9%	1.7%	18.1%	20.1%	26.0%	9.9%	11.7%	3.8%	2.5%	100.0%	

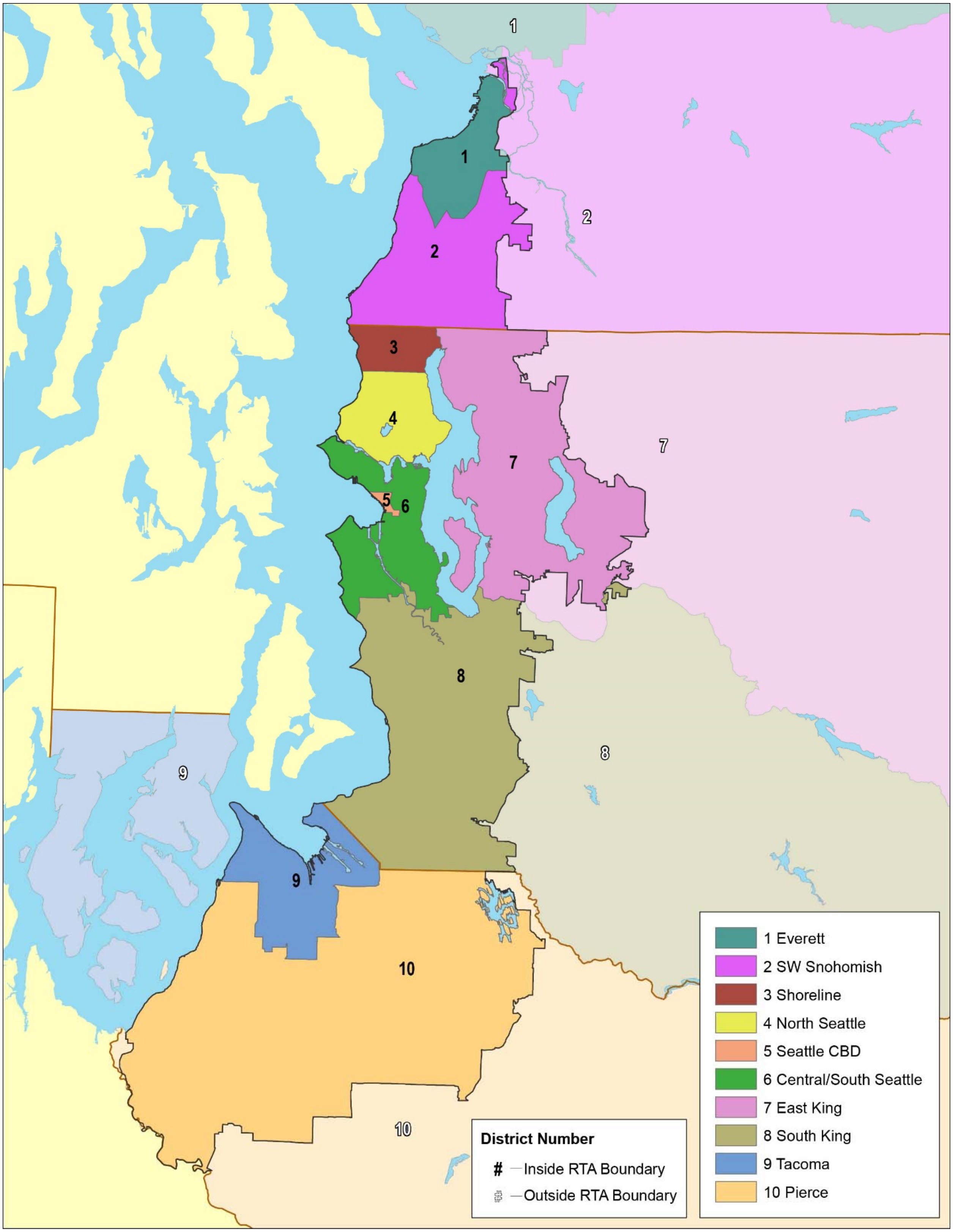

Figure 3-2. 10-district map

Table 3-9. Estimated and actual base year (2016) average weekday in-vehicle trip length comparison

Transit Operator	Actual[1]	Estimated	Est/Actual
King County Metro	4.3	4.1	0.95
Sound Transit Link	6.1	6.1	0.99
Sound Transit Sounder	24.8	24.0	0.97
Sound Transit Express Bus	14.3	13.1	0.92
Pierce Transit	4.1	4.0	0.98
Community Transit	9.3	8.5	0.91
Everett Transit	3.8	4.1	1.08
Systemwide	6.2	6.0	0.97

[1] Bus values are from 2016 National Transit Database; Rail values are from ST winter 2016/2017 counts

Figure 3-3a, Figure 3-3b, Figure 3-4a, Figure 3-4b and Figure 3-5 summarize comparisons of estimated to actual line boardings for every transit line in the region. These are more rigorous validation tests than a comparison of posted line segment volumes, since the matrix estimation process aims at precisely these segment matches. The process consistently returns R-squared values between 0.98 and 1.00. The comparisons of line boardings validates in greater detail the ability of the model estimates to replicate base year ridership profiles on a line-by-line basis.

Note that this attention to line detail is particularly important when a network-based model is to be used to estimate line volumes and station boardings for future rail line extensions. Validations against transit screenline counts do not provide sufficient confidence for forecasts of ridership on specific lines or line segments.

This line-by-line validation test assists the supplemental analysis of outlier bus lines, especially some mid-range ridership lines. The outlier analysis, including stop-level review of actual line profiles, provides strong additional QC on the networks and the counts.

Figure 3-3a and Figure 3-3b illustrates the PM peak line boardings comparisons, including and excluding the rail lines, with R-squared values of 1.00 and 0.98, respectively. Figure 3-4a and Figure 3-4b illustrates the average weekday line boardings comparisons, including and excluding the rail lines, with R-squared values of 1.00 and 0.99, respectively. The comparisons excluding the rail are necessary because of the dominance of Link ridership when it is included.

Finally, Figure 3-5 illustrates the average weekday boardings comparison for ST Express bus lines only, with an R-squared value of 0.98 and a slope of 0.99.

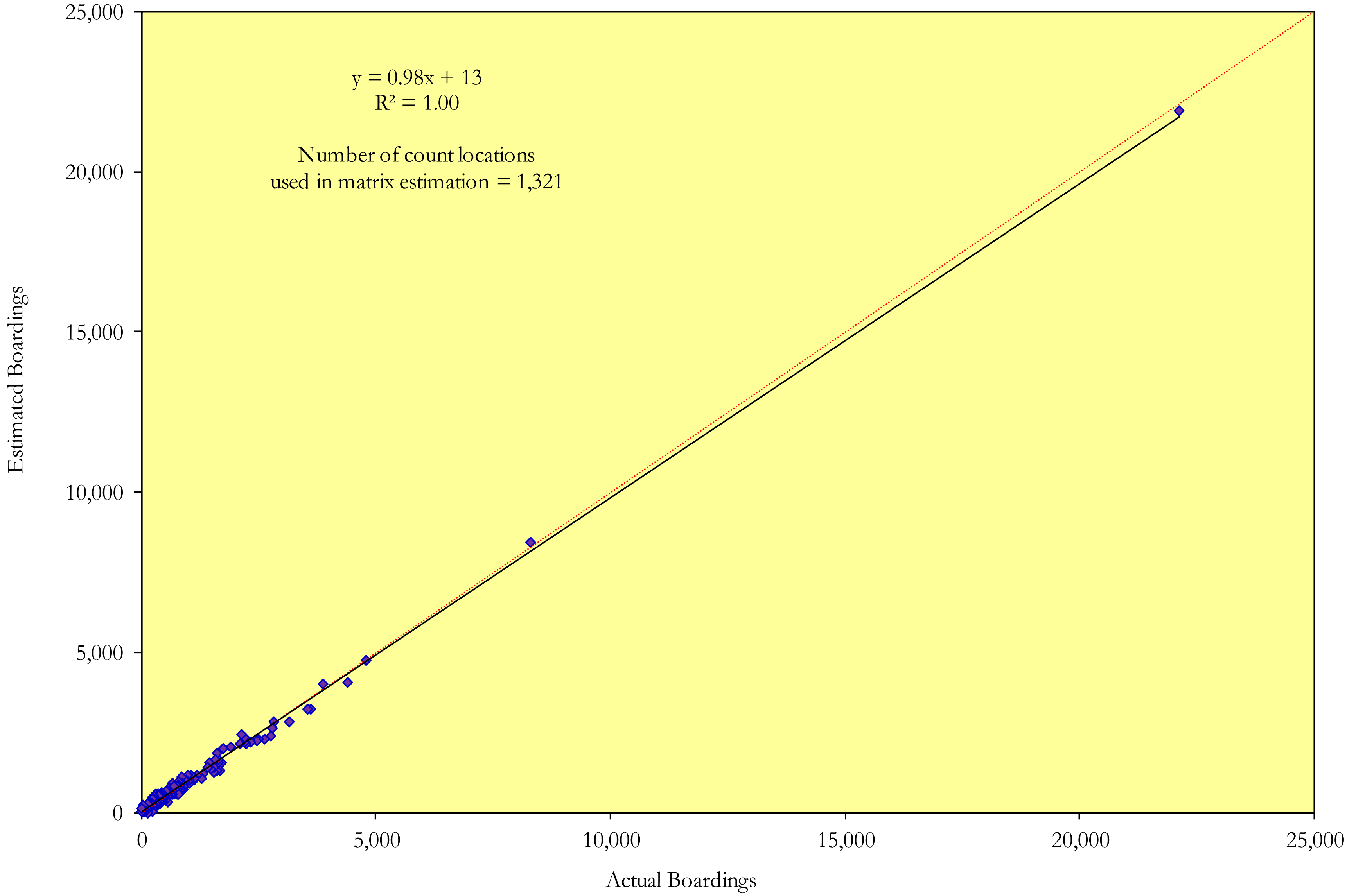

Figure 3-3a. Comparison of base year (2016) PM peak period transit line boardings (all agencies)

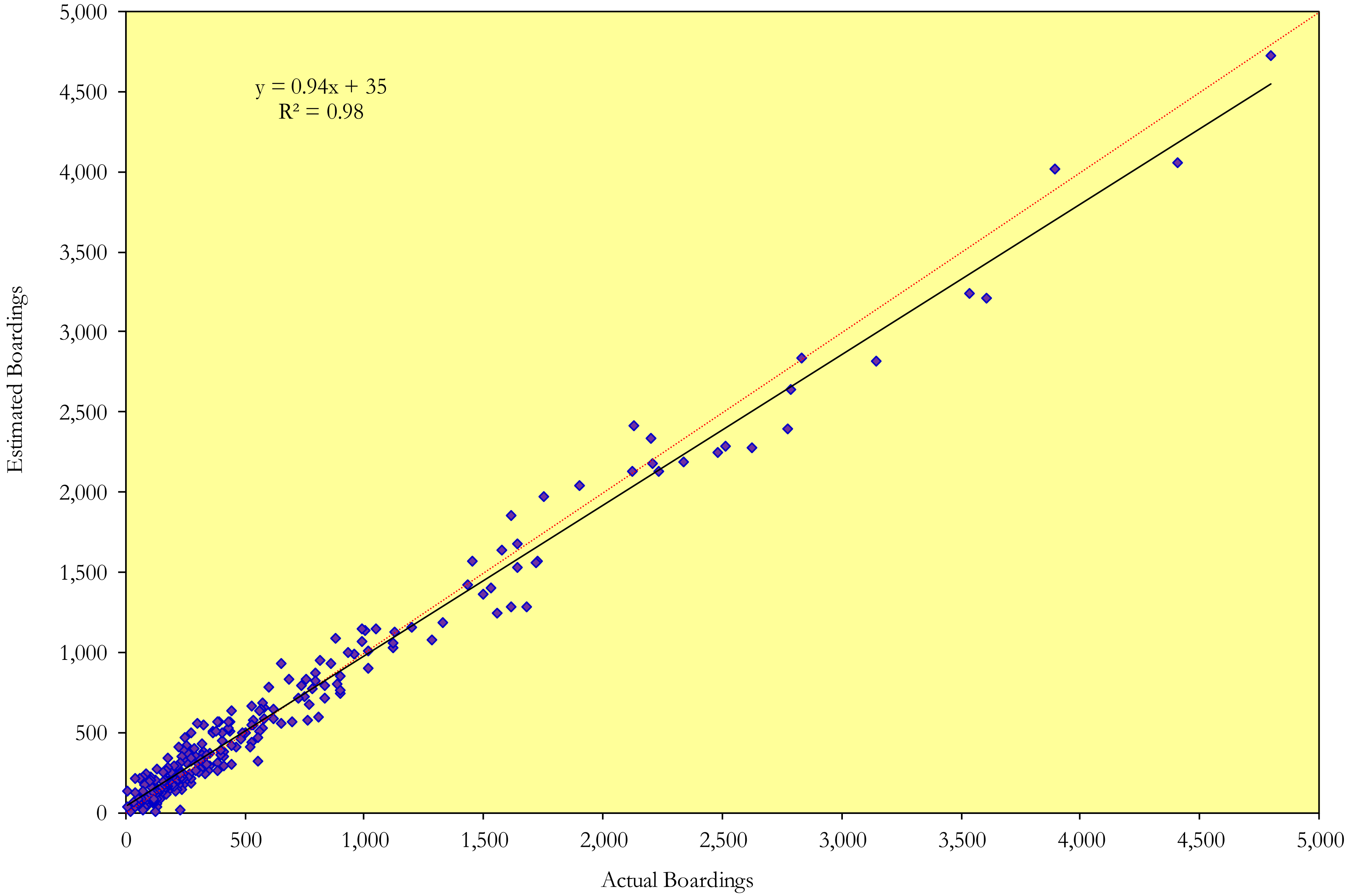

Figure 3-3b. Comparison of base year (2016) PM peak period transit line boardings (all agencies, but excluding light rail and commuter rail)

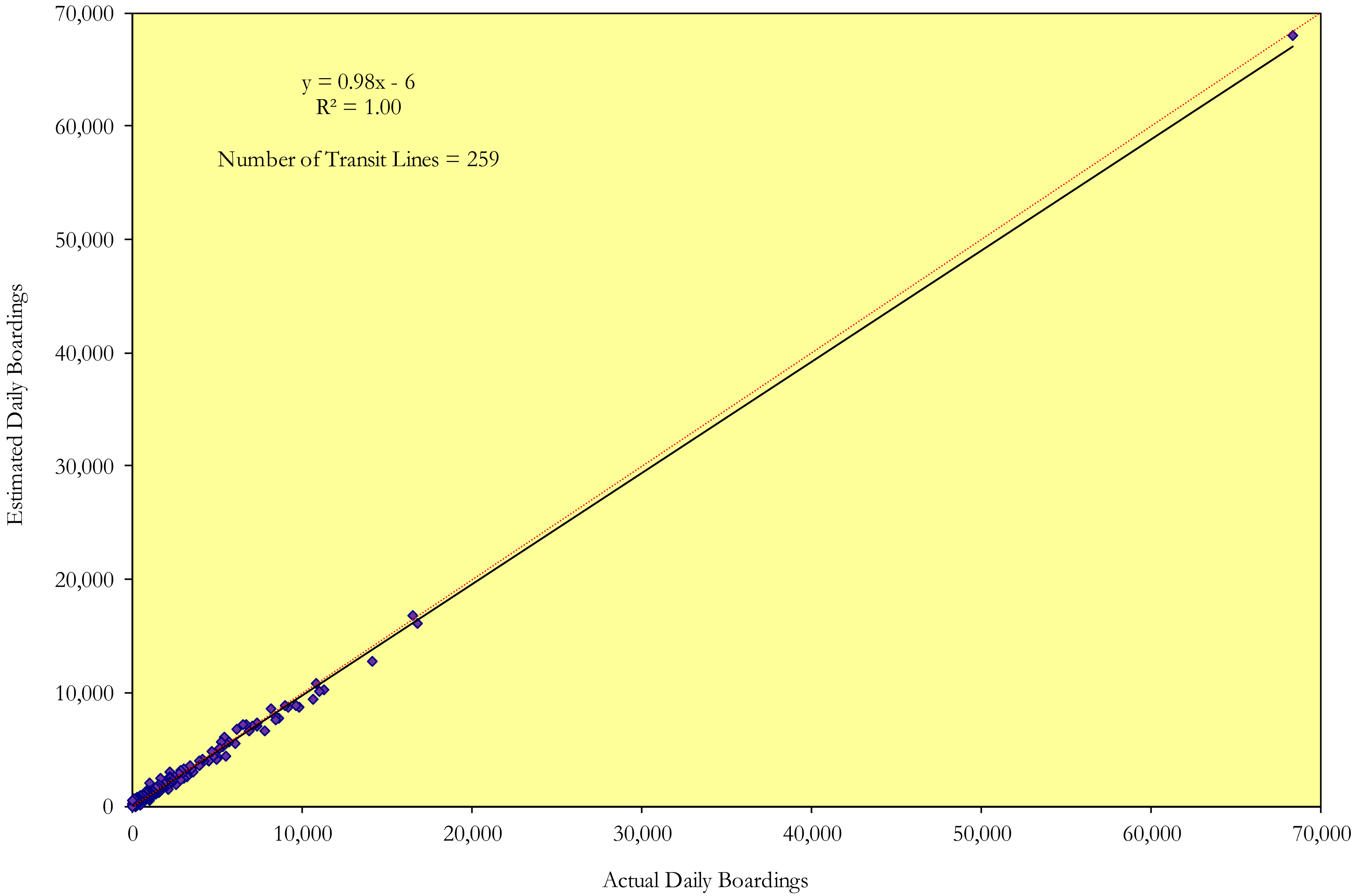

Figure 3-4a. Comparison of base year (2016) average weekday transit line boardings (all agencies)

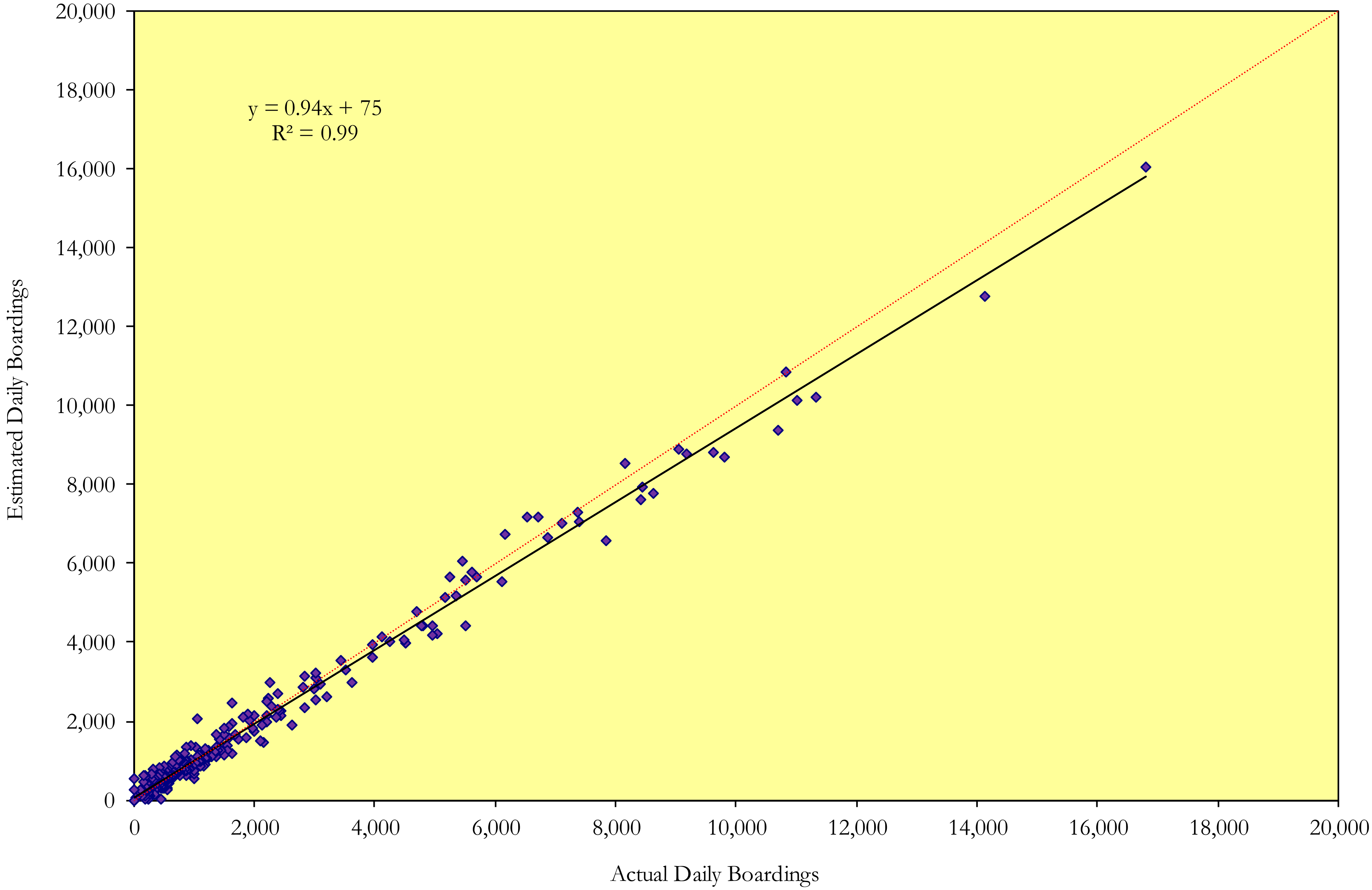

Figure 3-4b. Comparison of base year (2016) average weekday transit line boardings (all agencies, but excluding light rail and commuter rail)

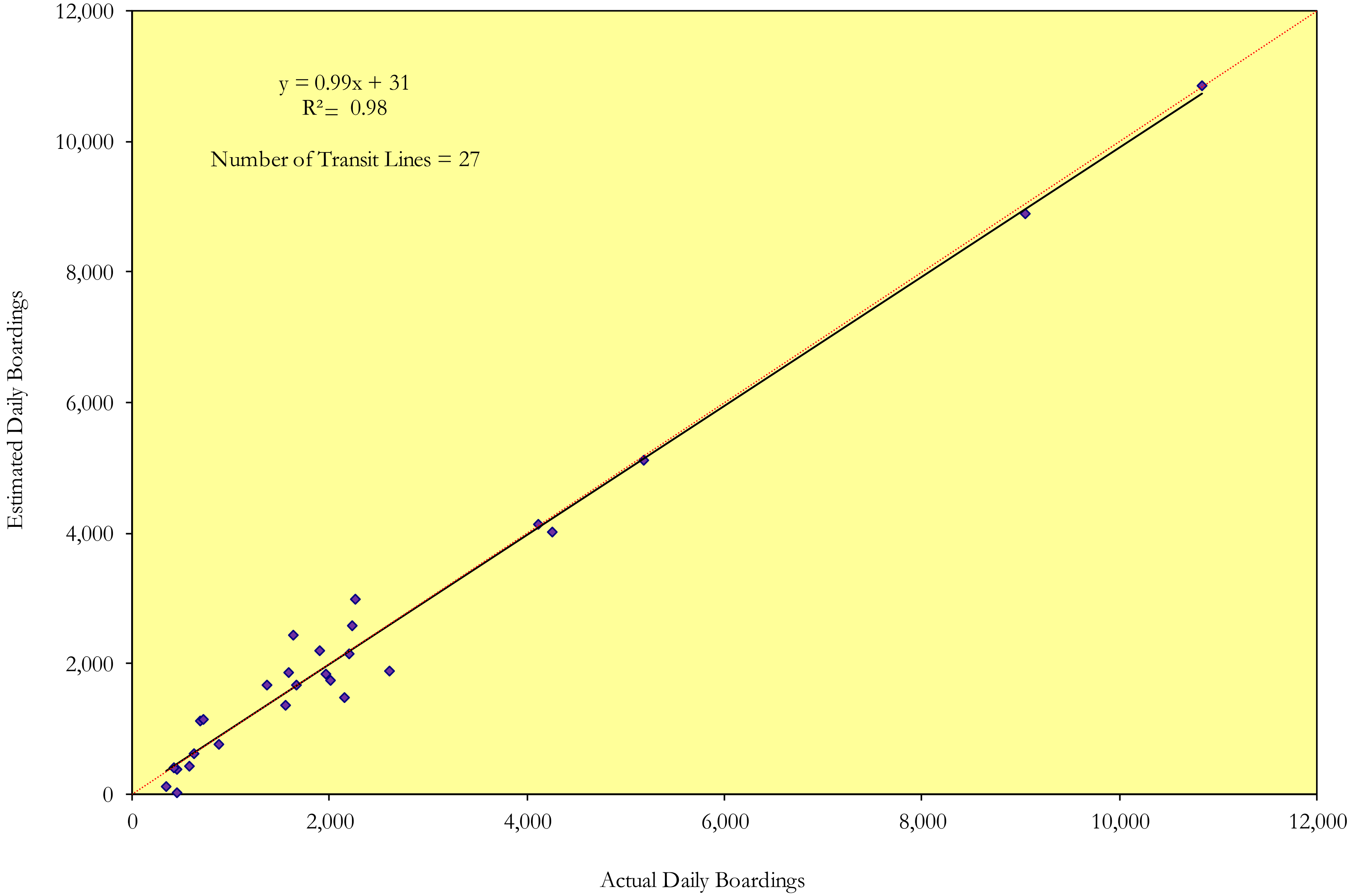

Figure 3-5. Comparison of base year (2016) average weekday transit line boardings (ST express bus only)

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Appendix A: Maps

- *Forecasting Analysis Zones (FAZ)*
- *Alternative Analysis Zones (AAZ)*
- *10 and 26 Districts*

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Figure A-1. PSRC FAZ Map—Snohomish County

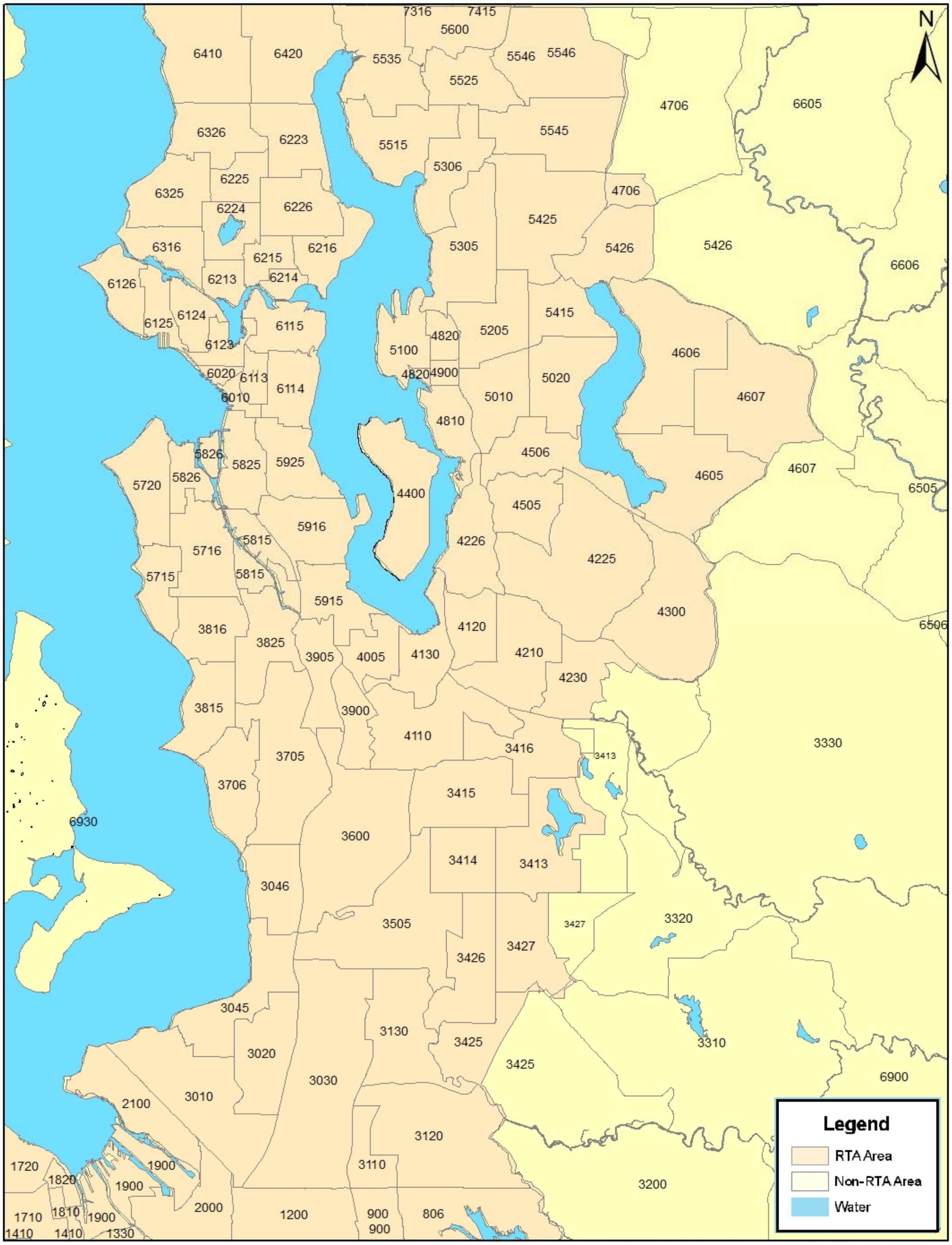

Figure A-2. PSRC FAZ Map—King County

Figure A-3. PSRC FAZ Map—Pierce County

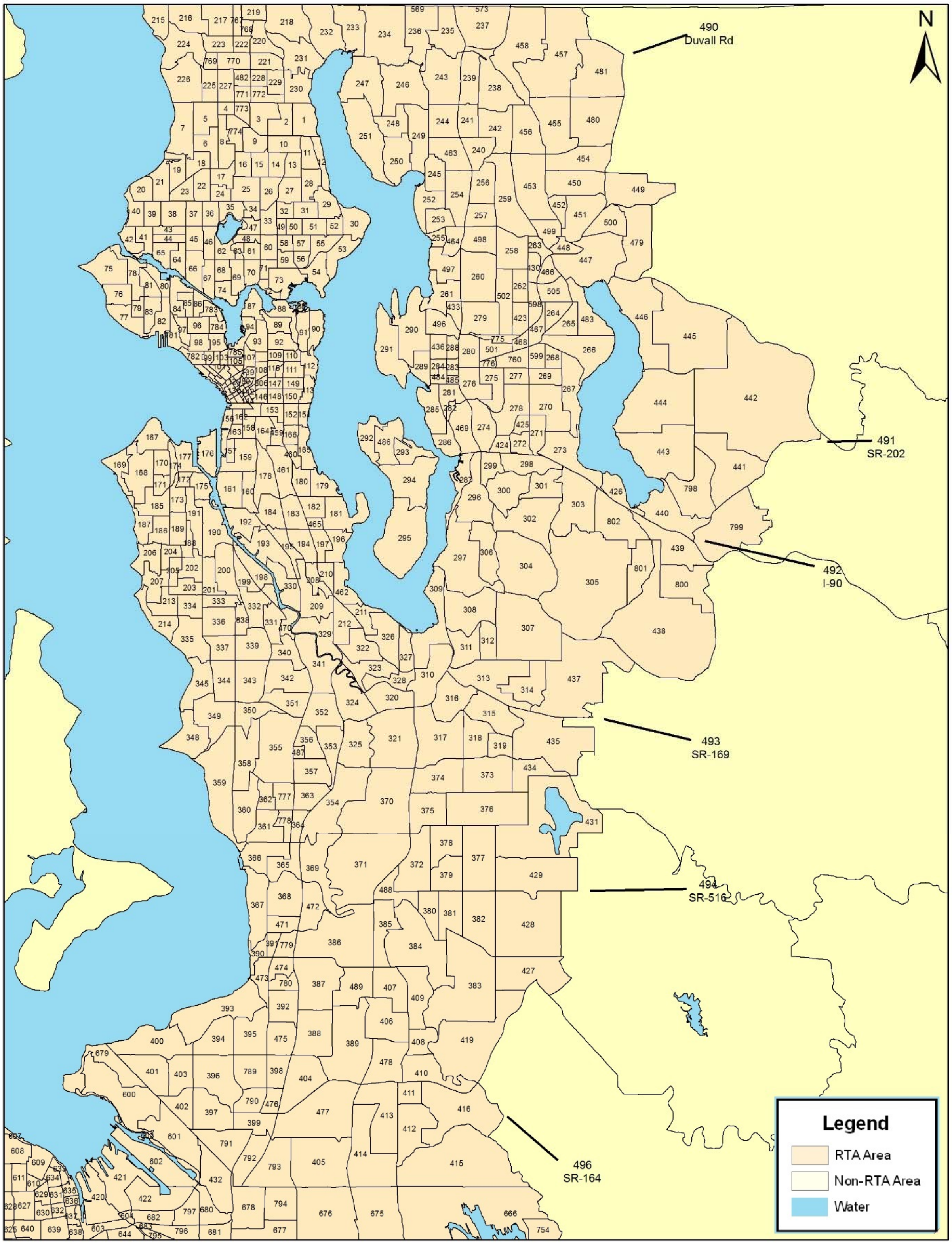

Figure A-4. 807 AAZ Map—King County

Figure A-4a. 807 AAZ Map—Central Seattle

Figure A-4b. 807 AAZ Map—Capitol Hill, First Hill, Ballard & Queen Anne

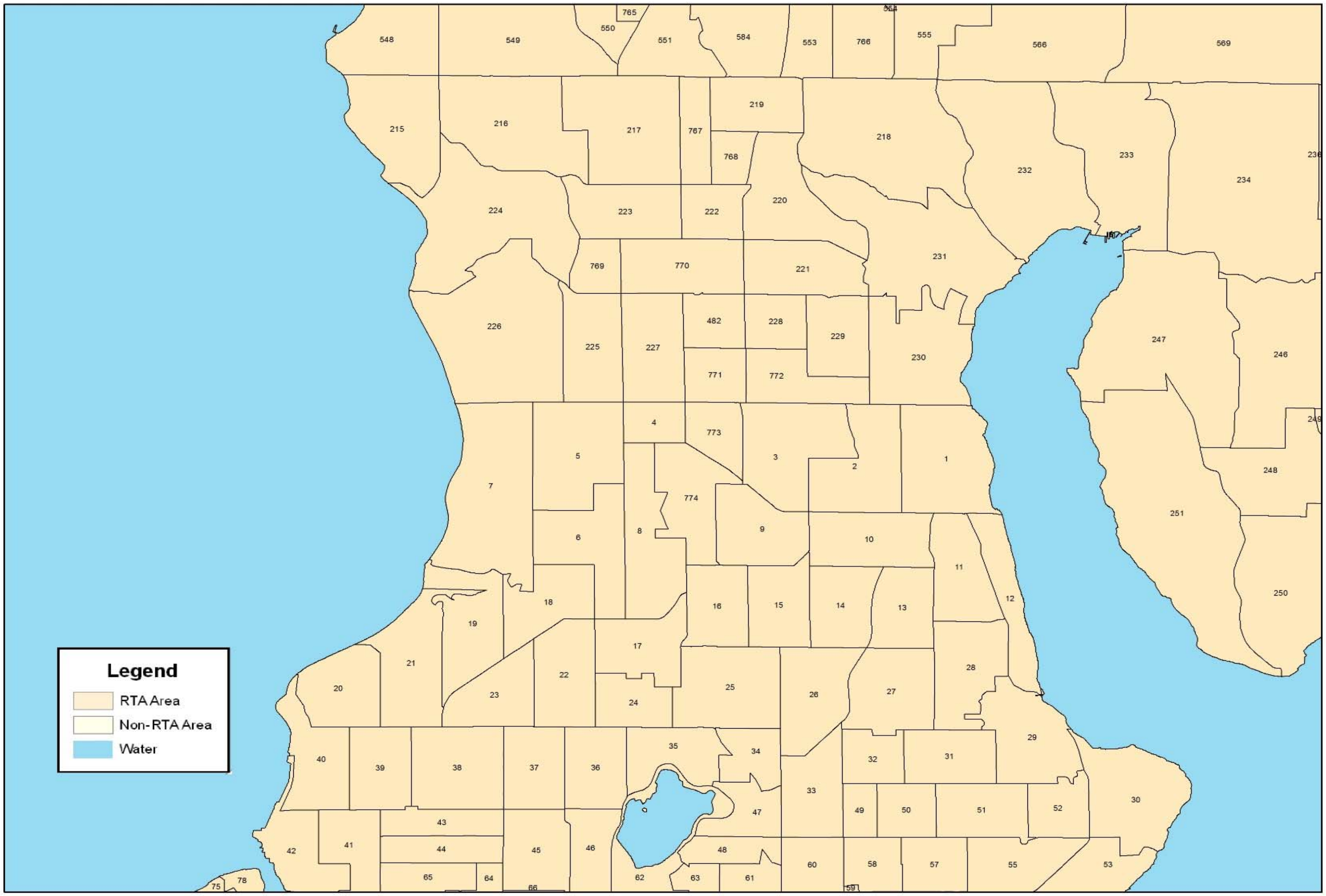

Figure A-4c. 807 AAZ Map—North Seattle

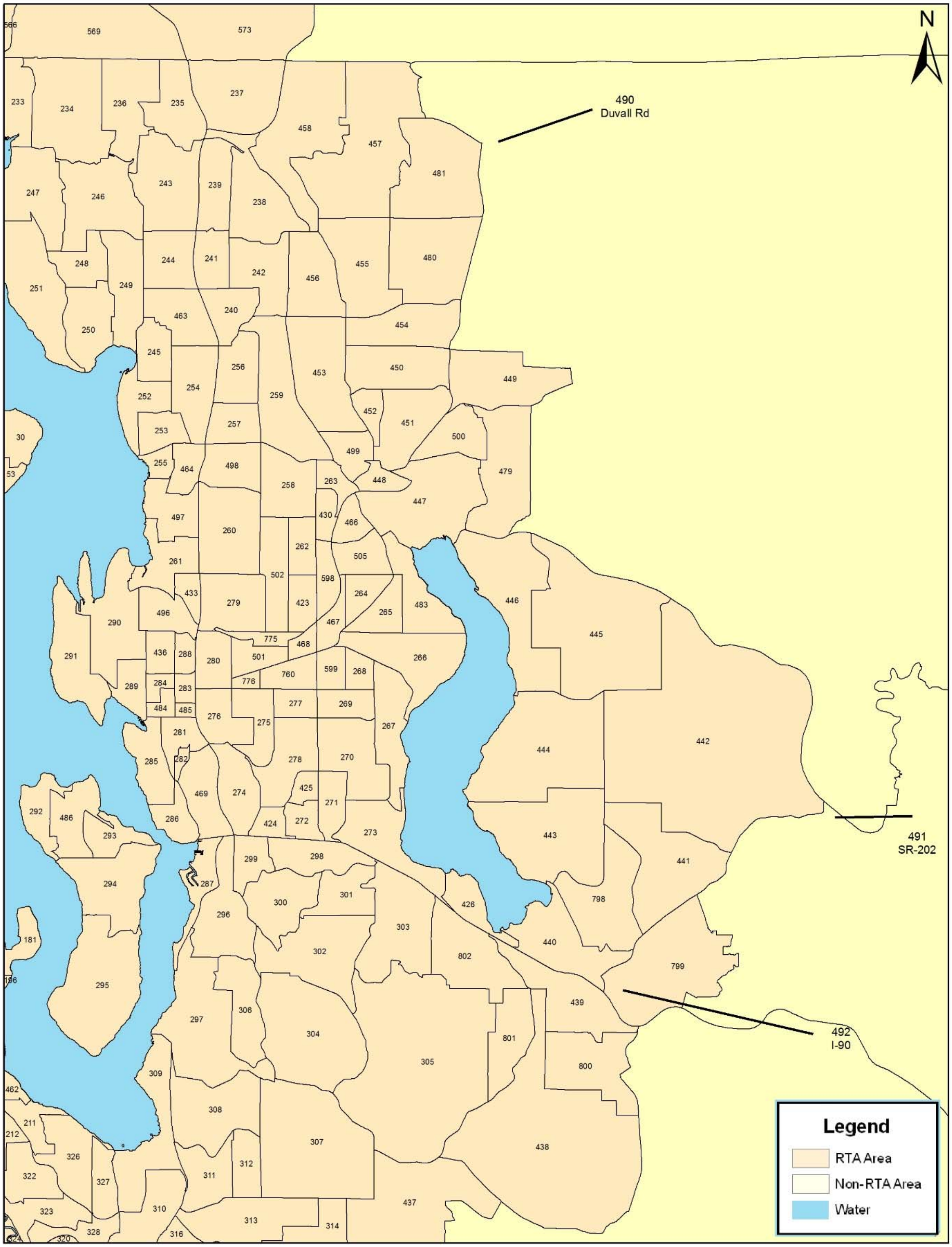

Figure A-4d. 807 AAZ Map—East King County

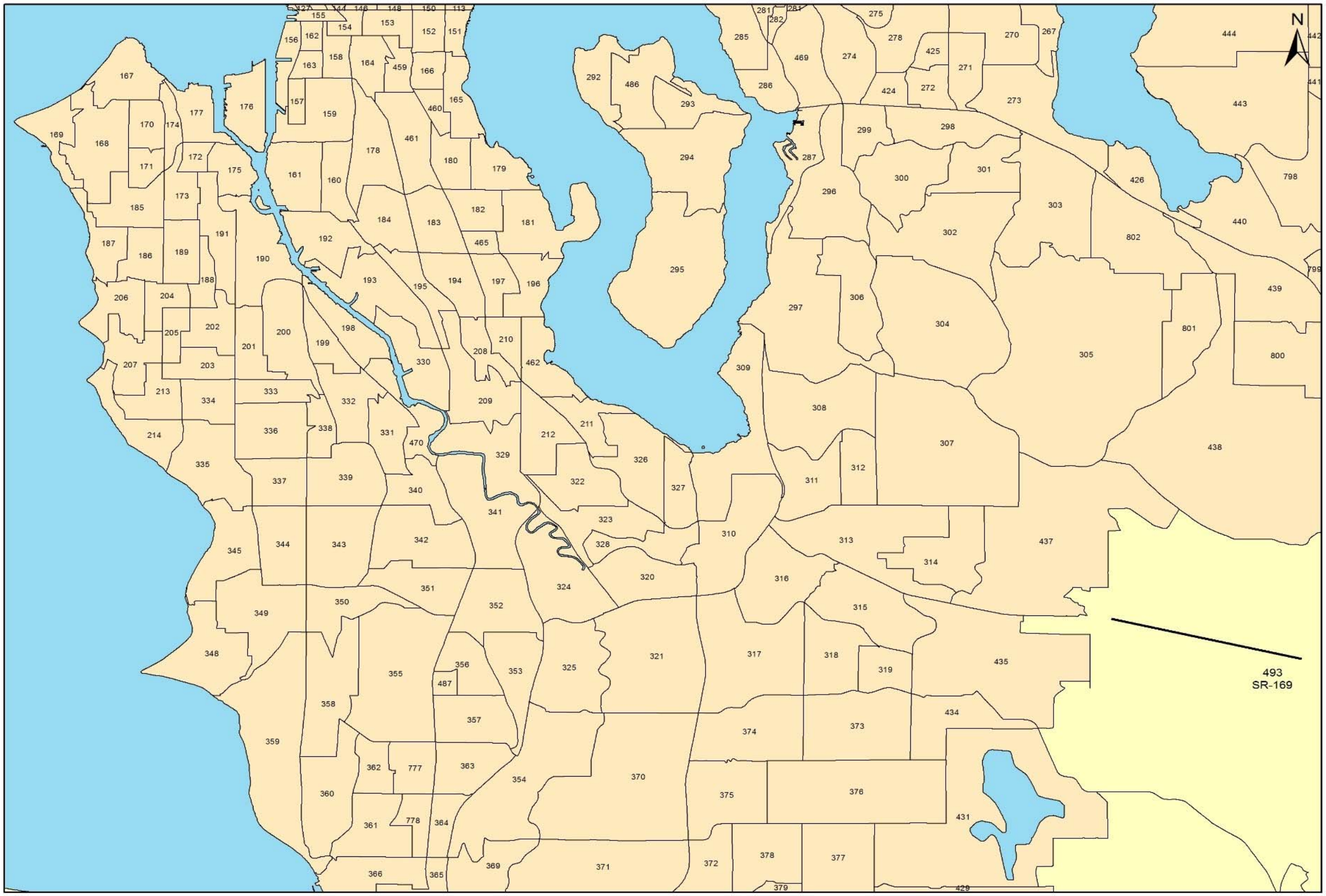

Figure A-4e. 807 AAZ Map—Southeast/West Seattle

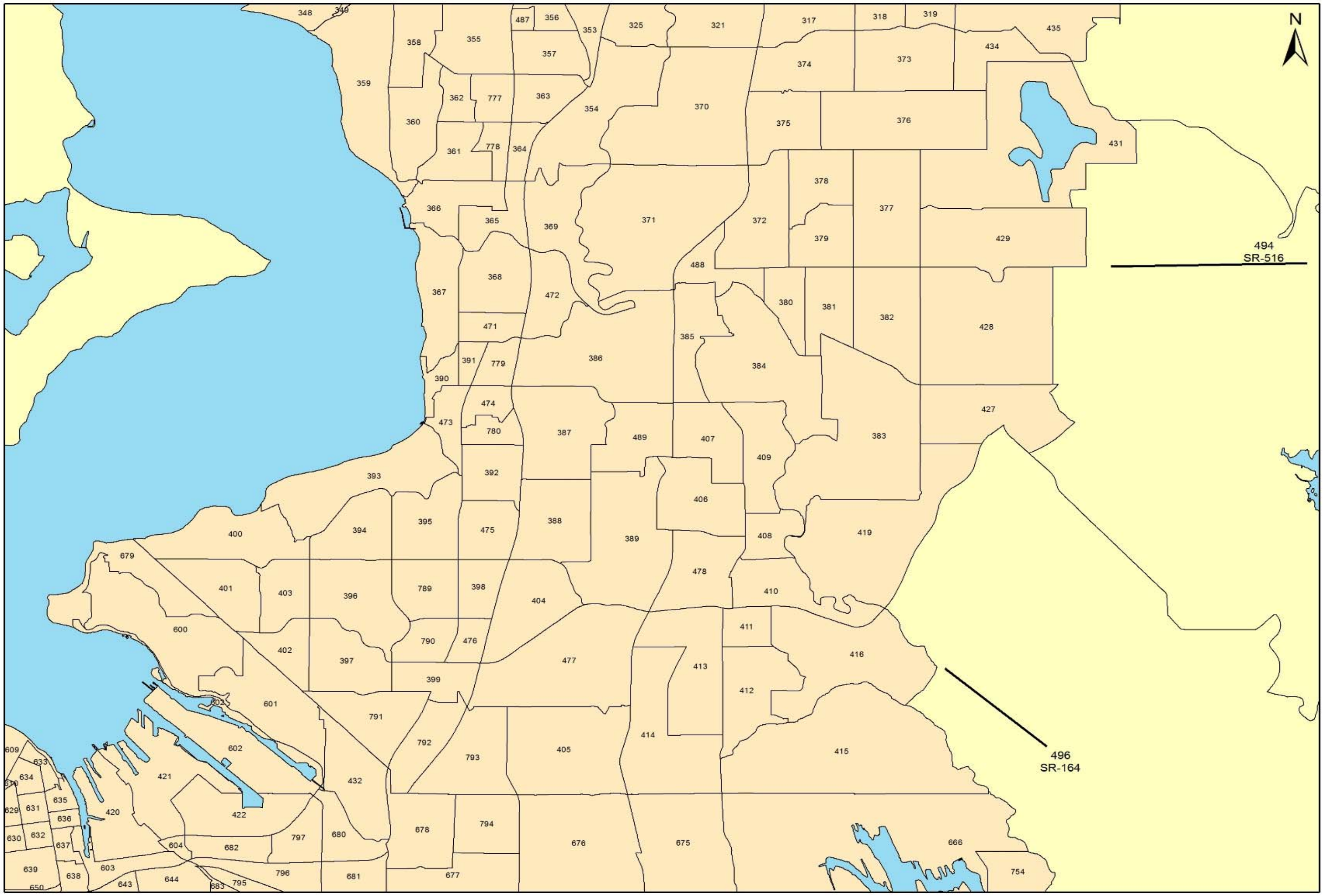

Figure A-4f. 807 AAZ Map—South King County

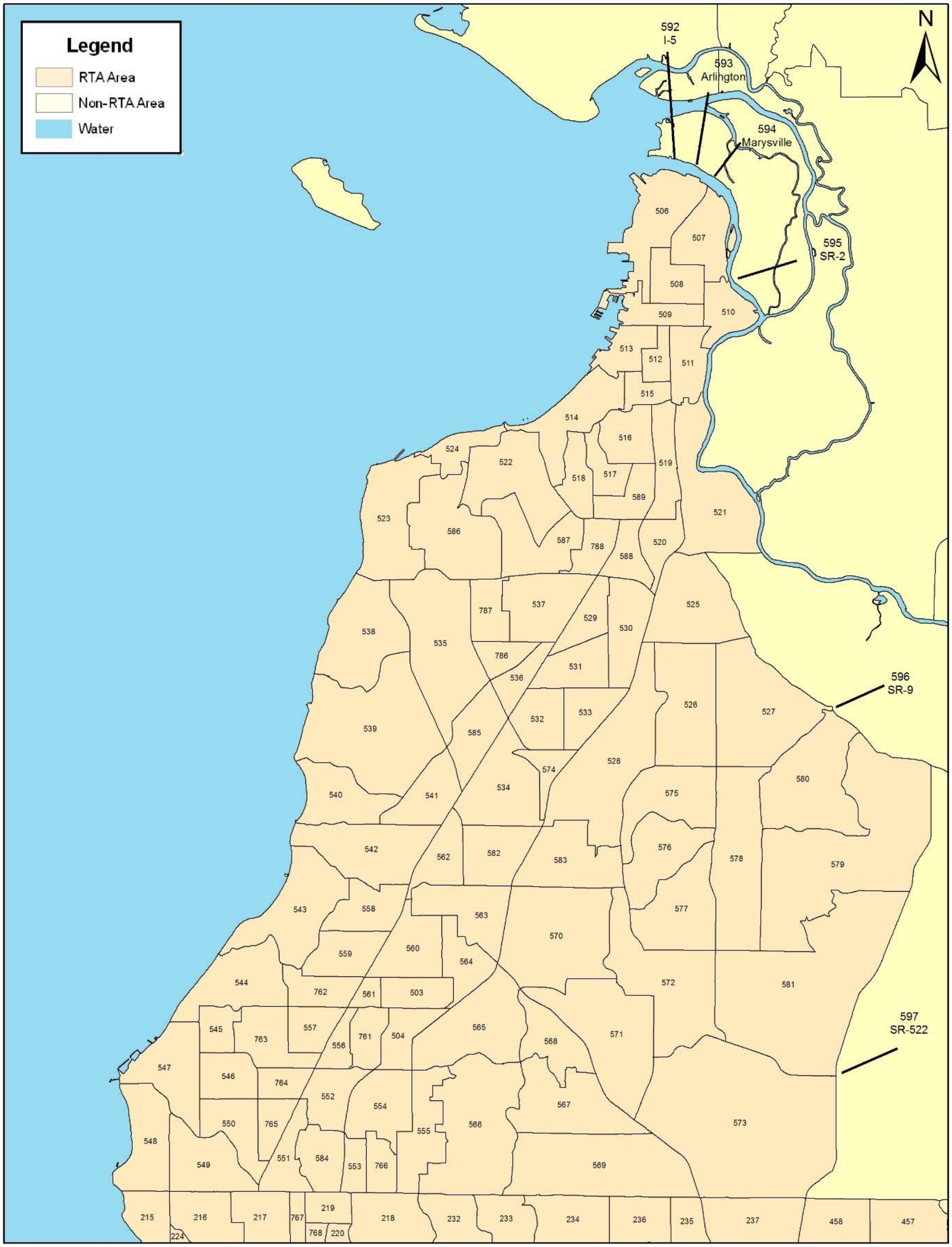

Figure A-5. 807 AAZ Map—Snohomish County

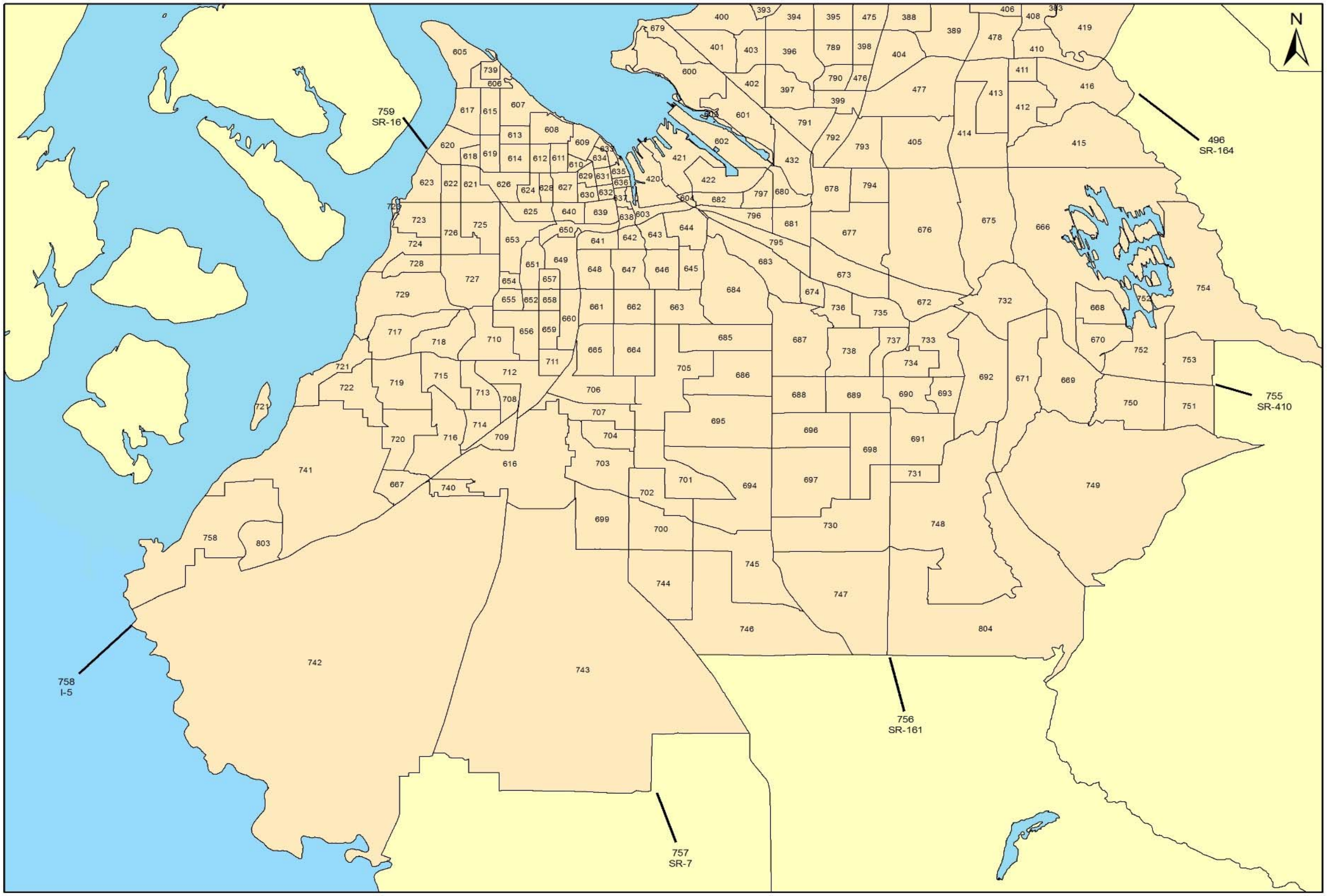

Figure A-6. 807 AAZ Map—Pierce County

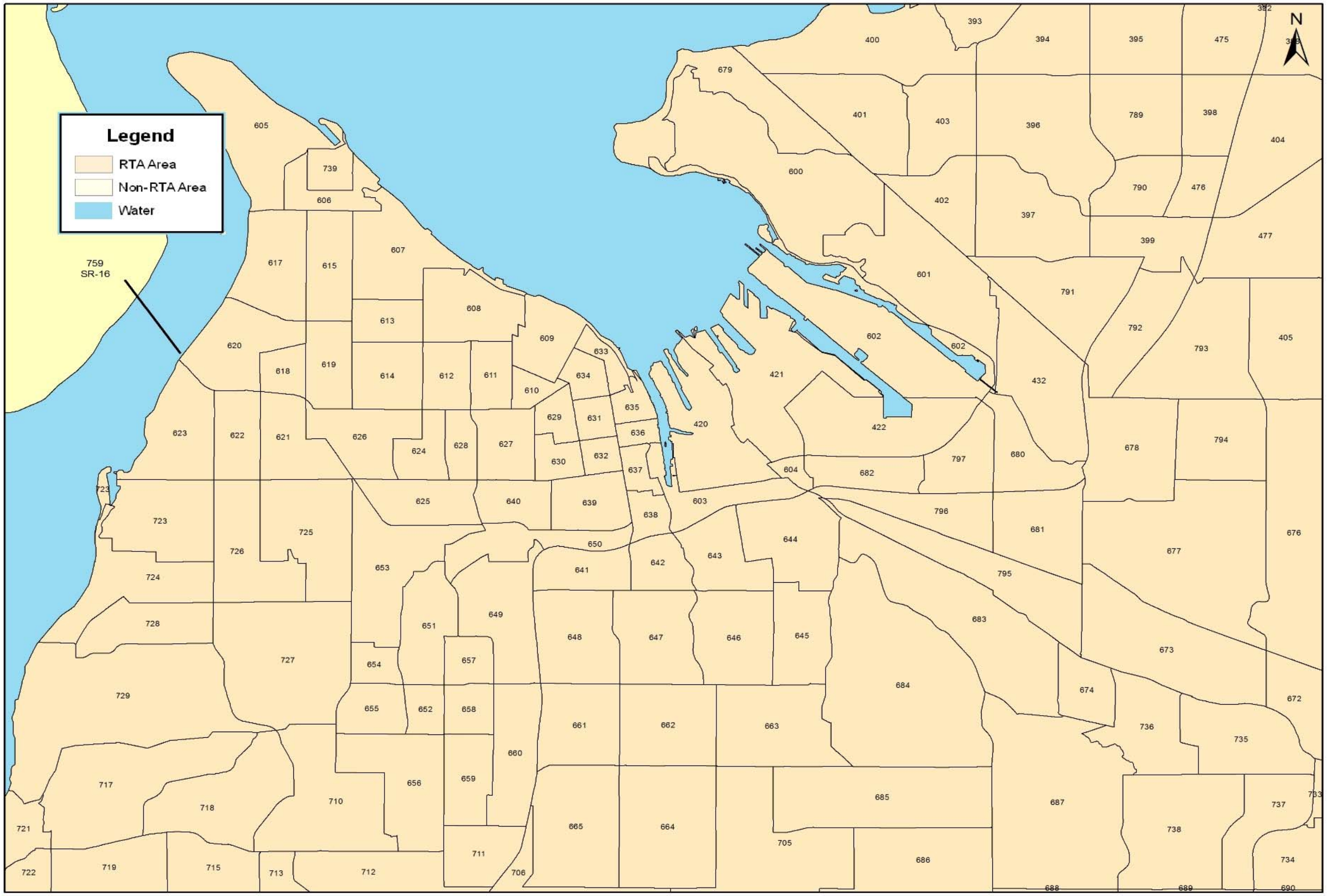

Figure A-6a. 807 AAZ Map—Tacoma

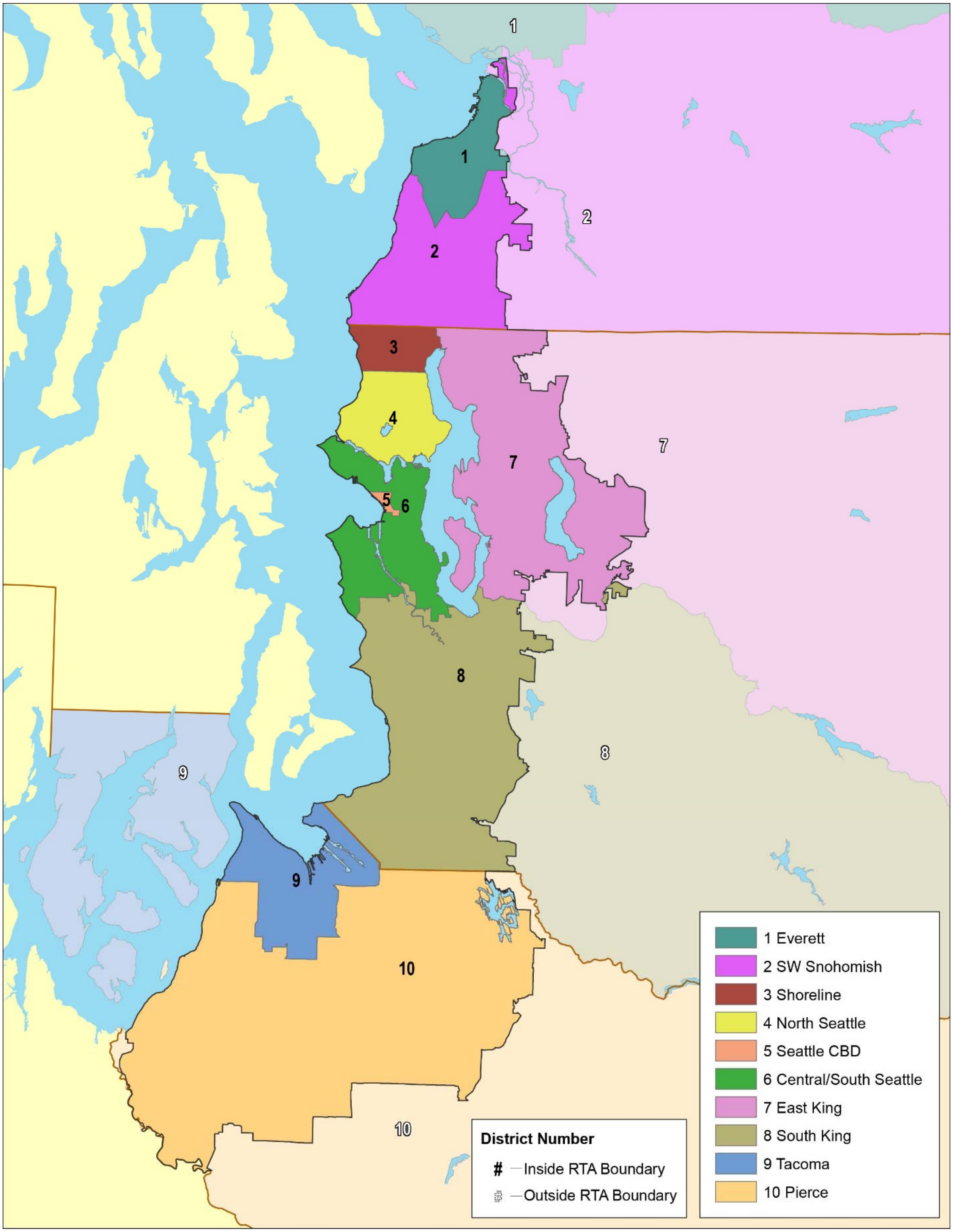

Figure A-7. 10-district map

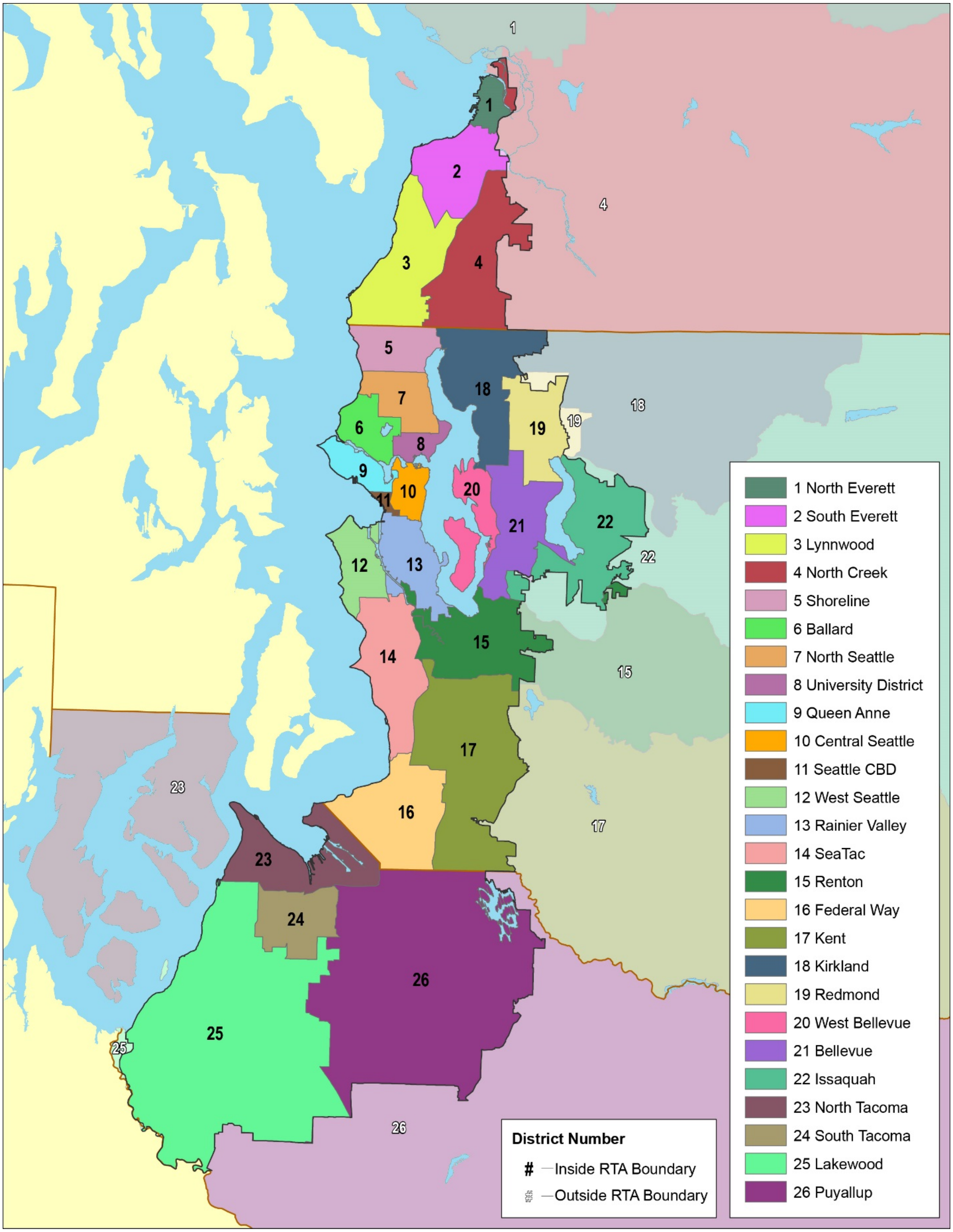

Figure A-8. 26-district map

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Appendix B: ORCA, Surveys and Google Travel Time Data

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Appendix B: ORCA and Surveys Data

This appendix includes a summary of the recent ORCA and surveys data used to update the 2017 version of the Sound Transit (ST) Ridership Model. This model version represents a departure from previous versions, primarily because of a significant increase in the amount of data available in the Puget Sound Region for describing current transit travel. The most significant of these is the availability of ORCA fare card transaction data used to create peak and off-peak seed matrices and provide a realistic estimate of transfer rates. ORCA data is now the primary source of shaping transit travel patterns. It constitutes opening 26 percent of (zone-to-zone) cells in the seed matrices with non-zero values. Commute trip reduction (CTR) and ST surveys open, respectively, an additional 3.0 and 0.3 percent of the cells.

B.1 ORCA Data

The ORCA card is a smart card technology to allow transit users to easily pay fares by tapping the card against an electronic card reader. The card enables seamless transfers between transit systems thanks to revenue-sharing agreements between transit agencies in the region. Transit users are incentivized to use the card instead of cash since they receive free or discounted transfers between agencies only if they use an ORCA card. The ORCA card allows for enhanced data collection as well, since the particular route, time of boarding, and transfers are logged; additionally, for rail, both the boarding and alighting locations are logged.

The ORCA data used to update the ST model is an outcome of previous work performed by the Washington State Transportation Center (TRAC) office at the University of Washington, designed to demonstrate the value of using ORCA transaction data for planning and operational purposes. The project is funded jointly by TRAC and Sound Transit, with staff support from the Puget Sound Regional Council.

The origin-destination data provided to Sound Transit and their consultants are developed from nine weeks of ORCA transaction data from March 26, 2016, to May 28, 2016, containing about 23 million boardings. On an average weekday during this period, 453,000 boardings were paid with ORCA cards. The number of true transfers, excluding round trips paid as transfers, was 109,600, yielding about 353,000 average weekday linked trips. This results in a transfer rate of 1.32. For the PM peak period, 148,200 boardings were paid for with ORCA cards. The number of true transfers, excluding round trips paid as transfers, was 35,400, yielding about 112,800 PM peak period linked trips. This results in a PM peak transfer rate of 1.31.

Trips on Kitsap Transit, Everett Transit, and Washington State Ferries were not geocoded and thus were not used in the estimation of the transfer rate.

Note that origins and destinations are assigned to specific transit stops and do not indicate the actual geographic origin (land use parcel or alternative analysis zone) or destination of that trip. An additional analysis used to allocate trips to zones for the matrix estimation seed matrix is described below.

B.1.1 ORCA data processing

The ORCA system supplies ORCA fare transaction records in two basic forms: on-board bus transactions (which include the date and time, bus number, route, and operating agency) and off-board transactions from rail and BRT services (which include the date and time, location of the card reader and, in some cases, where the rider exited the rail system).

The initial pre-processing step of the origin-destination process links the automatic vehicle location (AVL) records of each agency to the on-board ORCA fare transaction records. This allows the analysis process to geolocate a very high percentage of the ORCA transit boarding records. Next, a look-up table is used to identify the location of each off-board rail and BRT payment location. This allows the geolocation of the BRT and rail trips. For BRT trips, the vehicle location files are then used to identify which bus the rider boarded based on routes serving the indicated stationary card reader. Sometimes multiple tap records occur to account for fare reloads or covering additional required fare; therefore, these taps are removed from the dataset, as they are not records of boardings or alightings. The product of these basic pre-processing steps is the geolocated ORCA transactions file indicating when, where (bus stop or rail station), and which vehicle each rider boards.

B.1.2 Origin-destination processing

The input to the origin-destination estimation process is the geolocated transactions file described above. This file is sorted by hashed ORCA card number and then by date and time. Data processing then occurs for one hashed card ID at a time. (That is, all ORCA cards with a hashed card ID of “abc123” are processed together, and that processing occurs in date/time order, with the “oldest” record processed first.) While the process described below aims to determine origins and destinations, it focuses on destinations for transit trips that do not involve transfers; transfer processing is discussed in a later section.

Destination Estimation

Starting with the first record (Record J), the geolocated boarding location (Stop J) is assigned as the origin of the trip (Trip J). The next record (Record K) for that ORCA card ID is then examined. If Record K is a transfer,[1] then transfer processing (see the next major section) is performed. If Record K does not describe a transfer boarding, then the location of boarding for Record K is used as a potential indicator of the destination of Trip J.

A 1/3-mile circle is drawn around the boarding location described for Record K. If the transit route boarded for Record J (Route J) has a bus stop that falls within the 1/3-mile circle around the boarding location for Record K, then the stop closest to the boarding location shown for Record K (Stop K) that is served by Route J (Exitstop J) is assumed to be the destination for the trip with a defined origin at the boarding location for record J. The process then produces a record indicating the origin (Stop J) and destination (Exitstop J). An illustration of this process is shown in Figure B-1. If Route J does not pass within 1/3-mile of Stop K, then no destination can be assigned for Trip J and the trip is discarded for O-D purposes, as illustrated in Figure B-2. For rail trips where the person did “tap off,” this tap-off location is used as the destination, unless there is a transfer, in which case the process in the section below applies.

[1] ORCA records contain an indicator variable which indicates if the current boarding has occurred within 2 hours of a non-transfer boarding. If this boarding occurs within 2 hours of a non-transfer boarding, it is considered a transfer by ORCA.

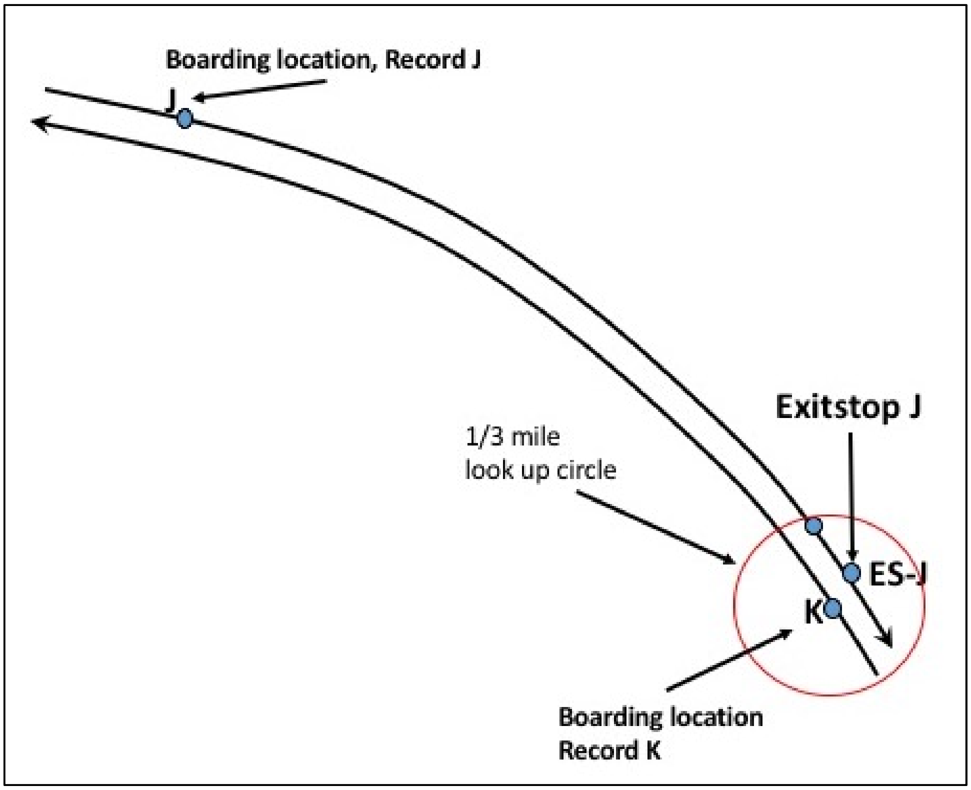

Figure B-1. The destination identification process

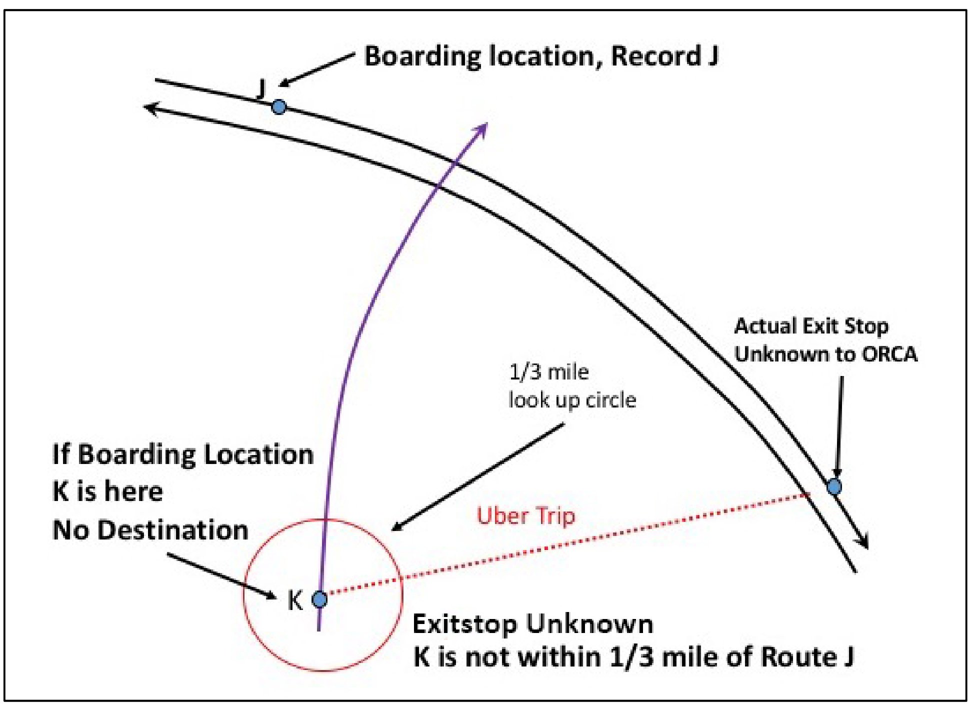

Figure B-2. The destination identification process, with no destination found

Transfer Handling

When a transfer is indicated by an ORCA record, the following steps are taken in place of the destination discovery steps described above. First, if the Route being boarded (i.e., the Route in Record K) is the same as the route being transferred from (Route J), then an activity is assumed to be taking place between the first boarding and the second boarding because no one gets off a bus to simply get right back on that bus. Consequently, if Route K = Route J, boarding stop K is the identifier of the logical destination for Trip J. Therefore, a 1/3-mile look-up is performed. Note that it is allowed to have boarding stop K as the destination for Trip J. This would be what is a termed a “pit stop”: the rider gets off at a bus stop, does an activity, and then re-boards that same route, going in the same direction, at the same stop. Alternatively, the rider may be involved in an “end point” transfer: where exit stop, J is essentially across the street from boarding stop K, and s/he is likely returning to the origin for Trip J, having completed an activity near exit stop J and boarding stop K.

If Route J is not equal to Route K, then the 1/3-mile check is created around the new boarding location (Stop K). If that look-up fails (the two routes are not close to each other), then it is assumed that some trip occurred between the first and second transit trips and, therefore, no destination can be found for Trip J and the trip is discarded for O-D purposes.

If the 1/3-mile look-up finds a stop, then the transfer is assumed to be valid. Route K is then used as the route for which a destination must be found. The next record (Record L) for this ORCA card number is then examined. If it is also a transfer, then the transfer process is repeated. If Record L is not a transfer, then the destination search process described above seeks a destination for Route K.

Rail Transfers

If Trip J occurs on a rail vehicle (Sounder or Link), an exit tap is made and a transfer occurs, then the validity of the transfer boarding is verified by checking the location of the transfer boarding (Stop K) against the exit station for the rail portion of the trip. If the new boarding is not within 1/3 mile of the exit rail station, then it is assumed that some trip occurred between the first and second transit trip, and the trip destination is assumed to be the rail station exit point. If the rider does not “tap off,” then the 1/3-mile computation takes into consideration the entire rail line in order both to determine the validity of the transfer and to identify the rail station that served as the exit point from the rail portion of the trip.

B.1.3 Apportioning ORCA flows to ST model zones

This data needs to be aggregated to the zonal level for use in the Sound Transit model. A naïve approach could be used where trips to or from a given stop are assigned entirely to the zone where the bus stop is located. However, this results in a number of issues:

- Stops along streets that are zone boundaries will have significant imbalances in daily flows
- Zones which have no stops will show no activity even if there are nearby stops

This document describes the process used to allocate flows from stop-to-stop to zone-to-zone.

Method for apportionment

Since the processed ORCA origin-destination flows represent linked trips (including transfers), the primary modes of access or egress from each stop are walking and biking, with auto access (drop off and parking) at park-and-ride locations. For walk/bike access, spreading trips over a reasonable access area was deemed appropriate. Historically, a 0.25-mile walk distance for bus and 0.5-mile for rail was considered typical. However, recent research, including the Sound Transit Before/After study for Initial Segment/Airport Link, indicated a willingness to walk longer distances, but extending the distance too far can result in unreasonably long access distances, given the large size of some zones. Table B-1 shows the distances used. For short trips, smaller distances were used to spread the flows since it makes sense that people will not walk as far for a short trip. For longer trips, 50 percent of trips were assigned to the area within half the walk access distance and the remaining 50 percent assigned to the outer ring of the distance as shown in Figure B-3. Whether for short trips or longer trips, the number of trips allocated to each zone is proportional to the area of the circle over each zone. Note that these distances were not used for the Downtown Seattle Transit Tunnel stations; for those stations, unique travelsheds were manually developed, reflecting station access, topography, zonal coverage, and likely use of each of the stations.

Table B-1. Walk access distances by stop type

Stop Type	Total Trip Length > 2 miles	Total Trip Length <= 2 miles
Link, Bus, & Streetcar	0.4 miles	0.2 miles
Sounder	0.6 miles	0.3 miles
Sounder at King Street Station	0.8 miles	N/A

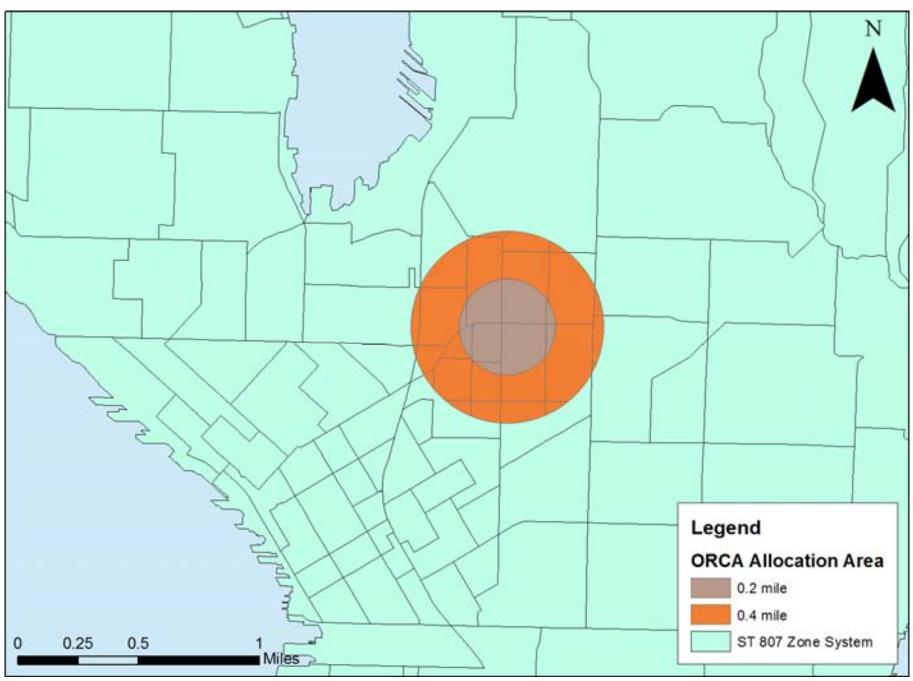

Figure B-3. Allocation area for walk/bike access at Capitol Hill Station

For stops at park-and-rides, the method above was used for walk access trips. However, for auto access, patterns of access tend to originate farther away from the destination (e.g., nobody drives from Mercer

Island to Bellevue to take a bus to Seattle). To apportion auto-access trips, park-and-ride-specific networks for automobiles to and from zones were used to apportion flows from an AM origin or PM destination stop (that serves commuter routes) over the zones this network connects to. These park-and-ride networks are reflective of the likely primary travelshed of auto access to each park-and-ride. The relative proportion of households was used to allocate between zones (e.g., zones with more households received a larger share of the flows from a stop). Finally, each stop was characterized as high (75 percent), medium (50 percent), or low (25 percent) auto access, representing the percent of trips that arrive/depart as auto access rather than walk or bike. This categorization of high, medium, and low recognizes that certain park-and-ride locations have much better walk accessibility for transit trip origins and destinations (e.g., Northgate).This results in smaller percentage of total boardings at that location to be allocated to auto-access than for other park-and-ride locations (e.g., Lakewood Station).

B.2 Surveys

In addition to ORCA data, relevant information from a number of recent surveys was also used in the ST model update. This included ST transit on-board surveys (2011-2016), CTR surveys (2011-2016), and American Community Survey. The ST and CTR surveys were used to open additional cells in the seed matrices. The American Community Survey was used to scale Base Year transit share matrix produced from the CTR survey. This was to neutralize the large-employer sample bias in the CTR data.

B.3 Google Travel Time Data

The Google Distance Matrix API (https://developers.google.com/maps/documentation/distance-matrix/) was used to establish Base Year non-transit travel times between each zone pair. The Distance Matrix API provides the network-based travel distance associated with the fastest travel time between two given points at a specified start time. Using a future date results in travel time estimates that represent typical travel times for that day of the week, including any recurring congestion, but without any delay from specific incidents that would result from using historical data. Representative points for each zone were selected by starting with the zone centroid, then adjusting the representative point as needed to reflect the center of travel activity for that zone. Representative points for some external ferry zones were chosen at the ferry terminal, meaning these travel times do not include ferry wait or travel times.

Travel times between points representing every zone pair (except intra-zonal pairs) for the following trip start times:

- Wednesday, June 7, 2017, at 12:15 p.m.
- Wednesday, June 7, 2017, at 5:15 p.m.

Collecting travel times between all zones for two start times resulted in over 1.3 million requests. The Google API limits the total number of requests to 100,000 per day per API key, the process was run the last week of May and first week of June, using the June 7 date for all travel time requests. The 12:15 p.m. time represents an off-peak hour, while 5:15 p.m. reflects the PM peak hour. Change in travel times from the ST highway model will be applied to the Google-based Base Year non-transit travel times to produce corresponding future year travel time inputs required in the ST model Stage 2 forecasting step.

Appendix C: Highway Model

- Overview
- Network Refinements
  - Base Year
  - Future Baseline
- Model Results

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Appendix C: Highway Model

The Puget Sound Regional Council's (PSRC) 4K trip-based regional travel forecasting model[1] provides key inputs into the ST incremental transit ridership model. These include estimates of changes in (a) demographic growth, (b) non-transit travel times, and (c) bus speed degradation estimates. For the purpose of level-of-service and traffic design/mitigation analyses, it also provides estimates of changes in (a) performance measures (such as vehicle miles traveled) and (b) vehicular traffic as highlighted in Figure C-1. This figure shows the relationship between the ST incremental transit ridership model and the PSRC regional travel forecasting model, along with other related processes.

As illustrated in Figure C-1, the PSRC regional model is not meant to provide facility-specific traffic estimates at a level of detail adequate for use in analysis of impacts. It can only provide an overall estimate of generic growth factors when needed. Other locally detailed subarea traffic models, mesoscopic models, or micro-simulation models should be used for level-of-service and traffic design/mitigation analyses.

This appendix discusses the background of this highway model and highlights efforts to improve the results from the model to best reflect observed conditions and provide quality inputs into the ST model. This includes presentation of some Base Year model results.

C.1 Overview

The PSRC regional model used to support the ST incremental ridership model has benefited from the culmination of over two decades of experience from the application of PSRC regional model to major WSDOT projects, such as the SR 520, I-5 to Medina: Bridge Replacement and HOV Project, Alaskan Way Viaduct and Seawall Replacement Program, and Puget Sound Gateway Program. The observations and data regarding the operation of facilities in the ST area have provided insight to guide enhancements to the ST highway model.

As part of the analysis for the SR 99 tunnel toll traffic and revenue analysis, a Dynamic Traffic Assignment (DTA) model was created to analyze traffic and revenue that would be affected by tolling of the new tunnel. The mesoscopic DTA model provides a level of detail between a demand model and operational models, while still using the zonal system from the City of Seattle model. Likewise, a DTA model has been used to support evaluation of conceptual design scenarios for the Gateway project. For the purpose of preserving all the previous network changes and refinements, the original 1K zone system was adopted in conjunction with the current PSRC 4K model procedures.

Using the above model background information, the PSRC regional model incorporated network attributes and model procedures that would provide the best representation of travel conditions within the ST area. In addition to knowledge provided from these models, additional review of network attributes and existing roadway conditions was performed to provide additional updates that might not necessarily have been included in the focus of other recent modeling efforts.

[1] Puget Sound Regional Council, 4K Travel Model Documentation, June 2015.

Base Year and Future Year travel times from the PSRC regional model are not used in the ST transit model. Peak and off-peak non-transit travel times are taken directly from measured Google highway times, as described above in Appendix B, Section B.3. The PSRC regional model is used to estimate incremental changes in the measured non-transit times for use in Future Year transit ridership forecasts only.

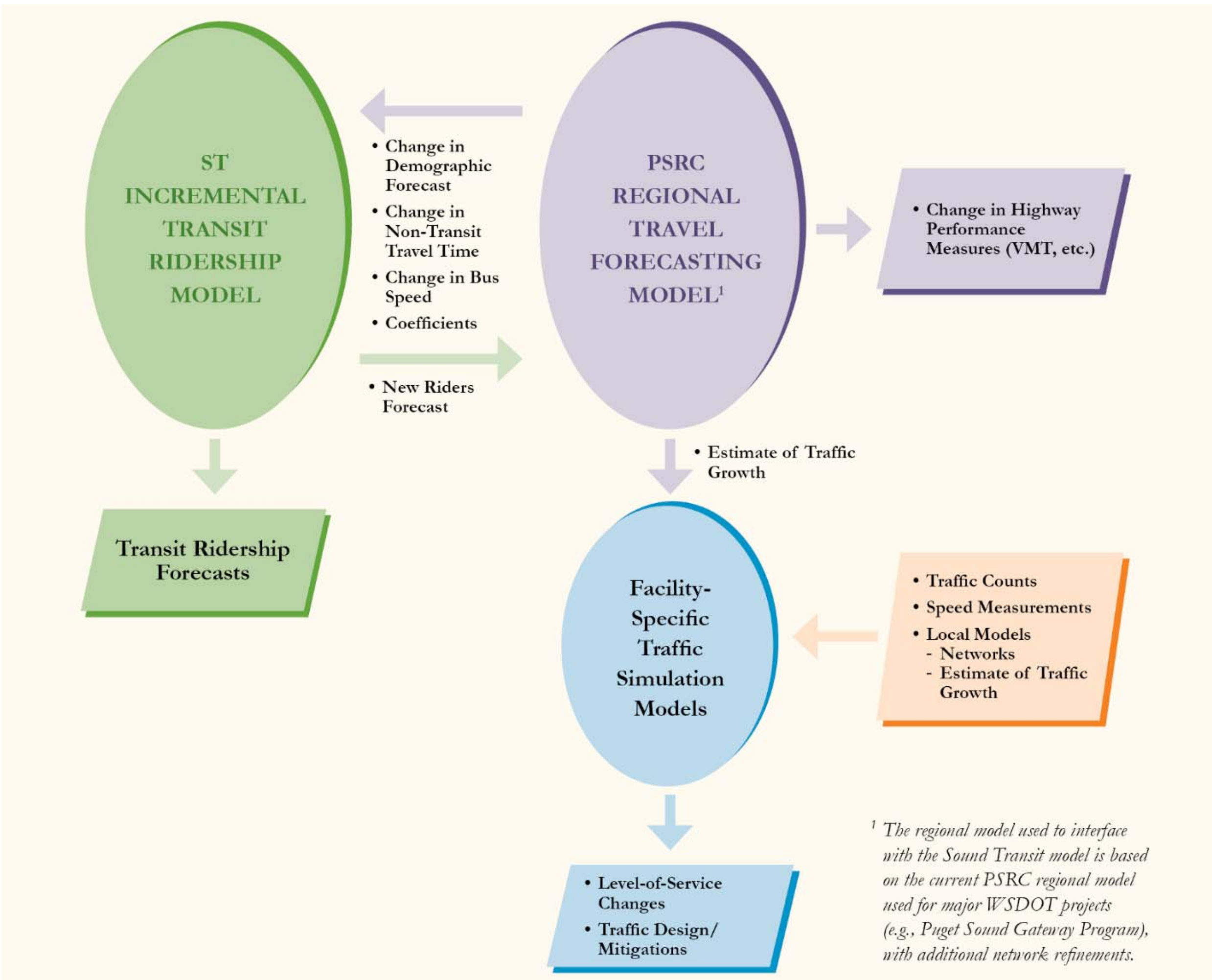

Figure C-1. ST incremental transit ridership and PSRC regional models relationship

Likewise, output from this model is not used to estimate Current Year or Future Year project-related changes in vehicle miles travelled. For vehicle-miles-travelled changes related to transit projects, the FTA preferred method, as described in recent FTA guidelines for the New Starts Capital Investment Grant Program, is used. This method requires only the transit new riders' estimates for Current Year and Future Year plus a generic highway distance matrix for the region.

C.2 Networks

C.2.1 Base Year

The Base Year (2016) highway network reflects existing conditions. To better reflect existing roadway configurations, the model link attributes were compared to actual conditions. Appropriate adjustments to speed, capacities, and congestion factors were made accordingly. The Base Year transit network in the ST ridership model was used as a guide to update the base transit network in the PSRC regional model. The path-builder parameters are similar to those used in the current ST incremental model.

C.2.2 Future baseline

Highway projects

The future baseline for the highway model includes several major and minor highway projects that were defined in PSRC's *Transportation 2040* Preferred Alternative (Constrained) network. This network, therefore, includes some projects that are planned but not funded. A single baseline network is used for the transit no-build and build alternatives since none of the build alternatives significantly affect the design of any roadways.

Transit projects

Transit changes significant enough to affect regional highway demand levels are also included in the 2040 PSRC regional model. The 2040 PSRC regional model assumes that the ST Link light rail network extends from Federal Way south to Lynnwood in the north and to Downtown Redmond in the east. Background transit assumptions for the PSRC model always include only transit projects with a Record of Decision and full funding. Bus routes and frequencies are adjusted to reflect updated connections to light rail service as well as King County's RapidRide arterial BRT service and Community Transit's Swift arterial BRT service.

Demographic forecasts

The PSRC regional model uses the Land Use Vision (LUV.2).

C.3 Bus speeds

Historically, the ST transit ridership model has used estimates of long-term speed degradation from the PSRC regional model in order to slightly reduce future bus speeds. This degradation typically has been in the 7- to 9-percent range per decade, depending on the location and type of highway segment used by the bus route. The historical justification for this approach included review of actual bus operating speeds over the four decades from about 1960 to 2016; long-term degradation of about 9 percent per decade was observed.

There is no reason to change this procedure in current applications of the ST transit model. After a period of very modest bus speed degradation from 2008 to 2013, there has been a steep decline in bus speeds from 2014 to 2017. The average decline over the past decade (i.e., combined for 2008-2017) has, in fact, been about 10 percent.

BRT routes, where freeway or arterial route segments are barrier-separated or grade-separated, are treated identically to rail lines in the ST transit model. That is, the speeds are entered directly on the links, with the addition of reasonable times for deceleration/dwell/acceleration at proposed stops. However, bus speed degradation is applied to routes that operate in congested high-occupancy vehicle lanes and which often require interaction with adjacent lanes, since recent history of measured bus speeds in these lanes exhibits continuing bus speed degradation in all major corridors.

A wide variety of existing BRT-type stop-spacing situations are available within the existing regional bus network for inference of new BRT travel times. While there is always a risk of over-optimism in the modeling of BRT operations for ridership estimation, careful reference to existing situational experience with actual bus speeds and station-to-station times reduces this risk.

C.4 PSRC regional model results

Although the primary purpose of this model is to provide estimates of future changes in non-transit travel times, a comparison of estimated and observed vehicle volumes at key screenlines provides a reasonableness check on model performance. Model-estimated vehicle volumes are compared to recent observed traffic counts on arterials and highways across a number of screenlines. The screenlines used are shown on the map in Figure C-2. As seen in Table C-1 through Table C-3 the estimated screenline total volumes are mostly within 10 percent of observed volumes during the peak hours and over the entire day.

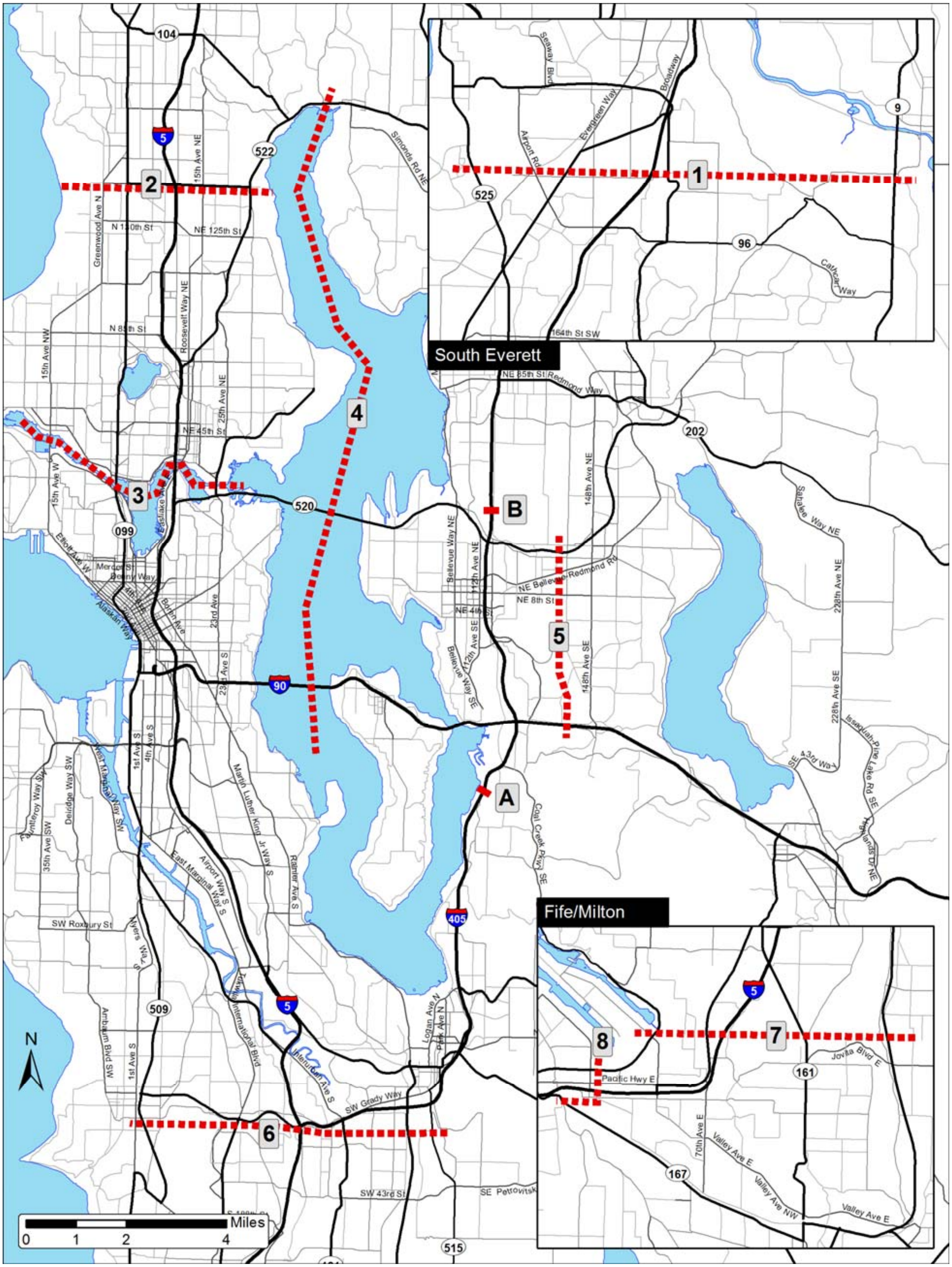

Figure C-2. Highway screenlines map

Table C-1. Base Year (2016) screenline total vehicle volume comparison (AM peak hour)

	Actual Volumes			Estimated Volumes			
	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total	Est/Obs
Screenline 1 - North of 112th St SW							
Freeways	5,600	6,870	12,470	3,800	6,630	10,500	0.84
Arterials	3,840	5,040	8,880	4,230	4,510	8,800	0.99
Screenline Total	**9,440**	**11,910**	**21,350**	**8,030**	**11,140**	**19,300**	**0.90**
Screenline 2 - South of N 145th Street							
Freeways	5,010	8,070	13,080	4,870	7,980	12,900	0.99
Arterials	4,320	6,670	10,990	3,070	6,170	9,100	0.83
Screenline Total	**9,330**	**14,740**	**24,070**	**7,940**	**14,150**	**22,000**	**0.91**
Screenline 3 - Ship Canal							
Freeways	5,910	11,770	17,680	6,340	11,220	17,600	1.00
Arterials	3,880	5,670	9,550	3,670	4,920	8,700	0.91
Screenline Total	**9,790**	**17,440**	**27,230**	**10,010**	**16,140**	**26,300**	**0.97**
Screenline 4 - Midlake							
Freeways	8,720	10,700	19,420	8,010	8,170	16,300	0.84
Screenline Total	**8,720**	**10,700**	**19,420**	**8,010**	**8,170**	**16,300**	**0.84**
Screenline 5 - West of 140th Ave E							
Freeways	9,640	11,090	20,730	8,290	9,000	17,290	0.83
Screenline Total	**9,640**	**11,090**	**20,730**	**8,290**	**9,000**	**17,290**	**0.83**
Screenline 6 - South of SR 518/I-405							
Freeways	15,070	10,270	25,340	12,990	6,960	19,950	0.79
Arterials	3,610	4,800	8,410	3,390	3,590	7,000	0.83
Screenline Total	**18,680**	**15,070**	**33,750**	**16,380**	**10,550**	**26,990**	**0.80**
Screenline 7 - King/Pierce County Line							
Freeways	7,410	6,860	14,270	9,120	5,610	14,730	1.03
Arterials	5,100	3,250	8,350	5,480	3,250	8,700	1.04
Screenline Total	**12,510**	**10,110**	**22,620**	**14,600**	**8,860**	**23,350**	**1.03**
Screenline 8 - East of Port of Tacoma Rd							
Freeways	7,980	7,040	15,020	8,880	6,420	15,300	1.02
Arterials	2,230	3,360	5,590	1,760	2,010	3,700	0.66
Screenline Total	**10,210**	**10,400**	**20,610**	**10,640**	**8,430**	**19,050**	**0.92**
Point Locations - A & B							
I-405, South of Coal Creek Pkwy -- A	6,040	4,250	10,290	5,750	3,510	9,260	0.90
I-405, North of SR 520 -- B	4,980	7,960	12,940	4,680	7,430	12,110	0.94

Table C-2: Base Year (2016) screenline total vehicle volume comparison (PM peak hour)

	Actual Volumes			Estimated Volumes			
	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total	Est/Obs
Screenline 1 - North of 112th St SW							
Freeways	7,240	6,290	13,530	7,800	4,400	12,200	0.90
Arterials	5,890	6,100	11,990	6,000	5,000	11,000	0.92
Screenline Total	**13,130**	**12,390**	**25,520**	**13,800**	**9,400**	**23,200**	**0.91**
Screenline 2 - South of N 145th Street							
Freeways	7,440	5,070	12,510	8,500	5,000	13,500	1.08
Arterials	7,990	7,190	15,180	9,200	5,600	14,800	0.97
Screenline Total	**15,430**	**12,260**	**27,690**	**17,700**	**10,600**	**28,300**	**1.02**
Screenline 3 - Ship Canal							
Freeways	10,560	4,660	15,220	11,900	6,900	18,800	1.24
Arterials	6,260	5,080	11,340	*6,700*	*6,200*	12,900	1.14
Screenline Total	**16,820**	**9,740**	**26,560**	**18,600**	**13,100**	**31,700**	**1.19**
Screenline 4 - Midlake							
Freeways	10,310	8,720	19,030	*10,700*	*9,300*	20,000	1.05
Screenline Total	**10,310**	**8,720**	**19,030**	**10,700**	**9,300**	**20,000**	**1.05**
Screenline 5 - West of 140th Ave E							
Freeways	11,140	8,580	19,720	*11,500*	*9,400*	20,900	1.06
Screenline Total	**11,140**	**8,580**	**19,720**	**11,500**	**9,400**	**20,900**	**1.06**
Screenline 6 - South of SR 518/I-405							
Freeways	12,590	15,080	27,670	*9,500*	*16,300*	25,800	0.93
Arterials	4,470	4,780	9,250	4,100	5,500	9,600	1.04
Screenline Total	**17,060**	**19,860**	**36,920**	**13,600**	**21,800**	**35,400**	**0.96**
Screenline 7 - King/Pierce County Line							
Freeways	7,090	8,200	15,290	*6,800*	*12,000*	18,800	1.23
Arterials	4,020	5,130	9,150	4,100	7,100	11,200	1.22
Screenline Total	**11,110**	**13,330**	**24,440**	**10,900**	**19,100**	**30,000**	**1.23**
Screenline 8 - East of Port of Tacoma Rd							
Freeways	8,010	8,580	16,590	*7,200*	*10,100*	17,300	1.04
Arterials	3,620	3,430	7,050	2,600	4,300	6,900	0.98
Screenline Total	**11,630**	**12,010**	**23,640**	**9,800**	**14,400**	**24,200**	**1.02**
Point Locations - A & B							
I-405, South of Coal Creek Pkwy -- A	4,970	4,820	9,790	4,300	6,200	10,500	1.07
I-405, North of SR 520 -- B	7,940	5,910	13,850	8,600	6,000	14,600	1.05

Table C-3: Base Year (2016) screenline total vehicle volume comparison (average weekday)

	Actual Volumes			Estimated Volumes			
	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total	Est/Obs
Screenline 1 - North of 112th St SW							
Freeways	104,100	105,200	209,300	85,400	82,300	167,700	0.80
Arterials	69,100	76,900	173,300	88,900	86,600	175,500	1.01
Screenline Total	**173,200**	**182,100**	**382,600**	**174,300**	**168,900**	**343,200**	**0.90**
Screenline 2 - South of N 145th Street							
Freeways	101,300	102,300	203,600	110,400	107,300	217,700	1.07
Arterials	76,000	72,300	148,300	85,500	84,300	169,800	1.14
Screenline Total	**177,300**	**174,600**	**351,900**	**195,900**	**191,600**	**387,500**	**1.10**
Screenline 3 - Ship Canal							
Freeways	133,900	122,000	255,900	146,700	138,500	285,200	1.11
Arterials	62,100	63,500	269,300	*155,400*	*159,800*	315,200	1.17
Screenline Total	**196,000**	**185,500**	**525,200**	**302,100**	**298,300**	**600,400**	**1.14**
Screenline 4 - Midlake							
Freeways	120,400	120,000	240,400	135,600	126,400	262,000	1.09
Arterials	29,600	29,600	59,100	26,400	25,800	52,200	0.88
Screenline Total	**150,000**	**149,600**	**299,500**	**162,000**	**152,200**	**314,200**	**1.05**
Screenline 5 - West of 140th Ave E							
Freeways	136,600	132,700	269,300	147,800	136,000	283,800	1.05
Arterials	51,700	51,700	103,300	49,600	52,000	101,600	0.98
Screenline Total	**188,300**	**184,400**	**372,600**	**197,400**	**188,000**	**385,400**	**1.03**
Screenline 6 - South of SR 518/I-405							
Freeways	220,400	204,000	424,400	182,600	180,400	363,000	0.86
Arterials	76,100	81,300	157,400	61,300	70,900	132,200	0.84
Screenline Total	**296,500**	**285,300**	**581,800**	**243,900**	**251,300**	**495,200**	**0.85**
Screenline 7 - King/Pierce County Line							
Freeways	155,300	145,300	300,600	152,100	150,600	302,700	1.01
Arterials	41,800	45,200	87,000	52,000	55,300	107,300	1.23
Screenline Total	**197,100**	**190,500**	**387,600**	**204,100**	**205,900**	**410,000**	**1.06**
Screenline 8 - East of Port of Tacoma Rd							
Freeways	122,900	120,000	242,900	128,400	124,500	252,900	1.04
Arterials	41,600	47,200	88,800	34,300	40,300	74,600	0.84
Screenline Total	**164,500**	**167,200**	**331,700**	**162,700**	**164,800**	**327,500**	**0.99**
Point Locations - A & B							
I-405, South of Coal Creek Pkwy -- A	85,300	79,400	164,700	81,600	74,800	156,400	0.95
I-405, North of SR 520 -- B	105,200	99,600	204,800	100,400	99,800	200,200	0.98

Appendix D: Procedures for Transit Network Preparation

- *Development of the Base Network*
- *Coordinate System*
- *Bus Speed from AVL Data*
- *Bus Speed Degradation Procedures*

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Appendix D: Procedures for Transit Network Preparation

Actual transit service is represented in a transit ridership forecasting model by means of a coded network. This service representation actually consists of two elements:

- A highway network, or "base network," is coded to create a computerized representation of existing and planned roads, busways, and tracks in the study region.
- Transit service assumptions are overlaid on this base highway network.

Significantly, for Sound Transit (ST) studies, the base network does not vary among alternatives. A single base network is used for all alternatives—meaning that for each alternative, elements of the base network may exist on which no transit service is coded. For example, rail rights-of-way are coded in every network although rail service may not yet exist on many of these rights-of-way.

ST decided to construct a single base network for several reasons. One advantage of keeping the base network constant is that it eliminates spurious errors caused by roads or walkways which could accidentally be coded differently in different alternatives. A second reason for maintaining a single base network is that it minimizes differences in results due to accidental differences in access coding. Because a major aim of any forecasting effort is to capture differences among various alternatives, it is important that these differences are attributable to actual differences among the alternatives, rather than to coding inconsistencies.

In contrast to the base network, the transit service that operates on this network does vary, both by forecast year and by alternative. The transit service network created for each alternative is represented by a set of bus and rail transit routes operated by local transit agencies.

D.1 Development of the base network

The base network is coded within the ST boundary and consists of links and nodes that represent the road system on which transit and automobiles travel. As mentioned, exclusive rights-of-way for transit (e.g., busways and rail tracks) are also coded, although they may not be used in every alternative. Park-and-ride lots are also coded, although some of these may not be served by transit in every alternative.

Each of the links coded in the base network has a set of attributes consisting of the length, type, modes allowed, lanes, and speed. More detail on link attributes is presented below.

The network outside the study area is not coded, although the major roads leaving the study area are coded by means of external links. These links serve as a method of accounting for travel into the study area from areas beyond the study area boundaries.

D.1.1 Transit mode types

The following seven modes are specified on links within the base network:

Symbol	Mode represented
b	Bus
t	Trolley Bus
r	Rail (including streetcar)
a	Auto access/egress (directional link)
w	Walk access/egress (directional link)
p	General pedestrian link
x	Park-and-ride lot connection (directional link)

The access modes (i.e., modes “a,” “w,” “p,” and “x”) are an important aspect of the base network. Note that in a PM peak transit network, the conventional terms “auto access” and “walk access” would be more properly described as “auto egress” and “walk egress”. There is a minor variation in the way these access modes are used in the PM-peak and off-peak networks. In the peak networks, both auto access and walk access modes are allowed at the destination end of the transit trip, while in the off-peak, only walk access is allowed. At the origin end of the trip, the “p” mode enables all trips access to the network from an origin zone.

Walk-access links are coded with a speed of 2.5 miles per hour (mph). The “w” mode allows walking from the base network to a destination zone centroid. The specification of a “w” mode enables the analysis of auto-access-only paths by disallowing this mode for peak auto-access assignments. The “p” mode accommodates all other walking, including zonal walk access, sidewalks and pedestrian paths, and station escalators, elevators, and transfer paths.

The other two access modes (modes “a” and “x”) are associated with the use of park-and-ride lots to access transit. Mode “a” allows auto trips between park-and-ride lots and zone centroids, and mode “x” represents walking between platform and car.

Figures D-1a and D-1b illustrate this coding convention. For ease of understanding, only modes used in the path building at the destination end are shown. The network as used for the PM-peak path-building and calculations is shown in Figure D-1a. The network as used for the off-peak path-building and calculations is shown in Figure D-1b.

There are several reasons for including the x-links to represent park-and-ride access to transit. First, using such links allows for counting the number of trips that use park-and-ride locations to access transit. Second, the use of such links will allow for modeling the effect of charging fees at park-and-ride lots should this be desired. Third, there is a certain disutility associated with having to walk some distance between a bus or train platform and a parked car. Using x-links allows for the inclusion and variation of this disutility in the model.

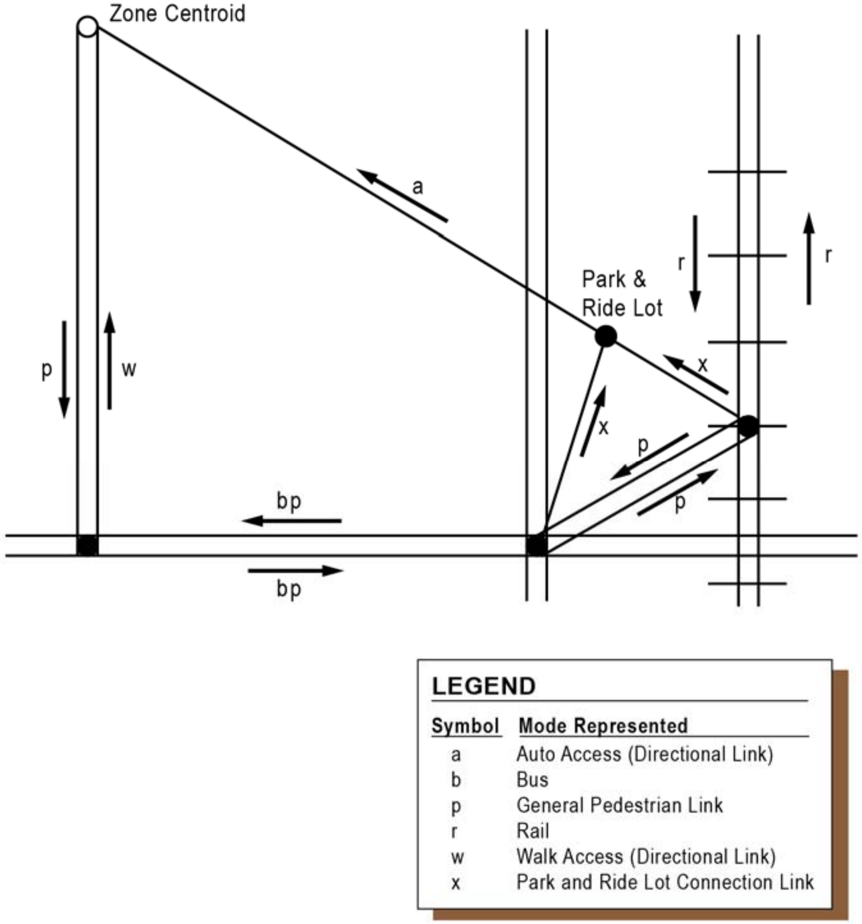


Figure D-1a. Sample mode coding on base network links (PM peak)

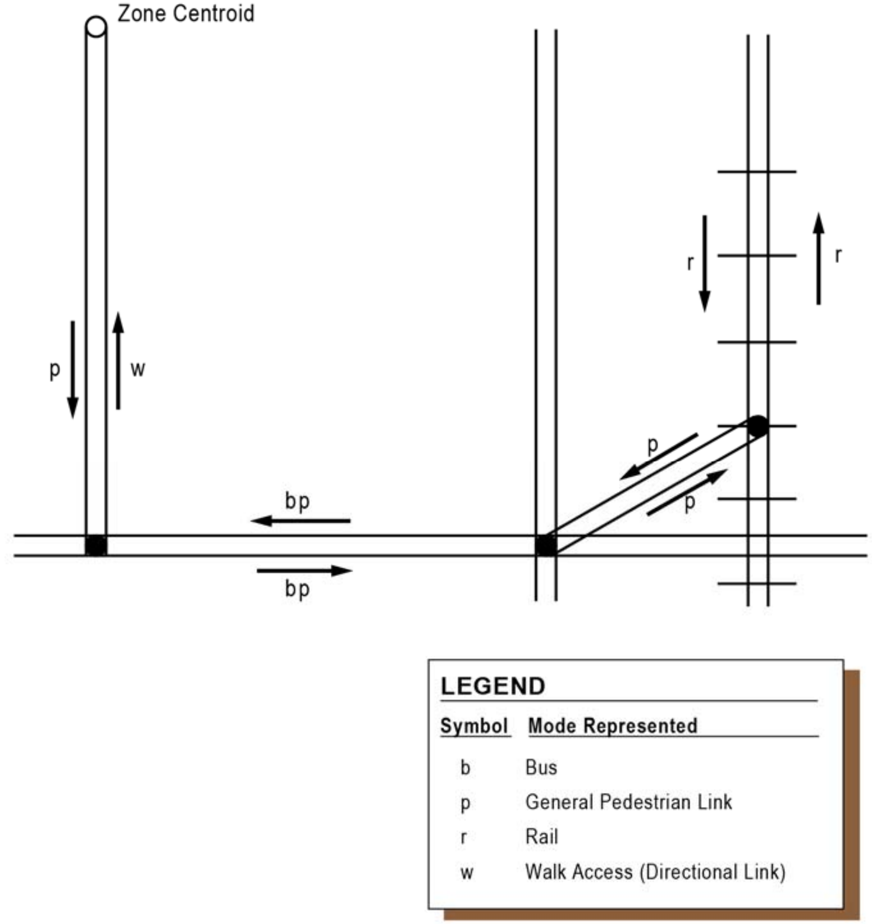


Figure D-1b. Sample mode coding on base network links (off-peak)

Finally, the use of x-links allows for a more even-handed comparison of park-and-ride access to transit between rail and non-rail alternatives. The use of x-links allows one to connect a single park-and-ride lot to both a bus stop and a rail station. This allows use of exactly the same park-and-ride location and auto-access by adjacent bus and rail stops.

All auxiliary transit modes have identical speeds in the peak network and the off-peak network. However, speeds on links used by bus and rail lines may vary between the peak and off-peak networks. Sources of bus and rail speeds are described below.

D.1.2 Development of the future transit service networks

Transit service networks are created to represent the transit service planned for each alternative and forecast year, as well as the service operated in the base years used to validate the model. Each service network is characterized by a unique set of routes, which includes rail lines, bus rapid transit (BRT) lines, express bus lines, and local bus lines. Each route is described by the nodes and links over which it travels, the travel time on each link, the locations where it stops, and its peak and off-peak headways. The characteristics are described in detail below.

Route patterns

Each route can be described by its route alignment, or the set of nodes and links over which it travels. The places where passengers are picked up and dropped off are coded by placing a dwell time on the nodes that represent bus stops for each particular route. All Sound Transit, King County Metro, Community Transit, Everett Transit, and Pierce Transit routes within the forecast study area are coded for each alternative and forecast year, with the exception of dial-a-ride services and routes that have less than six trips per day.

Route headways

Bus and rail headways are specified for each route in each transit service network, peak and off-peak. The headways in the PM peak network reflect the number of trips between 3:00 and 6:30 p.m., and the headways in the off-peak network reflect the base headways from 9:00 a.m. to 3:00 p.m. and 6:30 p.m. to 10:00 p.m. For the Base-Year network, headways are determined directly from the published operating schedules.

Future networks are developed according to the specific definition of alternatives as defined in appropriate Definition of Alternatives reports for Draft EIS, Final EIS, and PE projects as well as New Starts applications.

Rail speeds and bus speeds

For bus lines, peak and off-peak link speeds are obtained directly from AVL data as described below. For existing rail lines, all link speeds are obtained directly from ST operating data.

For future rail lines, link speeds are developed from operating plans supported by simulations. Future bus speeds are degraded according to the change in general roadway congestion level estimated by the PSRC model for arterial and freeway facilities and by geographic area. This procedure was developed and documented by ST staff in a memorandum to the FTA. A copy of this memorandum follows this section. Speeds of buses on busways, protected lanes are not affected and remain constant into the future.

D.2 Coordinate system

The ST model was previously projected in a variant of the WGS 1984 UTM Zone 10N coordinate system. This caused some network distortions that affected accurate plotting of the links and link distances. These issues were more pronounced farther from Seattle, such as in Everett and Tacoma. The coordinate system in the 2017 version of the ST model was updated to NAD 1983 HARN State Plane Washington North FIPS 4601. This update significantly reduced those distortions.

The following method was applied to update the coordinate system:

- Convert the existing nodes to State Plane North.
- Manually move nodes to more accurate locations.

This method preserves existing link and node numbers, allowing for preservation of the existing ST model transit network. The method is performed in a relatively short timeframe, and it limits possible unintended issues within the ST model.

The model nodes, with their existing identifiers and other values, are projected into State Plane North coordinates within ArcGIS. Then in ArcGIS, the nodes are manually moved to locations that best reflect the intersections that they represent in the model. This is an extensive process that spans the entire network coverage area (i.e., the RTA district boundaries).

To expedite the process and increase quality of node relocation, the nodes are typically snapped to a non-model GIS roadway network. An example of a completed area with nodes adjusted is shown in Figure D-2a. Additionally, the distortions in the network are greatly reduced, as exemplified by the change in scale and link locations in Everett shown in Figure D-2b.

D.3 Bus speed from AVL data

In previous model updates, bus speeds were hand-adjusted for major facilities and subareas of interest. This worked effectively in the past, partly because the changes to the seed matrices were modest. As the origin-destination seed matrices for this model version are now based on ORCA data instead of historical surveys, the actual speeds from Automatic Vehicle Locator (AVL) data should reflect the travel conditions that correspond directly to this origin-destination data.

King County Metro (KCM), Pierce Transit (PT), and Community Transit (CT) now have AVL equipment on their entire fleets and keep records of the AVL data. Sound Transit buses operated by these three agencies also have AVL equipment and associated data. As this data is more complete and readily available than for previous model updates, it is now used in the current 2017 ST model version.

The AVL data used in the ST model is received from the Washington State Transportation Center (TRAC) at the University of Washington and covers the same 9-week period in 2016 as the ORCA data. Each agency’s data is in a distinct format. KCM and CT provide stop-to-stop travel times, including dwell times if applicable. PT only provides stop-to-stop times where the bus door opened, which reduces the number of observed data points.

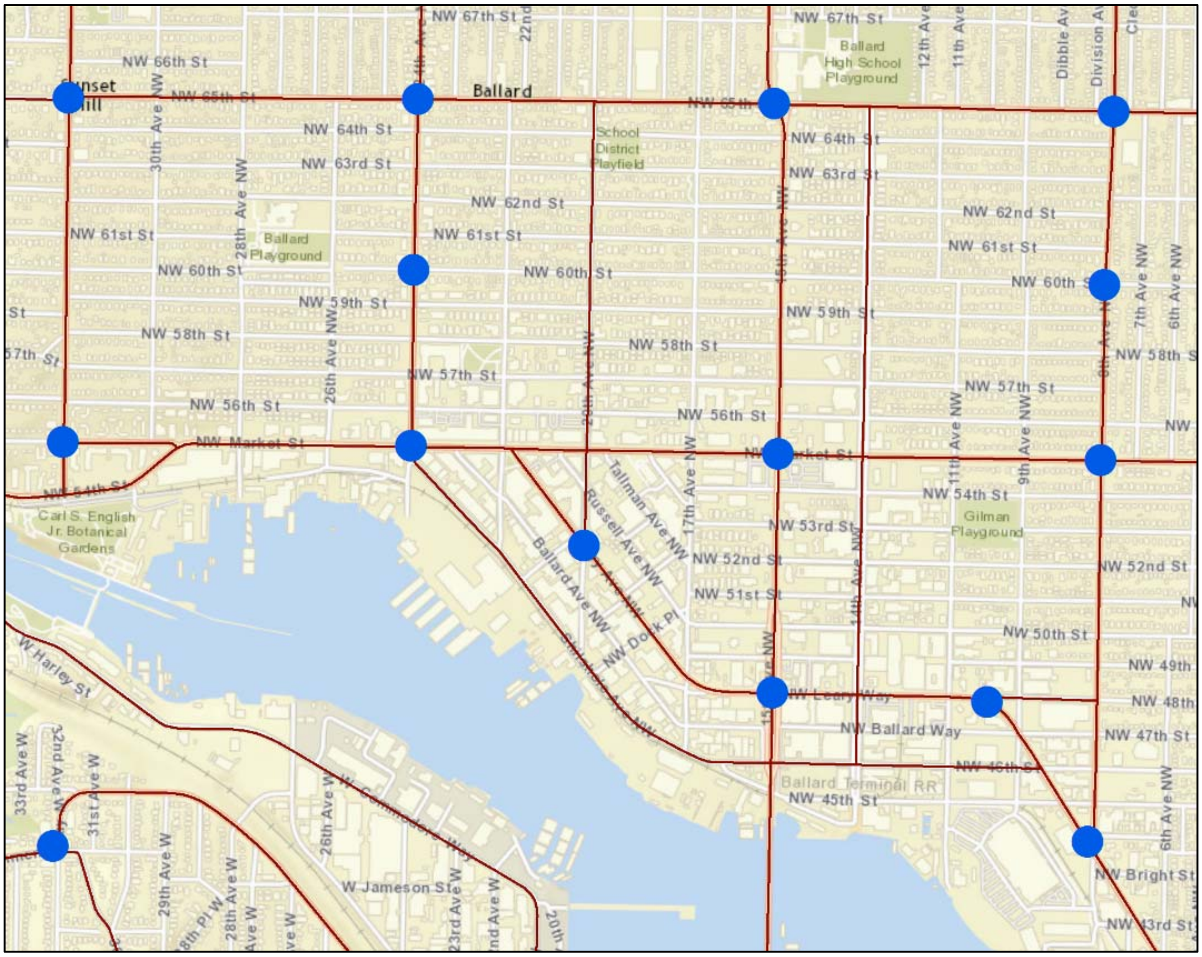
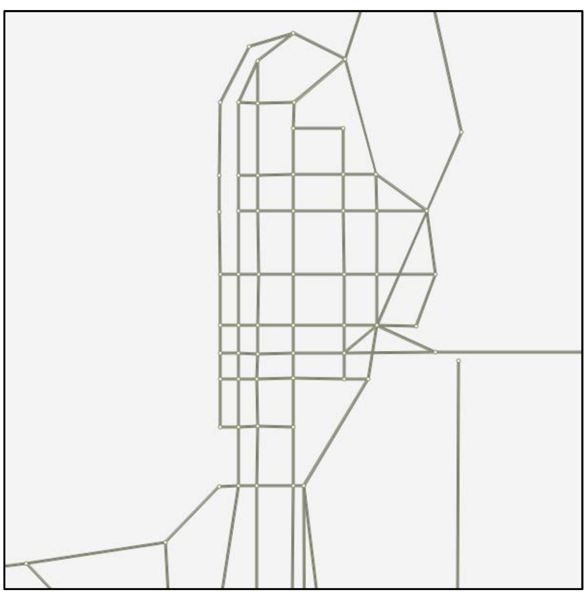


Figure D-2a. Updated nodes viewed in ArcGIS



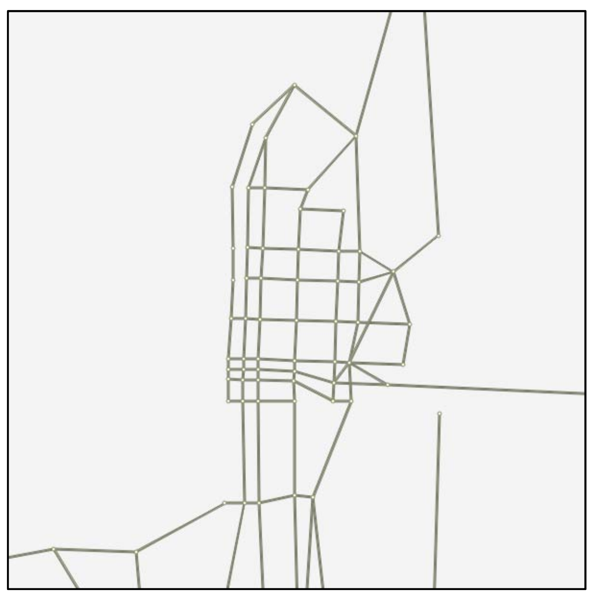


Figure D-2b. Model network before (left) and after (right) the update

AVL data processing

The process for attaching observed bus speeds to ST model links is described in this section.

In ArcGIS, each stop-to-stop travel time observation is imported as a line so that an average speed may be calculated. Both the hour-of-day and the bus route number associated with the line are saved as an attribute. The 11:00 a.m. and 5:00 p.m. hours are used to calculate off-peak and peak speeds, respectively. Over 3 million speed observations were used to prepare average link-level speed values.

A midpoint of each modeled bus link is selected and a buffer created around it. Buffers are used to account for any geometry mismatch between the observed stop-to-stop line and the model links, such as precise bus route turn locations or roadway curvature that is not in the model.

Then for each bus route, the speeds along each observed line are averaged to the midpoint buffers of model links that the route uses. Average speeds of each route are weighted by frequencies of those routes. Freeway and arterial speeds are calculated separately to account for multiple observed stop-to-stop line overlaps attributable to the typically long distances between stops along freeway routes.

After speeds are calculated for each agency and facility type, a summary table of average speeds on each link is created. In the few cases where a link is traversed by more than one transit agency, the KCM speed is given twice the weight of CT or PT speeds during the averaging process. Figure D-3 illustrates schematically the consolidation of average speeds from a mix of bus routes using a common link in the network, often with differing stopping patterns. A few examples of how AVL speeds would be attached to the links in Figure D-3 for a given time period are provided below:

- The buffer for the midpoint of model link 1 has both observed stop-to-stop travel times for routes A and B. At that location, the speed assigned to the link is the weighted averages of the speeds of the two routes at that point, even though one route is a local and the other is an express.
- For model link 2, the same calculation as link 1 applies, and the freeway route is ignored, even though the observed stop-to-stop line passes through it.
- The buffer for the midpoint of model link 3 has only route C passing through it, so the average stop-to-stop speed for that route at that location is attached to the link.

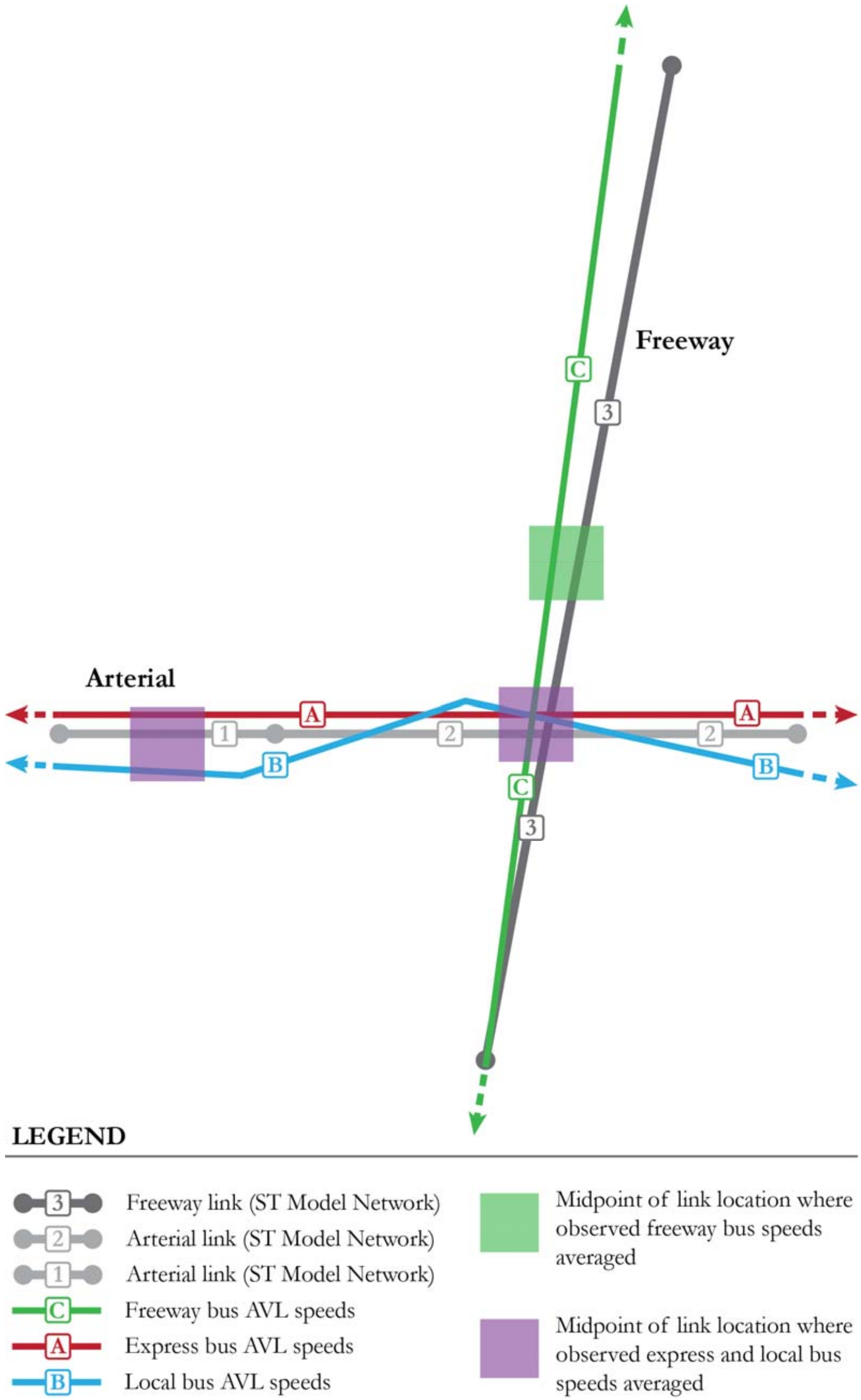


Figure D-3. Schematic representation of average speeds consolidation using AVL bus speeds and model link midpoint buffers

MEMO

August 1, 2002

TO:	Eric Pihl
FROM:	Don Billen
SUBJECT:	Updated Treatment of Bus Speeds in the Sound Transit Model

This memorandum describes the updated procedures for treating bus speeds in Sound Transit's incremental ridership forecasting process. This is in response to your request that Sound Transit rely on output from the PSRC multi-modal model to estimate changes in bus speeds over time.

Sound Transit Incremental Ridership Model

Sound Transit uses an incremental model to forecast transit ridership consisting of three stages:

- Stage 1: Changes in demographics
- Stage 2: External changes in highway travel time (congestion) and costs (including parking costs), transit fares, and household income are taken into consideration.
- Stage 3: Incremental changes in the transit level-of-service (i.e. access, wait, and ride travel times) are taken into consideration.

The third stage of the forecasting process is where the effects of changes in bus speeds are captured. Base year link speeds in combination with transit travel time functions are used so that they result in network bus travel times equal to observed bus travel times. Individual transit routes are coded with transit travel time functions that account for acceleration/deceleration time, with bus speeds equal to the base year link speed for express portions of a route. Dwell time is similarly coded for individual transit routes, with zero dwell time for express portions of a route.

Future year link bus speeds are degraded relative to base year link speeds and according to the procedures described below. The transit travel time functions which account for acceleration/deceleration time are the same in the base year and future year. Dwell time similarly remains the same in the base and future year.

Since the model's development in the early 1990s by the Regional Transit Project, future year link speeds have been estimated using a constant degradation rate of seven to nine percent per decade. This degradation rate is consistent with historic trends in bus speeds. However, FTA staff have expressed concern about extrapolating historical trends into the future and suggested relating future bus speeds to road speeds in the PSRC multi-modal model.

SOUNDTRANSIT

MEMO

Updated Procedure for Estimating Future Bus Speeds

Sound Transit and its ridership consultant have investigated several methods for relating road speeds in the PSRC model to bus speeds in the Sound Transit model. After reviewing these methods with Puget Sound Regional Council and City of Seattle modeling staff, we have arrived at the following procedure.

For arterial bus speeds, weighted average auto travel time within the PSRC model is calculated at an intra-26-district level for the base year and forecast year in the PM peak and off-peak. The ratio between the base year and forecast year intra-district times is calculated. This change in intra-district auto travel times is used to estimate the change in bus speeds and is applied to the base year link speed values in the ST model for each geographic district. Table 1 shows the resulting PM peak bus degradation rates for each of the 26 districts for the period of 1998–2020.

Table 1. PM Peak Arterial Degradation Rates

Comparative Analysis of 1998 to 2020 Weighted Average Intra-District Travel Times

District		1998	2020	2020/1998 Ratio	Change Per Decade
North Everett	1	6.13	6.80	1.11	4.8%
South Everett	2	8.24	9.28	1.13	5.6%
Lynnwood	3	8.04	9.95	1.24	10.2%
North Creek	4	10.13	11.17	1.10	4.5%
Shorelin	5	6.47	6.79	1.05	2.2%
Ballard	6	6.32	6.79	1.07	3.3%
North Seattle	7	6.64	7.29	1.10	4.3%
University District	8	4.55	5.52	1.21	9.2%
Queen Anne	9	6.44	6.94	1.08	3.5%
Capitol Hill	10	4.86	5.07	1.04	1.9%
Seattle CBD	11	2.48	2.63	1.06	2.6%
W Seattle	12	7.28	8.63	1.19	8.1%
Rainier	13	9.17	9.92	1.08	3.6%
Sea-Tac	14	8.01	8.81	1.10	4.4%
Renton	15	10.00	11.58	1.16	6.9%
Federal Way	16	8.26	9.50	1.15	6.5%
Kent	17	9.99	11.16	1.12	5.2%
Kirkland	18	8.75	10.10	1.15	6.7%
Redmond	19	8.60	11.42	1.33	13.8%
West Bellevue	20	5.51	5.68	1.03	1.4%
Bellevue	21	8.85	9.69	1.10	4.3%
Issaquah	22	8.62	10.33	1.20	8.6%
North Tacoma	23	8.48	10.58	1.25	10.6%
South Tacoma	24	6.16	6.78	1.10	4.4%
Lakewood	25	8.30	9.72	1.17	7.4%
Puyallup	26	10.51	11.46	1.09	4.0%
External	27	16.97	19.70	1.16	7.0%
Destination Totals		19.33	22.34	1.16	6.8%

For freeway bus speeds, zone to zone travel times between major entry and exit points for buses along regional freeways are calculated for the base year and future year. As with arterial times, the ratio between the base year and forecast year times is calculated. This change in freeway auto travel times is used to estimate the change in bus speeds and is applied to the base year link speed in the ST model for each freeway segment. Table 2 shows the resulting bus degradation rates on two freeway segments in the light rail study area.

Table 2. PM peak freeway degradation rates

Comparative Analysis of 1998 to 2020 Freeway Travel Times					
Freeway Segment		1998	2020	2020/1998 Ratio	Change Per Decade
I-5: Seattle CBD to Northgate		15.50	18.07	1.17	7.2%
SR 520: Seattle to Overlake		22.15	25.12	1.13	5.9%

The resulting rates of degradation for both arterials and highways are somewhat lower than historic changes in bus speeds in the Central Puget Sound Region, so may underestimate actual degradation rates. However, the updated method offers the advantage of being sensitive to varying congestion rates over time and across geographic areas and to changes in these rates with alternative land use or highway network scenarios.

Alternate method investigated

Our ridership forecasting consultant originally proposed to simply average PSRC link speeds within a cross-classification of geography and facility type for a base and future year to estimate changes in bus speeds. (see Parsons Brinkerhoff memo of 12-2-01 from Youssef Dehghani to Don Billen).

Investigation of this method between 1998 and 2020 yielded results that varied greatly between geographic areas and on the aggregate showed changes in road times much lower than other analyses of PSRC model output. The average decline in speeds across all facilities was 1% per decade between 1998 and 2020 compared to previous analysis of zone-zone road skims that showed an average decline of 8% per decade (see Parsons Brinkerhoff memo of 11-19-01 from Youssef Dehghani to Don Billen). Furthermore, the change in arterial speeds in different geographic areas varied by factors as high as 16 to 23 times. For instance, major arterial speed degradation in the Eastside of King County was 17 times as high as in Snohomish County, even though both are high growth areas with very limited road expansion currently funded. (Table 3)

Upon review of these results with PSRC and City of Seattle modeling staff, we concluded that simple averaging of link speeds is inaccurate and that it would be better to rely on zone-zone skim times than link level times. The simple averaging of link speeds results in too much influence from low volume roadways and too little influence from highway volume roadways. Also, using link level rather than zone-zone travel time skims created the possibility for the results to be influenced by the density of road networks coded in a geographic area.

Table 3. Analysis of PM peak speed degradation in PSRC model by facility type and area type

(average change per decade from 1998 to 2020)

Facility Type		Area Type							
		All	Seattle CBD	Seattle	Eastside	Rest of King County	Snohomish County	Pierce County	Kitsap County
	All	1.5%	0.9%	0.7%	5.6%	3.0%	0.8%	1.8%	0.2%
	Freeway GP Lanes	6.3%	4.48%		8.8%	3.1%	14.4%	4.0%	6.1%
	Freeway HOV Lanes	1.2%	1.95%		4.2%	5.56%			
	Major Arterials	1.4%	3.4%	0.8%	6.8%	3.0%	0.4%	1.9%	0.2%
	Minor Arterials	1.8%	0.1%	0.2%	3.1%	2.7%	2.1%	0.3%	0.0%

Notes :- The data shown above represents the percentage speed degradation over a period of 22 years from 1998 to 2020.
- The percentage degradation in speed was obtained from the "slope" of the regression equation obtained from a linear regression analysis of PM peak link travel times for a particular facility type and area type.
- The regression analysis showed an R^2 of greater 0.9 for all the categories.
- Major arterials include all those arterials in the PSRC model that have a speed greater than 25 mph, e.g., MLK way, Rainier Avenue, NE 8th (in Bellevue etc.). Minor arterials are arterials with a speed less than 25 mph.

These concerns led PSRC and City of Seattle modeling staff to recommend the use of weighted average auto travel times from zone-zone travel time skims and to Sound Transit's development of the procedures described at the beginning of this memo.

CC: John Witmer, FTA Region X
Larry Blaine, Puget Sound Regional Council
Eric Tweit, City of Seattle
Tracy Reed, Ron Lewis, Mike Williams, Sound Transit

Attachment N.1B
Existing and Future Transit Routes and Levels of Service

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Attachment N.1B
Existing and Future Transit Routes and Levels of Service

Table N.1B-1. Span Level of Service Thresholds

L.O.S.	Hours of Service	Description
A	more than 18	Night or "owl" service provided.
B	15 to 18	Late evening service provided.
C	12 to 14	Early evening service provided.
D	7 to 11	Daytime service provided.
E	4 to 6	Peak hour service only or limited midday service.
F	less than 4	Very limited or no service.

Source: Adapted from Transportation Research Board 2013.
L.O.S. = level of service

Table N.1B-2. Frequency Level of Service Thresholds

Average Headways	Category	L.O.S.
less than 5 minutes	Very Frequent	A
5 to 10 minutes	Frequent	A
11 to 15 minutes	Relatively Frequent	B
16 to 30 minutes	Checking Schedules	C
31 to 59 minutes	Checking Schedules	D
60 minutes	Hourly	E
more than 60 minutes	Undesirable	F

Source: Adapted from Transportation Research Board 2013.

Table N.1B-3. P.M. Peak Period Frequency and Span - Existing

Screenline	Route	Headway (minutes)	Frequency L.O.S.	Weekday Span (hours)	Span L.O.S.
1	57	48	D	8	D
1	116	34	D	5	E
1	118	48	D	17	B
1	119	60	E	17	B
1	120	9	A	22	A
1	125	20	C	17	B
1	C Line	6	A	23	A
2	21	15	B	20	A
2	37	60	E	3	F
2	55	22	C	6	E
2	56	30	C	8	D
2	57	48	D	8	D
2	101	13	B	18	B
2	102	20	C	5	E
2	116	34	D	5	E
2	118	48	D	17	B
2	119	60	E	17	B
2	120	9	A	22	A
2	124	14	B	22	A
2	125	20	C	17	B
2	131	30	C	18	B
2	132	27	C	20	A
2	150	17	C	19	A

Screenline	Route	Headway (minutes)	Frequency L.O.S.	Weekday Span (hours)	Span L.O.S.
2	177	27	C	7	D
2	178	30	C	7	D
2	C Line	6	A	23	A
2	Link	6	A	20	A
3	1	16	C	19	A
3	2	13	B	20	A
3	7	11	B	23	A
3	13	15	B	20	A
3	14	17	C	20	A
3	15	18	C	4	E
3	17	30	C	5	E
3	21	15	B	20	A
3	24	22	C	18	B
3	26	20	C	19	A
3	33	20	C	18	B
3	37	60	E	3	F
3	40	6	A	20	A
3	55	22	C	6	E
3	56	30	C	8	D
3	57	48	D	8	D
3	62	11	B	20	A
3	101	13	B	18	B
3	102	20	C	5	E
3	116	34	D	5	E
3	118	48	D	17	B

Screenline	Route	Headway (minutes)	Frequency L.O.S.	Weekday Span (hours)	Span L.O.S.
3	119	60	E	17	B
3	120	9	A	22	A
3	124	14	B	22	A
3	125	20	C	17	B
3	131	30	C	18	B
3	132	27	C	20	A
3	150	17	C	19	A
3	177	27	C	7	D
3	178	30	C	7	D
3	190	34	D	4	E
3	C Line	6	A	24	A
3	E Line	6	A	24	A
3	Link	6	A	20	A
4	1	16	C	19	A
4	2	13	B	20	A
4	13	15	B	20	A
4	15	18	C	4	E
4	17	30	C	5	E
4	18	27	C	5	E
4	19	40	D	4	E
4	24	22	C	18	B
4	26	20	C	19	A
4	29	20	C	7	D
4	33	20	C	18	B
4	40	6	A	20	A

Screenline	Route	Headway (minutes)	Frequency L.O.S.	Weekday Span (hours)	Span L.O.S.
4	62	11	B	20	A
4	70	9	A	23	A
4	C Line	6	A	24	A
4	D Line	8	A	24	A
4	E Line	6	A	24	A
5	15	18	C	4	E
5	17	30	C	5	E
5	18	27	C	5	E
5	29	20	C	7	D
5	D Line	8	A	24	A

Source: King County Metro 2019a.

Table N.1B-4. P.M. Peak Period Frequency and Span – 2032 No Build and Build Alternatives

Screenline	Route	2032 No Build Headway (minutes)	2032 No Build Frequency L.O.S.	2032 Build Headway (minutes)	2032 Build Frequency L.O.S.	2032 No Build Weekday Hours of Service	2032 No Build Span L.O.S.	2032 Build Hours of Service	2032 Build Span L.O.S.
1	21	15	B	15	B	14	A	14	C
1	37	30	C	30	C	5	F	5	E
1	50	20	C	20	C	19	B	19	A
1	55	12	B	12	B	7	F	7	D
1	56	15	B	15	B	8	F	8	D
1	57	30	C	30	C	5	F	5	E
1	116	17	C	17	C	7	F	7	D
1	118	30	C	30	C	18	D	18	B
1	119	65	F	65	F	15	F	15	B

Screenline	Route	2032 No Build Headway (minutes)	2032 No Build Frequency L.O.S.	2032 Build Headway (minutes)	2032 Build Frequency L.O.S.	2032 No Build Weekday Hours of Service	2032 No Build Span L.O.S.	2032 Build Hours of Service	2032 Build Span L.O.S.
1	125	20	C	20	C	18	C	18	B
1	1041	6	A	6	A	19	F	19	A
1	C Line	7	A	7	A	24	A	24	A
1	West Seattle-to-SODO Link	Not applicable	Not applicable	6	A	Not applicable	Not applicable	20	A
2	21	15	B	15	B	14	C	14	C
2	37	30	C	30	C	5	E	5	E
2	50	20	C	20	C	19	A	19	A
2	55	12	B	12	B	7	D	7	D
2	56	15	B	15	B	8	D	8	D
2	57	30	C	30	C	5	E	5	E
2	101	15	B	15	B	19	A	19	A
2	116	17	C	17	C	7	D	7	D
2	118	30	C	30	C	18	B	18	B
2	119	65	F	65	F	15	B	15	B
2	122	40	D	40	D	9	D	9	D
2	124	17	C	20	C	23	A	23	A
2	125	20	C	20	C	18	B	18	B
2	131	20	C	10	A	20	A	20	A
2	150	10	A	6	A	17	B	17	B
2	1041	6	A	7.5	A	19	A	19	A
2	2207	7.5	A	7	A	14	C	14	C

Screenline	Route	2032 No Build Headway (minutes)	2032 No Build Frequency L.O.S.	2032 Build Headway (minutes)	2032 Build Frequency L.O.S.	2032 No Build Weekday Hours of Service	2032 No Build Span L.O.S.	2032 Build Hours of Service	2032 Build Span L.O.S.
2	C Line	7	A	6	A	24	A	24	A
2	Link	6	A	15	B	20	A	20	A
2	West Seattle Link	Not applicable	Not applicable	6	A	Not applicable	Not applicable	20	A
3	5	15	B	15	B	21	A	21	A
3	15	15	B	15	B	5	E	5	E
3	17	15	B	15	B	6	E	6	E
3	18	15	B	15	B	7	D	7	D
3	21	15	B	15	B	14	C	14	C
3	24	15	B	15	B	19	A	19	A
3	28	30	C	30	C	20	A	20	A
3	33	30	C	30	C	16	B	16	B
3	37	30	C	30	C	5	E	5	E
3	40	10	A	10	A	20	A	20	A
3	55	12	B	12	B	7	D	7	D
3	56	15	B	15	B	8	D	8	D
3	57	30	C	30	C	5	E	5	E
3	101	15	B	15	B	19	A	19	A
3	102	14	B	14	B	8	D	8	D
3	116	17	C	17	C	7	D	7	D
3	118	30	C	30	C	18	B	18	B
3	119	65	F	65	F	15	B	15	B
3	121	15	B	15	B	11	D	11	D

Screenline	Route	2032 No Build Headway (minutes)	2032 No Build Frequency L.O.S.	2032 Build Headway (minutes)	2032 Build Frequency L.O.S.	2032 No Build Weekday Hours of Service	2032 No Build Span L.O.S.	2032 Build Hours of Service	2032 Build Span L.O.S.
3	122	40	D	40	D	9	D	9	D
3	123	30	C	30	C	6	E	6	E
3	124	17	C	17	C	23	A	23	A
3	125	20	C	20	C	18	B	18	B
3	131	20	C	20	C	20	A	20	A
3	132	20	C	20	C	22	A	22	A
3	143	17	C	17	C	7	D	7	D
3	150	10	A	10	A	17	B	17	B
3	1041	6	A	6	A	19	A	19	A
3	1071	10	A	10	A	19	A	19	A
3	1202	10	A	7.5	A	19	A	19	A
3	1214	15	B	15	B	19	A	19	A
3	1220	10	A	10	A	19	A	19	A
3	2207	7.5	A	7.5	A	14	C	14	C
3	C Line	7	A	7	A	24	A	24	A
3	D Line	6	A	6	A	24	A	24	A
3	E Line	6	A	6	A	24	A	24	A
3	Link	6	A	6	A	20	A	20	A
4	5	15	B	15	B	21	A	5	E
4	15	15	B	15	B	5	E	6	E
4	17	15	B	15	B	6	E	7	D
4	18	15	B	15	B	7	D	19	A
4	24	15	B	15	B	19	A	20	A

Screenline	Route	2032 No Build Headway (minutes)	2032 No Build Frequency L.O.S.	2032 Build Headway (minutes)	2032 Build Frequency L.O.S.	2032 No Build Weekday Hours of Service	2032 No Build Span L.O.S.	2032 Build Hours of Service	2032 Build Span L.O.S.
4	28	30	C	30	C	20	A	16	B
4	33	30	C	30	C	16	B	20	A
4	40	10	A	10	A	20	A	7	D
4	116	17	C	17	C	7	D	11	D
4	121	15	B	15	B	11	D	9	D
4	122	40	D	40	D	9	D	23	A
4	131	20	C	20	C	20	A	20	A
4	132	20	C	20	C	22	A	22	A
4	143	17	C	17	C	7	D	7	D
4	1013	6	A	6	A	19	A	19	A
4	1061	10	A	10	A	19	A	19	A
4	1071	10	A	10	A	19	A	19	A
4	1074	15	B	15	B	19	A	19	A
4	1202	7.5	A	10	A	19	A	19	A
4	1213	10	A	10	A	19	A	19	A
4	1214	15	B	15	B	19	A	19	A
4	1220	10	A	10	A	19	A	19	A
4	1505	10	A	10	A	19	A	19	A
4	2515	7.5	A	7.5	A	14	C	14	C
4	3033	30	C	30	C	16	B	16	B
4	3122	30	C	30	C	16	B	16	B
4	3123	30	C	30	C	16	B	16	B
4	C Line	7	A	7	A	24	A	24	A

Screenline	Route	2032 No Build Headway (minutes)	2032 No Build Frequency L.O.S.	2032 Build Headway (minutes)	2032 Build Frequency L.O.S.	2032 No Build Weekday Hours of Service	2032 No Build Span L.O.S.	2032 Build Hours of Service	2032 Build Span L.O.S.
4	D Line	6	A	6	A	24	A	24	A
4	E Line	6	A	6	A	24	A	24	A
5	15	15	B	15	B	5	E	5	E
5	17	15	B	15	B	6	E	6	E
5	18	15	B	15	B	9	D	9	D
5	D Line	6	A	6	A	24	A	24	A

Source: See Attachment N.1C, Transit Service Integration Technical Memorandum.

Table N.1B-5. P.M. Peak Period Frequency and Span – 2042 No Build Alternative

Screenline	Route	2042 No Build Headway (minutes)	2042 No Build Frequency L.O.S.	2042 Build Weekday Hours of Service	2042 Build Span L.O.S.
1	21	15	B	18	B
1	37	15	B	5	E
1	50	15	B	19	A
1	55	15	B	13	C
1	56	15	B	14	C
1	57	15	B	12	C
1	116	17	C	7	D
1	118	30	C	18	B
1	119	30	C	15	B
1	125	15	B	18	B
1	1041	6	A	19	A
1	C Line	6	A	24	A

Screenline	Route	2042 No Build Headway (minutes)	2042 No Build Frequency L.O.S.	2042 Build Weekday Hours of Service	2042 Build Span L.O.S.
2	21	15	B	18	B
2	37	15	B	5	E
2	50	15	B	19	A
2	55	15	B	13	C
2	56	15	B	14	C
2	57	15	B	12	C
2	101	15	B	19	A
2	102	10	A	8	D
2	116	17	C	7	D
2	118	30	C	18	B
2	119	30	C	15	B
2	121	30	C	11	D
2	122	30	C	9	D
2	123	30	C	6	E
2	124	12	B	23	A
2	125	15	B	18	B
2	131	20	C	20	A
2	132	20	C	22	A
2	150	10	A	17	B
2	1041	6	A	19	A
2	2207	7.5	A	14	C
2	C Line	6	A	24	A
2	Link	6	A	20	A
3	5	15	B	19	A
3	15	15	B	16	B

Screenline	Route	2042 No Build Headway (minutes)	2042 No Build Frequency L.O.S.	2042 Build Weekday Hours of Service	2042 Build Span L.O.S.
3	17	15	B	13	C
3	18	30	C	13	C
3	21	15	B	18	B
3	24	15	B	18	B
3	28	20	C	20	A
3	33	15	B	19	A
3	37	15	B	5	E
3	40	6	A	20	A
3	55	15	B	13	C
3	56	15	B	14	C
3	57	15	B	12	C
3	101	15	B	19	A
3	102	10	A	8	D
3	116	17	C	7	D
3	118	30	C	18	B
3	119	30	C	15	B
3	121	30	C	11	D
3	122	30	C	9	D
3	123	30	C	6	E
3	124	12	B	23	A
3	125	15	B	18	B
3	131	20	C	20	A
3	132	20	C	22	A
3	143	20	C	7	D
3	150	10	A	17	B

Screenline	Route	2042 No Build Headway (minutes)	2042 No Build Frequency L.O.S.	2042 Build Weekday Hours of Service	2042 Build Span L.O.S.
3	1041	6	A	19	A
3	1071	10	A	19	A
3	1202	6	A	19	A
3	1214	10	A	19	A
3	1220	8	A	19	A
3	2207	7.5	A	14	C
3	C Line	6	A	24	A
3	D Line	6	A	24	A
3	E Line	5	A	24	A
3	Everett-to-Tacoma Link	6	A	20	A
4	5	15	B	19	A
4	15	15	B	16	B
4	17	15	B	13	C
4	18	30	C	13	C
4	24	15	B	18	B
4	28	20	C	20	A
4	33	15	B	19	A
4	101	15	B	19	A
4	102	10	A	8	D
4	121	30	C	11	D
4	122	30	C	9	D
4	123	30	C	6	E
4	124	12	B	23	A
4	131	20	C	20	A
4	132	20	C	22	A

Screenline	Route	2042 No Build Headway (minutes)	2042 No Build Frequency L.O.S.	2042 Build Weekday Hours of Service	2042 Build Span L.O.S.
4	143	20	C	7	D
4	150	10	A	17	B
4	1071	10	A	19	A
4	1202	6	A	19	A
4	1214	10	A	19	A
4	C Line	6	A	24	A
4	D Line	6	A	24	A
4	E Line	5	A	24	A
5	15	15	B	16	B
5	17	15	B	13	C
5	18	30	C	13	C
5	33	15	B	19	A
5	1202	6	A	19	A
5	D Line	6	A	24	A

Source: See Attachment N.1C, Transit Service Integration Technical Memorandum.

Table N.1B-6. P.M. Peak Period Frequency and Span – 2042 Build Alternative

Screenline	Route	2042 Build Headway (minutes)	2042 Build Frequency L.O.S.	2042 Build Weekday Span (Hours)	2042 Build Weekday Span L.O.S.
1	2003	15	B	15	B
1	3034	15	B	16	B
1	West Seattle-to-Everett Link	6	A	20	A
2	1088	15	B	19	A
2	2003	15	B	15	B

Screenline	Route	2042 Build Headway (minutes)	2042 Build Frequency L.O.S.	2042 Build Weekday Span (Hours)	2042 Build Weekday Span L.O.S.
2	2016	15	B	15	B
2	2207	7.5	A	15	B
2	2614	15	B	15	B
2	Ballard-to-Tacoma Link	5	A	20	A
2	West Seattle-to-Everett Link	6	A	20	A
3	1013	10	A	19	A
3	1202	6	A	19	A
3	1214	10	A	19	A
3	1220	8	A	19	A
3	1993	6	A	19	A
3	2003	15	B	15	B
3	2016	15	B	15	B
3	2207	7.5	A	15	B
3	2614	15	B	15	B
3	Ballard-to-Tacoma Link	5	A	20	A
3	West Seattle-to-Everett Link	6	A	20	A
4	1001	7.5	A	19	A
4	1005	15	B	19	A
4	1013	6	A	19	A
4	1074	10	A	19	A
4	1202	6	A	19	A
4	1214	10	A	19	A
4	1220	8	A	19	A

Screenline	Route	2042 Build Headway (minutes)	2042 Build Frequency L.O.S.	2042 Build Weekday Span (Hours)	2042 Build Weekday Span L.O.S.
4	1505	10	A	19	A
4	1993	6	A	19	A
4	2003	15	B	15	B
4	2515	7.5	A	15	B
4	2614	15	B	15	B
4	3033	30	C	16	B
4	Ballard-to-Tacoma Link	5	A	20	A
5	1512	10	A	19	A
5	Ballard-to-Tacoma Link	5	A	20	A

Source: See Attachment N.1C, Transit Service Integration Technical Memorandum.

Table N.1B-7. P.M. Peak Period Reliability Level of Service Thresholds (On-Time Performance)

On-Time Performance	Description	L.O.S.
95.0% to 100%	1 late transit vehicle every 2 weeks (no transfer)	A
90.0% to 94.9%	1 late transit vehicle every week (no transfer)	B
85.0% to 89.9%	3 late transit vehicles every 2 weeks (no transfer)	C
80.0% to 84.9%	2 late transit vehicles every week (no transfer)	D
75.0% to 79.9%	1 late transit vehicle every day (with a transfer)	E
less than 75.0%	1 late transit vehicle at least daily (with a transfer)	F

Source: Adapted from Transportation Research Board 2013.
Note: “On time" is defined as an arrival 1 minute early to 5 minutes late.

Table N.1B-8. P.M. Peak Period Reliability Level of Service Thresholds (Headway Adherence)

Headway Coefficient of Variation	Passenger Experience	L.O.S.
0.00 to 0.21	Service provided like clockwork	A
0.22 to 0.30	Vehicles slightly off headway	B
0.31 to 0.39	Vehicles often off headway	C
0.40 to 0.52	Irregular headways with some bus bunching	D
0.53 to 0.74	Frequent bus bunching	E
more than or equal to 0.75	Most buses bunched	F

Source: Adapted from Transportation Research Board 2013.
Note: Headway adherence L.O.S. applies only to transit routes with headways of 10 minutes or less.

Table N.1B-9. P.M. Peak Period Reliability Level of Service - Existing

Screenline	Route	Stop Name	Headway (minutes)	On-Time Performance [a] Percentage	Coefficient of Variation of Headway Adherance [b]	L.O.S. [c]
1	21E	1st Avenue South and South Jackson Street	19	28%	—	F
1	37	1st Avenue South and South Jackson Street	30	27%	—	F
1	55	1st Avenue South and South Jackson Street	18	57%	—	F
1	56	1st Avenue South and South Jackson Street	32	27%	—	F
1	57	1st Avenue South and South Jackson Street	34	18%	—	F
1	120	1st Avenue South and South Jackson Street	8	—	0.51	D
1	125	1st Avenue South and South Jackson Street	21	39%	—	F
1	C Line	1st Avenue South and South Jackson Street	6	—	0.62	E
1	21	1st Avenue South and South Hanford Street	15	53%	—	F
1	116E	1st Avenue South and South Hanford Street	23	41%	—	F
1	118E	1st Avenue South and South Hanford Street	Low Frequency [d]	23%	—	F
1	119E	1st Avenue South and South Hanford Street	Low Frequency [d]	43%	—	F

Screenline	Route	Stop Name	Headway (minutes)	On-Time Performance [a] Percentage	Coefficient of Variation of Headway Adherance [b]	L.O.S. [c]
2	21E	1st Avenue South and South Jackson Street	19	28%	—	F
2	55	1st Avenue South and South Jackson Street	18	57%	—	F
2	56	1st Avenue South and South Jackson Street	32	27%	—	F
2	57	1st Avenue South and South Jackson Street	34	18%	—	F
2	120	1st Avenue South and South Jackson Street	8	—	0.51	D
2	C Line	1st Avenue South and South Jackson Street	6	—	0.62	E
2	116E	1st Avenue South and South Atlantic Street	23	75%	—	E
2	118E	1st Avenue South and South Atlantic Street	Low Frequency [d]	86%	—	C
2	119E	1st Avenue South and South Atlantic Street	Low Frequency [d]	63%	—	F
2	21	1st Avenue South and South Stacy Street	15	51%	—	F
2	124	Airport Way South and South Stacy Street	15	62%	—	F
2	131	4th Avenue South and South Walker Street	30	51%	—	F
2	132	4th Avenue South and South Walker Street	30	73%	—	F
2	101	SODO Busway and South Holgate Street	14	70%	—	F
2	102	SODO Busway and South Holgate Street	13	73%	—	F
2	150	SODO Busway and South Holgate Street	16	73%	—	F
2	177	SODO Busway and South Holgate Street	28	80%	—	D
2	178	SODO Busway and South Holgate Street	23	74%	—	F
2	190	SODO Busway and South Holgate Street	22	75%	—	F
3	150	2nd Avenue and James Street	16	77%	—	E
3	177	2nd Avenue and James Street	28	90%	—	C
3	178	2nd Avenue and James Street	23	82%	—	D
3	190	2nd Avenue and James Street	22	77%	—	E
3	21E	3rd Avenue and Columbia Street	19	76%	—	E

Screenline	Route	Stop Name	Headway (minutes)	On-Time Performance [a] Percentage	Coefficient of Variation of Headway Adherance [b]	L.O.S. [c]
3	56	3rd Avenue and Columbia Street	32	82%	—	D
3	57	3rd Avenue and Columbia Street	34	84%	—	D
3	C Line	3rd Avenue and Columbia Street	6	—	0.58	E
3	116E	3rd Avenue and Columbia Street	23	90%	--	C
3	7	3rd Avenue South and South Main Street	9	—	0.51	D
3	14	3rd Avenue South and South Main Street	16	54%	—	F
3	21	3rd Avenue South and South Main Street	15	51%	—	F
3	118E	3rd Avenue South and South Main Street	Low Frequency [d]	91%	—	B
3	119E	3rd Avenue South and South Main Street	Low Frequency [d]	75%	—	E
3	124	3rd Avenue South and South Main Street	15	68%	—	F
3	131	3rd Avenue South and South Main Street	30	53%	—	F
3	132	3rd Avenue South and South Main Street	30	54%	—	F
3	17E	4th Avenue South and South Jackson Street	Low Frequency [d]	91%	—	B
3	18E	4th Avenue South and South Jackson Street	Low Frequency [d]	89%	—	C
3	19	4th Avenue South and South Jackson Street	27	66%	—	F
3	24	4th Avenue South and South Jackson Street	20	65%	—	F
3	26E	4th Avenue South and South Jackson Street	19	77%	—	E
3	33	4th Avenue South and South Jackson Street	33	68%	—	F
3	40	4th Avenue South and South Jackson Street	Low Frequency [d]	91%	—	B
3	70	South Main Street and 3rd Avenue South	22	79%	—	E
3	2	South Jackson Street and 5th Avenue South	Low Frequency [d]	96%	—	A
3	62	South Jackson Street and 5th Avenue South	Low Frequency [d]	95%	—	B
3	55	1st Avenue South and South Jackson Street	18	57%	—	F
3	120	1st Avenue South and South Jackson Street	8	—	0.51	D

Screenline	Route	Stop Name	Headway (minutes)	On-Time Performance [a] Percentage	Coefficient of Variation of Headway Adherance [b]	L.O.S. [c]
3	125	1st Avenue South and South Jackson Street	21	39%	—	F
3	1	Prefontaine Place South and Yesler Way	15	70%	—	F
3	13	Prefontaine Place South and Yesler Way	47	88%	—	C
3	15E	Prefontaine Place South and Yesler Way	16	85%	—	D
4	D Line	3rd Avenue and Vine Street	7	—	0.49	D
4	2	Queen Anne Avenue North and West John Street	28	87%	—	C
4	1	1st Avenue and Broad Street	15	63%	—	F
4	13	1st Avenue and Broad Street	14	74%	—	F
4	29	1st Avenue and Broad Street	16	72%	—	F
4	33	1st Avenue and Broad Street	21	63%	—	F
4	26E	Aurora Avenue North and Denny Way	19	77%	—	E
4	E Line	Aurora Avenue North and Denny Way	5	—	0.61	E
4	62	Dexter Avenue North and Denny Way	11	75%	—	E
4	70	Fairview Avenue and Denny Way	9	—	0.53	D
4	15E	Denny Way and Queen Anne Avenue North	16	63%	—	F
4	17E	Denny Way and Queen Anne Avenue North	20	72%	—	F
4	18E	Denny Way and Queen Anne Avenue North	21	65%	—	F
4	19	Denny Way and Queen Anne Avenue North	27	71%	—	F
4	24	Denny Way and Queen Anne Avenue North	20	55%	—	F
4	C Line	Westlake Avenue North and Harrison Street	6	—	0.51	D
4	40	Westlake Avenue and 9th Avenue	6	—	0.66	E
5	D Line	15th Avenue West and West Emerson Street	7	—	0.62	E
5	29	West Nickerson Street and West Emerson Street	16	62%	—	F
5	15E	Elliott Avenue West and 4th Avenue West	16	63%	—	F

Screenline	Route	Stop Name	Headway (minutes)	On-Time Performance [a] Percentage	Coefficient of Variation of Headway Adherance [b]	L.O.S. [c]
5	17E	Elliott Avenue West and 4th Avenue West	20	70%	—	F
5	18E	Elliott Avenue West and 4th Avenue West	21	65%	—	F

Source: King County Metro 2019b.

[a] Reliability is calculated based on On-Time Performance for transit routes with headways less frequent than 10 minutes.

[b] Reliability is calculated based on Headway Adherence for transit routes with headways of 10 minutes or less.

[c] The L.O.S. definition for transit reliability is defined in Transportation Research Board 2003, and is listed in Table A1 and A2. The screenline L.O.S. is calculated as the weighted average of L.O.S. scores of all routes within the screenline group, weighted by the number of trips during the PM peak period. The L.O.S. score is translated from a letter scale of A to F to a number scale of 1 to 6 in the calculation.

[d] "Low Frequency" is noted if a route only makes one trip during the PM peak period and the headway value is therefore uncalculatable.

Table N.1B-10. Passenger Load Level of Service Thresholds (Bus)

Passenger Load Factor	Comments	L.O.S.
0.00 to 0.50	No passengers need sit next to another.	A
0.51 to 0.75	Passengers can choose where to sit.	B
0.76 to 1.00	All passengers can sit.	C
1.01 to 1.25	Comfortable standee load for design.	D
1.26 to 1.50	Maximum schedule load.	E
more than 1.5	Crush load.	F

Source: Adapted from Transportation Research Board 2013.

Table N.1B-11. Passenger Load Level of Service Thresholds (Rail)

L.O.S.	Square Feet per Passenger	Comments
A	more than 10.8	At most some passengers must stand.
B	8.2 to 10.8	No Passengers need to stand next to another.
C	5.5 to 8.1	Passengers can choose where to stand.
D	3.9 to 5.4	Comfortable standee load for design.
E	2.2 to 3.8	Maximum schedule load.
F	less than 2.2	Crush load.

Source: Adapted from Transportation Research Board 2013.

Table N.1B-12. P.M. Peak Period Passenger Load Level of Service – Existing (Bus)

Screenline	Route/Line	Direction – Inbound/Outbound	Stop	Average Load	Seat	Average Load Factor	L.O.S.
1	C Line	IB	Southwest Avalon Way and Southwest Yancy Street	15	48	0.31	A
1	C Line	OB	1st Avenue South and South Jackson Street	55	48	1.14	D
1	21E	OB	1st Avenue South and South Jackson Street	44	58	0.76	C
1	21	IB	Southwest Spokane Street and Chelan Avenue Southwest	9	58	0.16	A
1	21	OB	1st Avenue South and South Hanford Street	27	58	0.46	A
1	37	OB	1st Avenue South and South Jackson Street	14	39	0.37	A
1	50	IB	1st Avenue South and South Hanford Street	17	27	0.62	B
1	50	OB	Delridge Way Southwest and Southwest Andover Street	8	27	0.30	A
1	55	OB	1st Avenue South and South Jackson Street	31	48	0.65	B
1	56	OB	1st Avenue South and South Jackson Street	41	58	0.71	B
1	57	OB	1st Avenue South and South Jackson Street	36	58	0.63	B
1	116E	OB	1st Avenue South and South Hanford Street	22	39	0.57	B
1	118E	OB	1st Avenue South and South Hanford Street	23	27	0.85	C

Screenline	Route/Line	Direction – Inbound/Outbound	Stop	Average Load	Seat	Average Load Factor	L.O.S.
1	119E	OB	1st Avenue South and South Hanford Street	11	27	0.41	A
1	120	IB	Delridge Way Southwest and Southwest Andover Street	17	58	0.30	A
1	120	OB	1st Avenue South and South Jackson Street	46	58	0.80	C
1	125	IB	Delridge Way Southwest and Southwest Andover Street	8	35	0.24	A
1	125	OB	1st Avenue South and South Jackson Street	23	35	0.65	B
2	C Line	IB	Southwest Avalon Way and Southwest Yancy Street	15	48	0.31	A
2	C Line	OB	1st Avenue South and South Jackson Street	55	48	1.14	D
2	21E	OB	1st Avenue South and South Jackson Street	44	58	0.76	C
2	21	IB	1st Avenue South and South Lander Street	15	58	0.25	A
2	21	OB	1st Avenue South and South Stacy Street	24	58	0.42	A
2	55	OB	1st Avenue South and South Jackson Street	31	48	0.65	B
2	56	OB	1st Avenue South and South Jackson Street	41	58	0.71	B
2	57	OB	1st Avenue South and South Jackson Street	36	58	0.63	B
2	101	IB	SODO Busway and South Lander Street	14	56	0.25	A
2	101	OB	SODO Busway and South Holgate Street	36	56	0.65	B
2	102	OB	SODO Busway and South Holgate Street	35	56	0.62	B
2	116E	OB	1st Avenue South and South Atlantic Street	18	39	0.46	A
2	118E	OB	1st Avenue South and South Atlantic Street	21	27	0.76	C
2	119E	OB	1st Avenue South and South Atlantic Street	10	27	0.35	A
2	120	IB	Delridge Way Southwest and Southwest Andover Street	17	58	0.30	A
2	120	OB	1st Avenue South and South Jackson Street	46	58	0.80	C
2	124	IB	Airport Way South and South Lander Street	17	52	0.33	A
2	124	OB	Airport Way South and South Stacy Street	22	50	0.45	A
2	125	IB	Delridge Way Southwest and Southwest Andover Street	8	35	0.24	A

Screenline	Route/Line	Direction – Inbound/Outbound	Stop	Average Load	Seat	Average Load Factor	L.O.S.
2	125	OB	1st Avenue South and South Jackson Street	23	35	0.65	B
2	131	IB	4th Avenue South and South Lander Street	24	58	0.41	A
2	131	OB	4th Avenue South and South Walker Street	43	58	0.74	B
2	132	IB	4th Avenue South and South Lander Street	22	58	0.38	A
2	132	OB	4th Avenue South and South Walker Street	31	58	0.54	B
2	150	IB	SODO Busway and South Lander Street	21	56	0.38	A
2	150	OB	SODO Busway and South Holgate Street	33	56	0.59	B
2	177	OB	SODO Busway and South Holgate Street	25	58	0.43	A
2	178	OB	SODO Busway and South Holgate Street	25	58	0.43	A
2	190	OB	SODO Busway and South Holgate Street	19	39	0.48	A
3	C Line	IB	1st Avenue South and South Jackson Street	14	48	0.29	A
3	C Line	OB	3rd Avenue and Columbia Street	53	48	1.10	D
3	1	IB	3rd Avenue and Virginia Street	8	35	0.24	A
3	1	OB	Prefontaine Place South and Yesler Way	13	35	0.38	A
3	2	IB	South Jackson Street and 5th Avenue South	4	35	0.11	A
3	7	IB	Prefontaine Place South and Yesler Way	13	47	0.29	A
3	7	OB	3rd Avenue South and South Main Street	27	47	0.57	B
3	13	IB	3rd Avenue South and South Main Street	1	35	0.03	A
3	13	OB	Prefontaine Place South and Yesler Way	5	35	0.13	A
3	14	OB	3rd Avenue South and South Main Street	30	35	0.86	C
3	15E	OB	Prefontaine Place South and Yesler Way	9	58	0.16	A
3	17E	OB	4th Avenue South and South Jackson Street	5	54	0.10	A
3	18E	OB	4th Avenue South and South Jackson Street	6	54	0.11	A
3	19	OB	4th Avenue South and South Jackson Street	3	42	0.07	A

Screenline	Route/Line	Direction – Inbound/Outbound	Stop	Average Load	Seat	Average Load Factor	L.O.S.
3	21	IB	4th Avenue South and South Royal Brougham Way	22	58	0.39	A
3	21	OB	3rd Avenue South and South Main Street	26	58	0.45	A
3	21E	OB	3rd Avenue and Columbia Street	42	58	0.73	B
3	24	OB	4th Avenue South and South Jackson Street	15	52	0.30	A
3	26E	OB	4th Avenue South and South Jackson Street	18	58	0.31	A
3	33	OB	3rd Avenue and James Street	13	47	0.27	A
3	33	OB	4th Avenue South and South Jackson Street	13	47	0.28	A
3	40	IB	3rd Avenue South and South Main Street	0	58	0.00	A
3	40	OB	4th Avenue South and South Jackson Street	4	51	0.07	A
3	55	OB	1st Avenue South and South Jackson Street	31	48	0.65	B
3	56	OB	3rd Avenue and Columbia Street	40	58	0.70	B
3	57	OB	3rd Avenue and Columbia Street	35	58	0.60	B
3	62	IB	South Washington Street and 4th Avenue South	0	56	0.00	A
3	62	OB	South Jackson Street and 5th Avenue South	4	51	0.07	A
3	70	IB	3rd Avenue South and South Main Street	0	48	0.00	A
3	70	OB	South Main Street and 3rd Avenue South	2	48	0.03	A
3	116E	OB	3rd Avenue and Columbia Street	16	39	0.40	A
3	118E	OB	3rd Avenue South and South Main Street	20	27	0.76	C
3	119E	OB	3rd Avenue South and South Main Street	9	27	0.33	A
3	120	IB	Delridge Way Southwest and Southwest Andover Street	17	58	0.30	A
3	120	OB	1st Avenue South and South Jackson Street	46	58	0.80	C
3	124	OB	3rd Avenue South and South Main Street	23	50	0.46	A
3	125	IB	Delridge Way Southwest and Southwest Andover Street	8	35	0.24	A
3	125	OB	1st Avenue South and South Jackson Street	23	35	0.65	B

Screenline	Route/Line	Direction – Inbound/Outbound	Stop	Average Load	Seat	Average Load Factor	L.O.S.
3	131	IB	4th Avenue South and South Jackson Street	8	58	0.13	A
3	131	OB	3rd Avenue South and South Main Street	45	58	0.78	C
3	132	OB	3rd Avenue South and South Main Street	33	58	0.56	B
3	150	IB	4th Avenue South and South Jackson Street	13	56	0.22	A
3	150	OB	2nd Avenue and James Street	25	56	0.46	A
3	177	OB	2nd Avenue and James Street	22	58	0.38	A
3	178	OB	2nd Avenue and James Street	23	58	0.39	A
3	190	OB	2nd Avenue and James Street	18	39	0.47	A
4	C Line	IB	Westlake Avenue and 9th Avenue	4	48	0.07	A
4	C Line	OB	Westlake Avenue North and Harrison Street	29	48	0.61	B
4	D Line	IB	Queen Anne Avenue North and West John Street	30	48	0.63	B
4	D Line	OB	3rd Avenue and Vine Street	53	48	1.10	D
4	26E	IB	Aurora Avenue North and Denny Way	19	58	0.32	A
4	E Line	IB	Aurora Avenue North and Denny Way	26	48	0.54	B
4	E Line	OB	Aurora Avenue North and Denny Way	55	48	1.15	D
4	1	IB	Denny Way and 2nd Avenue North	16	35	0.45	A
4	1	OB	1st Avenue and Broad Street	23	35	0.66	B
4	2	IB	1st Avenue North and John Street	24	35	0.67	B
4	2	OB	Queen Anne Avenue North and West John Street	18	35	0.51	B
4	13	IB	Denny Way and 2nd Avenue North	21	35	0.60	B
4	13	OB	1st Avenue and Broad Street	27	35	0.77	C
4	15E	OB	Denny Way and Queen Anne Avenue North	53	58	0.92	C
4	17E	OB	Denny Way and Queen Anne Avenue North	46	54	0.85	C
4	18E	OB	Denny Way and Queen Anne Avenue North	48	54	0.88	C

Screenline	Route/Line	Direction – Inbound/Outbound	Stop	Average Load	Seat	Average Load Factor	L.O.S.
4	19	OB	Denny Way and Queen Anne Avenue North	22	42	0.52	B
4	24	IB	Denny Way and 2nd Avenue North	24	50	0.49	A
4	24	OB	Denny Way and Queen Anne Avenue North	35	52	0.68	B
4	26E	OB	Aurora Avenue North and Denny Way	43	58	0.74	B
4	29	OB	1st Avenue and Broad Street	35	47	0.74	B
4	33	IB	Denny Way and 2nd Avenue North	27	48	0.57	B
4	33	OB	1st Avenue and Broad Street	30	47	0.65	B
4	40	IB	Westlake Avenue North and Harrison Street	32	58	0.55	B
4	40	OB	Westlake Avenue and 9th Avenue	37	51	0.73	B
4	62	IB	Dexter Avenue and Denny Way	31	56	0.55	B
4	62	OB	Dexter Avenue North and Denny Way	40	51	0.79	C
4	70	IB	Fairview Avenue North and Thomas Street	30	48	0.62	B
4	70	OB	Fairview Avenue and Denny Way	30	48	0.63	B
5	D Line	IB	15th Avenue Northwest and Northwest Leary Way	23	48	0.48	A
5	D Line	OB	15th Avenue West and West Emerson Street	33	48	0.70	B
5	15E	OB	Elliott Avenue West and 4th Avenue West	55	58	0.94	C
5	17E	OB	Elliott Avenue West and 4th Avenue West	47	54	0.87	C
5	18E	OB	Elliott Avenue West and 4th Avenue West	49	54	0.91	C
5	29	OB	West Nickerson Street and West Emerson Street	3	47	0.07	A

Source: King County Metro 2019c.

Notes:

IB = inbound

OB = outbound

Table N.1B-13. P.M. Peak Period Passenger Load Level of Service - 2032 No Build Alternative (Bus)

Screenline	Route/Line	Direction (Inbound/Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
1	C Line	IB	18	48	0.36	A
1	C Line	OB	81	48	1.68	F
1	21	IB	34	48	0.71	B
1	21	OB	78	48	1.62	F
1	37	OB	0	48	0.00	A
1	50	IB	7	48	0.14	A
1	50	OB	6	48	0.13	A
1	55	OB	26	48	0.53	B
1	56	OB	62	48	1.30	E
1	57	OB	49	48	1.03	D
1	116	OB	26	48	0.55	B
1	125	IB	19	48	0.39	A
1	125	OB	25	48	0.52	B
1	1041	IB	18	48	0.37	A
1	1041	OB	63	48	1.31	E
2	C Line	IB	18	48	0.36	A
2	C Line	OB	81	48	1.68	F
2	21	IB	34	48	0.71	B
2	21	OB	78	48	1.62	F
2	37	OB	0	48	0.00	A
2	55	OB	26	48	0.53	B
2	56	OB	62	48	1.30	E
2	57	OB	49	48	1.03	D

Screenline	Route/Line	Direction (Inbound/Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
2	101	IB	7	48	0.14	A
2	101	OB	35	48	0.73	B
2	102	OB	35	48	0.73	B
2	116	OB	20	48	0.42	A
2	121	IB	21	48	0.45	A
2	121	OB	32	48	0.67	B
2	122	OB	30	48	0.63	B
2	123	OB	31	48	0.64	B
2	124	IB	24	48	0.507	B
2	124	OB	25	48	0.511	B
2	125	IB	19	48	0.39	A
2	125	OB	25	48	0.515	B
2	131	IB	4	48	0.09	A
2	131	OB	4	48	0.09	A
2	132	IB	11	48	0.22	A
2	132	OB	22	48	0.45	A
2	143	OB	30	48	0.62	B
2	150	IB	5	48	0.11	A
2	150	OB	11	48	0.23	A
2	1041	IB	18	48	0.37	A
2	1041	OB	63	48	1.31	E
2	2207	IB	0	48	0.00	A
2	2207	OB	12	48	0.25	A
3	C Line	IB	15	48	0.30	A
3	C Line	OB	68	48	1.41	E

Screenline	Route/Line	Direction (Inbound/Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
3	D Line	IB	7	48	0.14	A
3	D Line	OB	5	48	0.10	A
3	17	OB	5	48	0.11	A
3	18	OB	5	48	0.10	A
3	21	IB	16	48	0.34	A
3	21	OB	65	48	1.34	E
3	37	OB	0	48	0.00	A
3	55	OB	17	48	0.36	A
3	56	OB	55	48	1.14	D
3	57	OB	44	48	0.91	C
3	101	IB	3	48	0.06	A
3	101	OB	9	48	0.18	A
3	102	OB	9	48	0.18	A
3	116	OB	8	48	0.18	A
3	121	IB	13	48	0.27	A
3	121	OB	25	48	0.53	B
3	122	OB	24	48	0.49	A
3	123	OB	24	48	0.50	A
3	124	IB	6	48	0.13	A
3	124	OB	8	48	0.17	A
3	125	IB	12	48	0.24	A
3	125	OB	16	48	0.34	A
3	131	IB	1	48	0.01	A
3	131	OB	1	48	0.03	A
3	132	IB	2	48	0.05	A

Screenline	Route/Line	Direction (Inbound/Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
3	132	OB	13	48	0.28	A
3	143	OB	8	48	0.16	A
3	150	IB	2	48	0.03	A
3	150	OB	3	48	0.06	A
3	1041	IB	18	48	0.37	A
3	1041	OB	63	48	1.31	E
3	1071	IB	3	48	0.06	A
3	1071	OB	3	48	0.07	A
3	1214	IB	7	48	0.15	A
3	1214	OB	12	48	0.25	A
3	1220	IB	2	48	0.04	A
3	1220	OB	4	48	0.08	A
3	2207	IB	0	48	0.00	A
3	2207	OB	12	48	0.25	A
4	C Line	IB	2	48	0.04	A
4	C Line	OB	28	48	0.59	B
4	D Line	IB	38	48	0.79	C
4	D Line	OB	80	48	1.67	F
4	E Line	IB	24	48	0.50	A
4	E Line	OB	59	48	1.23	D
4	5	IB	10	48	0.21	A
4	5	OB	70	48	1.45	E
4	15	IB	37	48	0.76	C
4	15	OB	76	48	1.59	F
4	17	OB	51	48	1.07	D

Screenline	Route/Line	Direction (Inbound/Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
4	18	OB	33	48	0.68	B
4	24	IB	19	48	0.39	A
4	24	OB	41	48	0.86	C
4	27	IB	6	48	0.12	A
4	27	OB	4	48	0.09	A
4	28	IB	9	48	0.18	A
4	28	OB	58	48	1.22	D
4	33	IB	20	48	0.43	A
4	33	OB	41	48	0.85	C
4	38	IB	9	48	0.18	A
4	38	OB	9	48	0.19	A
4	40	IB	25	48	0.51	B
4	40	OB	18	48	0.37	A
4	62	IB	24	48	0.49	A
4	62	OB	60	48	1.24	D
4	1013	IB	14	48	0.29	A
4	1013	OB	17	48	0.35	A
4	1071	IB	5	48	0.10	A
4	1071	OB	2	48	0.05	A
4	1214	IB	18	48	0.38	A
4	1214	OB	34	48	0.70	B
4	1220	IB	12	48	0.25	A
4	1220	OB	14	48	0.30	A
4	1505	IB	29	48	0.60	B
4	1505	OB	39	48	0.80	C

Screenline	Route/Line	Direction (Inbound/Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
4	2515	IB	3	48	0.07	A
4	2515	OB	20	48	0.42	A
5	D Line	IB	20	48	0.42	A
5	D Line	OB	51	48	1.07	D
5	15	IB	19	48	0.40	A
5	15	OB	49	48	1.03	D
5	17	IB	55	48	1.14	D
5	18	IB	34	48	0.71	B

Source: Sound Transit Ridership Model 2019.

Table N.1B-14. P.M. Peak Period Passenger Load Level of Service - 2032 No Build Alternative (Rail)

Screenline	Line	Inbound/ Outbound	Peak Hour Average Load	Average Passenger Standing per Car	Average Square Feet per Standing Passenger	Passenger Load L.O.S. (Rail)
2	Everett-to-Tacoma Link	IB	180	0	325	A
2	Everett-to-Tacoma Link	OB	719	105	3	E
3	Everett-to-Tacoma Link	IB	225	0	325	A
3	Everett-to-Tacoma Link	OB	747	112	3	E
3	Redmond-to-Everett Link	IB	190	0	325	A
3	Redmond-to-Everett Line	OB	450	37	9	B

Source: Sound Transit Ridership Model 2019.

Table N.1B-15. P.M. Peak Period Passenger Load Level of Service – 2032 Build (Bus)

Screenline	Route/Line	Direction (Inbound/ Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
1	C Line	IB	8	48	0.2	A
1	C Line	OB	53	48	1.1	D
1	21	IB	27	48	0.6	B
1	21	OB	72	48	1.5	E
1	37	OB	0	48	0.0	A
1	50	IB	0	48	0.0	A
1	50	OB	1	48	0.0	A
1	55	OB	11	48	0.2	A
1	56	OB	60	48	1.2	D
1	57	OB	47	48	1.0	C
1	116	OB	18	48	0.4	A

Screenline	Route/Line	Direction (Inbound/ Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
1	125	IB	15	48	0.3	A
1	125	OB	23	48	0.5	A
1	1041	IB	15	48	0.3	A
1	1041	OB	61	48	1.3	E
2	C Line	IB	8	48	0.2	A
2	C Line	OB	53	48	1.1	D
2	21	IB	27	48	0.6	B
2	21	OB	72	48	1.5	E
2	37	OB	0	48	0.0	A
2	55	OB	11	48	0.2	A
2	56	OB	60	48	1.2	D
2	57	OB	47	48	1.0	C
2	101	IB	7	48	0.1	A
2	101	OB	36	48	0.8	B
2	102	OB	36	48	0.8	B
2	116	OB	17	48	0.3	A
2	121	IB	21	48	0.4	A
2	121	OB	32	48	0.7	B
2	122	OB	30	48	0.6	B
2	123	OB	30	48	0.6	B
2	124	IB	25	48	0.5	B
2	124	OB	24	48	0.5	B
2	125	IB	15	48	0.3	A
2	125	OB	23	48	0.5	A

Screenline	Route/Line	Direction (Inbound/ Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
2	131	IB	3	48	0.1	A
2	131	OB	4	48	0.1	A
2	132	IB	10	48	0.2	A
2	132	OB	22	48	0.5	A
2	143	OB	30	48	0.6	B
2	150	IB	4	48	0.1	A
2	150	OB	12	48	0.2	A
2	1041	IB	15	48	0.3	A
2	1041	OB	61	48	1.3	E
2	2207	IB	0	48	0.0	A
2	2207	OB	12	48	0.3	A
3	C Line	IB	6	48	0.1	A
3	C Line	OB	44	48	0.9	C
3	D Line	IB	7	48	0.1	A
3	D Line	OB	5	48	0.1	A
3	17	OB	5	48	0.1	A
3	18	OB	4	48	0.1	A
3	21	IB	15	48	0.3	A
3	21	OB	60	48	1.2	D
3	37	OB	0	48	0.0	A
3	55	OB	6	48	0.1	A
3	56	OB	53	48	1.1	D
3	57	OB	42	48	0.9	C
3	101	IB	3	48	0.1	A

Screenline	Route/Line	Direction (Inbound/ Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
3	101	OB	9	48	0.2	A
3	102	OB	9	48	0.2	A
3	116	OB	8	48	0.2	A
3	121	IB	13	48	0.3	A
3	121	OB	25	48	0.5	B
3	122	OB	24	48	0.5	A
3	123	OB	24	48	0.5	A
3	124	IB	6	48	0.1	A
3	124	OB	8	48	0.2	A
3	125	IB	9	48	0.2	A
3	125	OB	15	48	0.3	A
3	131	IB	1	48	0.0	A
3	131	OB	1	48	0.0	A
3	132	IB	2	48	0.0	A
3	132	OB	13	48	0.3	A
3	143	OB	8	48	0.2	A
3	150	IB	1	48	0.0	A
3	150	OB	3	48	0.1	A
3	1041	IB	15	48	0.3	A
3	1041	OB	61	48	1.3	E
3	1071	IB	3	48	0.1	A
3	1071	OB	3	48	0.1	A
3	1214	IB	7	48	0.1	A
3	1214	OB	12	48	0.2	A

Screenline	Route/Line	Direction (Inbound/ Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
3	1220	IB	2	48	0.0	A
3	1220	OB	4	48	0.1	A
3	2207	IB	0	48	0.0	A
3	2207	OB	12	48	0.3	A
4	C Line	IB	2	48	0.0	A
4	C Line	OB	26	48	0.5	B
4	D Line	IB	37	48	0.8	C
4	D Line	OB	80	48	1.7	F
4	E Line	IB	24	48	0.5	B
4	E Line	OB	59	48	1.2	D
4	5	IB	10	48	0.2	A
4	5	OB	70	48	1.4	E
4	15	IB	36	48	0.8	B
4	15	OB	76	48	1.6	F
4	17	OB	51	48	1.1	D
4	18	OB	33	48	0.7	B
4	24	IB	19	48	0.4	A
4	24	OB	41	48	0.9	C
4	27	IB	6	48	0.1	A
4	27	OB	4	48	0.1	A
4	28	IB	9	48	0.2	A
4	28	OB	58	48	1.2	D
4	33	IB	20	48	0.4	A
4	33	OB	41	48	0.9	C

Screenline	Route/Line	Direction (Inbound/ Outbound)	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
4	38	IB	9	48	0.2	A
4	38	OB	9	48	0.2	A
4	40	IB	25	48	0.5	B
4	40	OB	18	48	0.4	A
4	62	IB	24	48	0.5	A
4	62	OB	60	48	1.2	D
4	1013	IB	14	48	0.3	A
4	1013	OB	33	48	0.7	B
4	1071	IB	6	48	0.1	A
4	1071	OB	2	48	0.1	A
4	1214	IB	19	48	0.4	A
4	1214	OB	34	48	0.7	B
4	1220	IB	12	48	0.3	A
4	1220	OB	14	48	0.3	A
4	1505	IB	29	48	0.6	B
4	1505	OB	39	48	0.8	C
4	2515	IB	3	48	0.1	A
4	2515	OB	20	48	0.4	A
5	D Line	IB	20	48	0.4	A
5	D Line	OB	51	48	1.1	D
5	15 Line	IB	19	48	0.4	A
5	15 Line	OB	49	48	1.0	D
5	17 Line	IB	55	48	1.1	D
5	18 Line	IB	34	48	0.7	B

Source: Sound Transit Ridership Model 2019.

Table N.1B-16. P.M. Peak Period Passenger Load Level of Service – 2032 Build (Rail)

Screenline	Line	Inbound/ Outbound	Peak Hour Average Load	Average Passenger Standing per Car	Average Square Feet per Standing Passenger	Passenger Load L.O.S.
1	West Seattle-to-SODO Link	IB	22	0	325	A
1	West Seattle-to-SODO Link	OB	49	0	325	A
2	Lynnwood-to-Tacoma Link	IB	187	0	325	A
2	Lynnwood-to-Tacoma Link	OB	750	112	3	E
3	Lynnwood-to-Tacoma Link	IB	231	0	325	A
3	Lynnwood-to-Tacoma Link	OB	771	118	3	E
3	Redmond-to-Lynnwood Link	IB	189	0	325	A
3	Redmond-to-Lynnwood Link	OB	449	37	9	B

Source: Sound Transit Ridership Model 2019.

Table N.1B-17. P.M. Peak Period Passenger Load Level of Service – 2042 No Build (Bus)

Screenline	Route/Line	Inbound/Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load	Peak Hour Passenger Load L.O.S.
1	C Line	IB	9	48	0.2	A
1	C Line	OB	79	48	1.3	E
1	21	IB	38	48	0.6	B
1	21	OB	84	48	1.4	E
1	37	IB	3	48	0.1	A
1	37	OB	0	48	0.0	A
1	50	IB	4	48	0.1	A
1	50	OB	9	48	0.2	A
1	55	IB	6	48	0.1	A

Screenline	Route/Line	Inbound/Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load	Peak Hour Passenger Load L.O.S.
1	55	OB	24	48	0.4	A
1	56	IB	14	48	0.2	A
1	56	OB	62	48	1.0	D
1	57	IB	9	48	0.2	A
1	57	OB	62	48	1.0	D
1	116	IB	2	48	0.0	A
1	116	OB	26	48	0.4	A
1	125	IB	18	48	0.3	A
1	125	OB	26	48	0.4	A
1	1041	IB	16	48	0.3	A
1	1041	OB	59	48	1.0	C
2	C Line	IB	9	48	0.2	A
2	C Line	OB	79	48	1.3	E
2	21	IB	38	48	0.6	B
2	21	OB	84	48	1.4	E
2	37	IB	5	48	0.1	A
2	37	OB	0	48	0.0	A
2	55	IB	6	48	0.1	A
2	55	OB	24	48	0.4	A
2	56	IB	14	48	0.2	A
2	56	OB	62	48	1.0	D
2	57	IB	9	48	0.2	A
2	57	OB	62	48	1.0	D
2	101	IB	5	48	0.1	A
2	101	OB	35	48	0.6	B

Screenline	Route/Line	Inbound/Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load	Peak Hour Passenger Load L.O.S.
2	102	IB	1	48	0.0	A
2	102	OB	12	48	0.2	A
2	116	IB	2	48	0.0	A
2	116	OB	22	48	0.4	A
2	121	IB	30	48	0.5	B
2	121	OB	37	48	0.6	B
2	122	IB	23	48	0.4	A
2	122	OB	35	48	0.6	B
2	123	IB	24	48	0.4	A
2	123	OB	36	48	0.6	B
2	124	IB	12	48	0.2	A
2	124	OB	22	48	0.4	A
2	125	IB	18	48	0.3	A
2	125	OB	26	48	0.4	A
2	131	IB	4	48	0.1	A
2	131	OB	5	48	0.1	A
2	132	IB	9	48	0.1	A
2	132	OB	19	48	0.3	A
2	143	IB	11	48	0.2	A
2	143	OB	20	48	0.3	A
2	150	IB	3	48	0.0	A
2	150	OB	5	48	0.1	A
2	1041	IB	16	48	0.3	A
2	1041	OB	59	48	1.0	C
2	2207	IB	0	48	0.0	A

Screenline	Route/Line	Inbound/Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load	Peak Hour Passenger Load L.O.S.
2	2207	OB	1	48	0.0	A
3	C Line	IB	8	48	0.1	A
3	C Line	OB	65	48	1.1	D
3	D Line	IB	7	48	0.1	A
3	D Line	OB	4	48	0.1	A
3	17	IB	3	48	0.1	A
3	17	OB	4	48	0.1	A
3	18	IB	3	48	0.1	A
3	18	OB	4	48	0.1	A
3	21	IB	17	48	0.3	A
3	21	OB	64	48	1.1	D
3	37	IB	1	48	0.0	A
3	37	OB	0	48	0.0	A
3	55	IB	5	48	0.1	A
3	55	OB	15	48	0.3	A
3	56	IB	10	48	0.2	A
3	56	OB	53	48	0.9	C
3	57	IB	9	48	0.2	A
3	57	OB	53	48	0.9	C
3	124	IB	2	48	0.0	A
3	124	OB	6	48	0.1	A
3	125	IB	10	48	0.2	A
3	125	OB	20	48	0.3	A
3	131	IB	1	48	0.0	A
3	131	OB	2	48	0.0	A

Screenline	Route/Line	Inbound/Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load	Peak Hour Passenger Load L.O.S.
3	132	IB	2	48	0.0	A
3	132	OB	9	48	0.2	A
3	143	IB	3	48	0.0	A
3	143	OB	6	48	0.1	A
3	150	IB	1	48	0.0	A
3	150	OB	1	48	0.0	A
3	2207	IB	0	48	0.0	A
3	2207	OB	1	48	0.0	A
4	C Line	IB	3	48	0.1	A
4	C Line	OB	28	48	0.5	A
4	D Line	IB	37	48	0.6	B
4	D Line	OB	89	48	1.5	E
4	E Line	IB	7	48	0.1	A
4	E Line	OB	49	48	0.8	C
4	5	IB	15	48	0.3	A
4	5	OB	89	48	1.5	E
4	15	IB	36	48	0.6	B
4	15	OB	86	48	1.4	E
4	17	IB	9	48	0.2	A
4	17	OB	62	48	1.0	D
4	18	IB	10	48	0.2	A
4	18	OB	44	48	0.7	B
4	24	IB	20	48	0.3	A
4	24	OB	45	48	0.7	B
4	28	IB	12	48	0.2	A

Screenline	Route/Line	Inbound/Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load	Peak Hour Passenger Load L.O.S.
4	28	OB	73	48	1.2	D
4	33	IB	10	48	0.2	A
4	33	OB	22	48	0.4	A
4	40	IB	6	48	0.1	A
4	40	OB	13	48	0.2	A
4	1071	IB	2	48	0.0	A
4	1071	OB	3	48	0.1	A
4	1013	IB	14	48	0.2	A
4	1013	OB	21	48	0.3	A
4	1074	IB	9	48	0.2	A
4	1074	OB	10	48	0.2	A
4	1202	IB	25	48	0.4	A
4	1202	OB	69	48	1.2	D
4	1214	IB	22	48	0.4	A
4	1214	OB	37	48	0.6	B
4	1220	IB	20	48	0.3	A
4	1220	OB	30	48	0.5	A
4	1505	IB	28	48	0.5	A
4	1505	OB	45	48	0.8	B
4	2515	IB	2	48	0.0	A
4	2515	OB	24	48	0.4	A
4	3033	IB	2	48	0.0	A
4	3033	OB	3	48	0.0	A
5	D Line	OB	56	48	0.9	C
5	15	IB	19	48	0.3	A

Screenline	Route/Line	Inbound/Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load	Peak Hour Passenger Load L.O.S.
5	15	OB	54	48	0.9	C
5	17	IB	8	48	0.1	A
5	17	OB	65	48	1.1	D
5	18	IB	9	48	0.1	A
5	18	OB	46	48	0.8	C

Source: Sound Transit Ridership Model 2019.

Table N.1B-18. P.M. Peak Period Passenger Load Level of Service – 2042 No Build (Rail)

Screenline	Line	Inbound/ Outbound	Peak Hour Average Load	Average Passenger Standing per car	Average Square Feet per Standing Passenger	Passenger Load L.O.S.
2	Redmond-to-Lynnwood Link	IB	201	0	325	A
2	Redmond-to-Lynnwood Link	OB	865	141	2	F
3lrt	Lynnwood-to-Tacoma Link	IB	252	0	325	A
3lrt	Lynnwood-to-Tacoma Link	OB	892	148	2	F
3lrt	Redmond-to-Lynnwood Link	IB	216	0	325	A
3lrt	Redmond-to-Lynnwood Link	OB	539	60	5	D

Source: Sound Transit Ridership Model 2019.

Table N.1B-19. P.M. Peak Period Passenger Load Level of Service – 2042 Build Alternative (Bus)

Screenline	Route/Line	Inbound/ Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
1	2003	IB	2	48	0.13	A
1	2003	OB	54	48	3.16	F
1	3034	IB	2	48	0.11	A
1	3034	OB	2	48	0.09	A
2	2003	IB	2	48	0.13	A
2	2003	OB	54	48	3.16	F
2	2614	IB	23	48	1.34	E
2	2614	OB	52	48	3.04	F
2	2016	IB	18	48	1.05	D
2	2016	OB	40	48	2.33	F
2	1088	IB	11	48	0.65	B
2	1088	OB	16	48	0.94	C

Screenline	Route/Line	Inbound/ Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
2	2207	IB	0	48	0.00	A
2	2207	OB	2	48	0.14	A
3	1013	IB	2	48	0.09	A
3	1013	OB	0	48	0.00	A
3	1214	IB	3	48	0.17	A
3	1214	OB	9	48	0.55	B
3	1220	IB	1	48	0.05	A
3	1220	OB	2	48	0.14	A
3	1993	IB	0	48	0.01	A
3	1993	OB	0	48	0.00	A
3	2003	IB	2	48	0.13	A
3	2003	OB	54	48	3.16	F
3	2016	IB	10	48	0.57	B
3	2016	OB	36	48	2.13	F
3	2207	IB	0	48	0.00	A
3	2207	OB	2	48	0.14	A
3	2614	IB	23	48	1.34	E
3	2614	OB	52	48	3.04	F
4	1001	IB	3	48	0.18	A
4	1001	OB	40	48	0.67	B
4	1005	IB	14	48	0.81	C
4	1005	OB	32	48	1.88	F
4	1013	IB	11	48	0.63	B
4	1013	OB	22	48	1.27	E
4	1074	IB	2	48	0.11	A

Screenline	Route/Line	Inbound/ Outbound	Peak Hour Average Load	Average Capacity	Peak Hour Passenger Load Factor	Peak Hour Passenger Load L.O.S.
4	1074	OB	0	48	0.00	A
4	1202	IB	16	48	0.95	C
4	1202	OB	37	48	2.19	F
4	1214	IB	4	48	0.21	A
4	1214	OB	25	48	1.49	E
4	1220	IB	7	48	0.39	A
4	1220	OB	0	48	0.00	A
4	1505	IB	5	48	0.27	A
4	1505	OB	28	48	1.65	F
4	1993	IB	6	48	0.33	A
4	1993	OB	5	48	0.27	A
4	2003	IB	54	48	3.16	F
4	2003	OB	2	48	0.13	A
4	2515	IB	1	48	0.08	A
4	2515	OB	15	48	0.85	C
4	2614	IB	0	48	0.03	A
4	2614	OB	2	48	0.09	A
4	3033	IB	4	48	0.23	A
4	3033	OB	3	48	0.16	A
5	1512	IB	2	48	0.10	A
5	1512	OB	3	48	0.16	A

Source: Sound Transit Ridership Model 2019.

Table N.1B-20. P.M. Peak Period Passenger Load Level of Service – 2042 Build Alternative (Rail)

Screenline	Line	Inbound/ Outbound	Peak Hour Average Load	Number of Cars per Hour	Passenger per Hour per Car	Average Passenger Standing per Car	Average Square Feet per Standing Passenger	Peak Hour Passenger Load L.O.S.
1	West Seattle-to-Everett Link	IB	67	40	17	0	325.0	A
1	West Seattle-to-Everett Link	OB	253	40	63	0	325.0	A
2	Ballard-to-Tacoma Link	IB	158	48	40	0	325.0	A
2	Ballard-to-Tacoma Link	OB	685	48	171	96	3.4	E
2	Redmond-to-Everett Link	IB	83	40	21	0	325.0	A
2	Redmond-to-Everett Link	OB	288	40	72	0	325.0	A
3	Ballard-to-Tacoma Link	IB	191	48	48	0	325.0	A
3	Ballard-to-Tacoma Link	OB	686	48	171	96	3.4	E
3	Redmond-to-Everett Link	IB	189	40	47	0	325.0	A
3	Redmond-to-Everett Link	OB	526	40	132	57	5.7	C
3	West Seattle-to-Everett Link	IB	137	40	34	0	325.0	A
3	West Seattle-to-Everett Link	OB	371	40	93	18	18.4	A
4	Ballard-to-Tacoma Link	OB	420	48	105	30	10.8	B
4	Ballard-to-Tacoma-Link	IB	286	48	71	0	325.0	A
5	Ballard-to-Tacoma Link	OB	228	48	57	0	325.0	A
5	Ballard-to-Tacoma Link	IB	57	48	14	0	325.0	A

Source: Sound Transit Ridership Model 2019.

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Attachment N.1C
Transit Service Integration Technical Memorandum

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West Seattle and Ballard
Link Extensions

Transit Service Integration Technical Memorandum

February 2021

SOUNDTRANSIT

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Figures

Tables

Appendices

Acronyms and Abbreviations

M.O.S.	Minimum Operable Segment
WSBLE	West Seattle and Ballard Link Extensions

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1 INTRODUCTION

1.1 Overview

The West Seattle and Ballard Link Extensions (WSBLE) Project would provide fast, reliable light rail connections to dense residential and job centers throughout the region and add a new downtown Seattle light rail tunnel to provide efficient operating capacity for the entire regional system. The WSBLE Project is currently in the process of preparing a Draft Environmental Impact Statement to evaluate the direct, cumulative, and construction impacts of different alignments and station options. The Draft Environmental Impact Statement alignments were initially based on the Sound Transit 3 Plan Representative Project that was included in the Sound Transit 3 package that voters approved in 2016. The Sound Transit 3 Representative Project for the extension to West Seattle would operate on a 4.7-mile elevated guideway from downtown Seattle to West Seattle's Alaska Junction neighborhood and include a new rail-only fixed span across the Duwamish River. The Sound Transit 3 Representative Project for the West Seattle extension would serve one at-grade station in the stadium area and four elevated stations in the SODO, Delridge, Avalon and Alaska Junction areas.

The Sound Transit 3 Representative Project for the Ballard extension would operate 7.1 miles from downtown Seattle to Ballard's Market Street area and include a new 3.3-mile rail-only tunnel from the Chinatown-International District to South Lake Union and Seattle Center/Uptown. The Sound Transit 3 Representative Project would include an elevated guideway along 15th Avenue West and Elliott Avenue West and a rail-only movable bridge over Salmon Bay. The Sound Transit 3 Representative Project for the Ballard extension would serve three elevated stations in Ballard, Interbay and near Smith Cove, and six tunnel stations at the Seattle Center, South Lake Union, Denny, Westlake, midtown, and Chinatown-International District areas.

A map of both extensions for the Sound Transit 3 Representative Project is shown on **Figure 1-1** (West Seattle and Ballard Link Extensions).

Figure 1-1 West Seattle and Ballard Link Extensions

1.2 Purpose of Technical Memorandum

The purpose of the transit integration analysis is to highlight station design and transit access issues that need to be addressed to ensure convenient bus and rail connections to the new Link stations for the WSBLE Project. Transit integration during the Level 1 Alternatives Analysis focused on the relative proximity of the different station options to existing and planned bus/rail routes. The transit integration analysis for the Level 2 Alternatives Analysis focused primarily on the features and issues identified for each of the WSBLE Project concepts relative to the King County Metro METRO CONNECTS transit service network. Level 3 transit integration analysis took a closer look at issues identified in Level 2 and involved additional station concept refinements and collaboration with partner agencies to address issues and improve transit integration.

This memorandum summarizes the Level 3 transit integration analysis and refined transit routing and station concepts used in the Draft Environmental Impact Statement. This memorandum also depicts transit integration network and routing concepts around the Smith Cove and Delridge stations under a Minimum Operable Segment (M.O.S.) scenario.

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2 METHODOLOGY

This section describes the methodology used to define and evaluate the following:

- Transit transfers and passenger access
- Transit routes that serve the stations
- Active and layover active bus stops at and near the stations
- Pick-up and drop-off locations

2.1.1 Transit Transfers and Passenger Access

As part of the Level 3 station area alternative evaluations, the ease of transit transfers and passenger access to the station was evaluated for each of the potential station locations. Transit transfers were analyzed based on the following:

- Number of bus/rail trips at the transferring bus stops/rail platforms.
- Walking time to the transferring bus stops/rail platforms (based on a walking speed of 3.5 feet per second).
- Total delay caused by street crossings: 90 seconds to cross a 4+ lane street at a traffic signal; 45 seconds to cross a 2- to 3-lane street at a traffic signal; 20 seconds to cross a 2-lane street at a crosswalk without a traffic signal.

A transit transfer "score" was developed by taking a trip-weighted average travel time between the active bus stops and rail platforms for each potential station location. The scores were categorized into a high (less than 2 minutes to transfer), medium (2 to 5 minutes to transfer), or low (more than five minutes to transfer) range. For the full alternatives analysis, the individual station scores were averaged together to summarize the performance of the alternative as a whole. However, in this memorandum, individual station-level results are presented (without the average alternative result).

Passenger access scores were also developed for each potential station location. These scores were based on two factors: 1) whether the station is more than 100 feet vertically from the street (aerial or underground), and 2) whether there is direct transit drop-off access for buses and paratransit vehicles in front of the station. Stations could score high, medium or low on passenger access. Stations rated low if they were both far (vertically) from the street and had no direct transit drop-off access. Stations rated high if they were both relatively close to the street and had transit drop-off access. Medium-rated stations were either close to the street or had direct transit drop-off access, but not both.

2.1.2 Transit Service Routing Updates

As part of the Level 2 transit integration analysis, Sound Transit, working with King County Metro and the WSBLE consultant team, refined the METRO CONNECTS transit routing to better align with the potential station locations. Transit routing was continually refined through the Draft Environmental Impact Statement analysis and included more detailed routing details, such as identifying specific intersections to make turns, signals that would need to be upgraded, and pathways to access active bus stops and layover areas. Through this process, Sound Transit and the consultant station planning team identified initial networks for review by King County Metro. Following King County Metro's review, the routes were updated to incorporate the feedback. Ultimately, a final draft of transit routes was shared with a broader group of Sound Transit, King County Metro, and City of Seattle staff for additional feedback.

2.1.3 Active Bus Stops and Layover Refinements

Similar to the transit service routing updates, the active bus stop and layover areas were developed in a collaborative process with King County Metro. Sound Transit and the consultant team updated the Level 2 configurations based on the transit routing updates described previously. Proposed configurations for the active bus stops and layover areas were then discussed with King County Metro and shared for additional review. A second set of refinements was made based on King County Metro's comments and presented to a broader set of stakeholders that included City of Seattle staff.

2.1.4 Pick-up/Drop-off Refinements

The specific pick-up/drop-off curb space requirements for non-transit vehicles (TNCs, taxis, private autos, private/employer shuttles) from the Level 2 analysis were validated and adjusted through this analysis.[1] Pick-up/drop-off locations and curb space lengths were refined based on the more complete station design concepts. These pick-up/drop-off locations were reviewed with King County Metro staff to solicit feedback on how buses would interact with the pick-up/drop-off vehicles. The locations of the pick-up/drop-off areas were refined to avoid conflicts with active bus stops, paratransit areas, and major streets.

2.1.5 Review Process

As described above, the transit service integration assumptions including transit service routing, active bus stop/layover, and pick-up/drop-off locations were developed through an iterative process with King County Metro and via a final review by a larger stakeholder group. **Figure 2-1** (Flowchart of Review Process) summarizes the review and refinement process. The transit integration and conceptual station layouts were presented and refined for all stations along the alignments and for all Draft Environmental Impact Statement station locations.

[1] Pick-up/drop-off estimates were derived from the Draft EIS ridership forecasts at each station.

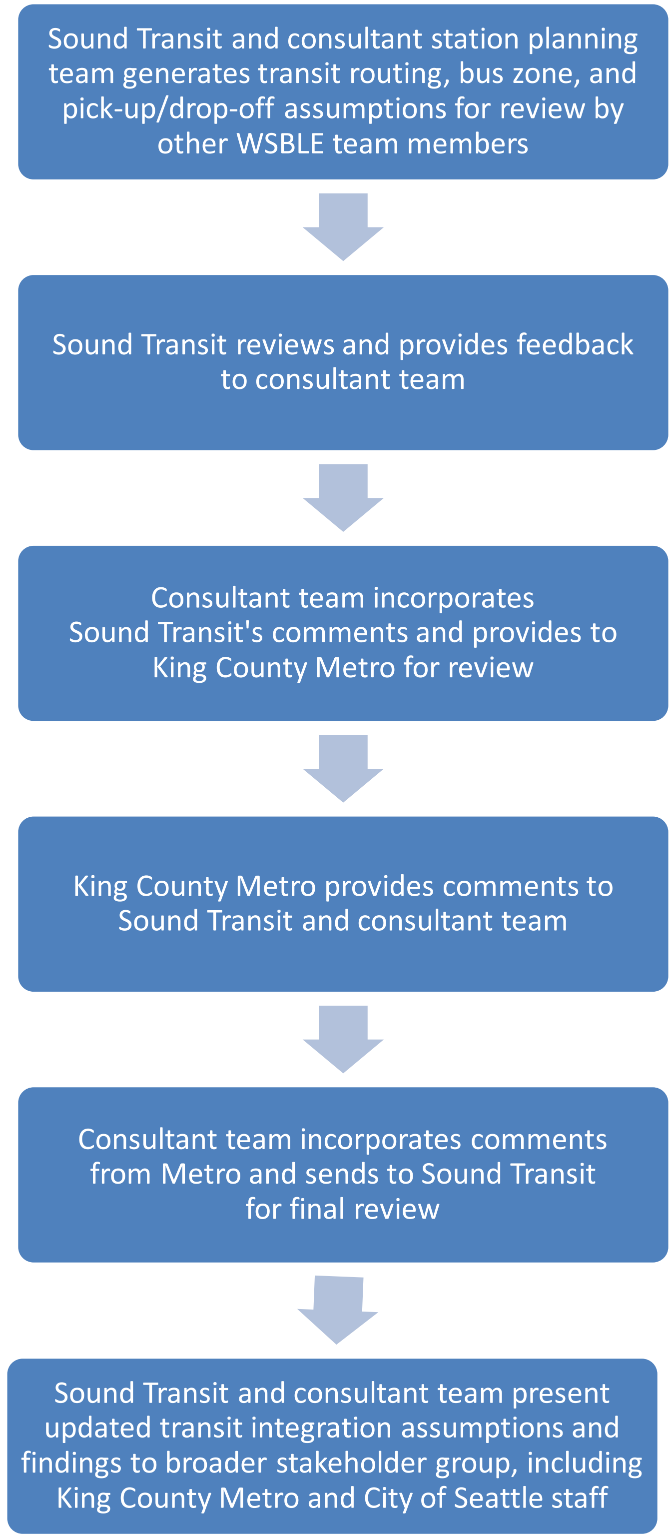

Figure 2-1 Flowchart of Review Process

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3 TRANSIT TRANSFER AND PASSENGER ACCESS ANALYSIS RESULTS

Table 3-1 (Level 3 Transit Transfer Analysis Results by Station) summarizes the results of the Level 3 transit transfer analysis that was completed for the alternatives evaluation. Note that in the full Level 3 analysis, there were additional variations of Alternatives 2 and 3 that were evaluated; see the Level 3 Alternatives Evaluation Matrices for additional details.

Table 3-1 Level 3 Transit Transfer Analysis Results by Station

Station	Alternative 1: ST 3 Representative Project	Alternative 2: West Seattle Elevated/ CID 5th Ave/Downtown 6th Ave/Ballard Elevated	Alternative 3: West Seattle Tunnel/ CID 4th Ave/Downtown 5th Ave/Ballard Tunnel
Alaska Junction	M	L	H
Avalon	L	L	M
Delridge	H	H	M
SODO	L	L	L
Stadium	Not Applicable – No Transfers	Not Applicable – No Transfers	Not Applicable – No Transfers
International District/Chinatown	L	L	L
Midtown	Not analyzed	Not analyzed	Not analyzed
Westlake	Not analyzed	Not analyzed	Not analyzed
Denny	H	L	H
South Lake Union	L	L	H
Seattle Center	L	H	L
Smith Cove	M	H	L
Interbay	H	L	L
Ballard	M	H	H

NOTES:
Transit transfers were not analyzed at the Stadium Station because transfers are not expected to be a major priority at this location.
Transit transfers were not analyzed at the Midtown and Westlake Stations because of the density of transit transfer opportunities in Downtown Seattle.
LEGEND:
H: high rating with a less than two minute average travel time to transfer between transit modes; M: medium rating with an average of two-to-five minute average travel time to transfer; L: low rating with an average of more than five minutes of average travel time to transfer.

The results in **Table 3-1** show the variation in terms of transit transfer environments between the different stations. While the full Level 3 analysis contains additional detail, below are some of the differences between the three alternatives at the key stations highlighted above:

- The Alaska Junction Station transit integration results vary based on how proximate the station is to key METRO CONNECTS routes along California Avenue Southwest. Station options that provide more direct connections score better.
- The International District/Chinatown Station tends to have low transit integration results for all alternatives because of the challenges connecting to the other Link light rail line and some major bus routes.
- The South Lake Union Station alternative along Harrison Street has better connections to major bus routes than the station alternative along Mercer Street.
- Smith Cove Station transit integration results vary based on how proximate the station is to the RapidRide service along Elliott Avenue West with stations farther from Elliott Avenue West having lower scores.

Table 3-2 (Level 3 Passenger Access Analysis Results by Station) summarizes the results of the Level 3 passenger access analysis results. **Figure 3-1** (Level 3 WSBLE Alternatives) shows the three WSBLE alternatives evaluated in Level 3 analysis.

Table 3-2 Level 3 Passenger Access Analysis Results by Station

Station	Alternative 1: ST 3 Representative Project	Alternative 2: West Seattle Elevated/ CID 5th Ave/Downtown 6th Ave/Ballard Elevated	Alternative 3: West Seattle Tunnel/ CID 4th Ave/Downtown 5th Ave/Ballard Tunnel
Alaska Junction	H	H	H
Avalon	H	H	H
Delridge	M	M	H
SODO	M	M	M
Stadium	H	H	H
International District/Chinatown	H	H	M
Midtown	M	M	M
Westlake	M	M	M
Denny	H	M	M
South Lake Union	M	L	M
Seattle Center	H	M	M
Smith Cove	H	H	H
Interbay	H	H	H
Ballard	H	H	H

LEGEND:
H: high rating where the station requires less than 100 feet of vertical circulation to reach the platform and has drop-off areas immediately adjacent to the station; M: medium rating where the station has either more than 100 feet or vertical circulation to reach the platform or does not have a drop-off area immediately adjacent to the station; L: low rating where the station requires more than 100 feet of vertical circulation to reach the platform and drop-off is not immediately adjacent to the station.

The results in **Table 3-2** do not show much variation between station locations for the alternatives. Some of the notable differences, highlighted in the table for the Delridge, South Lake Union and Seattle Center stations, include the following:

- The Delridge Station rates high under Alternative 3 because pick-up/drop-off access can be more easily accommodated when the station is not straddling Delridge Way Southwest or located close to the on- and off-ramps for the West Seattle Bridge.
- The South Lake Union Station rates low for Alternative 2 because of the combination of having a deeper station than Alternative 1 and the difficulty of locating pick-up/drop-off access for the location along Mercer Street.
- The Seattle Center Station is less deep for Alternative 1 compared to the other alternatives.

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Figure 3-1 Level 3 WSBLE Alternatives

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4 TRANSIT INTEGRATION AT STATIONS

While a transit integration analysis was performed at all stations, this chapter focuses on the following stations that had the most complex transit integration issues stemming from the Level 3 analysis:

- Alaska Junction
- Delridge
- SODO
- South Lake Union
- Smith Cove
- Ballard

4.1 West Seattle Link Extension Stations

Figure 4-1 (Updated West Seattle Bus Network from King County Metro) shows a potential transit routing network for all of West Seattle that was developed by King County Metro. **Figure 4-2** (Original West Seattle Bus Network from METRO CONNECTS) shows the original METRO CONNECTS network in the same area for comparison. The network shown in **Figure 4-1** represents the fifth iteration of different route structures developed collaboratively by Sound Transit, the consultant team, and King County Metro to optimize the connections, transfers, and route performance of the three West Seattle stations. Some notable features of the transit routing in **Figure 4-1** include a reconfiguration of RapidRide connections from the Avalon Station to Alaska Junction (when compared to the original METRO CONNECTS network) to better connect destinations south of Alaska Junction to the Urban Village center at Alaska Junction. **Figures 4-3** and **4-4** show the Draft Environmental Impact Statement alternatives since they differ from the Level 3 analysis (particularly around the Delridge Station area).

The transit routing configuration in **Figure 4-1** also changes the terminus of the RapidRide H line from Downtown Seattle to the Admiral Junction area. This eliminates some duplicative service between the WSBLE light rail connection and provides a more direct connection between Admiral Junction and light rail. The transit routing also eliminates bus stops along California Avenue Southwest by having all the routes that originally served that corridor instead travel along Southwest Alaska Street, making for a more direct transfer to Link light rail.

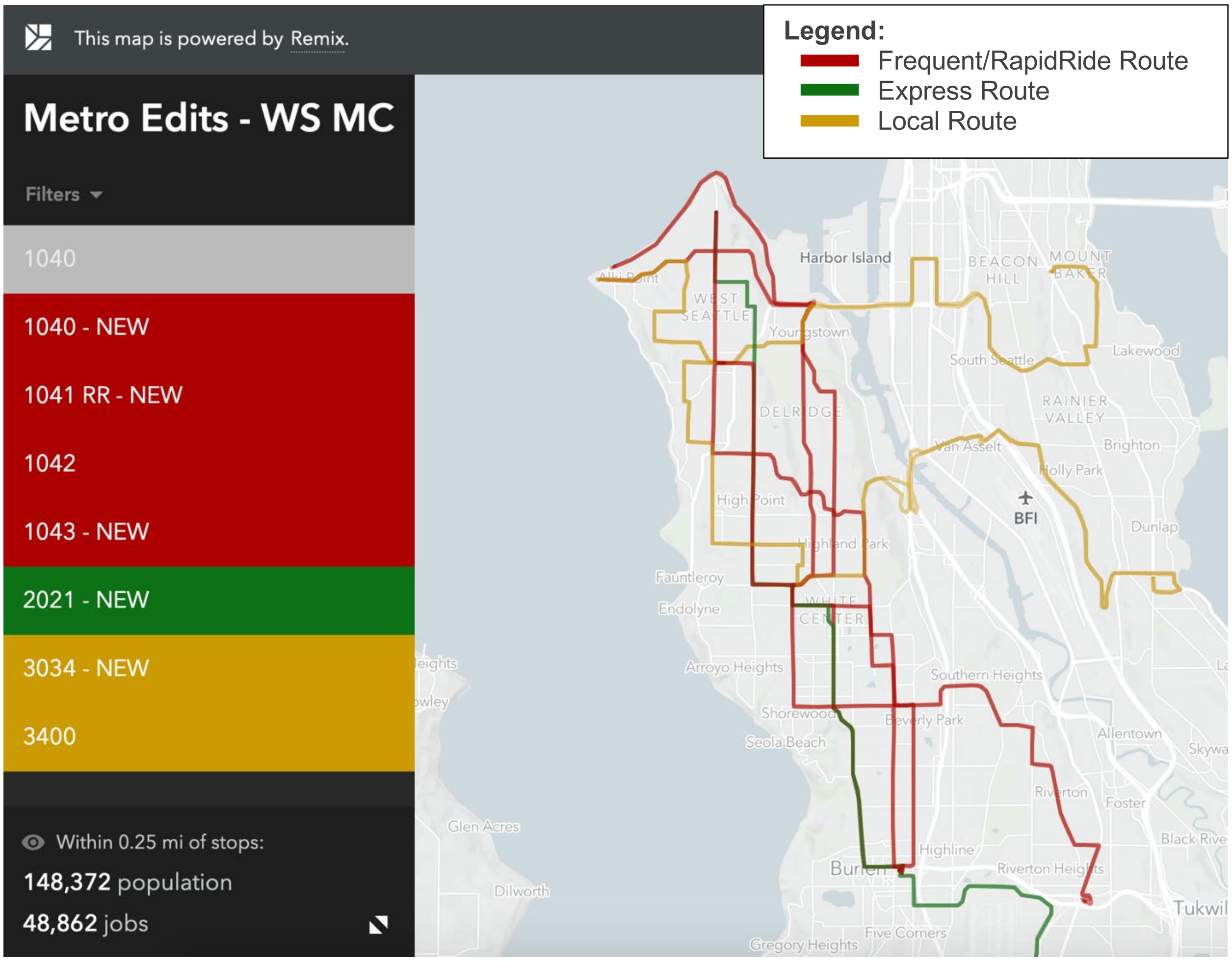

Figure 4-1 Updated West Seattle Bus Network from King County Metro

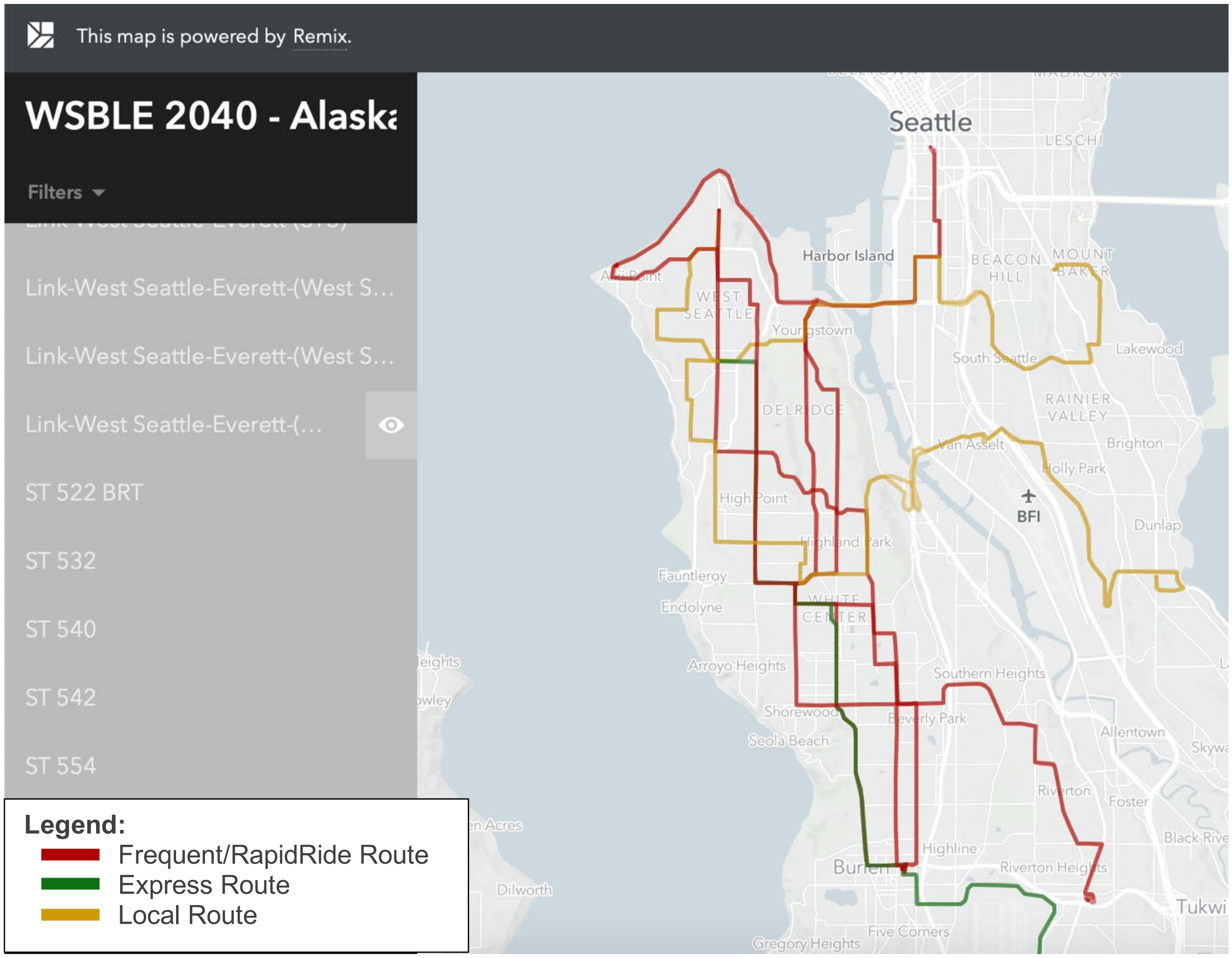

Figure 4-2 Original West Seattle Bus Network from METRO CONNECTS

Appendix A (Station Area Transit Integration Station Diagrams) includes a series of station concept plans illustrating potential active bus stops, layover, and pick-up/drop-off configurations around the alternative station locations at all of the WSBLE stations. For each station location, the active bus stops and paratransit access are kept as close as possible to the station entrances. Pick-up/drop-off access is located near the station entrances, but away from active bus stops and not along collector or local streets. Bus layover varies in location and tends to be near existing King County Metro layover areas or relatively close to the station to reduce the amount of nonrevenue service that has to be operated to serve the station.

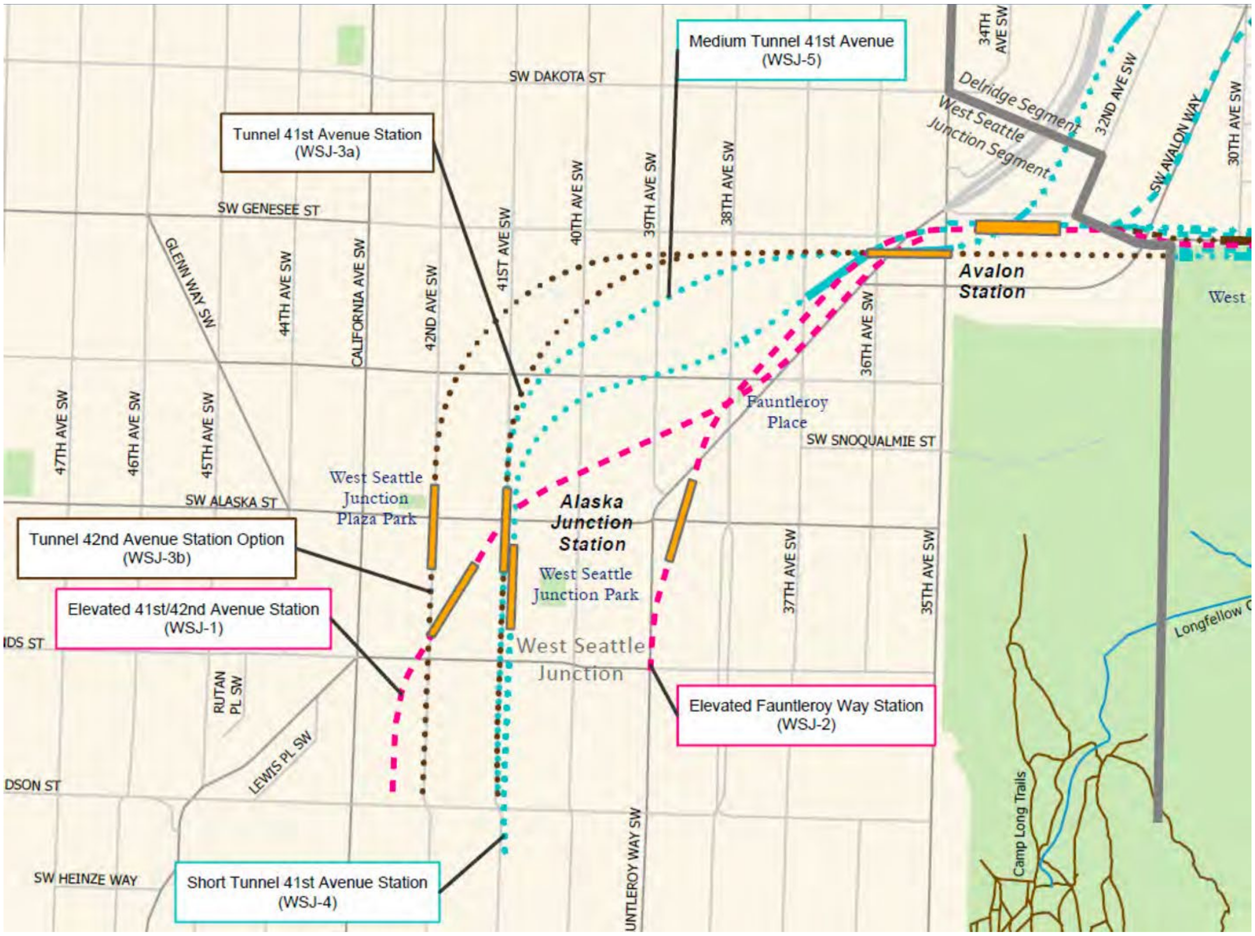

Figure 4-3 Draft Environmental Impact Statement Alternatives in Avalon/Alaska Junction Station Area

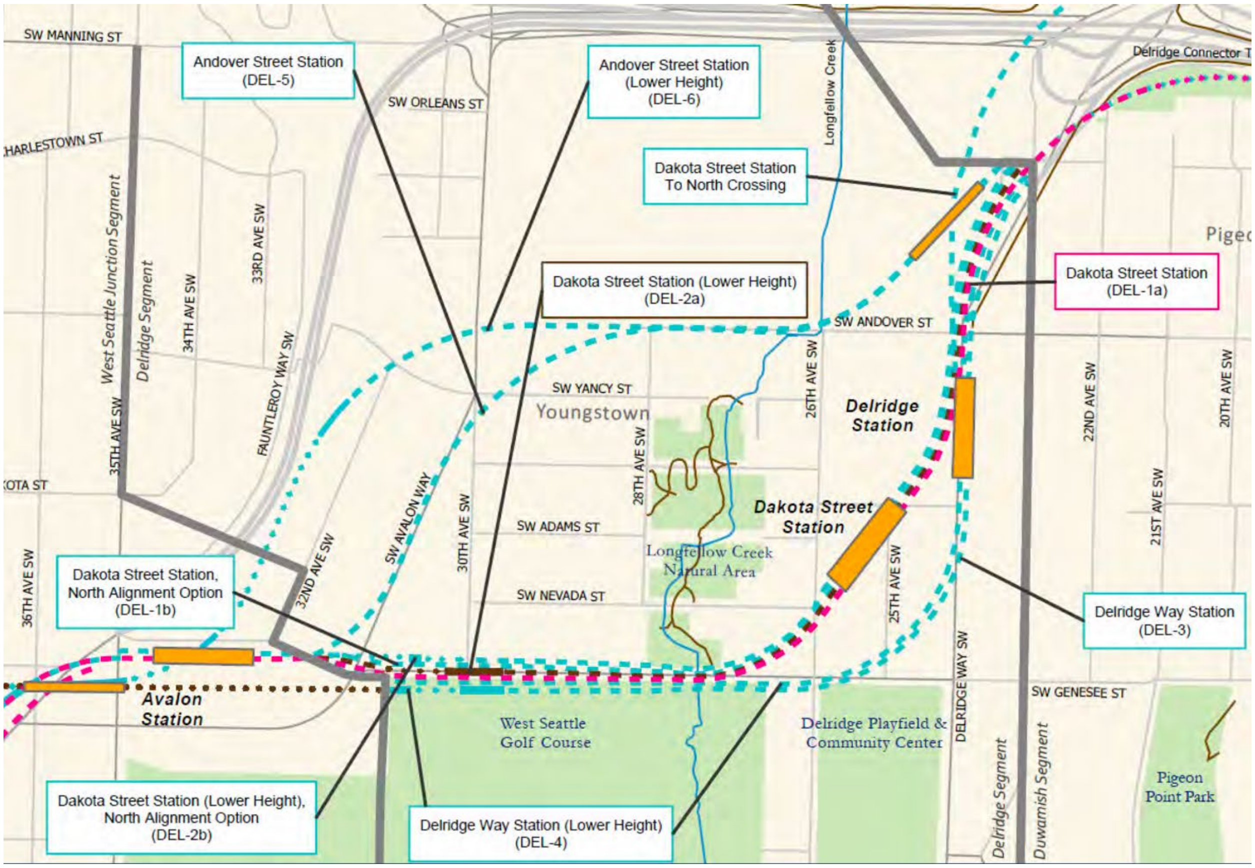

Figure 4-4 Draft Environmental Impact Statement Alternatives in Delridge Station Area

4.1.1 Alaska Junction Station

Specific to the Alaska Junction Station options, some of the notable discussion items that emerged from the Level 3 workshop with Sound Transit, City of Seattle, and King County Metro staff included the following:

- There is a desire to have station entrances on both sides of Southwest Alaska Street for any of the station options to facilitate transfers to buses heading along Southwest Alaska Street.
- There was a discussion of prohibiting general purpose vehicle travel on Southwest Alaska Street near the station Tunnel 42nd Avenue Station Option. This street closure was not considered in the Draft Environmental Impact Statement, but may be considered during later phases of design. If advanced further, this closure would require additional environmental review.
- Some additional traffic signals at 40th Avenue Southwest or 41st Avenue Southwest may be needed for station accessibility; some signals may require queue jumps to allow buses to position to turn left at Fauntleroy Way Southwest.

4.1.2 Delridge Station

Notable discussion items for the Delridge Station options included the following:

- *Andover Street Station Option:*
  - It would be difficult for Route 1042 to serve this station option and then maneuver west on Southwest Spokane Street.
  - Sound Transit and King County Metro agreed that it may be more logical to deviate Routes 1041 and 1042 to stop on Southwest Andover Street to directly serve the station, rather than force passengers to cross Delridge Way Southwest; this creates more curb space needs along Southwest Andover Street.
  - Drop-off/pick-up access for this option may be challenging because of limited curb space and multiple driveways.
- For the *Dakota Street Station*, King County Metro has some interest in creating a transit-only section of Southwest Dakota Street between 25th Avenue Southwest and Delridge Way Southwest to facilitate bus access to the station option north of Genesee. This option was not included in the Draft Environmental Impact Statement analysis, but may be a topic pursued in later design phases.
- Any of the Delridge Station alternatives that do not have access points on both sides of Delridge Way Southwest would likely meet Metro's deviation guidelines given the large number of transferring passengers, and some bus routes could be diverted to better serve the station. However, King County Metro and Sound Transit recognize the delay and added operating cost of any such deviations. **Appendix A** (Station Area Transit Integration Diagrams) shows several transit diversion options jointly developed by Sound Transit and King County Metro, although some diversions may require new traffic signals or transit signals, which would need to be approved by the City of Seattle.

4.2 SODO Station

SODO Station presents several unique challenges related to transit integration. First, the project's Stakeholder Advisory Group and Elected Leadership Group raised concerns about the lack of transit service to key destinations along 1st Avenue South between South Jackson Street and South Lander Street. Specifically, there was concern expressed that the updated bus network identified to support the West Seattle and Ballard Link Extensions network would not provide an adequate connection between the SODO Station and the employment center at 1st Avenue South and South Lander Street. Second, the different station locations and various property constraints for the station options in the Draft Environmental Impact Statement required a distinct evaluation of transit integration for each of the three options under consideration. The transit network and station integration findings are described further below.

4.2.1 SODO Area Bus Routing

To address concerns related to the lack of transit service along 1st Avenue South, Sound Transit and the consultant team identified six alternative bus routing alternatives for the METRO CONNECTS network in SODO. The objectives of the alternative bus networks were to:

- Create a good transfer environment between buses and the SODO Station; minimize long walks and multiple at-grade pedestrian crossings
- Create a frequent (15 minute or better) all-day connection between the employment center at 1st Avenue South and South Lander Street and the SODO Station
- Improve transit frequencies along 1st Avenue South between South Jackson Street and South Lander Street
- Maintain at least 30 minute frequency service along 4th Avenue South between South Jackson Street and South Spokane Street
- Ensure bus routes travel along corridors with land uses that are likely to generate transit ridership

Upon reviewing the six potential bus routing networks, Metro staff made the following recommendation related to the SODO bus network:

- No routing changes from the West Seattle Route reconfiguration (shown in **Figure 4-1**)
- Reinvest service hours savings from not routing RapidRide 1041 (H Line) into Downtown Seattle to provide 15 minute or better all-day service on Route 3034 (which connects Alaska Junction to Mount Baker via Lander Street and SODO Station)

Metro cited the following strengths and weaknesses of this proposal:

Strengths

- Creates a strong crosstown bus route between West Seattle and the Rainier Valley, especially along the 1st Avenue South (between South Spokane Street and South Lander Street) and South Lander Street corridor that connects to the SODO Station
- Maintains the direct routing of Route 1088 along 4th Avenue South, which provides frequent all-day service along the 4th Avenue South corridor and a direct connection between Georgetown and Downtown Seattle
- Maintains as seamless as possible bus-rail integration at the SODO Station between Routes 3040/3401, which provide service to South Park and the northern portions of Tukwila and SeaTac

Weaknesses

- Does not provide frequent all-day service on 1st Avenue South between South Jackson Street and South Lander Street

Through this work, Metro acknowledged the remaining gap in the METRO CONNECTS network along 1st Avenue South. However, they cited two key pieces of Metro's Service Guidelines that present challenges in rerouting buses along 1st Avenue South either south from Downtown Seattle or north from areas to the south.

1. 1st Avenue South between South Jackson Street and South Lander Street is currently a slow and unreliable bus pathway and would need improvements for Metro to consider providing frequent all-day service. From Metro's Service Guidelines, "Bus routes should also be designed to avoid places where traffic congestion and delay regularly occur, if it is possible to avoid such areas while continuing to meet riders' needs. Bus routes should be routed, where possible, to avoid congested intersections or interchanges unless the alternative would be more time-consuming or would miss an important transfer point or destination."

2. Extending service from Downtown Seattle to SODO station along 1st Avenue South is also a challenge per Metro's Service Guidelines, "In some places, routes extend beyond regional growth centers and transit activity centers to serve less dense residential neighborhoods. Where routes operate beyond centers, ridership should be weighed against the time spent serving neighborhood segments, to ensure that the service level is appropriate to the level of demand. The percent of time spent serving a neighborhood segment, which are defined as ≤20% of the total mileage length of a route, should be considered in relation to the percent of riders boarding and exiting on that segment. Percent of time spent serving neighborhood segment divided by the percent of riders boarding/exiting on neighborhood segment ≤1.2." Routes extending south from Downtown Seattle would not meet this threshold.

In discussions with Metro staff, they acknowledged that if land uses were to substantially change either around the SODO Station area or along the 1st Avenue South corridor, there could be a rationale to extend frequent all-day service along the corridor (in conjunction with transit priority treatments). For the purposes of the WSBLE Phase 2 analysis, however, Metro does not support a major restructure of the bus network around the SODO Station. The differences between the reconfigured bus network to support the Link extensions and the original METRO CONNECTS routing are shown in **Figure 4-5** and **Figure 4-6**, respectively.

4.2.2 SODO Station Transit Integration

Following discussions between Sound Transit, King County Metro, and the City of Seattle, the following main points were discussed related to transit integration at the SODO Station:

- It is important to make transfers between Link and Route 3034 (which serves the employment center near 1st Avenue South and South Lander Street) as straightforward as possible.
- While an important route, there is less transfer activity anticipated between Route 1088, which travels along 4th Avenue South between Georgetown and Downtown Seattle.
- Transit transfer walking routes should avoid narrow passageways between buildings or bridge abutments for passenger safety and comfort.
- Layover in a dedicated transit loop is desirable.

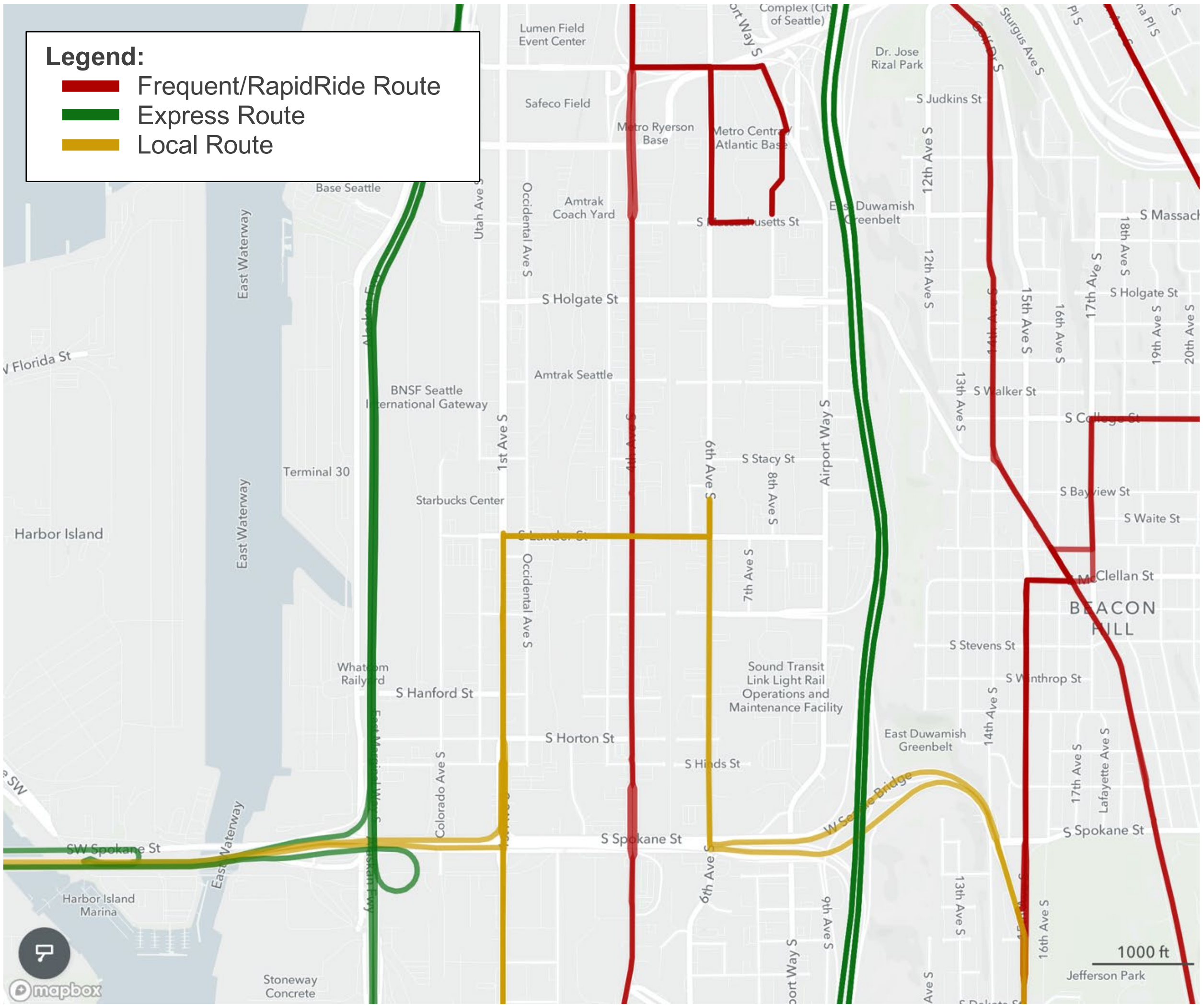

Figure 4-5 Updated SODO Area Bus Network to Support WSBLE Extensions

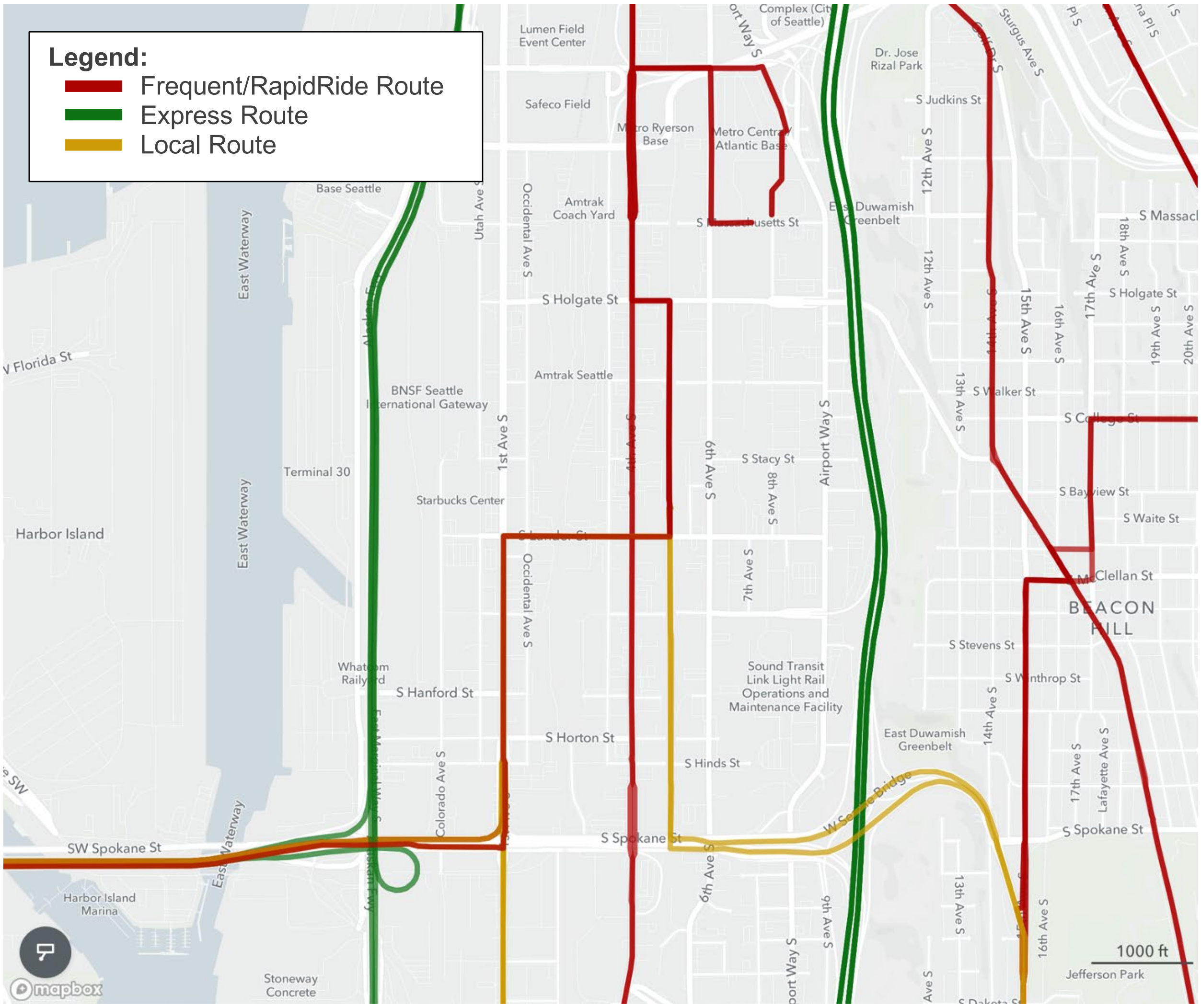

Figure 4-6 Original SODO Area METRO CONNECTS Bus Network

4.3 Ballard Link Extension Stations

This section describes the transit integration analysis and discussions for the Ballard Link Extension between Downtown Seattle and Ballard. Unlike the West Seattle Link Extension, Sound Transit and King County Metro did not identify any substantial changes in the bus network identified in the METRO CONNECTS plan for the Ballard Link Extension. As noted earlier, the most complex transit integration discussions surrounded the South Lake Union, Smith Cove, and Ballard Stations. However, transit integration diagrams are shown for all stations in **Appendix A**.

4.3.1 South Lake Union Station

The primary discussion around transit integration at the South Lake Union station related to the 6th Avenue/Mercer Street Alternative (DT-2 in the Draft Environmental Impact Statement). For

the DT-2 Alternative, the South Lake Union Station would be located just north of Mercer Street between Aurora
Avenue N and Taylor Avenue N. The METRO CONNECTS plan does not have any active bus stops along Mercer Street east of 5th Avenue N because of the heavy traffic volumes and traffic congestion heading toward I-5. Instead, the METRO CONNECTS plan routes nearly all the east-west bus routes through South Lake Union along Harrison Street (see **Figure 4-7**). For the 5th Avenue/Harrison Street Alternative (DT-1 in the Draft Environmental Impact Statement), this configuration provides for straightforward transit integration, however, for the DT-2 alternative, transit integration is a challenge. After several sessions with King County Metro and the City of Seattle, the following main points related to transit integration at the South Lake Union Station were identified:

- Transit integration for the DT-1 Alternative is straightforward and most transfers would be accommodated with either no street crossings or one street crossing and there are no changes in the South Lake Union bus network identified compared to the original METRO CONNECTS routing.
- For the DT-2 Alternative, deviation of the Harrison Street routes to Mercer Street east of 5th Avenue N was determined to be infeasible; therefore, transfers to Harrison Corridor bus routes would need to be made on either 5th Avenue South just south of Mercer Street or on Mercer Street just west of 5th Avenue N.
- Transfers to Route 1001 (similar to RapidRide E) would be challenging for the DT-2 alternative as the nearest stop would be on 7th Avenue N at Harrison Street, which is more than 1,500 feet away and requires crossing of Mercer Street. Realistically, under DT-2, many of the transfers between Route 1001 and the Ballard Link extension might occur at Westlake Station.

In summary, any options to reroute the METRO CONNECTS bus network to better integrate with the DT-2 Alternative were eliminated after a basic level of investigation by the project team and King County Metro. The challenges of adding bus stops on Mercer Street and the delays of turning on and off of Mercer Street east of 5th Avenue N were major barriers to shifting routes.

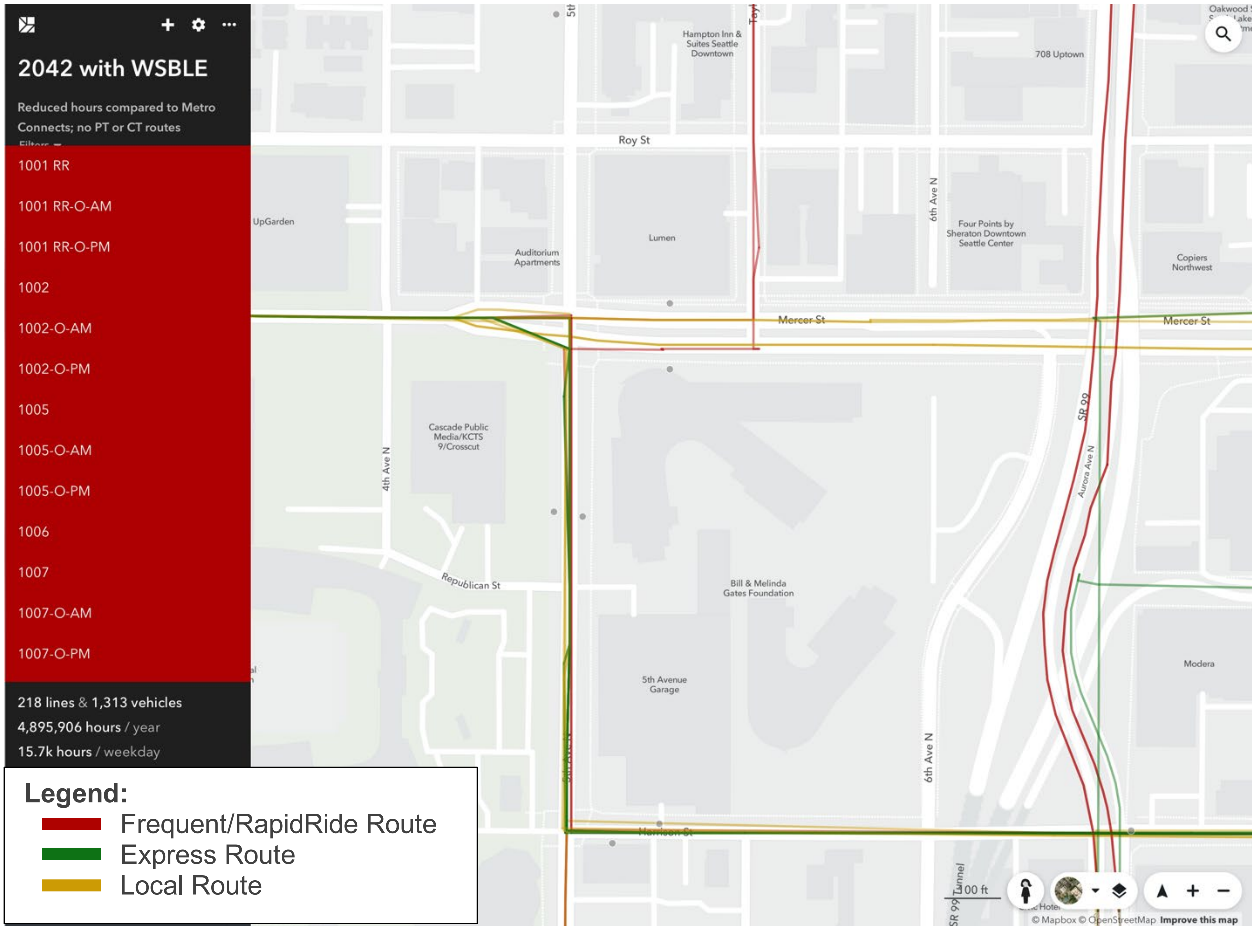

Figure 4-7 METRO CONNECTS Network near South Lake Union Station

4.3.2 Smith Cove Station

Smith Cove Station is a major layover hub for routes that serve Downtown, South Lake Union, and Magnolia. The station also is a transit integration hub for Magnolia routes and offers connections to the Expedia campus and potential connections to the cruise ship terminal at the Port of Seattle's Terminal 91. After discussing the network design with King County Metro staff, no changes were made to the original METRO CONNECTS network at the Smith Cove (or Interbay) Station. Some of the notable discussion items for the Smith Cove Station included the following:

- There was a desire to have the active bus stops located closer to the existing traffic signal at Elliott Avenue West/West Prospect Street for the East of Elliott Avenue West station. A queue jump for southbound buses turning left on West Mercer Place may also be needed.
- For all station alternatives, King County Metro suggested angled layover spaces to facilitate bus maneuvers, but this may require more space to meet layover needs.
- Sound Transit may be interested in locating layover away from the station, but only within a short distance trip. Metro is concerned about the additional time driving between the station and layover area. It may be more practical to fit layover at an alternative location, however,

given the narrow parcel depths along the Elliott Avenue West corridor for all the Draft Environmental Impact Statement station alternatives.

- For all the station options near Galer Street, there was some interest from the Port of Seattle in how shuttles might be accommodated to serve Terminal 91 uses.
- King County Metro acknowledged that some of the layover demand identified near the Smith Cove Station would be better served in South Lake Union or North Downtown. The City of Seattle, however, has asked King County Metro to remove many existing on-street layover facilities in these areas, necessitating the need to locate additional off-street spaces. Shifting layover from Smith Cove to a location in South Lake Union or North Downtown would be challenging unless off-street facilities could be identified.

4.3.3 Ballard Station

Notable transit integration discussion items related to the Ballard Station options included the following:

- For station alternatives located along 14th Avenue Northwest, King County Metro would reroute buses that terminate nearby to 14th Avenue Northwest, so that stops can be located adjacent to the station entries. There was also a desire to create a strong pedestrian connection to any through-routes that remain on 15th Avenue Northwest. There was also some interest from the City of Seattle and King County Metro in creating a transit-only street for the one-block stretch of 14th Avenue Northwest south of Northwest Market Street to improve bus/rail transfer environment and increase safety for pedestrians crossing 14th Avenue Northwest.
- Since King County Metro might reroute buses off of Leary Way Northwest to ensure strong transit connections to the Ballard Station (for both the 14th Avenue Northwest and 15th Avenue Northwest station alternatives), the City of Seattle suggested strong pedestrian and bicycle connections between the station and locations along Leary Way Northwest between Northwest Market Street and 15th Avenue Northwest. Specifically, the City identified wayfinding and low-stress bicycle connections between Leary Way Northwest and the station.
- The active bus stops along 15th Avenue Northwest could be congested with pick-up/drop-off vehicles. Strategic pick-up/drop-off locations, good signage, and enforcement of curb uses would be required to ensure good bus/rail integration.
- There was some interest in closing Northwest 54th Street east of 15th Avenue Northwest to improve the station plaza for the underground 15th Avenue Northwest station alternative.
- Metro has identified the need to layover three coaches near the station. These coaches would serve Route 1010. In the original METRO CONNECTS network, Route 1010 terminates near 11th Avenue Northwest and Northwest 45th Street. However, Metro would prefer the layover closer to the Ballard Station to minimize travel time between the station and the layover area. At the time of the Draft Environmental Impact Statement analysis, Metro had not located specific layover areas, however, it was agreed that the layover would not be accommodated at the Ballard Station.

Figure 4-8 and **Figure 4-9** show the bus network reconfigurations for the 14th Avenue Northwest and 15th Avenue Northwest Ballard Station options, respectively. **Figure 4-10** shows the original METRO CONNECTS network around Ballard Station.

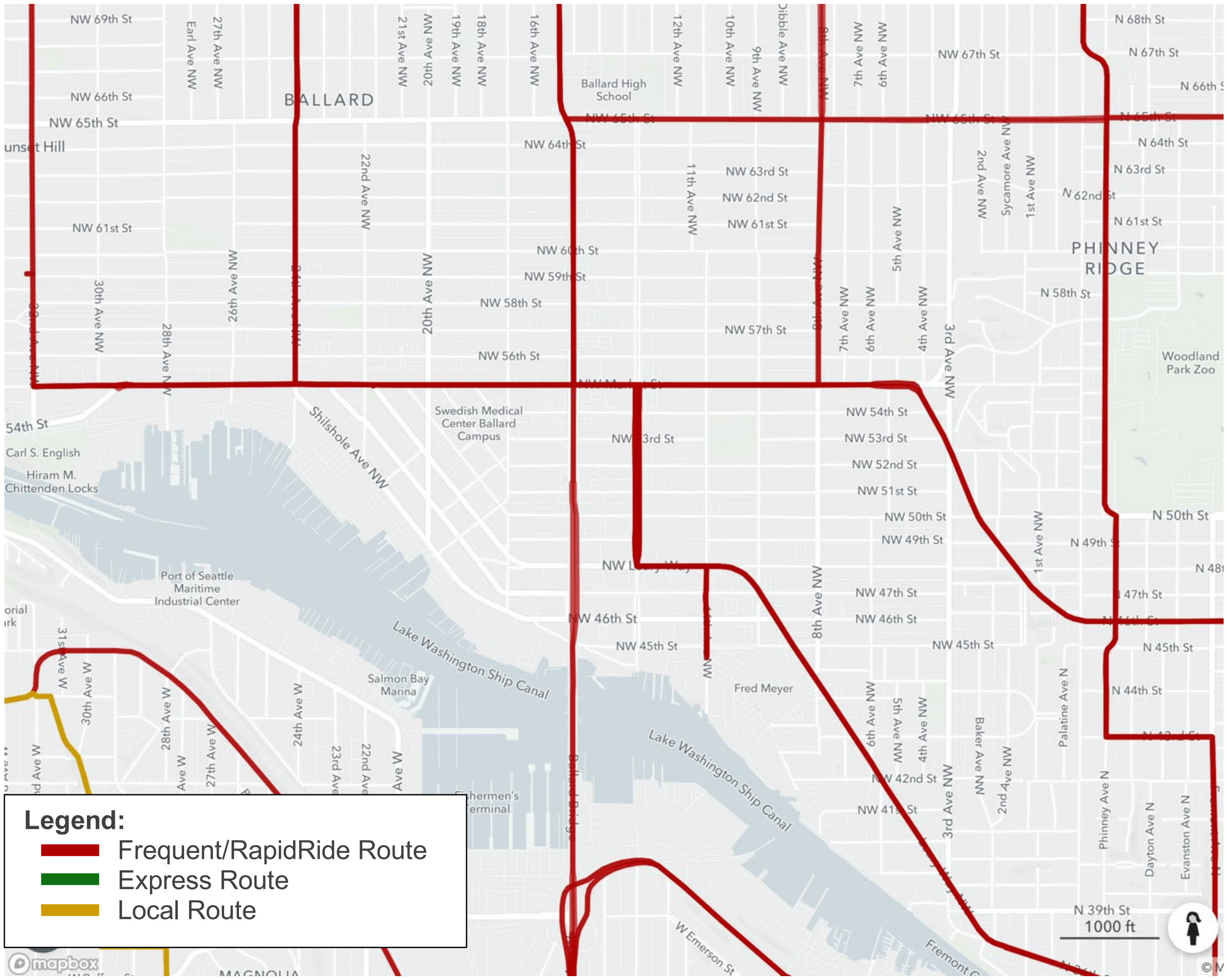

Figure 4-8 Updated Ballard Bus Network for 14th Avenue Northwest Station

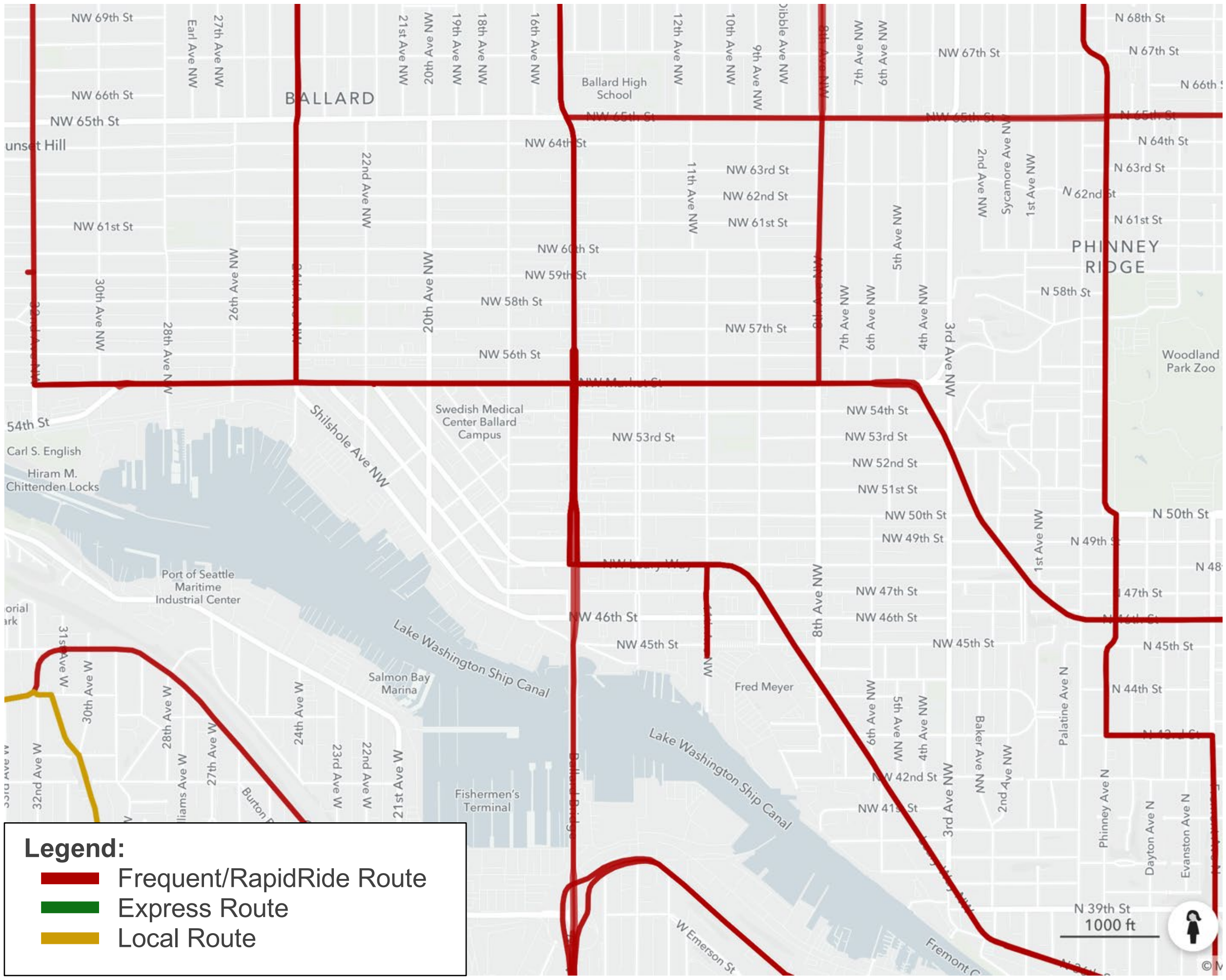

Figure 4-9 Updated Ballard Bus Network for 15th Avenue Northwest Station

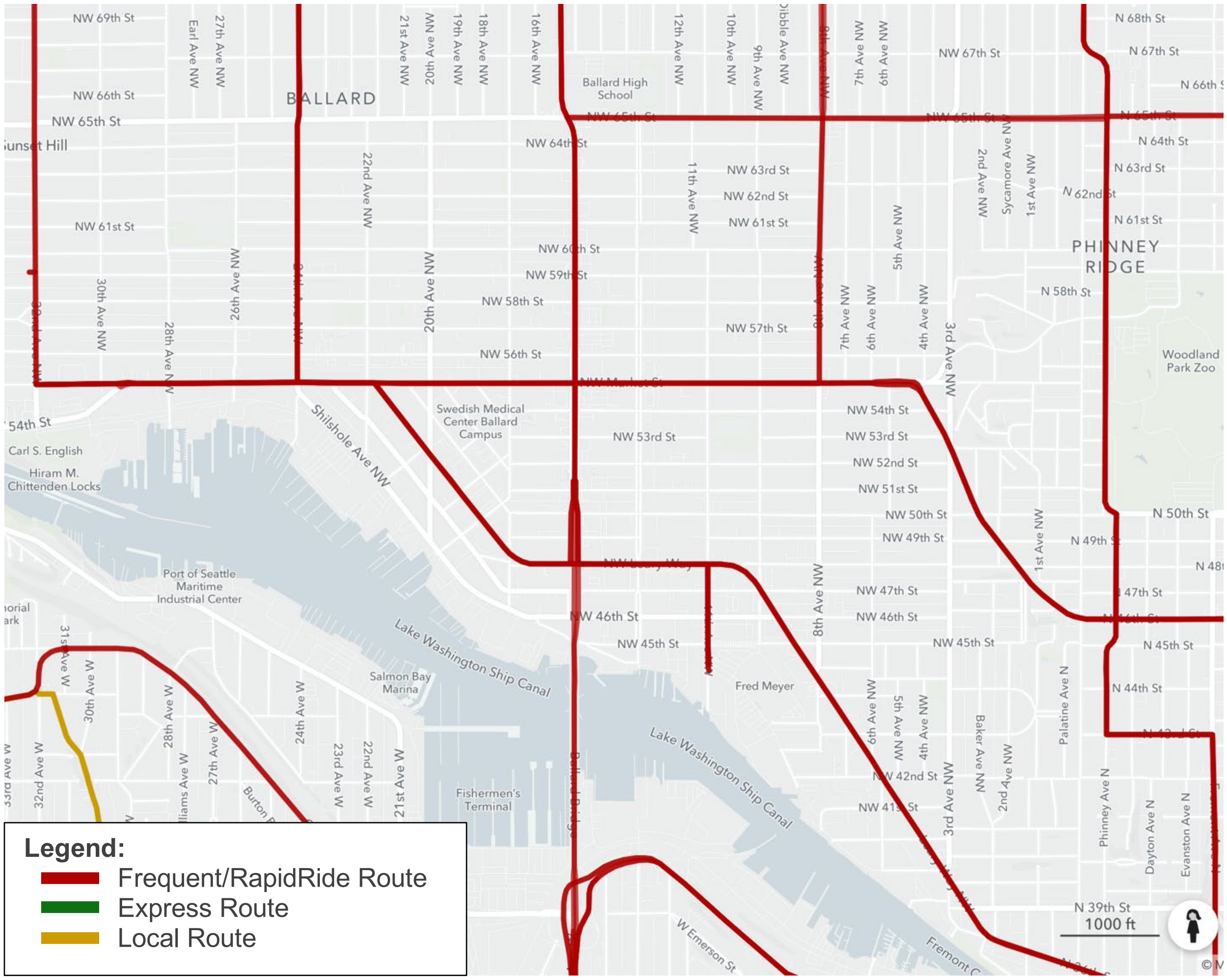

Figure 4-10 Original Ballard Area METRO CONNECTS Bus Network

5 MINIMUM OPERABLE SEGMENT TRANSIT INTEGRATION

One of the scenarios evaluated in the Draft Environmental Impact Statement is the M.O.S. scenario. The M.O.S. is defined by the Federal Transit Administration as “a segment of the Locally Preferred Alternative that provides the most cost-effective solution with the greatest benefits for the project.” The M.O.S. scenario includes a Ballard Link Extension M.O.S. from the SODO Station to the Smith Cove Station, along with a West Seattle Link Extension M.O.S. from just north of the SODO Station to the Delridge Station.

Similar to the other transit integration work outlined in this document, the consultant team, Sound Transit, and King County Metro worked together to identify a transit integration network for the Delridge Station and Smith Cove Station M.O.S. scenarios. **Figure 5-1** highlights the West Seattle Link Extension M.O.S. bus network, which can be compared against the full WSBLE build bus network, shown in **Figure 5-2**. **Figure 5-3** highlights the Ballard Link Extension M.O.S. bus network compared to the full WSBLE build network shown in **Figure 5-4**. When reviewing these figures, note that only a subset of the total bus network is shown—specifically, only those routes that would serve the Link extension station areas are shown (for both the M.O.S. and full build condition). **Appendix B** presents the Station Area Transit Integration Diagrams for the M.O.S. scenarios.

5.1 West Seattle Link Extension M.O.S. Bus Network

Under the West Seattle M.O.S. scenario, bus services that would have terminated at the West Seattle Junction station under the Build Alternatives would be revised to serve the Delridge station. This includes the following routes:

- METRO CONNECTS Route 1043 (similar to Route 128) would serve the Alaska Junction area, but then continue on to Delridge station via 35th Avenue Southwest to Southwest Avalon Way to Southwest Yancy Street.
- METRO CONNECTS Route 2003 (Similar to RapidRide C Line) would serve the Fauntleroy Ferry terminal and provide express service to South Lake Union by the State Route 99 tunnel, bypassing Downtown Seattle. This route would serve the Delridge station via Southwest Avalon Way to Southwest Yancy Street.
- METRO CONNECTS Route 2021 (similar to Route 21) would no longer serve Admiral Junction vis Southwest Hanford Street, as contemplated in METRO CONNECTS, but would access the Delridge station via 35th Avenue Southwest to Southwest Avalon Way to Southwest Yancy Southwest before continuing on to Downtown Seattle. This extension to Downtown Seattle is a substantial departure from the routing in the full Build Alternatives, but it provides a single seat ride for West Seattle residents into Downtown, as an option to transferring to Link at Delridge station.
- METRO CONNECTS Route 3400 (similar to Routes 37 and 22) would be extended from Alaska Junction to the Delridge station via 35th Avenue Southwest to Southwest Avalon Way to Southwest Yancy Southwest.

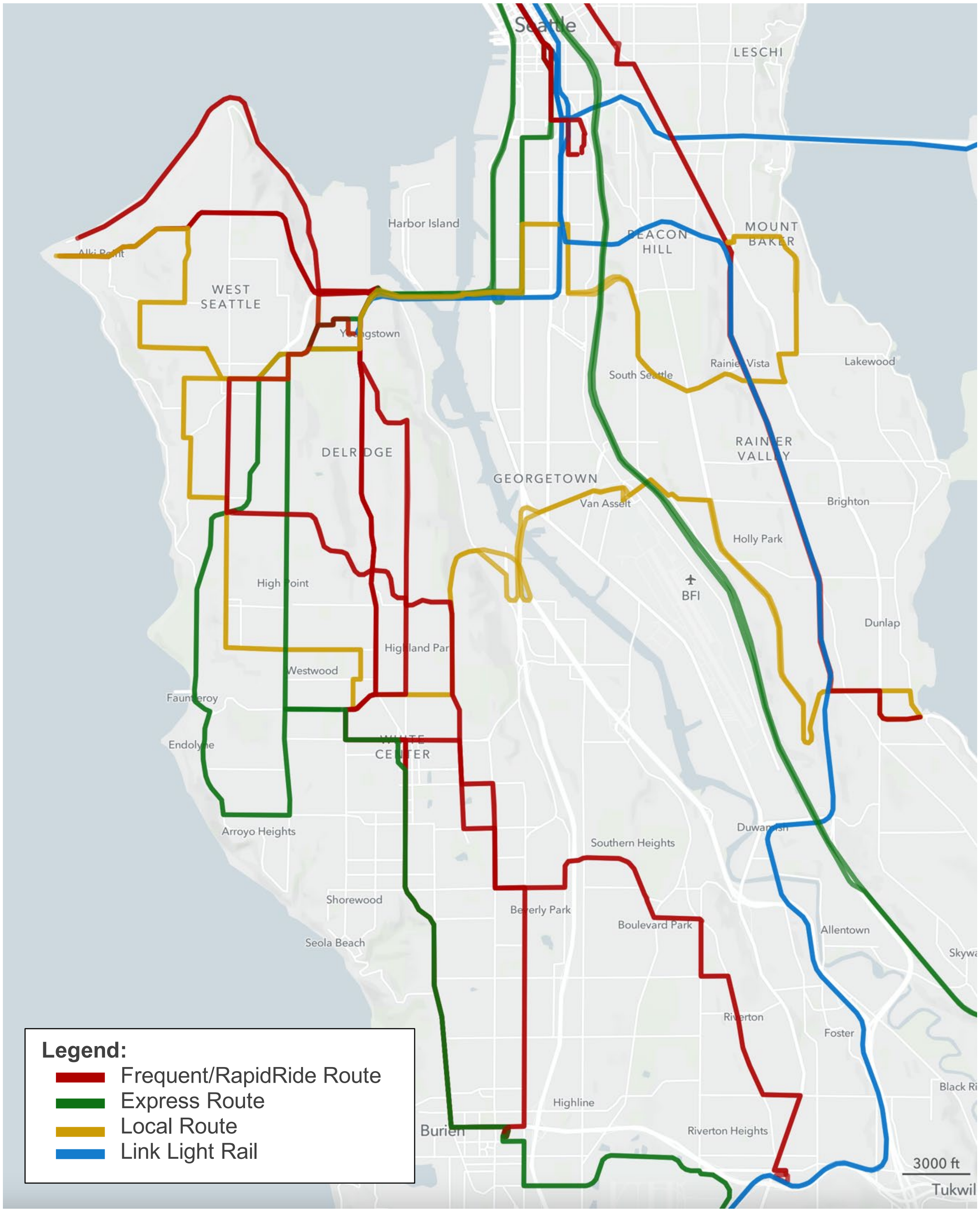

Figure 5-1 West Seattle Link Extension M.O.S. Bus Network

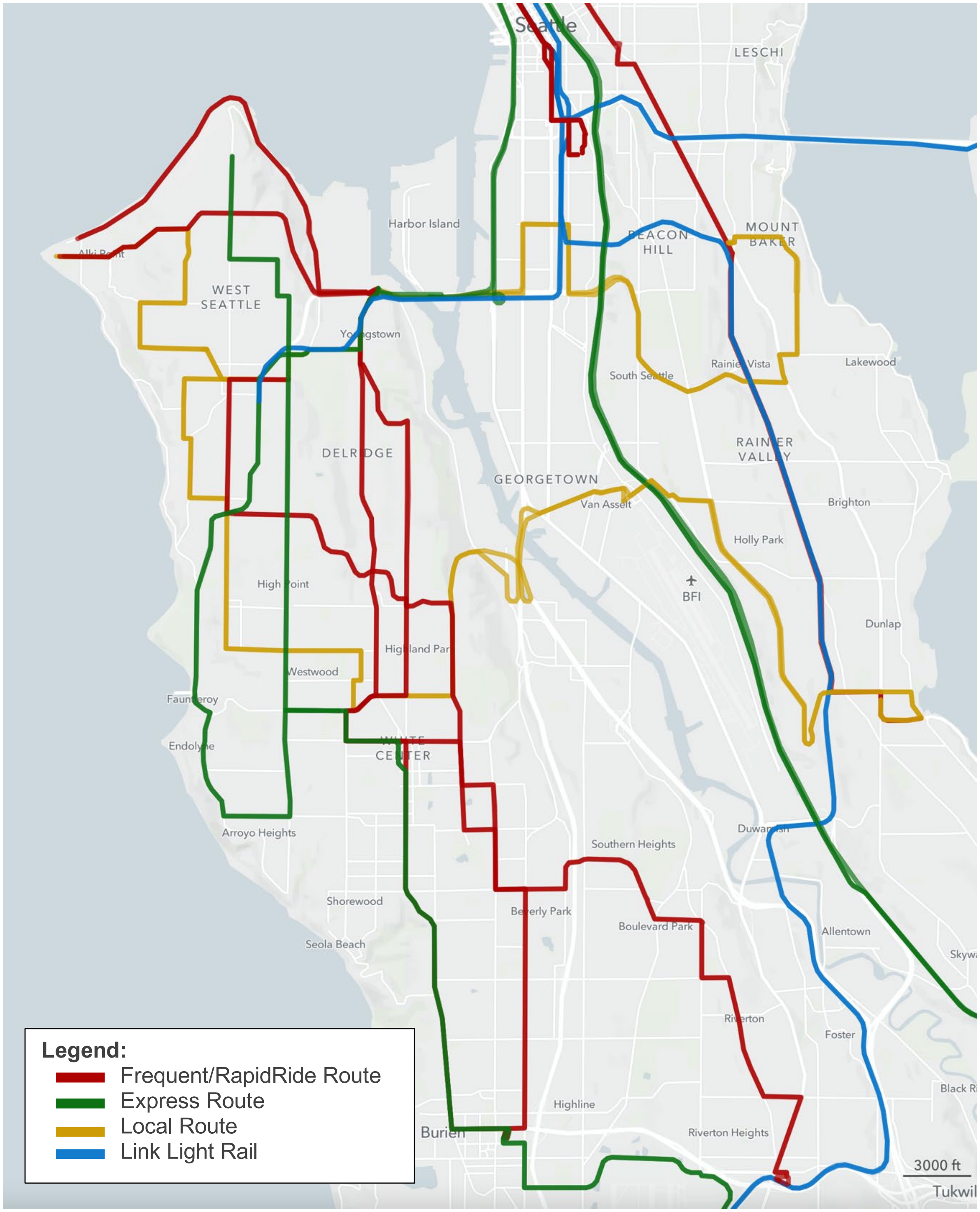

Figure 5-2 West Seattle Link Extension Full Build Bus Network

To accommodate this change in routing, additional active and layover spaces would be needed at Delridge Station. Specifically, one additional northbound and southbound active bus bay would be needed along Southwest Delridge Way to accommodate the heavier bus volumes. These active bus bays could also be located along the streets surrounding the station (e.g., 26th Avenue Southwest, Southwest Dakota Street, Southwest Andover Street) with stops near the station entrances to facilitate bus routes turning around to head back to West Seattle. Three layover spaces would also be required in the vicinity of Delridge Station. Sound Transit would work with SDOT and King County Metro to locate these spaces, keeping in mind the land uses and zoning around the different station alternatives.

5.2 Ballard Link Extension M.O.S. Bus Network

Under the Ballard M.O.S. scenario, Smith Cove would serve as the terminus station. However, unlike with the West Seattle Link Extension, it is not feasible to simply extend all the routes that intercepted the Ballard Link extension at the Ballard and Interbay stations to Smith Cove. The longer distance, greater levels of traffic congestion, and delays caused by the Ballard Bridge opening would necessitate a more comprehensive restructure of routes.

The consultant team, Sound Transit, and King County Metro developed the M.O.S. bus network to ensure strong connections between Ballard, Interbay, and Magnolia to both the Ballard Link Extension and other major destinations in Seattle. Below are the routes that would likely be substantially modified from the METRO CONNECTS plan to accommodate the M.O.S. scenario:

- METRO CONNECTS Route 1006 would terminate in Downtown Ballard rather than serving Sunset Hill via 32nd Avenue Northwest as contemplated in METRO CONNECTS. This route would not connect with the project under the M.O.S. scenario.
- METRO CONNECTS Route 1010 (Similar to Route 45 and the RapidRide D Line) would terminate near the intersection of Northwest 46th Street and 14th Avenue Northwest via Northwest 85th Street and 32nd Avenue Northwest. This route would not connect with the project under the M.O.S. scenario.
- RapidRide D Line would continue to run between Ballard and Downtown Seattle with the M.O.S. scenario to provide a frequent one-seat connection. This route would integrate with the Ballard Link Extension at Smith Cove.
- METRO CONNECTS Route 1512 (has elements of Routes 28 and 24 but provides new service to the Broadview neighborhood) would continue to serve the Smith Cove Station, but would terminate in Magnolia to provide a more direct connection between the Greenwood neighborhood and eastern portions of Ballard and the project.
- Route 33 (would replace METRO CONNECTS Route 3025) would be similar to the existing Route 33 but would terminate near Seattle Center. This would provide a connection between Magnolia and the project.
- New Route 34 (similar to Route 24) would connect portions of Magnolia, particularly along 28th Avenue West to the Smith Cove Station; this route would terminate near Seattle Center.

No additional active bays are needed at the Smith Cove Station to accommodate the restructured service. One additional layover space would be required at Smith Cove.

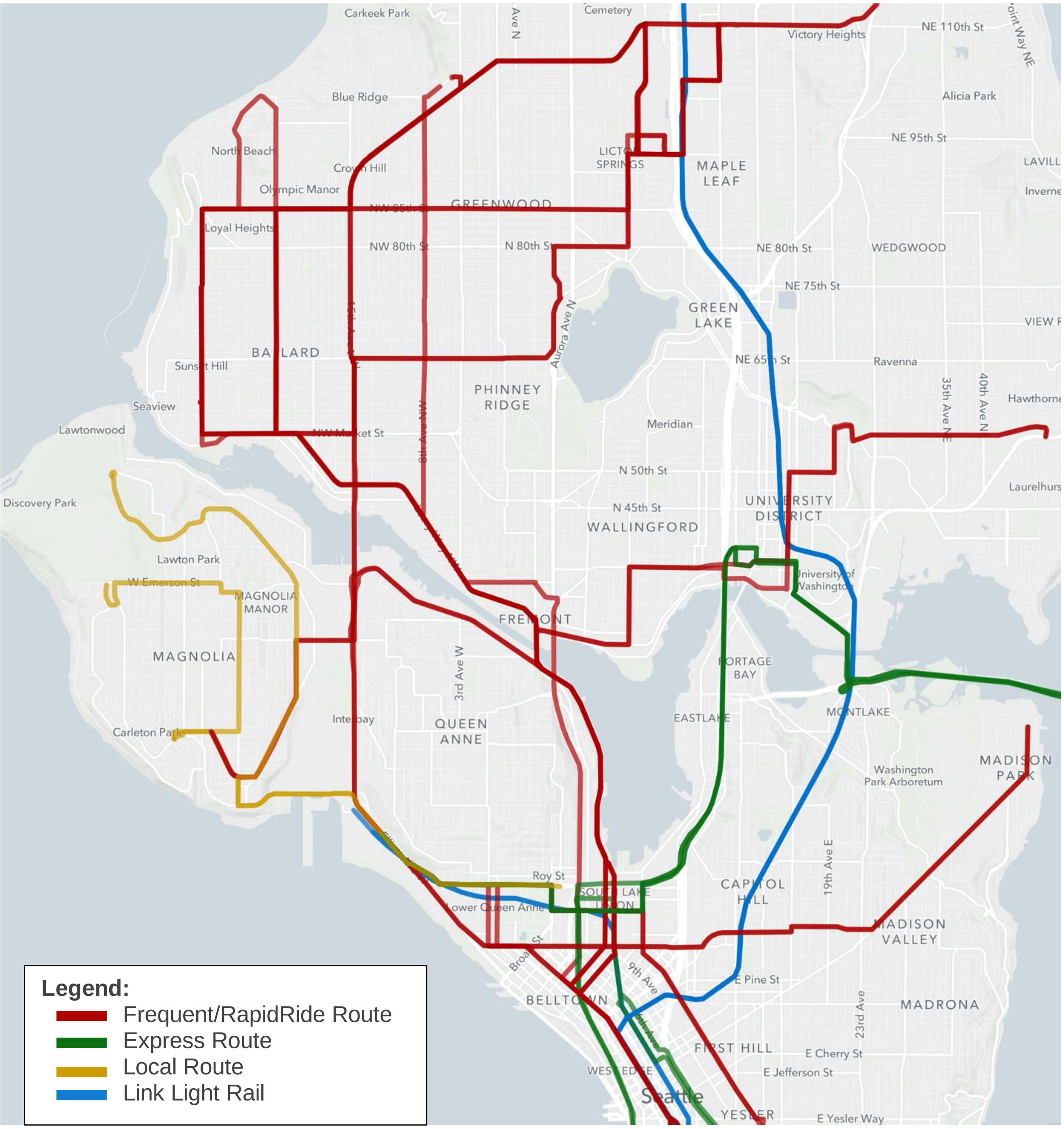

Figure 5-3 Ballard Link Extension M.O.S. Bus Network

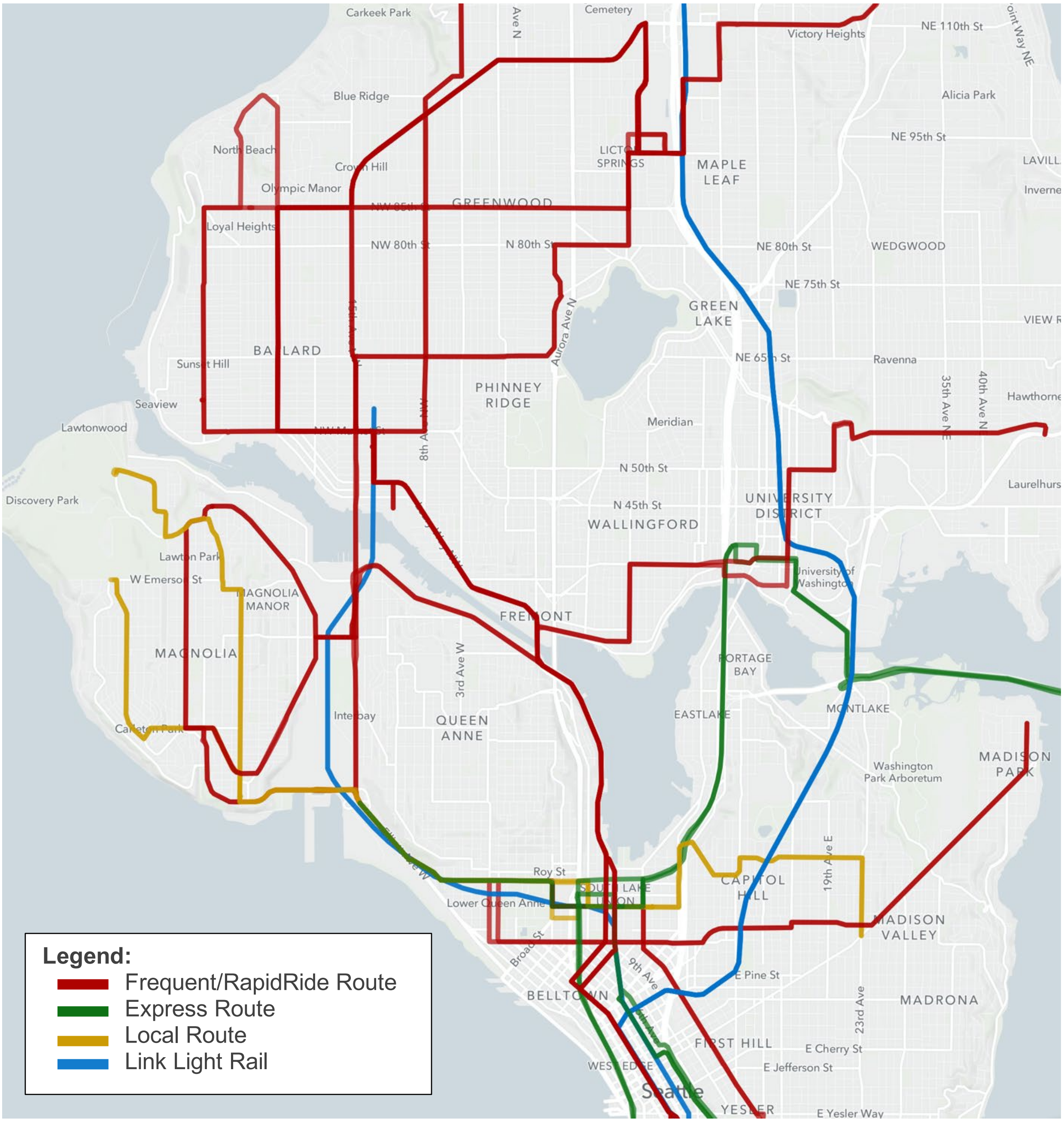

Figure 5-4 Ballard Link Extension Full Build Bus Network

6 OUTSTANDING ISSUES

While many transit integration solutions and design refinements were identified as part of the collaborations with stakeholders, several outstanding issues remain that will need to be addressed through the Final Environmental Impact Statement and subsequent design phases.

Key transit integration issues that require further refinement include the following:

- Review specific layover areas and access pathways to layover around the Alaska Junction Station alternatives and the potential for an off-street facility if it can be integrated into a redevelopment site. Also, finalize whether a nearby off-street layover facility is practical for the Smith Cove Station, balancing the space limitations around the station against the additional travel time to reach the layover.
- Finalize the layover location for Route 1010 near Ballard Station.
- Review pedestrian access to transit across busy streets like Southwest Alaska Street, Delridge Way Southwest, Mercer Street, Elliott Avenue West, and 15th Avenue Northwest. Consider extensions of mezzanines or concourses to reduce the need for passengers to conflict with street traffic and avoid the up/down required of street crossings that aren't integrated into the station.
- Review specific routing of buses from Delridge Way Southwest to serve any station alternative that does not have direct mezzanine access to each side of the street; considerations for bus lanes, transit signal priority, or other transit speed and reliability features to reduce the effects of deviating from Delridge Way Southwest.
- Refine pick-up/drop-off areas at all stations. All stakeholders (Sound Transit, City of Seattle, and King County Metro) agree that pick-up/drop-off access is secondary to other modal needs, but all parties acknowledge that pick-up/drop-off activities could congest priority modes and result in safety conflicts if not designed well.
- Address transit integration needs at the International District/Chinatown Station between all Link lines, Sounder, and King County Metro buses. Transit integration is a key issue that is continuing to be studied as part of Seattle's Jackson Hub study and additional station area planning efforts related to WSBLE.

APPENDIX A

Station Area Transit Integration Diagrams

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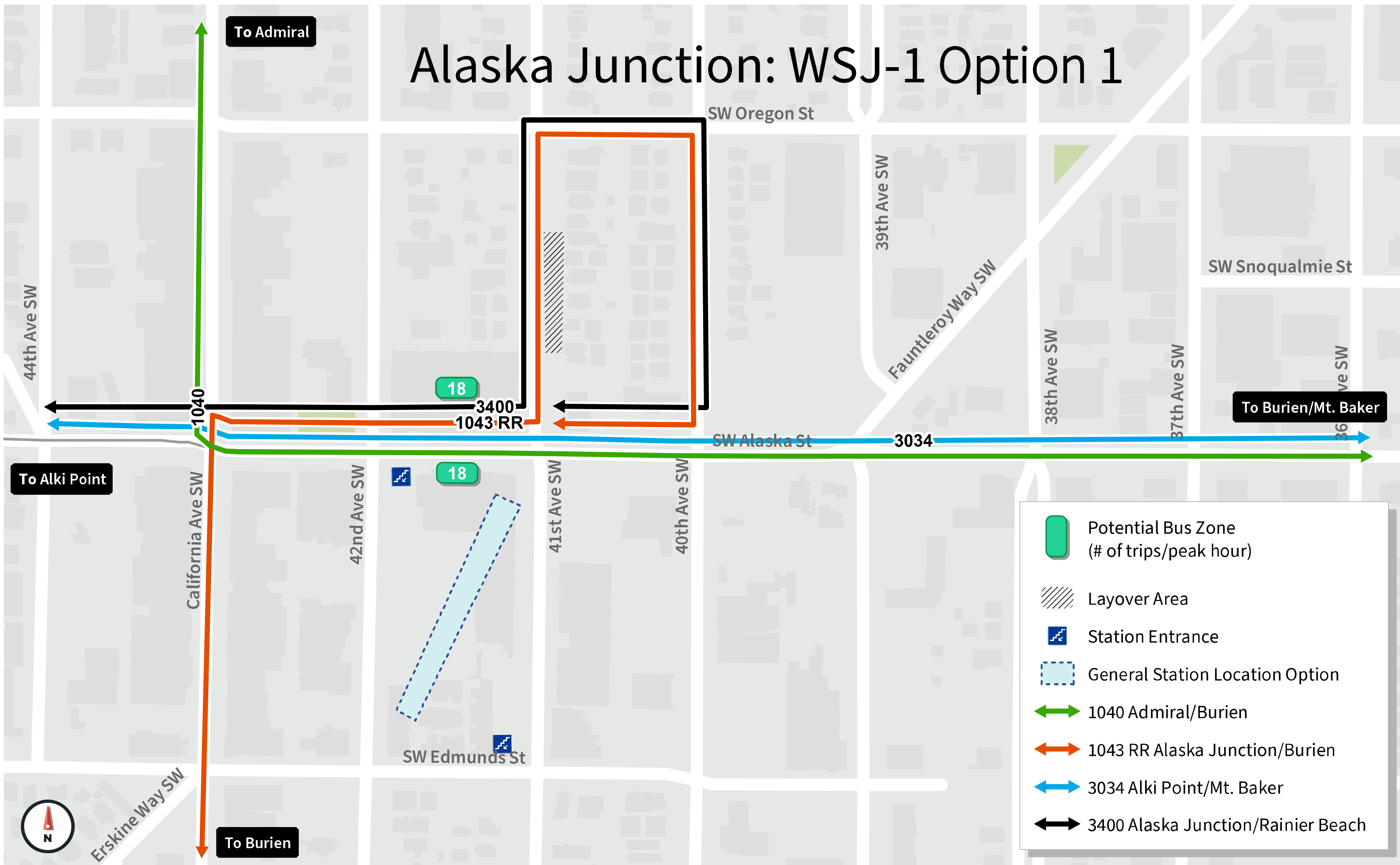
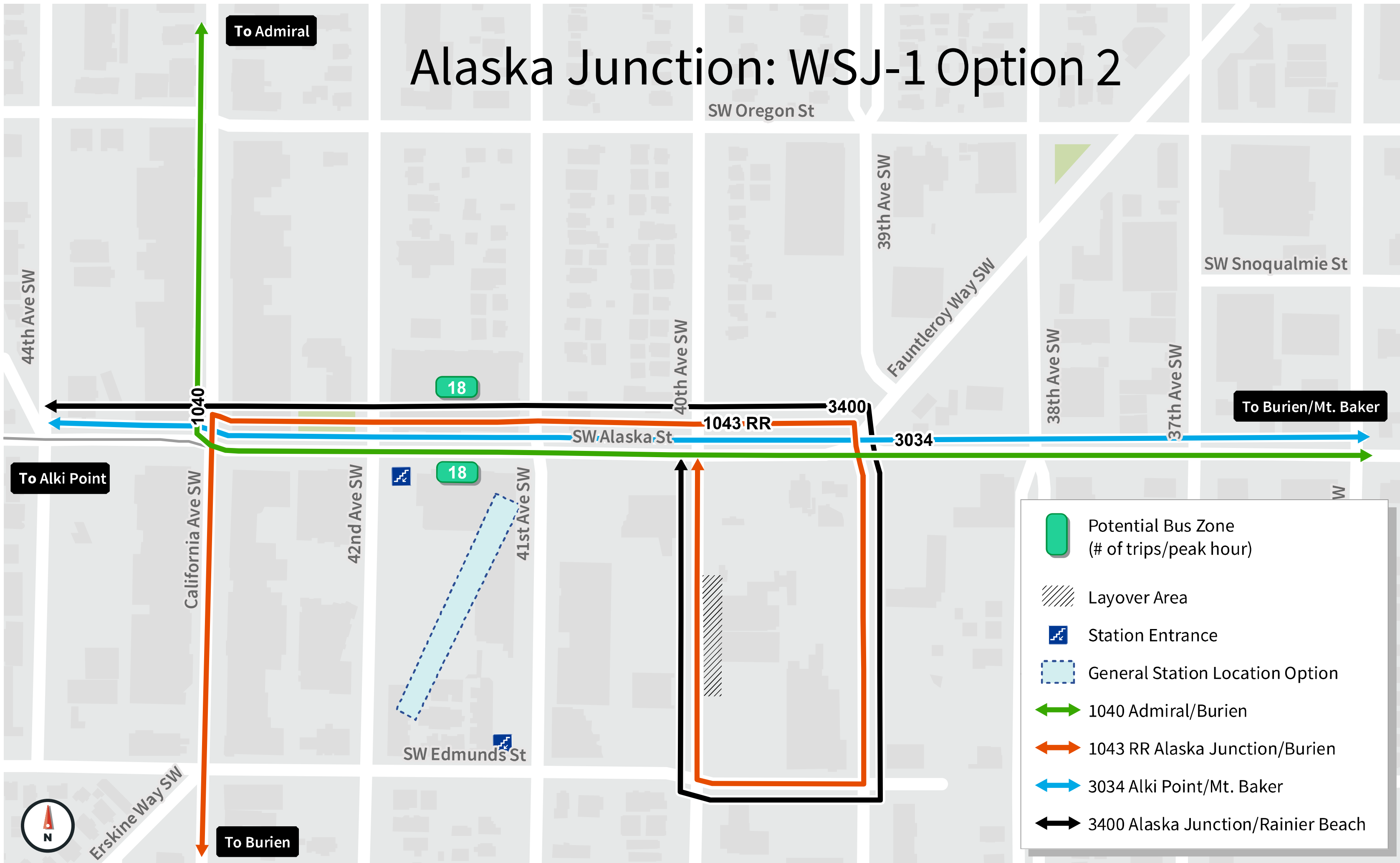
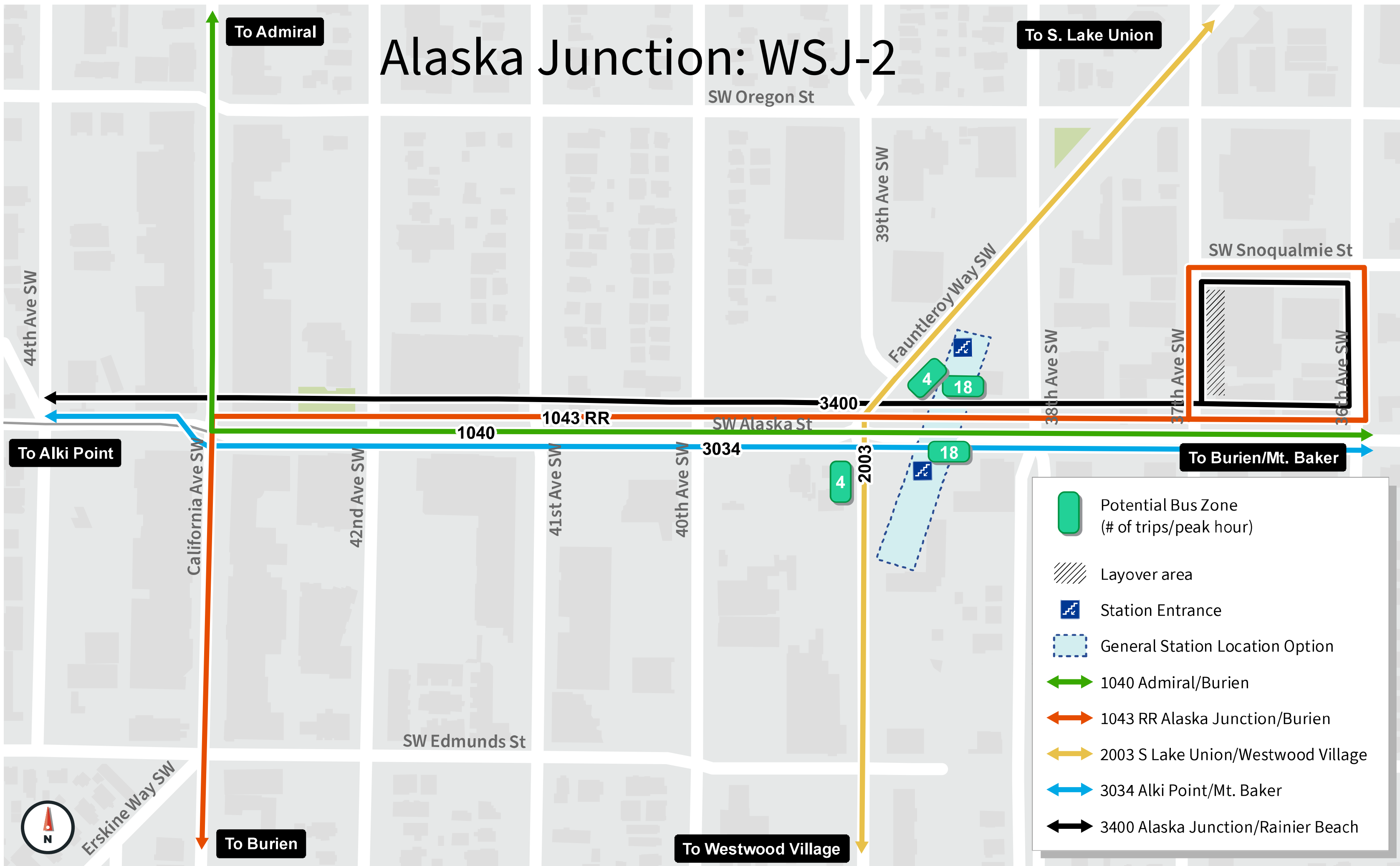
The following pages include the station area transit integration profiles developed by Sound Transit, the consultant team, and King County Metro. Note that some of the layover routing, particularly around the Alaska Junction Station alternatives, has evolved since the Draft Environmental Impact Statement analysis was completed. Additional traffic operations and parking analysis may be required in the Final Environmental Impact Statement based on the final transit routing pathways advanced and further input from King County Metro and the City of Seattle.

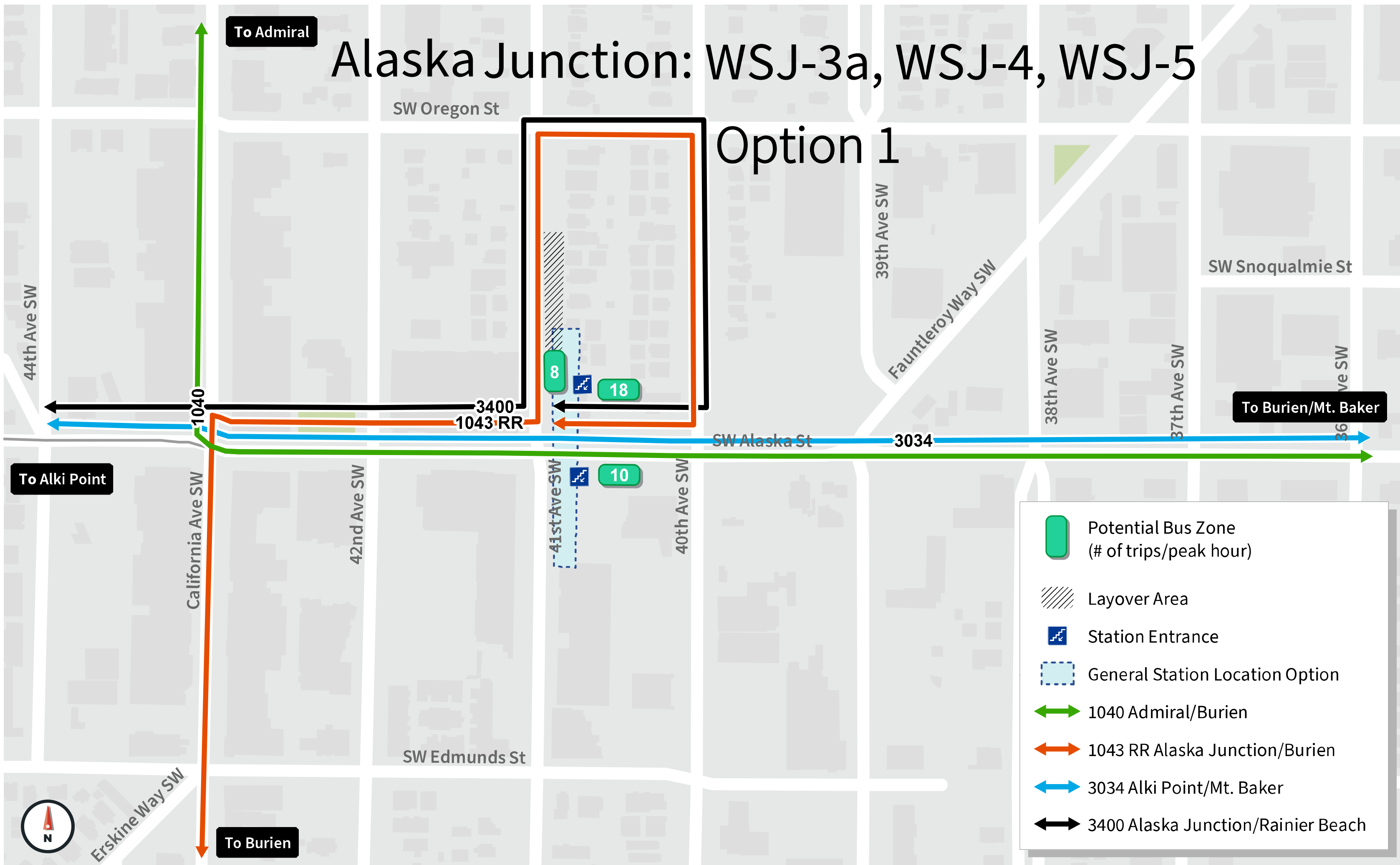

Alaska Junction: WSJ-1 Option 1
To Admiral
To Alki Point
To Burien
To Burien/Mt. Baker
SW Oregon St
SW Snoqualmie St
SW Alaska St
SW Edmunds St
44th Ave SW
California Ave SW
42nd Ave SW
41st Ave SW
40th Ave SW
39th Ave SW
38th Ave SW
37th Ave SW
Fauntleroy Way SW
Erskine Way SW
1040
3400
1043 RR
3034
18
18
N
Potential Bus Zone (# of trips/peak hour)
Layover Area
Station Entrance
General Station Location Option
1040 Admiral/Burien
1043 RR Alaska Junction/Burien
3034 Alki Point/Mt. Baker
3400 Alaska Junction/Rainier Beach

Alaska Junction: WSJ-1 Option 2



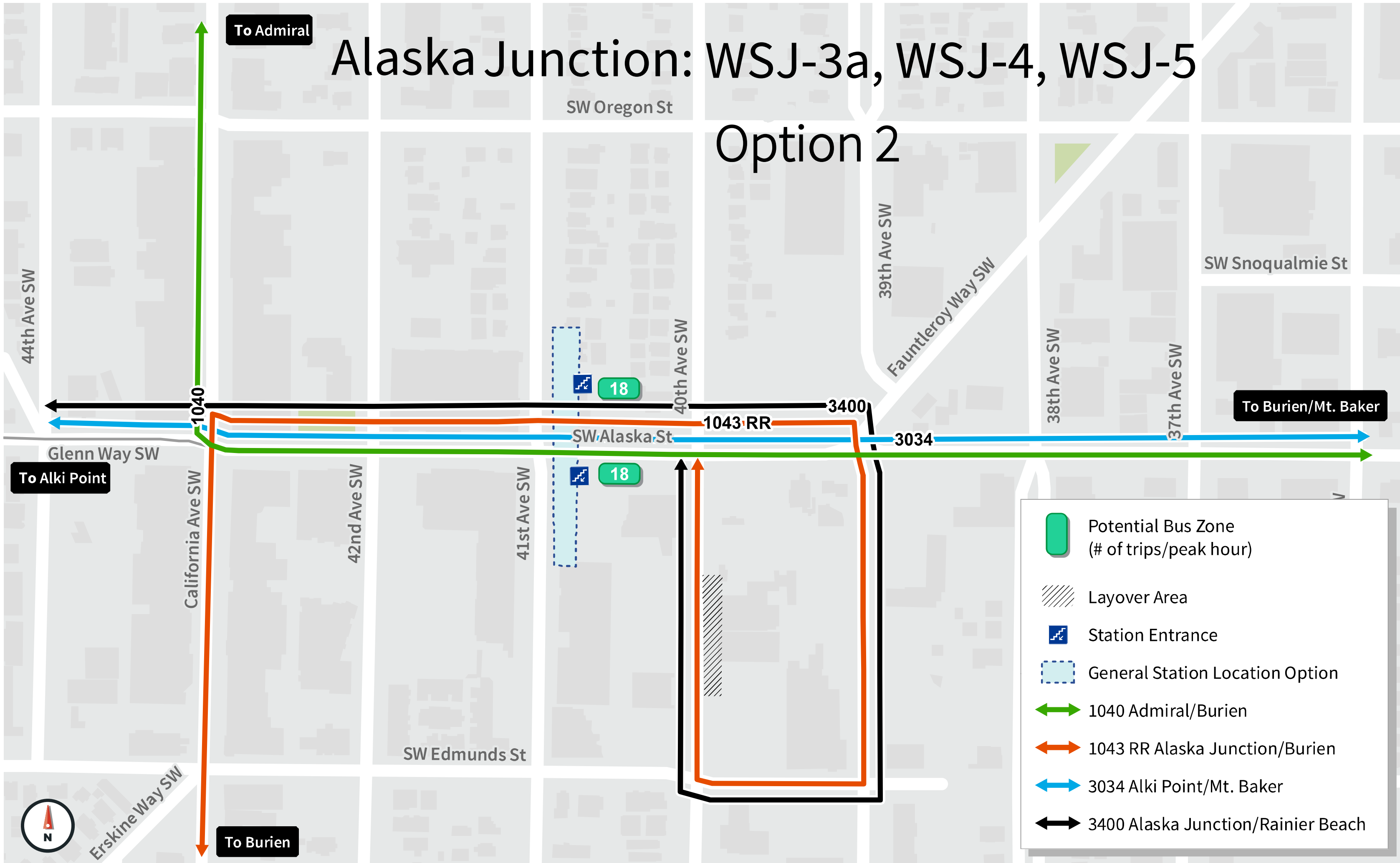


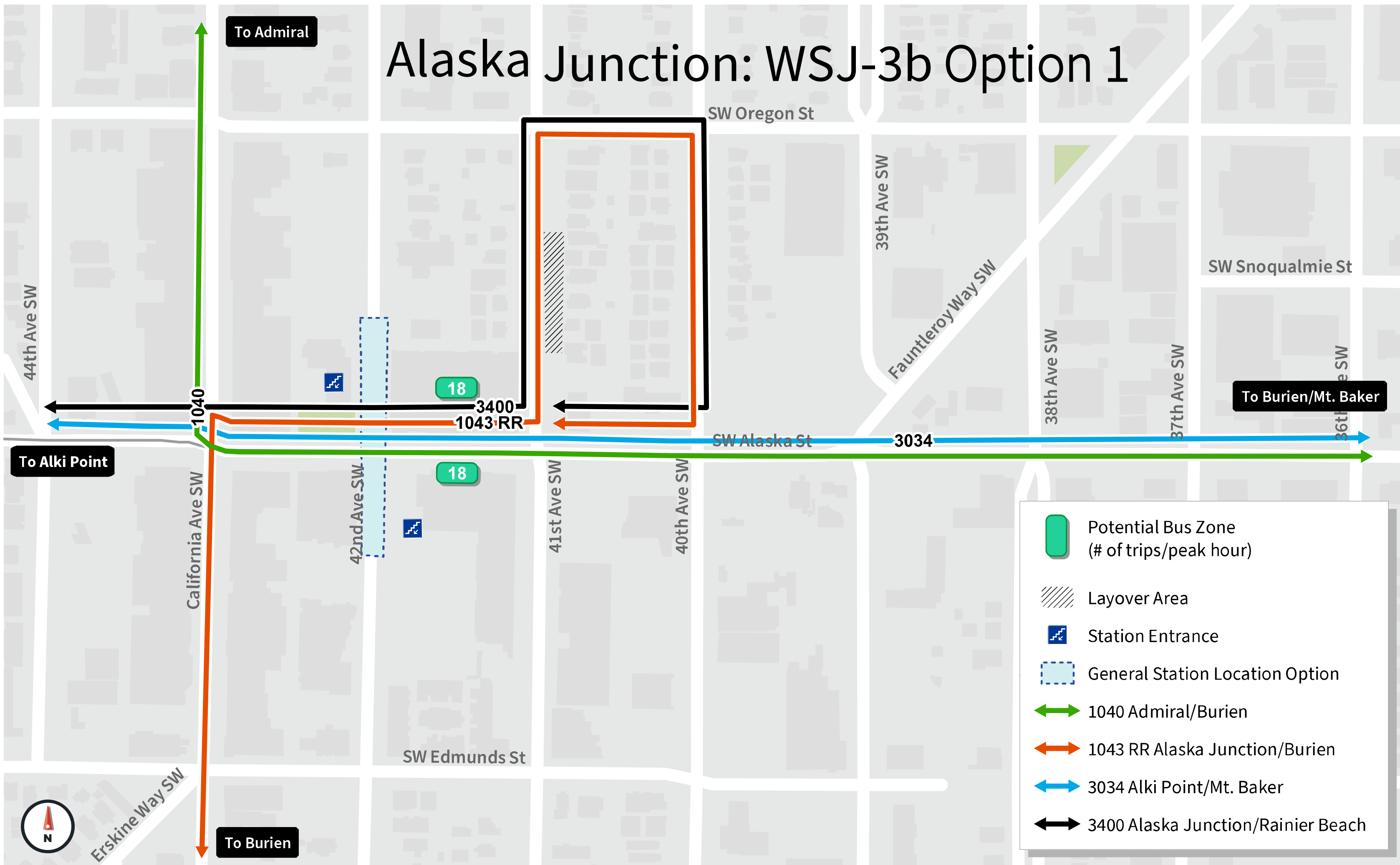
Alaska Junction: WSJ-2
To Admiral
To S. Lake Union
SW Oregon St
39th Ave SW
Fauntleroy Way SW
SW Snoqualmie St
44th Ave SW
38th Ave SW
37th Ave SW
36th Ave SW
3400
1043 RR
1040
SW Alaska St
3034
2003
4
18
To Alki Point
California Ave SW
42nd Ave SW
41st Ave SW
40th Ave SW
To Burien/Mt. Baker
Potential Bus Zone
(# of trips/peak hour)
Layover area
Station Entrance
General Station Location Option
1040 Admiral/Burien
1043 RR Alaska Junction/Burien
2003 S Lake Union/Westwood Village
3034 Alki Point/Mt. Baker
3400 Alaska Junction/Rainier Beach
SW Edmunds St
Erskine Way SW
N
To Burien
To Westwood Village



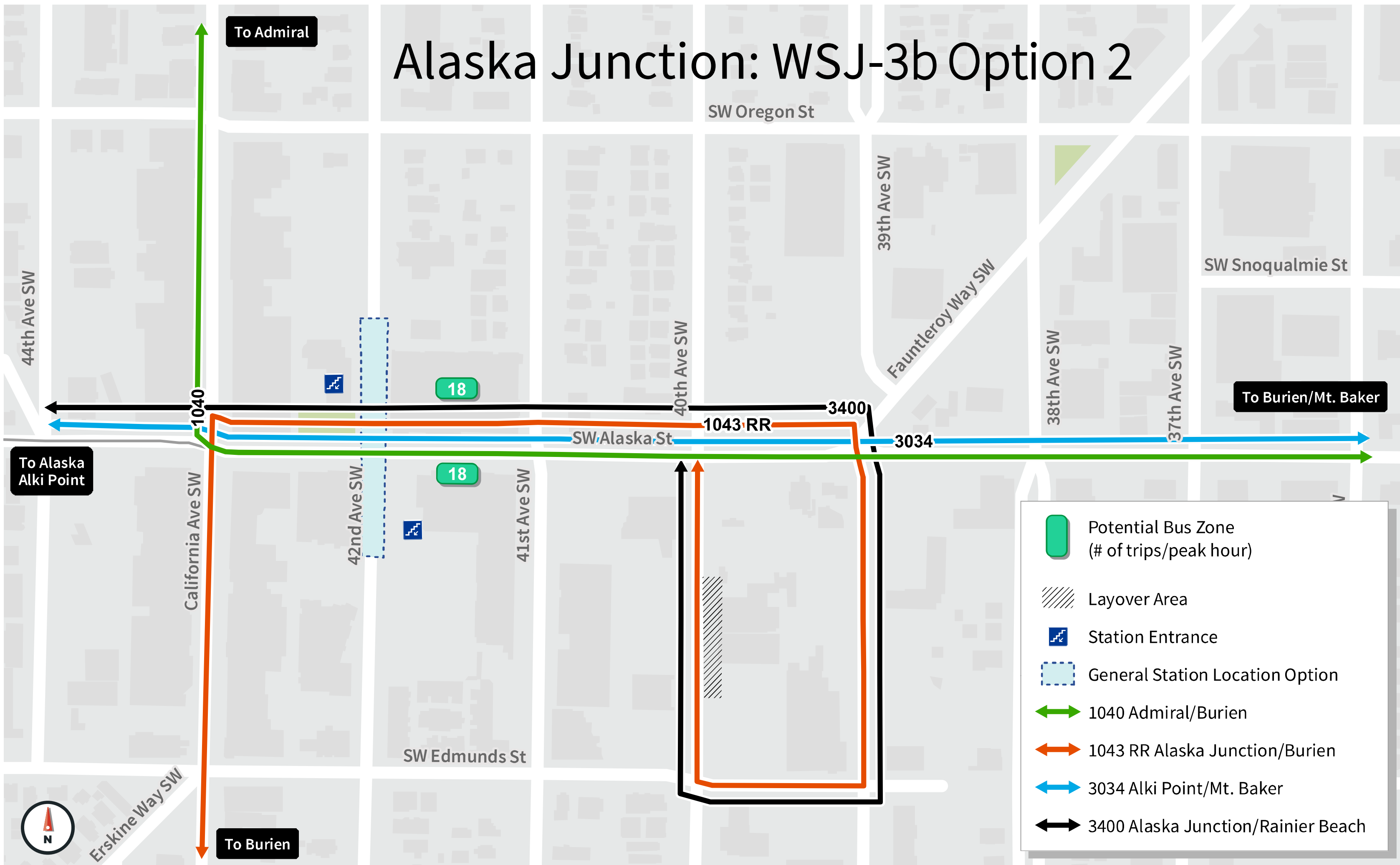
Alaska Junction: WSJ-3a, WSJ-4, WSJ-5
Option 1
To Admiral
SW Oregon St
39th Ave SW
Fauntleroy Way SW
SW Snoqualmie St
44th Ave SW
38th Ave SW
37th Ave SW
8
18
1040
3400
1043 RR
To Burien/Mt. Baker
SW Alaska St
3034
To Alki Point
10
California Ave SW
42nd Ave SW
41st Ave SW
40th Ave SW
SW Edmunds St
Erskine Way SW
N
To Burien
Potential Bus Zone
(# of trips/peak hour)
Layover Area
Station Entrance
General Station Location Option
1040 Admiral/Burien
1043 RR Alaska Junction/Burien
3034 Alki Point/Mt. Baker
3400 Alaska Junction/Rainier Beach

Alaska Junction: WSJ-3a, WSJ-4, WSJ-5
Option 2

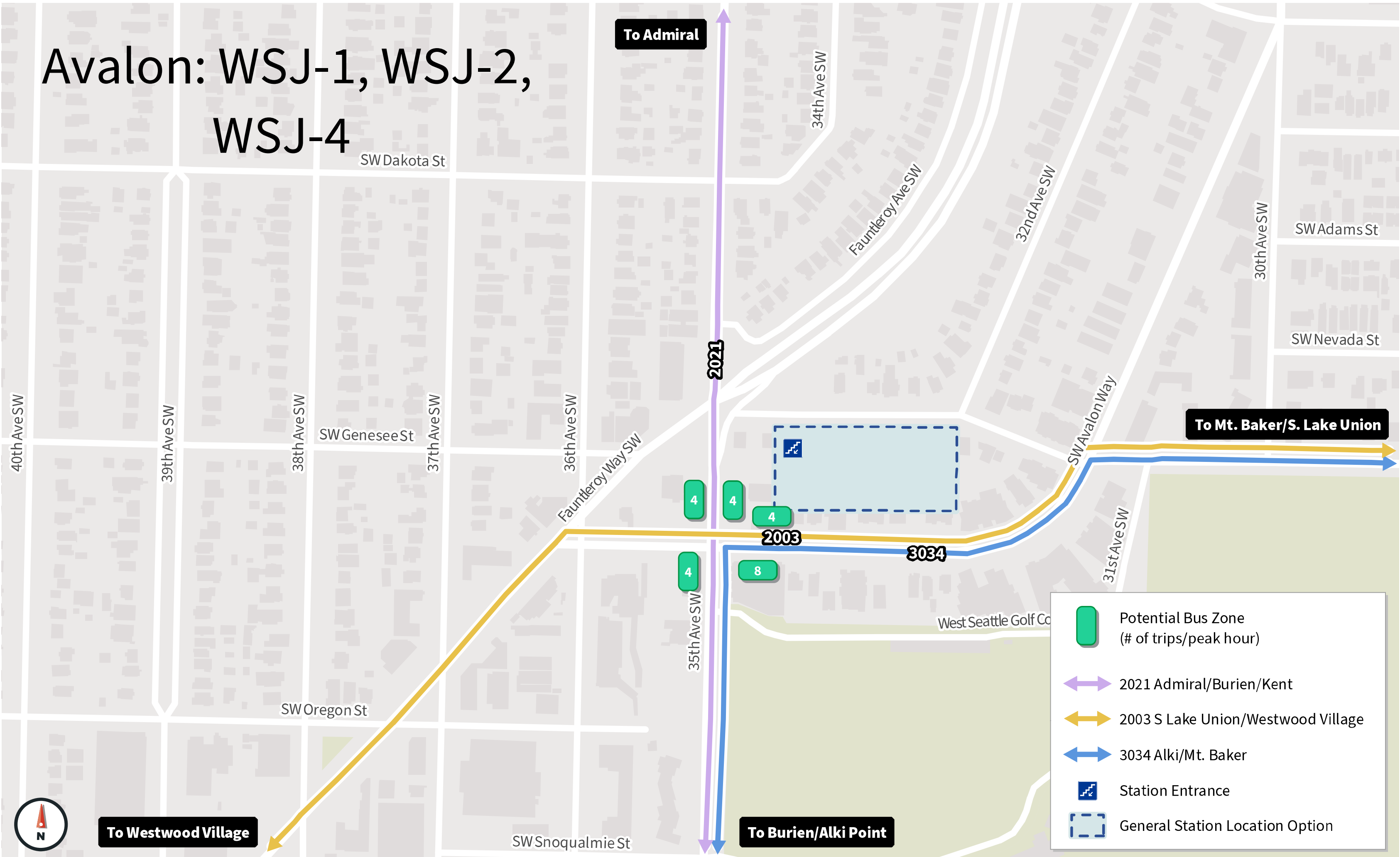




Alaska Junction: WSJ-3b Option 1
To Admiral
To Alki Point
To Burien
To Burien/Mt. Baker
SW Oregon St
SW Snoqualmie St
SW Alaska St
SW Edmunds St
44th Ave SW
California Ave SW
42nd Ave SW
41st Ave SW
40th Ave SW
39th Ave SW
38th Ave SW
37th Ave SW
Fauntleroy Way SW
Erskine Way SW
1040
3400
1043 RR
3034
18
18
N
Potential Bus Zone
(# of trips/peak hour)
Layover Area
Station Entrance
General Station Location Option
1040 Admiral/Burien
1043 RR Alaska Junction/Burien
3034 Alki Point/Mt. Baker
3400 Alaska Junction/Rainier Beach

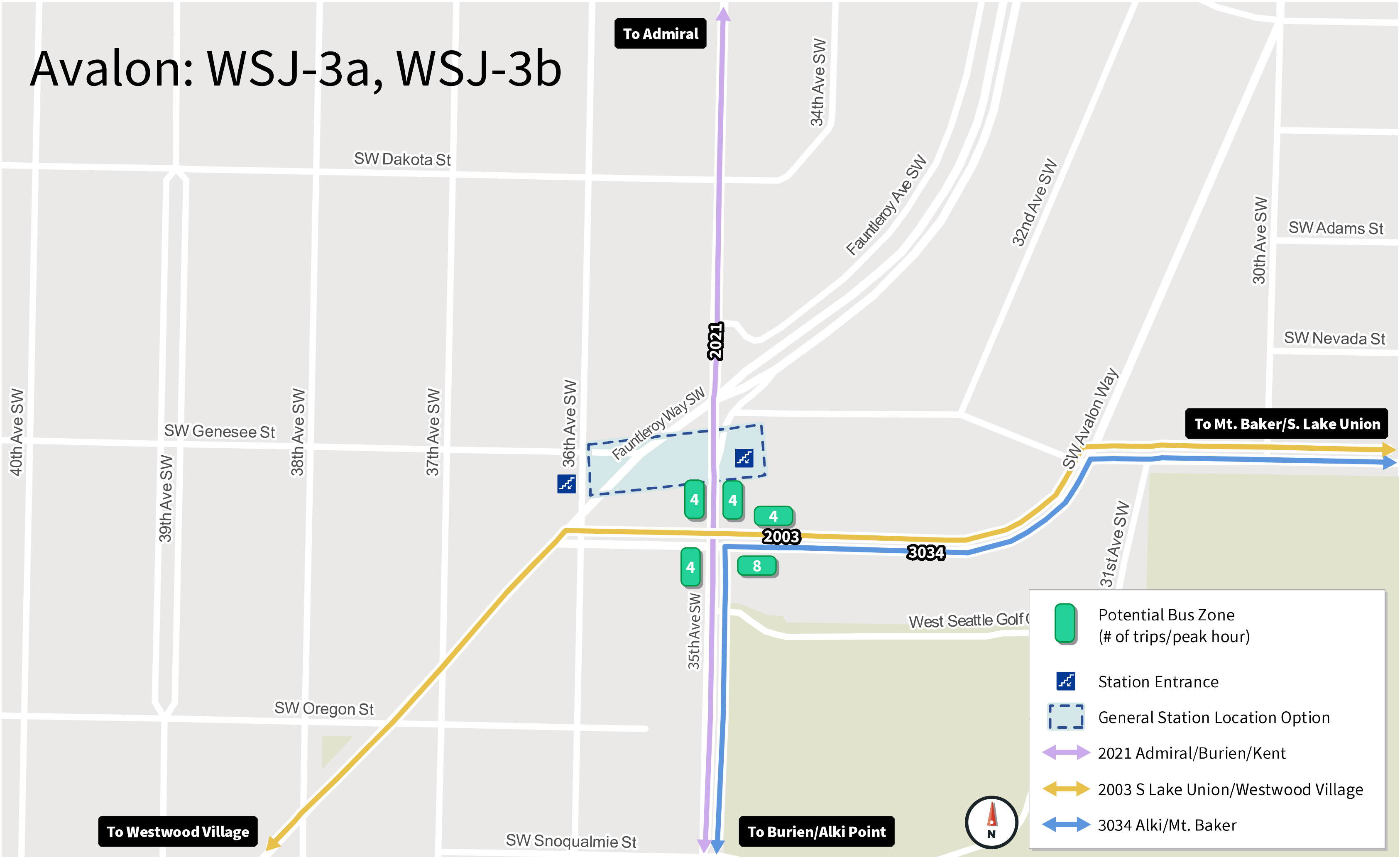


Alaska Junction: WSJ-3b Option 2
To Admiral
SW Oregon St
39th Ave SW
Fauntleroy Way SW
SW Snoqualmie St
44th Ave SW
40th Ave SW
38th Ave SW
37th Ave SW
To Burien/Mt. Baker
1040
3400
1043 RR
SW Alaska St
3034
18
18
To Alaska Alki Point
California Ave SW
42nd Ave SW
41st Ave SW
SW Edmunds St
Erskine Way SW
N
To Burien
Potential Bus Zone (# of trips/peak hour)
Layover Area
Station Entrance
General Station Location Option
1040 Admiral/Burien
1043 RR Alaska Junction/Burien
3034 Alki Point/Mt. Baker
3400 Alaska Junction/Rainier Beach

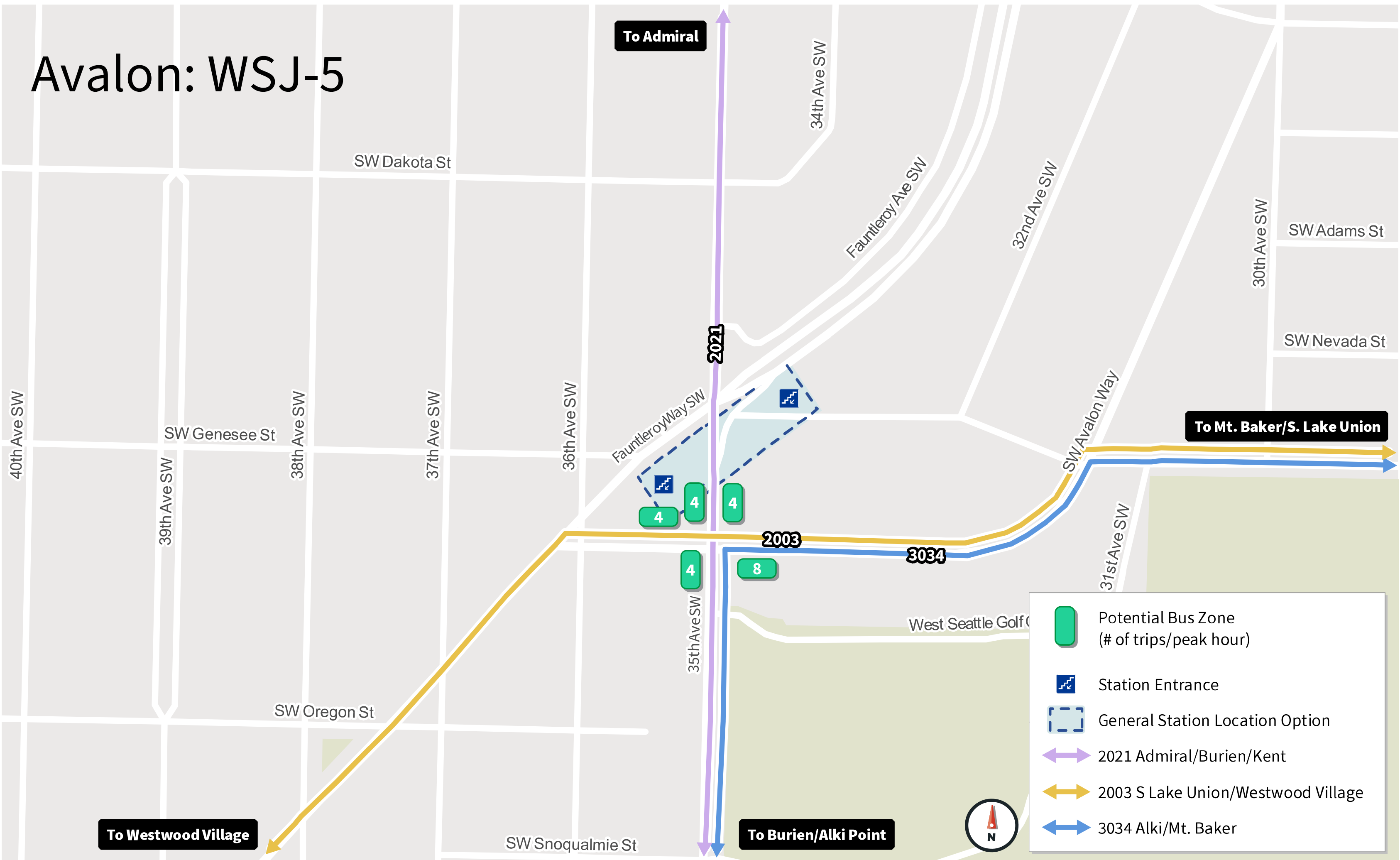


Avalon: WSJ-1, WSJ-2, WSJ-4
To Admiral
To Mt. Baker/S. Lake Union
To Westwood Village
To Burien/Alki Point
SW Dakota St
SW Genesee St
SW Oregon St
SW Snoqualmie St
SW Adams St
SW Nevada St
40th Ave SW
39th Ave SW
38th Ave SW
37th Ave SW
36th Ave SW
35th Ave SW
34th Ave SW
32nd Ave SW
31st Ave SW
30th Ave SW
Fauntleroy Way SW
Fauntleroy Ave SW
SW Avalon Way
West Seattle Golf Co
2021
2003
3034
4
4
4
4
8
N
Potential Bus Zone
(# of trips/peak hour)
2021 Admiral/Burien/Kent
2003 S Lake Union/Westwood Village
3034 Alki/Mt. Baker
Station Entrance
General Station Location Option

Avalon: WSJ-3a, WSJ-3b

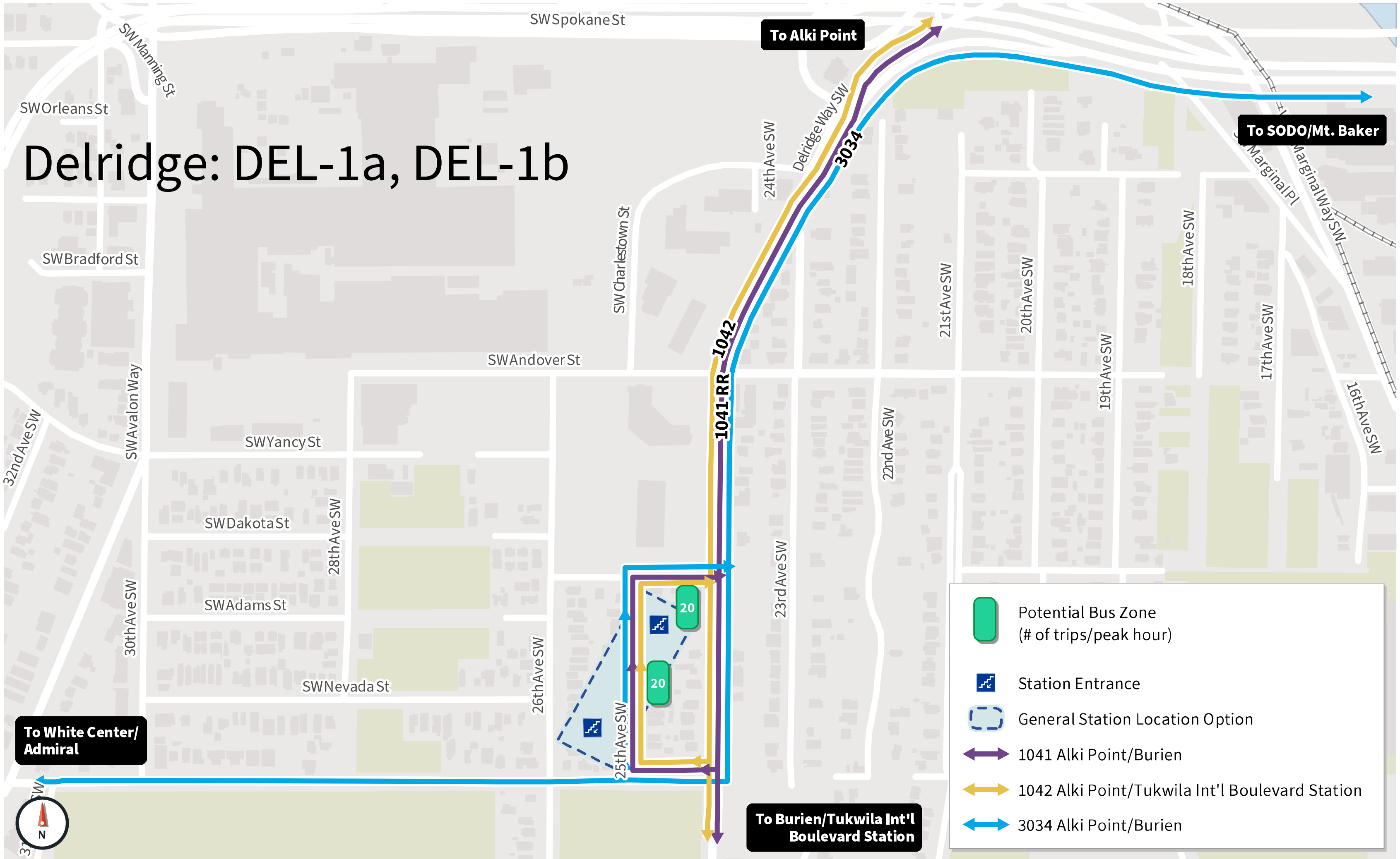


Avalon: WSJ-5

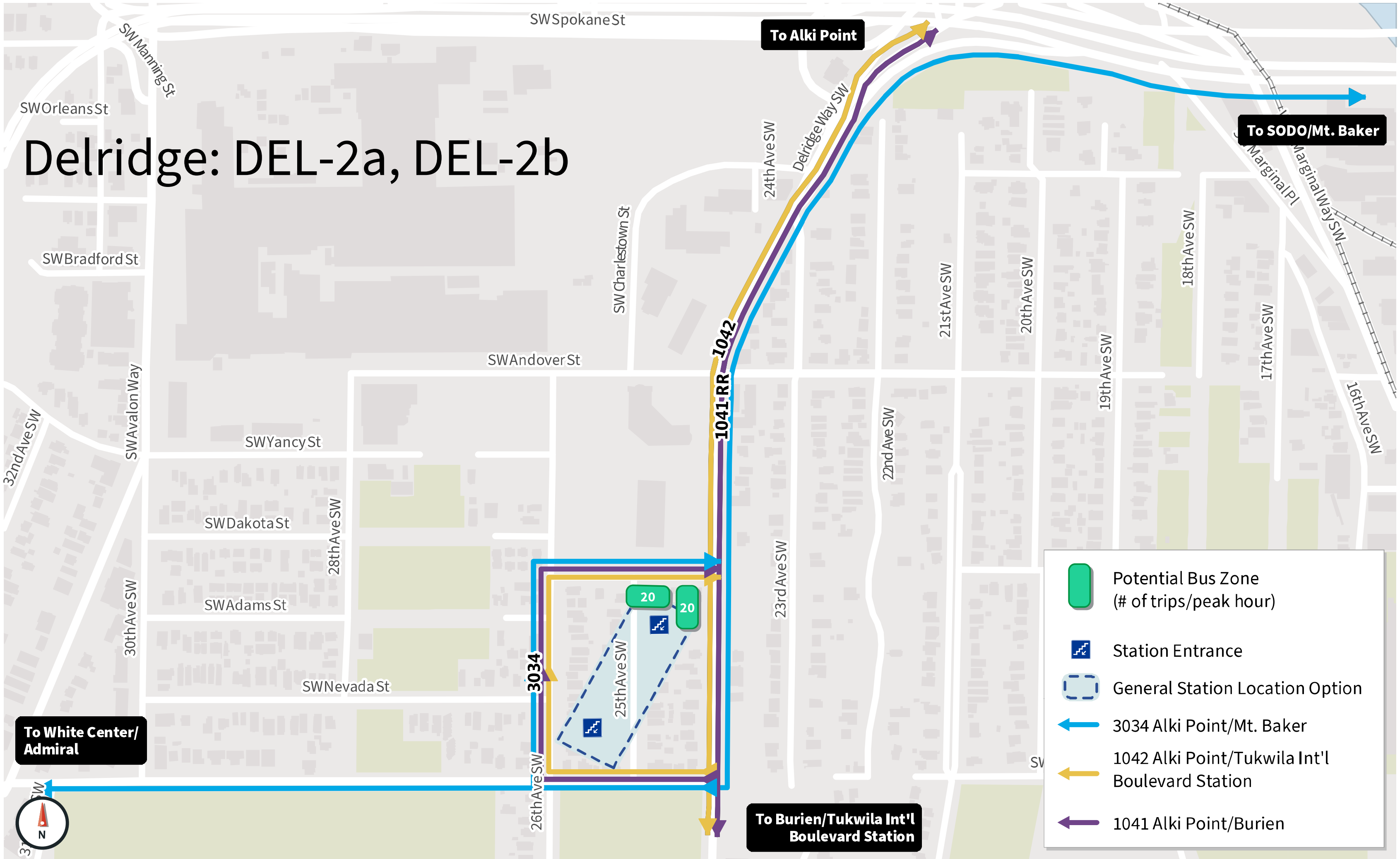


To Admiral
To Westwood Village
To Burien/Alki Point
To Mt. Baker/S. Lake Union
SW Dakota St
SW Genesee St
SW Oregon St
SW Snoqualmie St
SW Adams St
SW Nevada St
40th Ave SW
39th Ave SW
38th Ave SW
37th Ave SW
36th Ave SW
35th Ave SW
34th Ave SW
32nd Ave SW
31st Ave SW
30th Ave SW
Fauntleroy Ave SW
Fauntleroy Way SW
SW Avalon Way
West Seattle Golf
2021
2003
3034
4
4
4
4
8
Potential Bus Zone (# of trips/peak hour)
Station Entrance
General Station Location Option
2021 Admiral/Burien/Kent
2003 S Lake Union/Westwood Village
3034 Alki/Mt. Baker
N

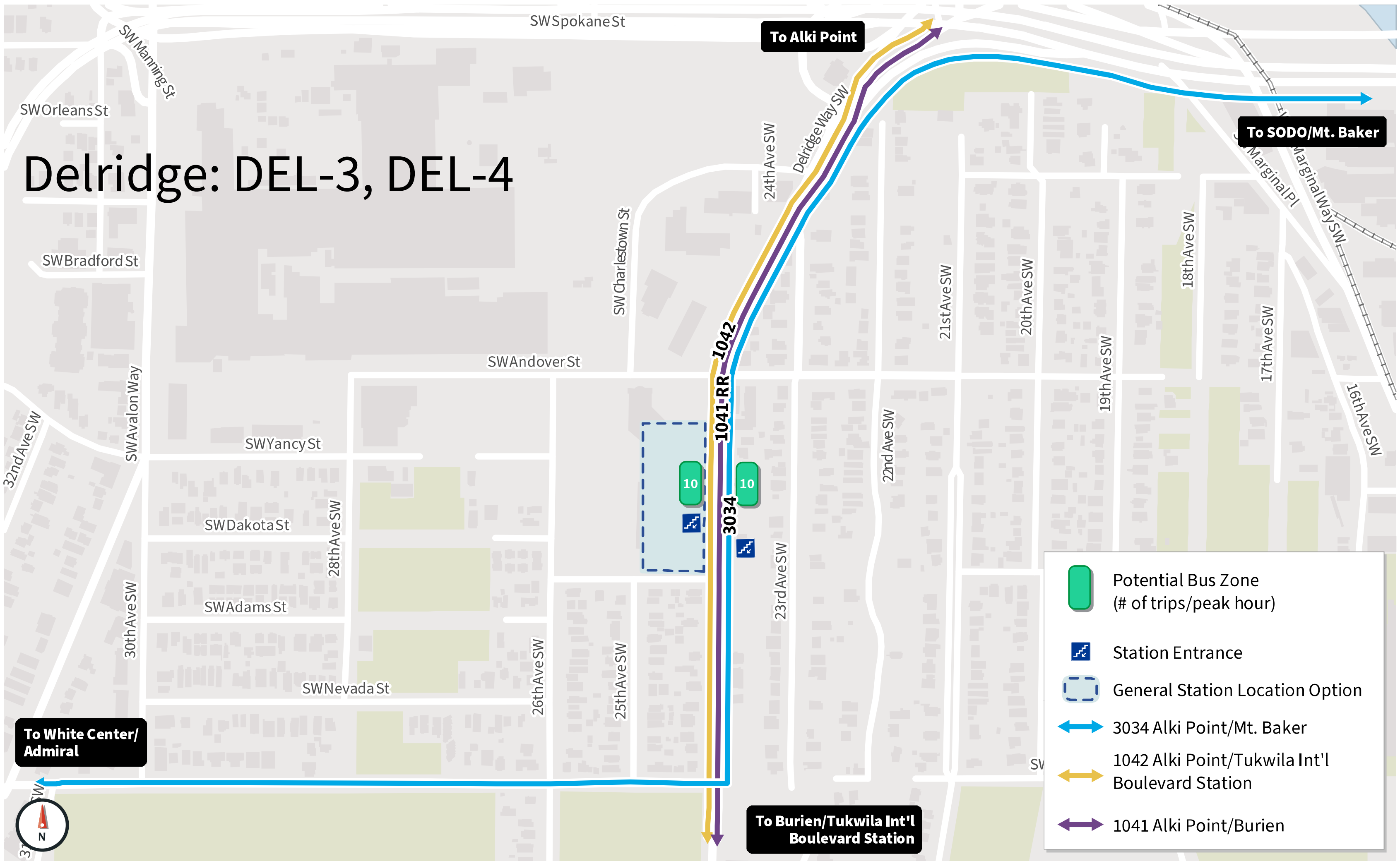
Delridge: DEL-1a, DEL-1b



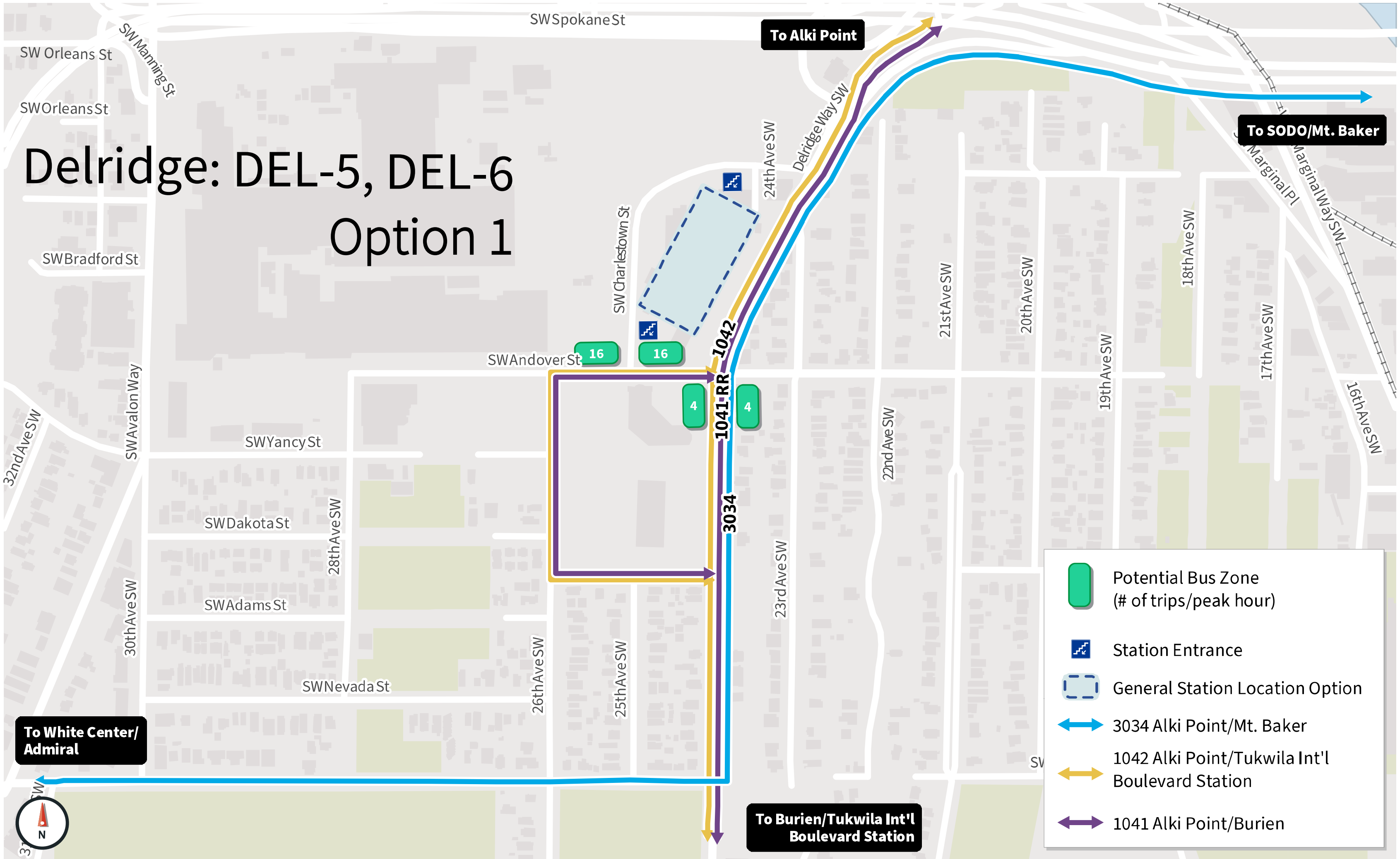
Delridge: DEL-2a, DEL-2b

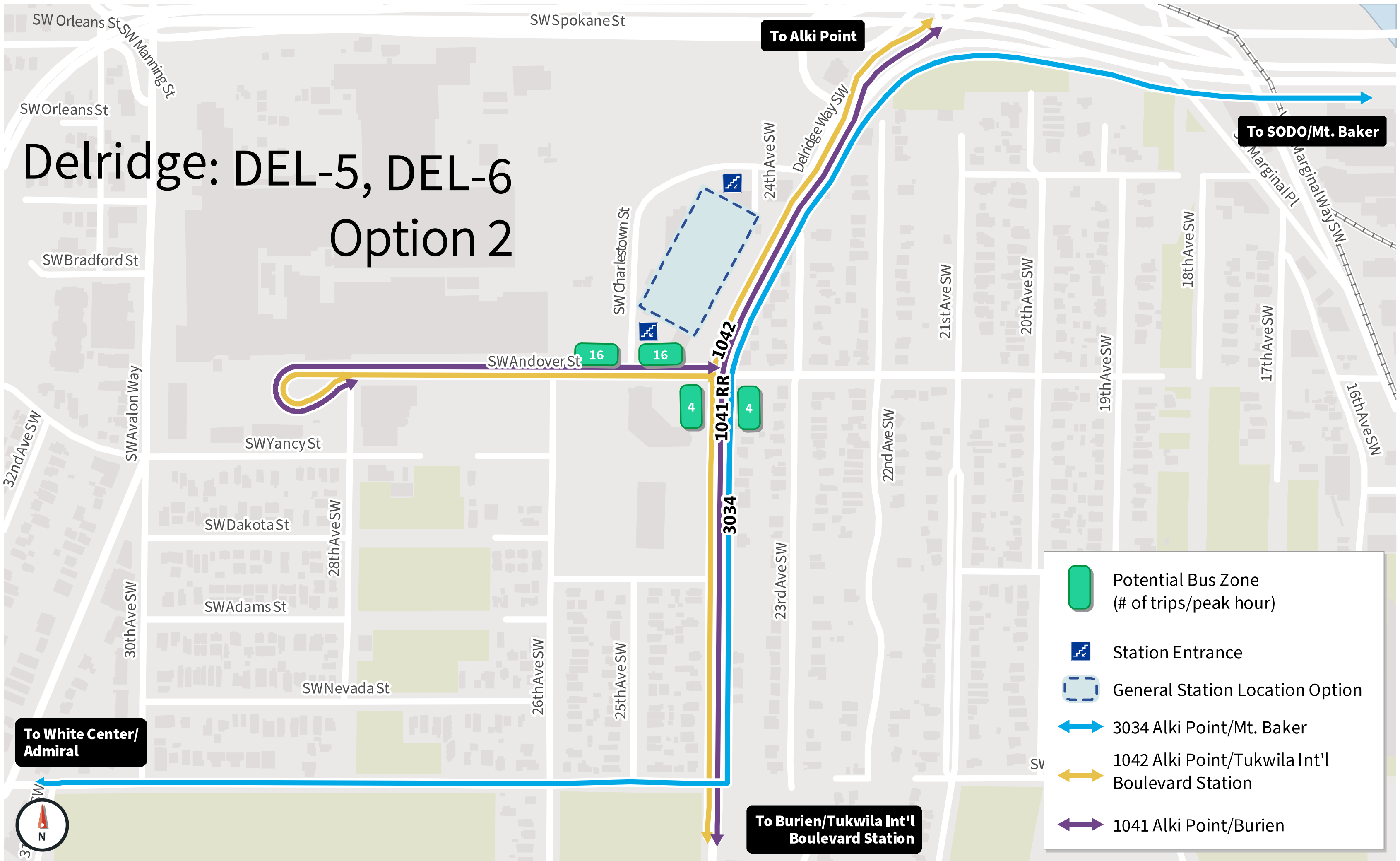


Delridge: DEL-3, DEL-4



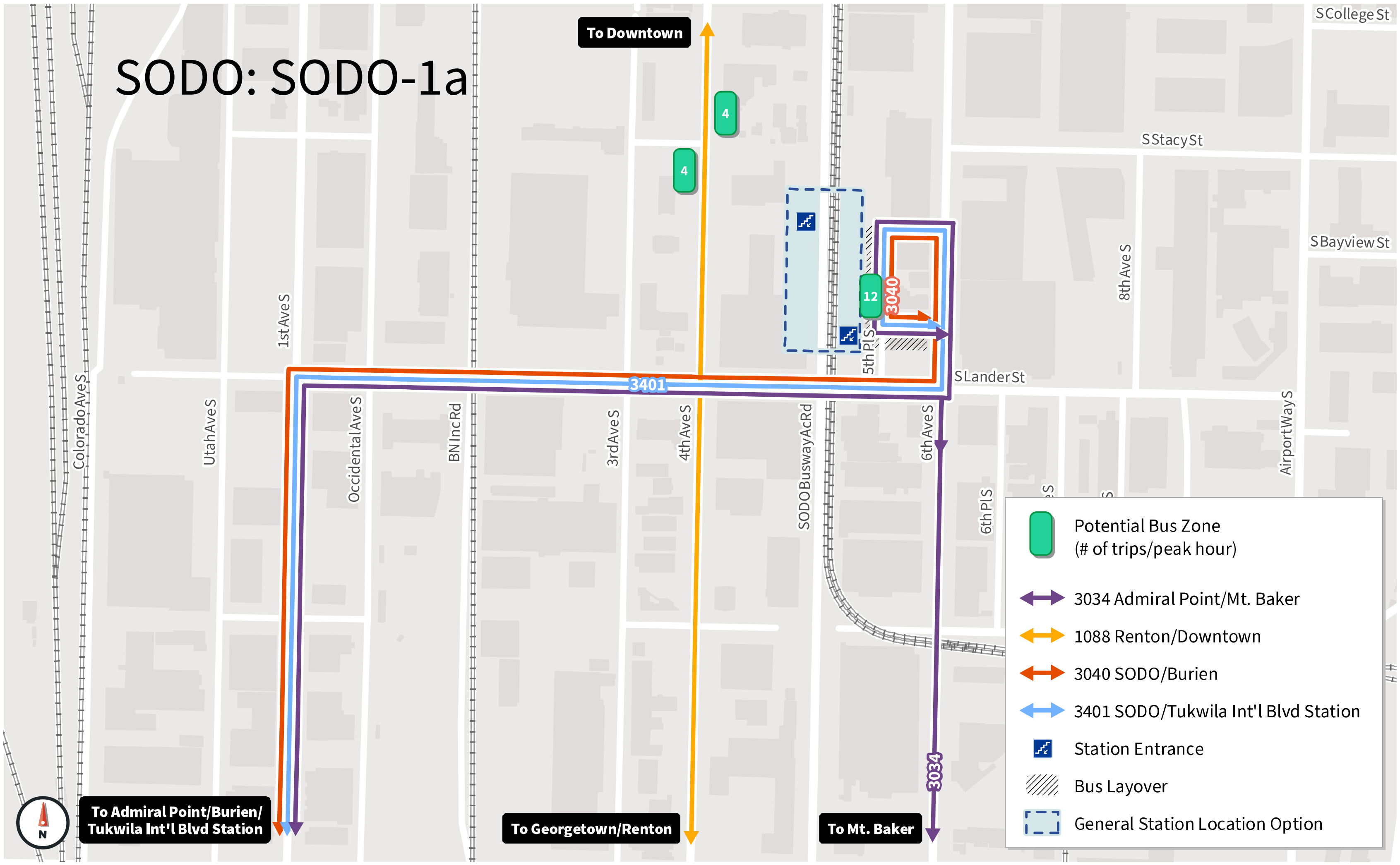
Delridge: DEL-5, DEL-6 Option 1



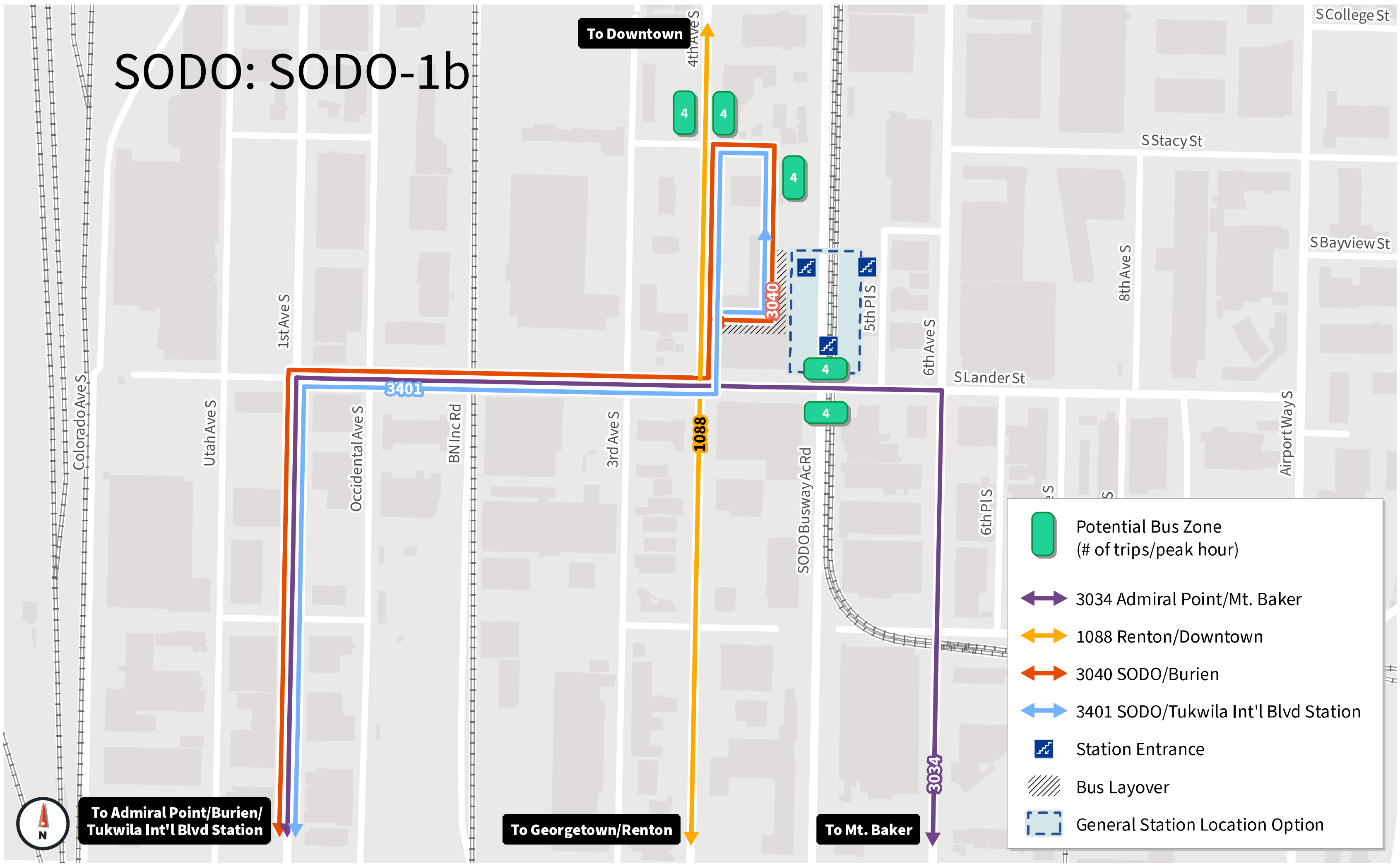

Delridge: DEL-5, DEL-6
Option 2
To Alki Point
To SODO/Mt. Baker
To White Center/ Admiral
To Burien/Tukwila Int'l Boulevard Station
SW Orleans St
SW Manning St
SW Spokane St
SW Bradford St
SW Andover St
SW Yancy St
SW Dakota St
SW Adams St
SW Nevada St
SW Avalon Way
32nd Ave SW
30th Ave SW
28th Ave SW
26th Ave SW
25th Ave SW
24th Ave SW
23rd Ave SW
22nd Ave SW
21st Ave SW
20th Ave SW
19th Ave SW
18th Ave SW
17th Ave SW
16th Ave SW
SW Charlestown St
Delridge Way SW
SW Marginal Pl
SW Marginal Way SW
16
16
4
4
1042
1041-RR
3034
Potential Bus Zone (# of trips/peak hour)
Station Entrance
General Station Location Option
3034 Alki Point/Mt. Baker
1042 Alki Point/Tukwila Int'l Boulevard Station
1041 Alki Point/Burien
N

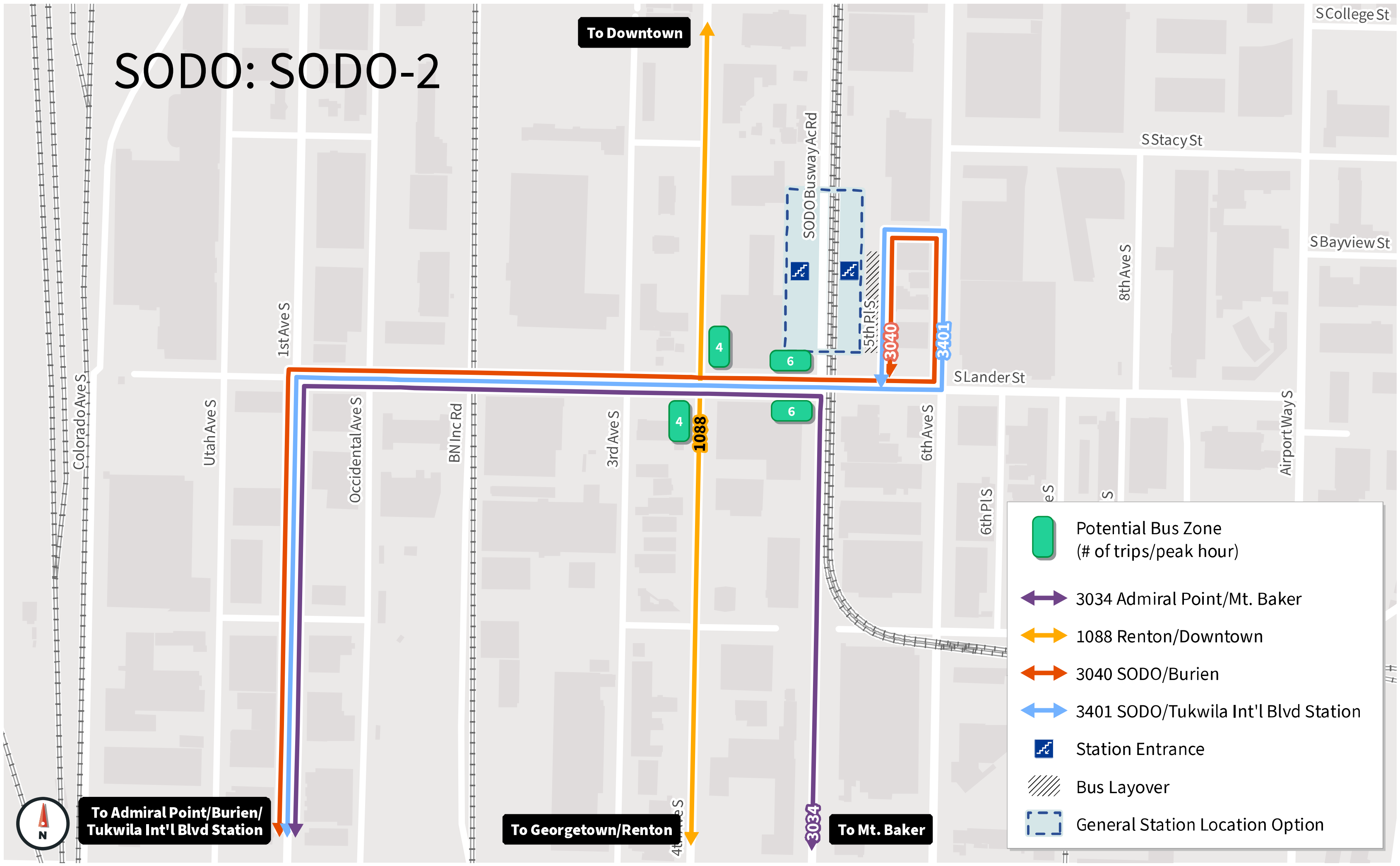
Delridge: DEL-5, DEL-6 Option 3

SODO: SODO-1a

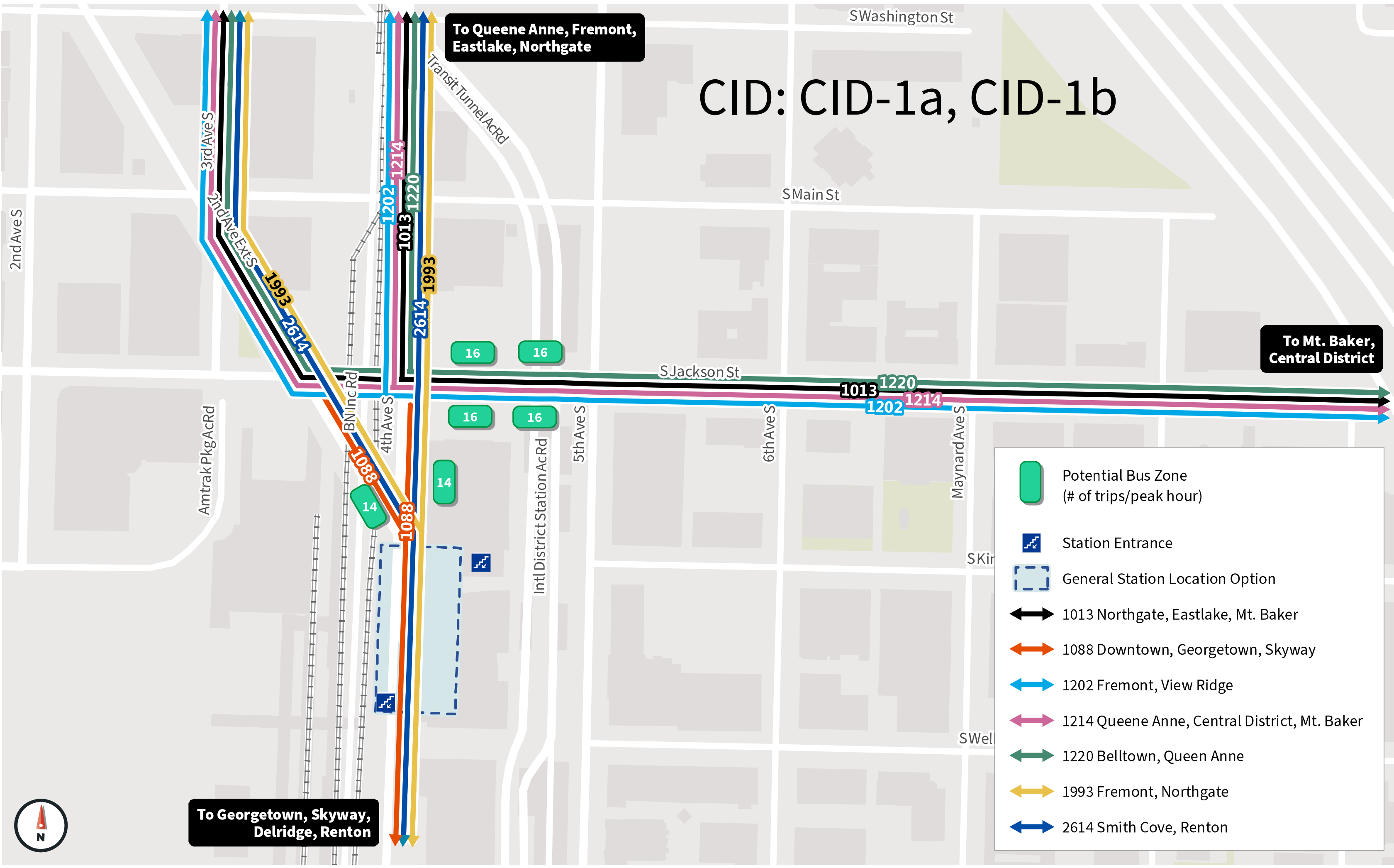


To Downtown
S College St
S Stacy St
S Bayview St
S Lander St
Colorado Ave S
Utah Ave S
1st Ave S
Occidental Ave S
BN Inc Rd
3rd Ave S
4th Ave S
SODO Busway Ac Rd
5th Pl S
6th Ave S
6th Pl S
8th Ave S
Airport Way S
4
4
12
3040
3401
3034
N
To Admiral Point/Burien/ Tukwila Int'l Blvd Station
To Georgetown/Renton
To Mt. Baker
Potential Bus Zone (# of trips/peak hour)
3034 Admiral Point/Mt. Baker
1088 Renton/Downtown
3040 SODO/Burien
3401 SODO/Tukwila Int'l Blvd Station
Station Entrance
Bus Layover
General Station Location Option

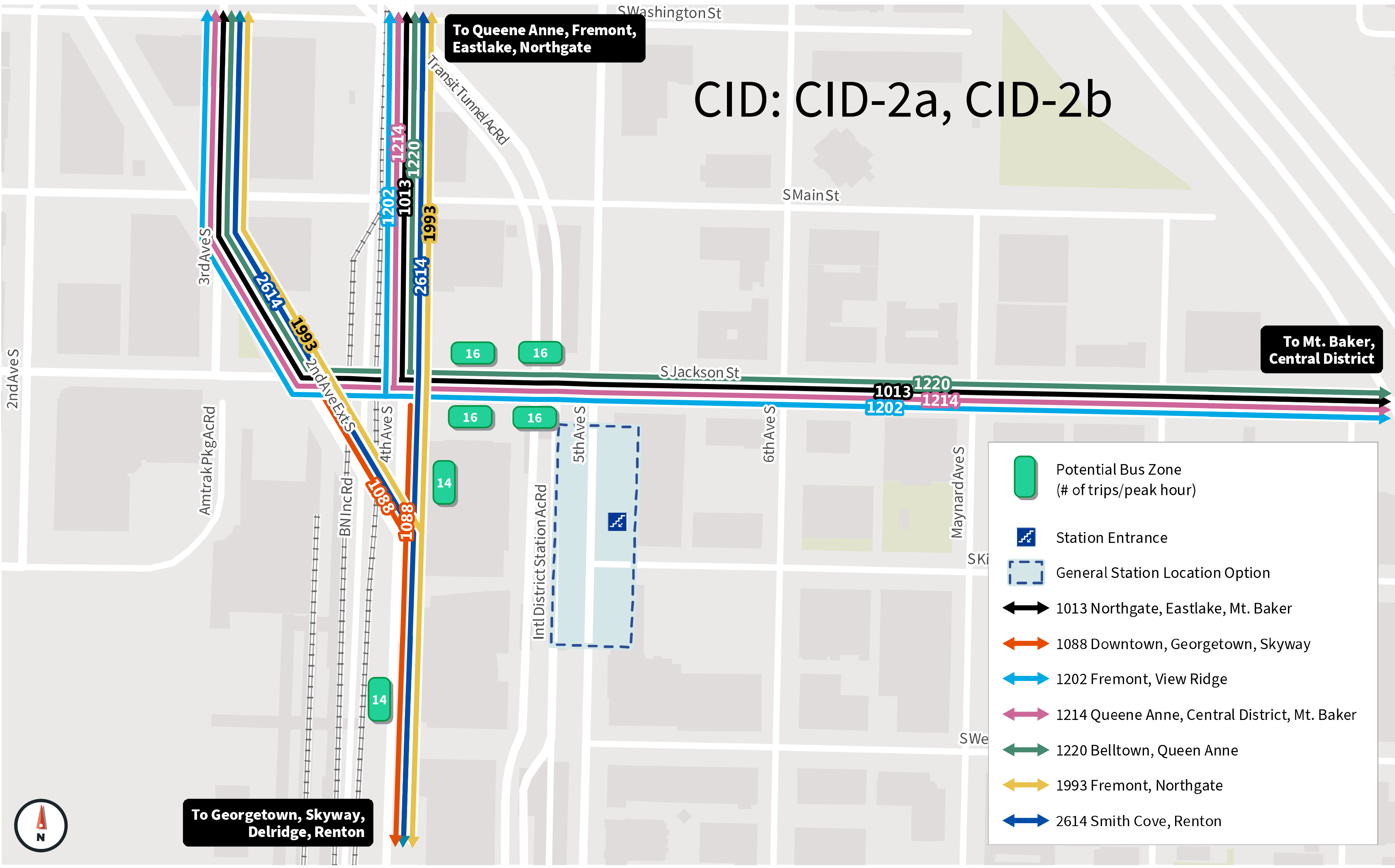

SODO: SODO-1b
To Downtown
To Admiral Point/Burien/ Tukwila Int'l Blvd Station
To Georgetown/Renton
To Mt. Baker
S College St
S Stacy St
S Bayview St
S Lander St
4th Ave S
1st Ave S
Colorado Ave S
Utah Ave S
Occidental Ave S
BN Inc Rd
3rd Ave S
SODO Busway Ac Rd
5th Pl S
6th Ave S
8th Ave S
6th Pl S
Airport Way S
3401
3040
1088
3034
4
Potential Bus Zone (# of trips/peak hour)
3034 Admiral Point/Mt. Baker
1088 Renton/Downtown
3040 SODO/Burien
3401 SODO/Tukwila Int'l Blvd Station
Station Entrance
Bus Layover
General Station Location Option

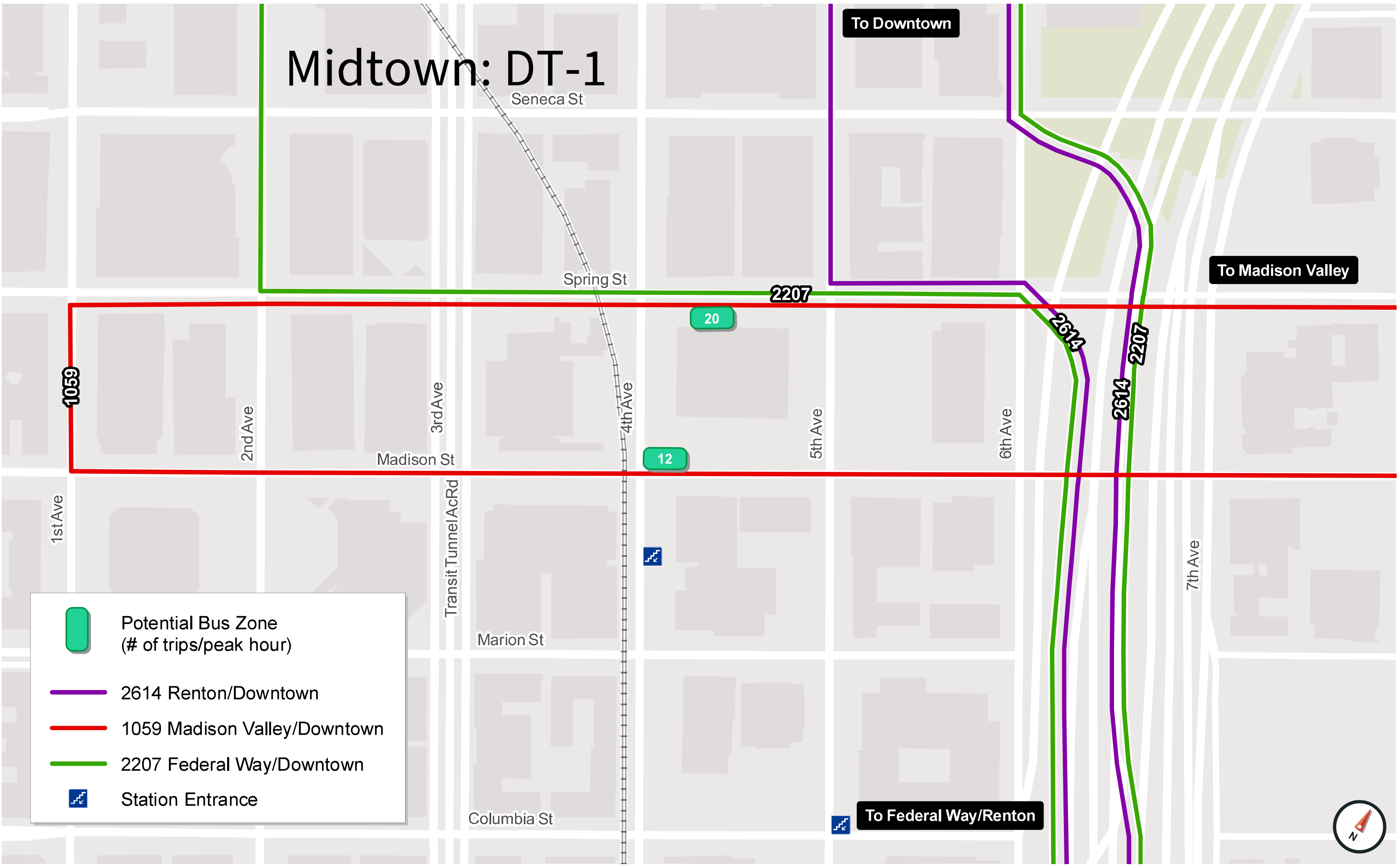

SODO: SODO-2
To Downtown
To Admiral Point/Burien/
Tukwila Int'l Blvd Station
To Georgetown/Renton
To Mt. Baker
S College St
S Stacy St
S Bayview St
S Lander St
SODO Busway Ac Rd
5th Pl S
6th Ave S
8th Ave S
6th Pl S
Airport Way S
Colorado Ave S
Utah Ave S
1st Ave S
Occidental Ave S
BN Inc Rd
3rd Ave S
4
6
1088
3034
3040
3401
N
Potential Bus Zone
(# of trips/peak hour)
3034 Admiral Point/Mt. Baker
1088 Renton/Downtown
3040 SODO/Burien
3401 SODO/Tukwila Int'l Blvd Station
Station Entrance
Bus Layover
General Station Location Option

CID: CID-1a, CID-1b

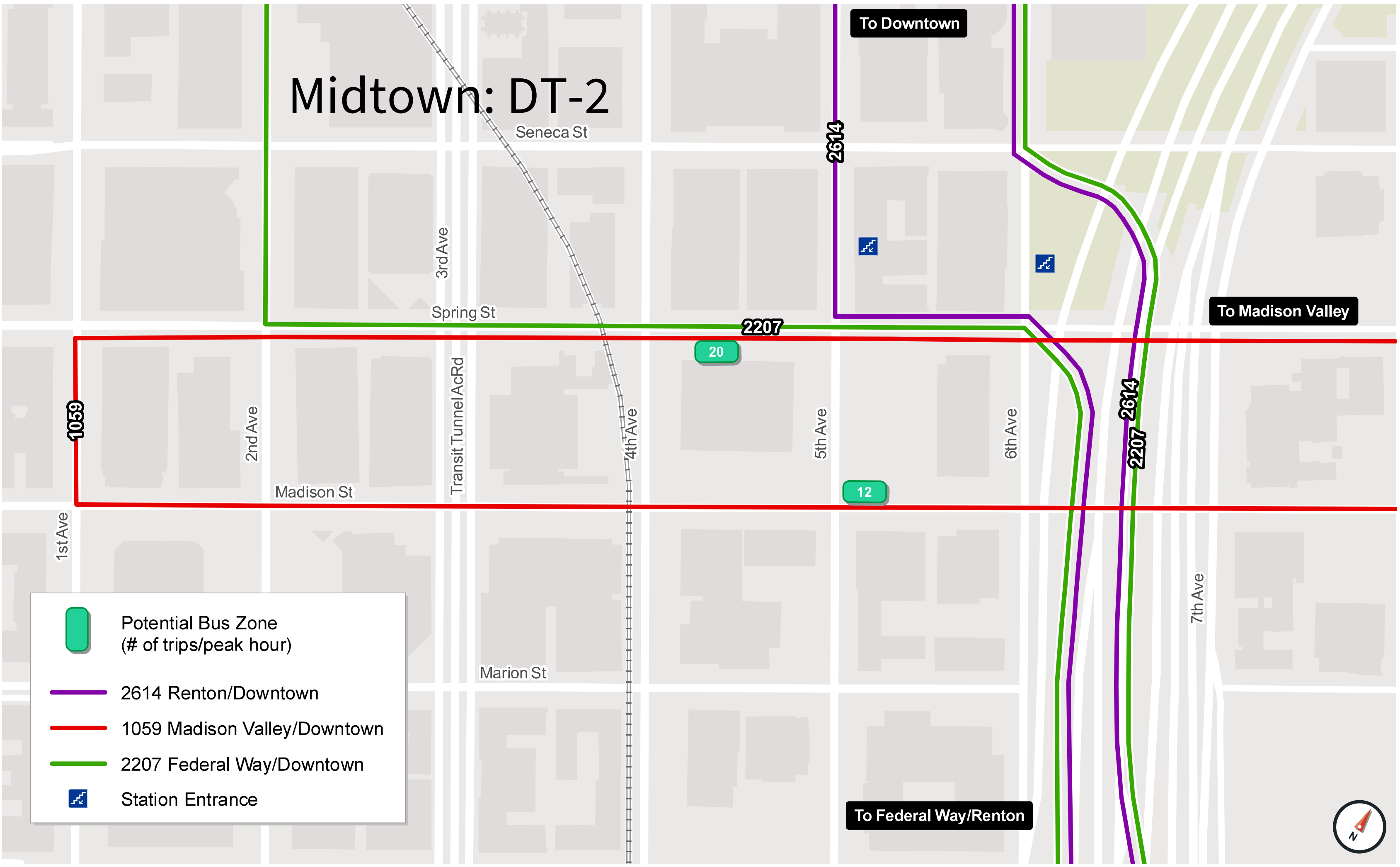


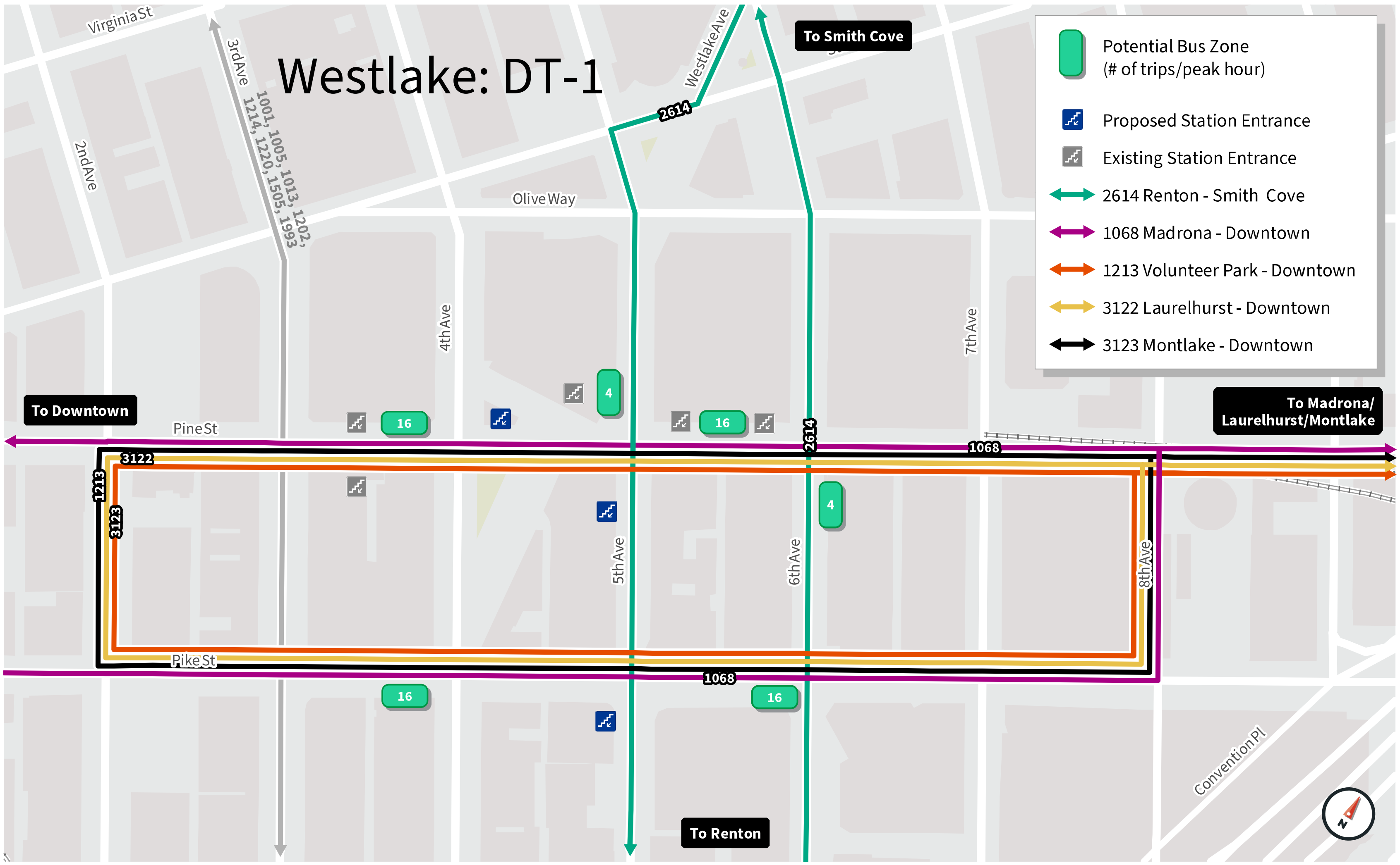
CID: CID-2a, CID-2b



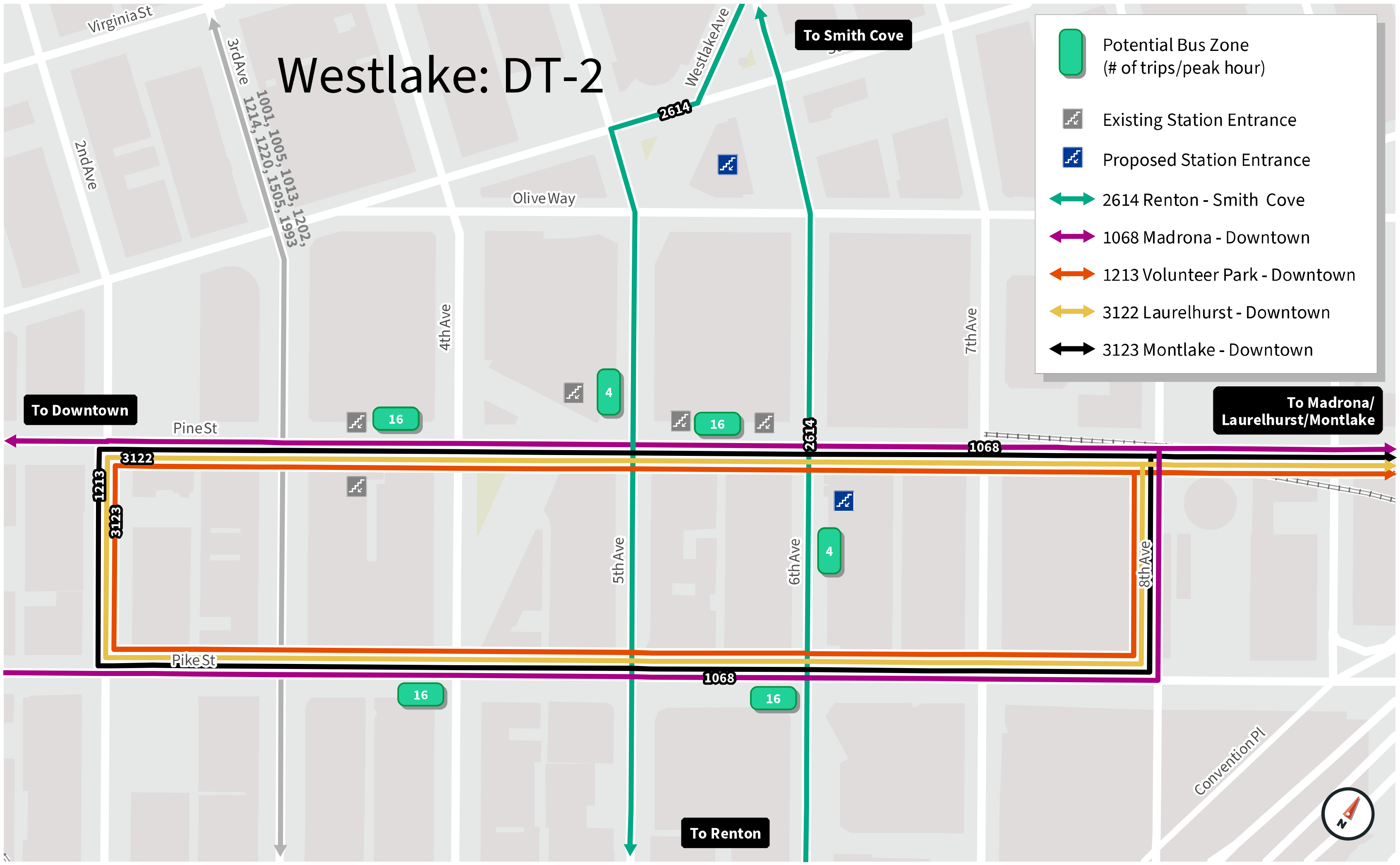


Midtown: DT-1
Seneca St
Spring St
Madison St
Marion St
Columbia St
1st Ave
2nd Ave
3rd Ave
4th Ave
5th Ave
6th Ave
7th Ave
Transit Tunnel AcRd
To Downtown
To Madison Valley
To Federal Way/Renton
2207
2614
1059
20
12
Potential Bus Zone
(# of trips/peak hour)
2614 Renton/Downtown
1059 Madison Valley/Downtown
2207 Federal Way/Downtown
Station Entrance
N

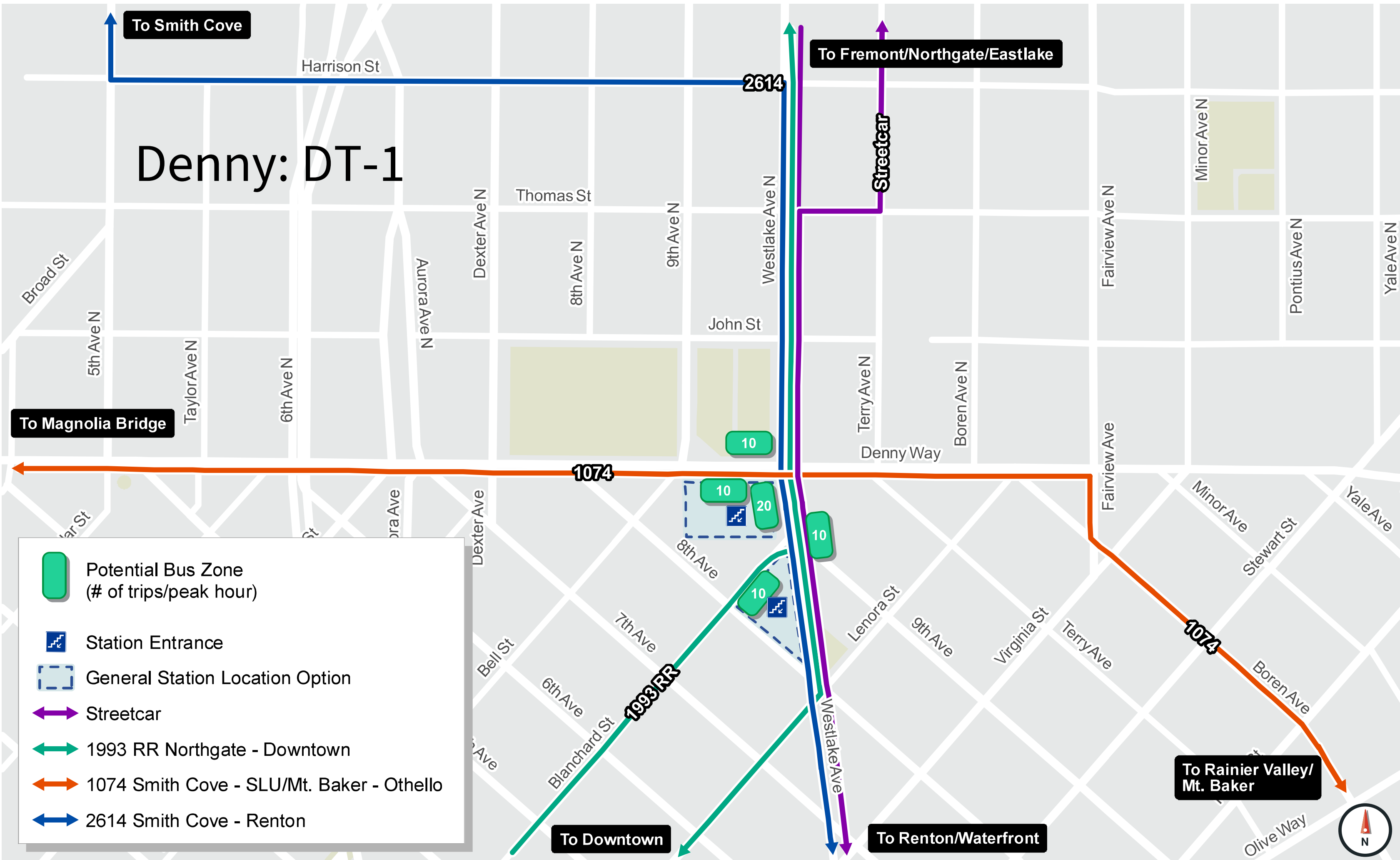

Midtown: DT-2
To Downtown
To Madison Valley
To Federal Way/Renton
Seneca St
Spring St
Madison St
Marion St
1st Ave
2nd Ave
3rd Ave
Transit Tunnel Ac Rd
4th Ave
5th Ave
6th Ave
7th Ave
2614
2207
1059
20
12
Potential Bus Zone
(# of trips/peak hour)
2614 Renton/Downtown
1059 Madison Valley/Downtown
2207 Federal Way/Downtown
Station Entrance
N



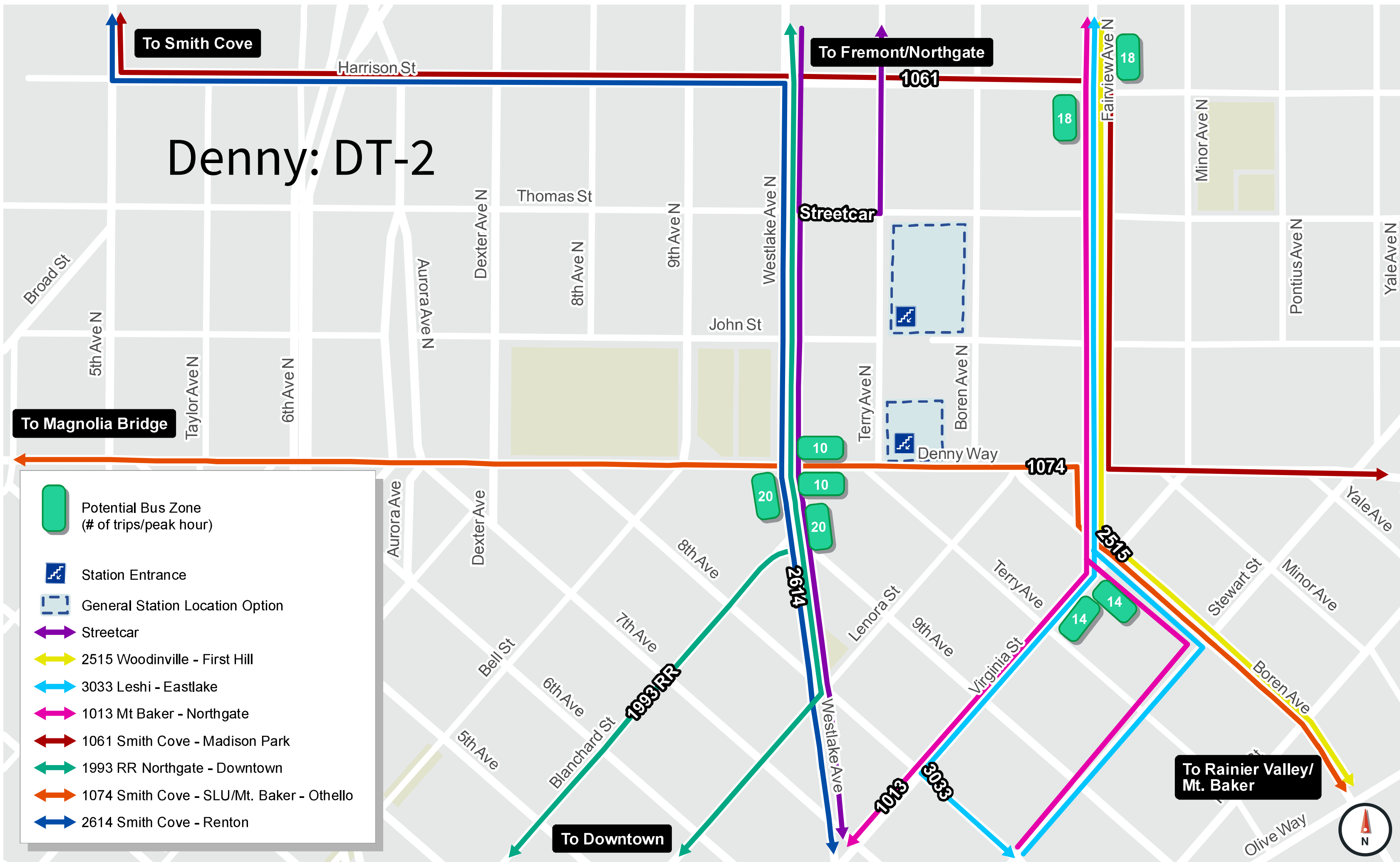
Westlake: DT-1
Potential Bus Zone
(# of trips/peak hour)
Proposed Station Entrance
Existing Station Entrance
2614 Renton - Smith Cove
1068 Madrona - Downtown
1213 Volunteer Park - Downtown
3122 Laurelhurst - Downtown
3123 Montlake - Downtown
To Smith Cove
To Downtown
To Madrona/
Laurelhurst/Montlake
To Renton
Virginia St
Olive Way
Pine St
Pike St
2nd Ave
3rd Ave
1001, 1005, 1013, 1202,
1214, 1220, 1505, 1993
4th Ave
5th Ave
6th Ave
7th Ave
8th Ave
Westlake Ave
Convention Pl
2614
1068
3122
3123
1213
16
4



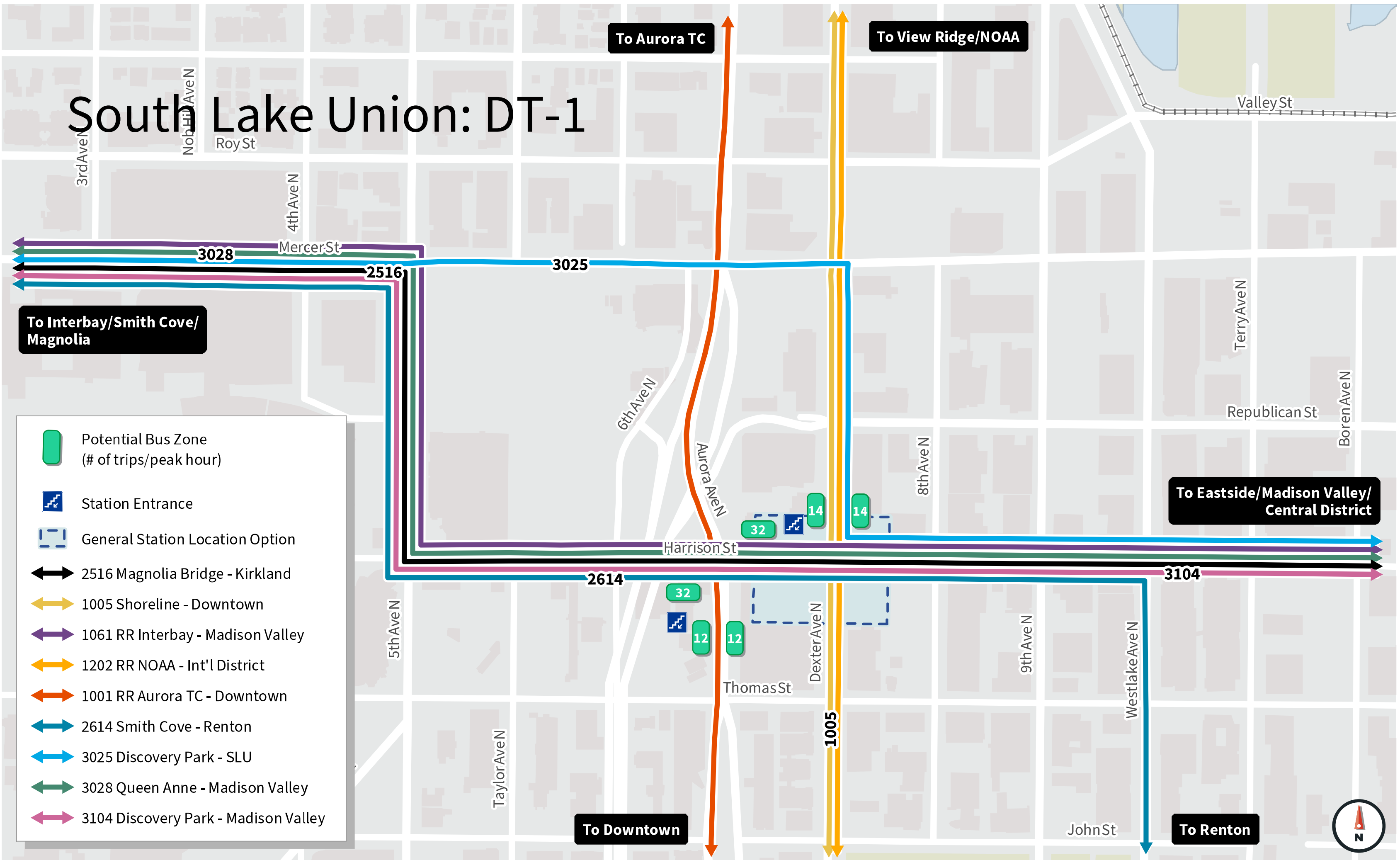
Westlake: DT-2
Potential Bus Zone (# of trips/peak hour)
Existing Station Entrance
Proposed Station Entrance
2614 Renton - Smith Cove
1068 Madrona - Downtown
1213 Volunteer Park - Downtown
3122 Laurelhurst - Downtown
3123 Montlake - Downtown
To Smith Cove
To Downtown
To Madrona/ Laurelhurst/Montlake
To Renton
Virginia St
2nd Ave
3rd Ave
1001, 1005, 1013, 1202, 1214, 1220, 1505, 1993
Westlake Ave
Olive Way
4th Ave
5th Ave
6th Ave
7th Ave
8th Ave
Pine St
Pike St
Convention Pl
2614
1068
3122
1213
3123
16
4

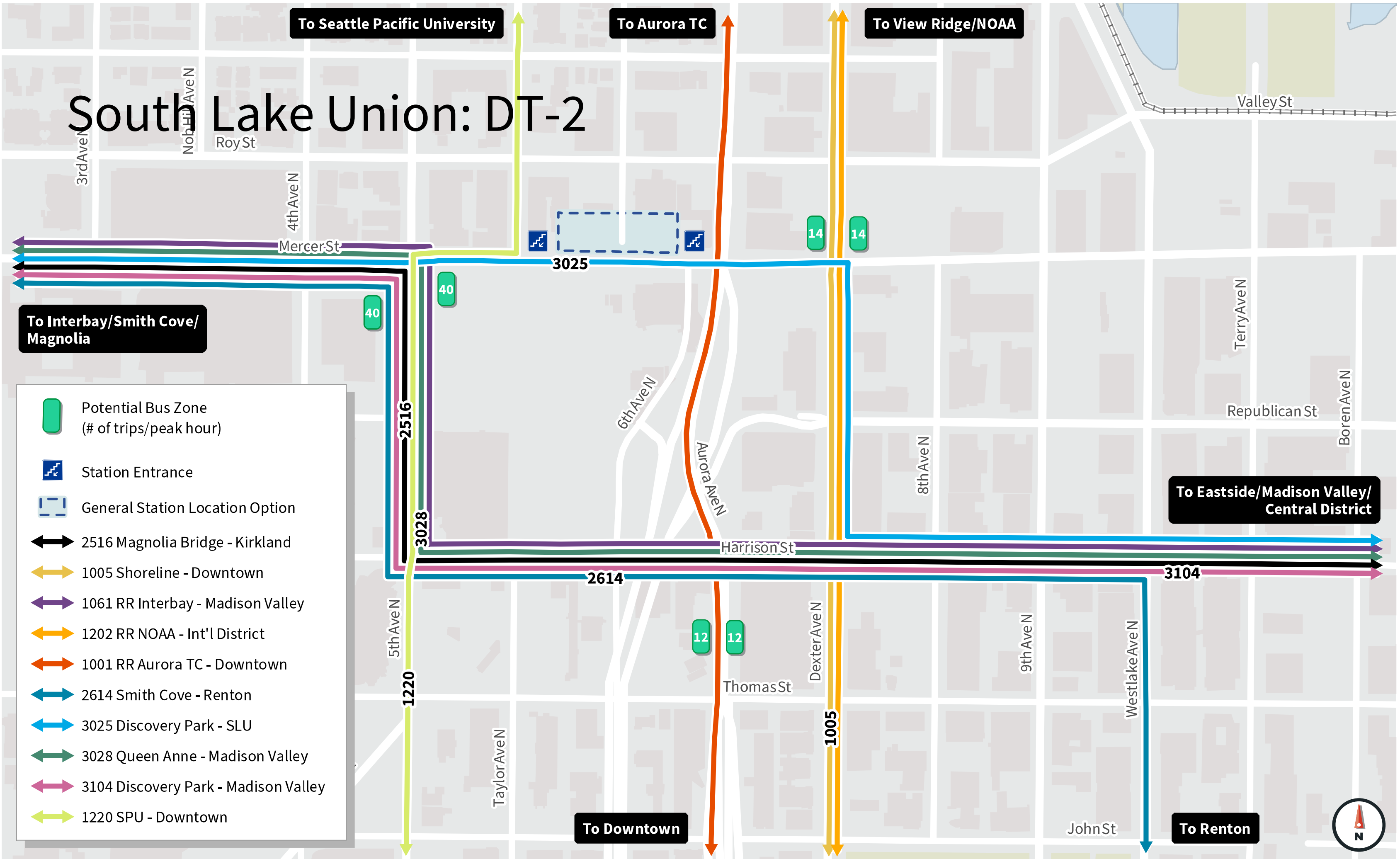


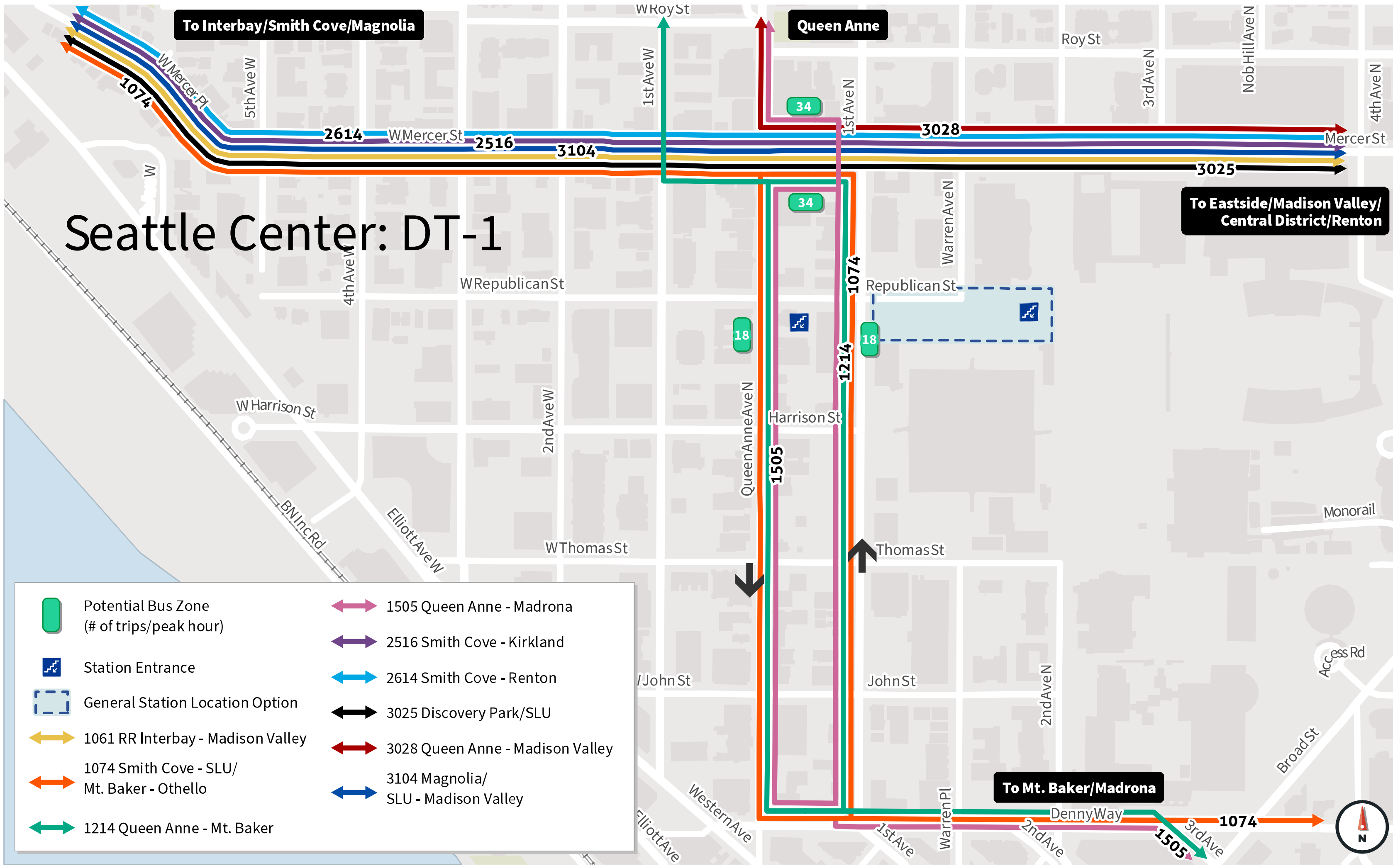
Denny: DT-1
To Smith Cove
To Fremont/Northgate/Eastlake
To Magnolia Bridge
To Downtown
To Renton/Waterfront
To Rainier Valley/ Mt. Baker
Harrison St
Thomas St
John St
Denny Way
Broad St
5th Ave N
Taylor Ave N
6th Ave N
Aurora Ave N
Dexter Ave N
8th Ave N
9th Ave N
Westlake Ave N
Terry Ave N
Boren Ave N
Fairview Ave N
Minor Ave N
Pontius Ave N
Yale Ave N
Fairview Ave
Minor Ave
Stewart St
Yale Ave
Dexter Ave
8th Ave
7th Ave
6th Ave
Bell St
Blanchard St
Lenora St
9th Ave
Virginia St
Terry Ave
Boren Ave
Westlake Ave
Olive Way
Streetcar
2614
1074
1993 RR
10
20
N
Potential Bus Zone (# of trips/peak hour)
Station Entrance
General Station Location Option
Streetcar
1993 RR Northgate - Downtown
1074 Smith Cove - SLU/Mt. Baker - Othello
2614 Smith Cove - Renton

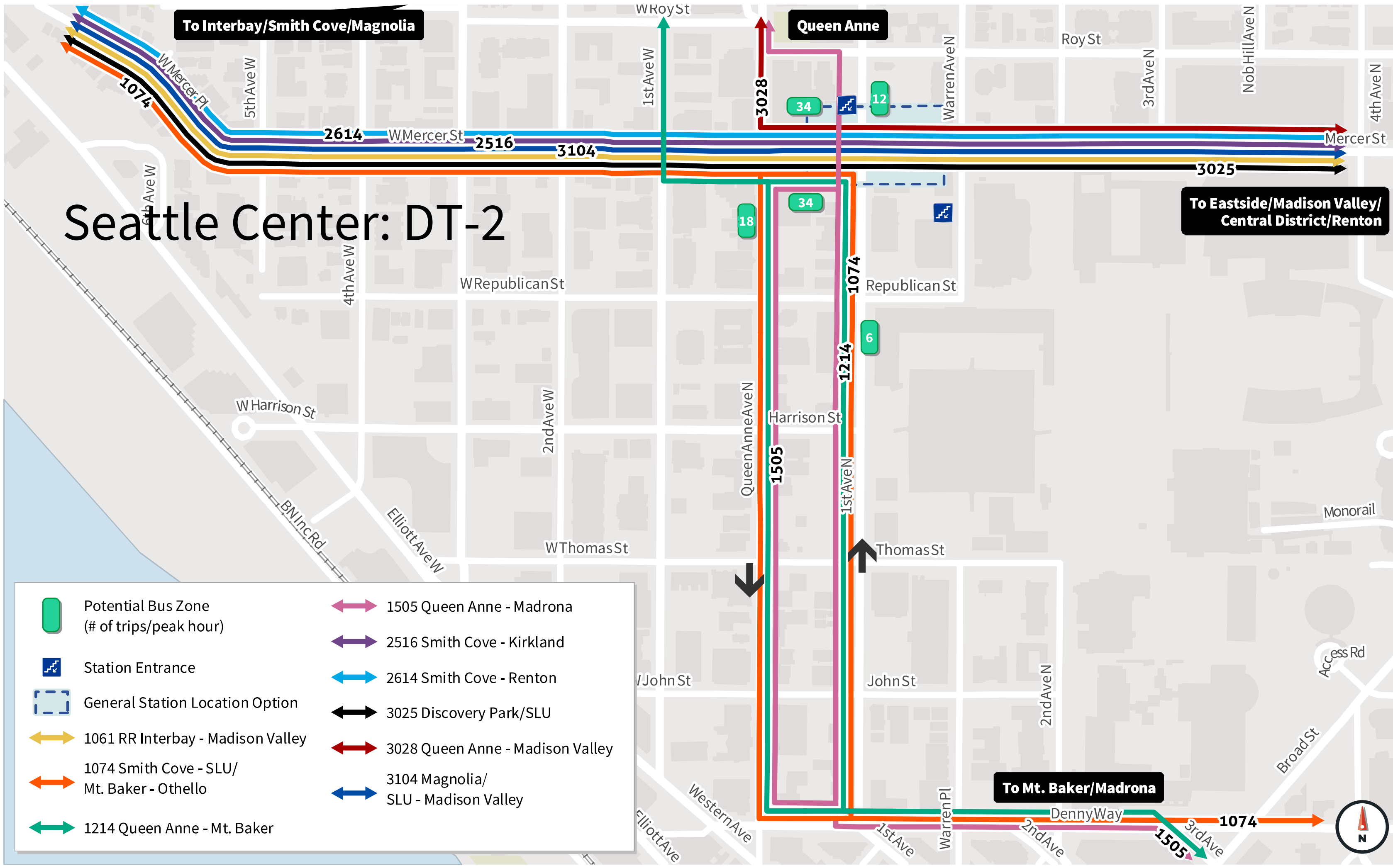


Denny: DT-2
To Smith Cove
To Fremont/Northgate
To Magnolia Bridge
To Downtown
To Rainier Valley/ Mt. Baker
Harrison St
Thomas St
John St
Denny Way
Broad St
5th Ave N
Taylor Ave N
6th Ave N
Aurora Ave N
Dexter Ave N
8th Ave N
9th Ave N
Westlake Ave N
Terry Ave N
Boren Ave N
Fairview Ave N
Minor Ave N
Pontius Ave N
Yale Ave N
Aurora Ave
Dexter Ave
8th Ave
7th Ave
6th Ave
5th Ave
Bell St
Blanchard St
Lenora St
9th Ave
Terry Ave
Virginia St
Westlake Ave
Stewart St
Minor Ave
Boren Ave
Yale Ave
Olive Way
Streetcar
1061
1074
2515
2614
1993 RR
1013
3033
18
18
10
10
20
20
14
14
N
Potential Bus Zone (# of trips/peak hour)
Station Entrance
General Station Location Option
Streetcar
2515 Woodinville - First Hill
3033 Leshi - Eastlake
1013 Mt Baker - Northgate
1061 Smith Cove - Madison Park
1993 RR Northgate - Downtown
1074 Smith Cove - SLU/Mt. Baker - Othello
2614 Smith Cove - Renton

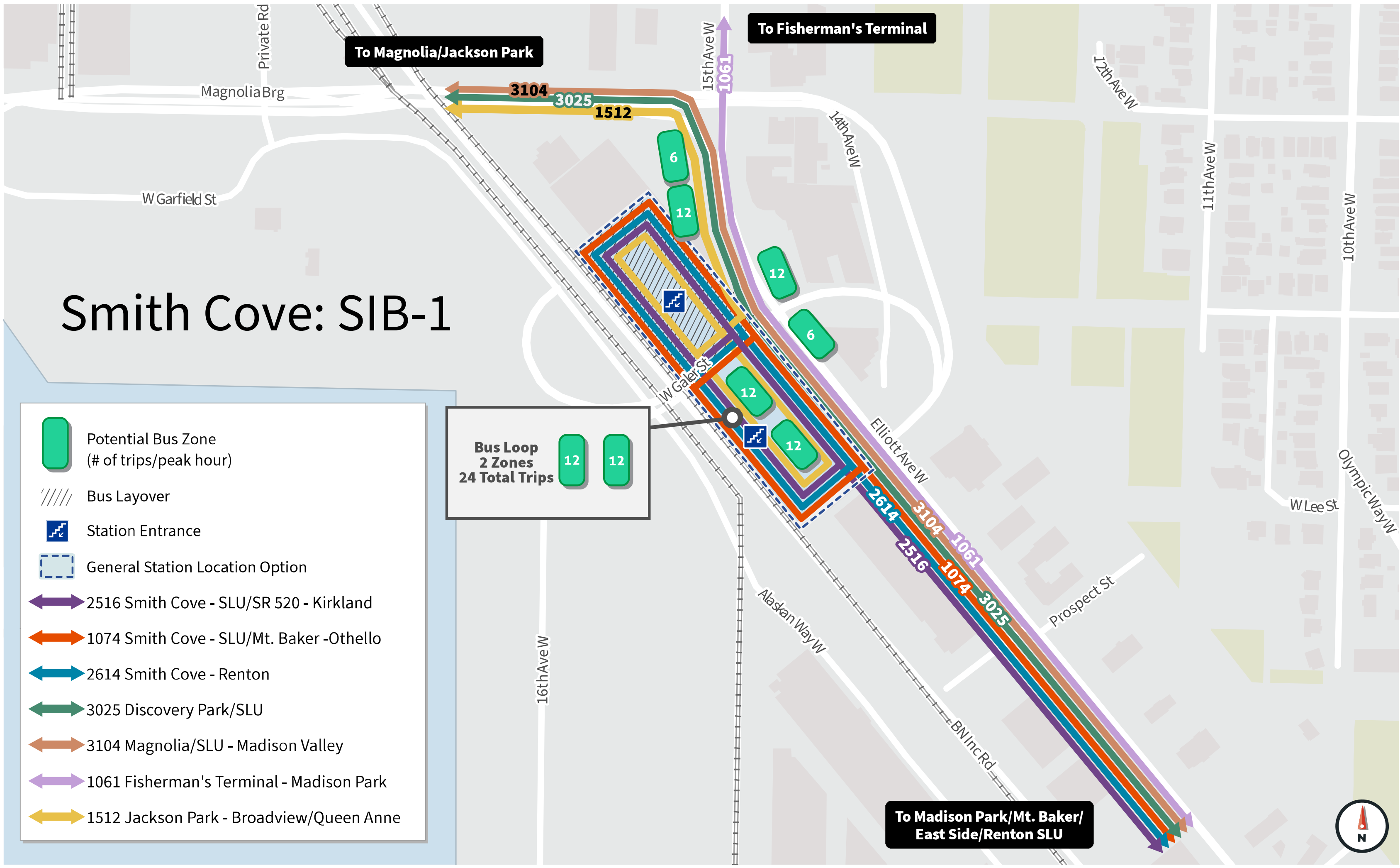

South Lake Union: DT-1
To Aurora TC
To View Ridge/NOAA
To Interbay/Smith Cove/ Magnolia
To Eastside/Madison Valley/ Central District
To Downtown
To Renton
Valley St
Roy St
Mercer St
Republican St
Harrison St
Thomas St
John St
3rd Ave N
Nob Hill Ave N
4th Ave N
5th Ave N
6th Ave N
Aurora Ave N
Taylor Ave N
Dexter Ave N
8th Ave N
9th Ave N
Westlake Ave N
Terry Ave N
Boren Ave N
3028
2516
3025
2614
3104
1005
32
14
12
Potential Bus Zone (# of trips/peak hour)
Station Entrance
General Station Location Option
2516 Magnolia Bridge - Kirkland
1005 Shoreline - Downtown
1061 RR Interbay - Madison Valley
1202 RR NOAA - Int'l District
1001 RR Aurora TC - Downtown
2614 Smith Cove - Renton
3025 Discovery Park - SLU
3028 Queen Anne - Madison Valley
3104 Discovery Park - Madison Valley
N


South Lake Union: DT-2
To Seattle Pacific University
To Aurora TC
To View Ridge/NOAA
To Interbay/Smith Cove/ Magnolia
To Eastside/Madison Valley/ Central District
To Downtown
To Renton
Valley St
Roy St
Mercer St
Republican St
Harrison St
Thomas St
John St
3rd Ave N
Nob Hill Ave N
4th Ave N
5th Ave N
6th Ave N
Aurora Ave N
Taylor Ave N
Dexter Ave N
8th Ave N
9th Ave N
Westlake Ave N
Terry Ave N
Boren Ave N
3025
2516
3028
2614
3104
1220
1005
40
14
12
Potential Bus Zone (# of trips/peak hour)
Station Entrance
General Station Location Option
2516 Magnolia Bridge - Kirkland
1005 Shoreline - Downtown
1061 RR Interbay - Madison Valley
1202 RR NOAA - Int'l District
1001 RR Aurora TC - Downtown
2614 Smith Cove - Renton
3025 Discovery Park - SLU
3028 Queen Anne - Madison Valley
3104 Discovery Park - Madison Valley
1220 SPU - Downtown
N

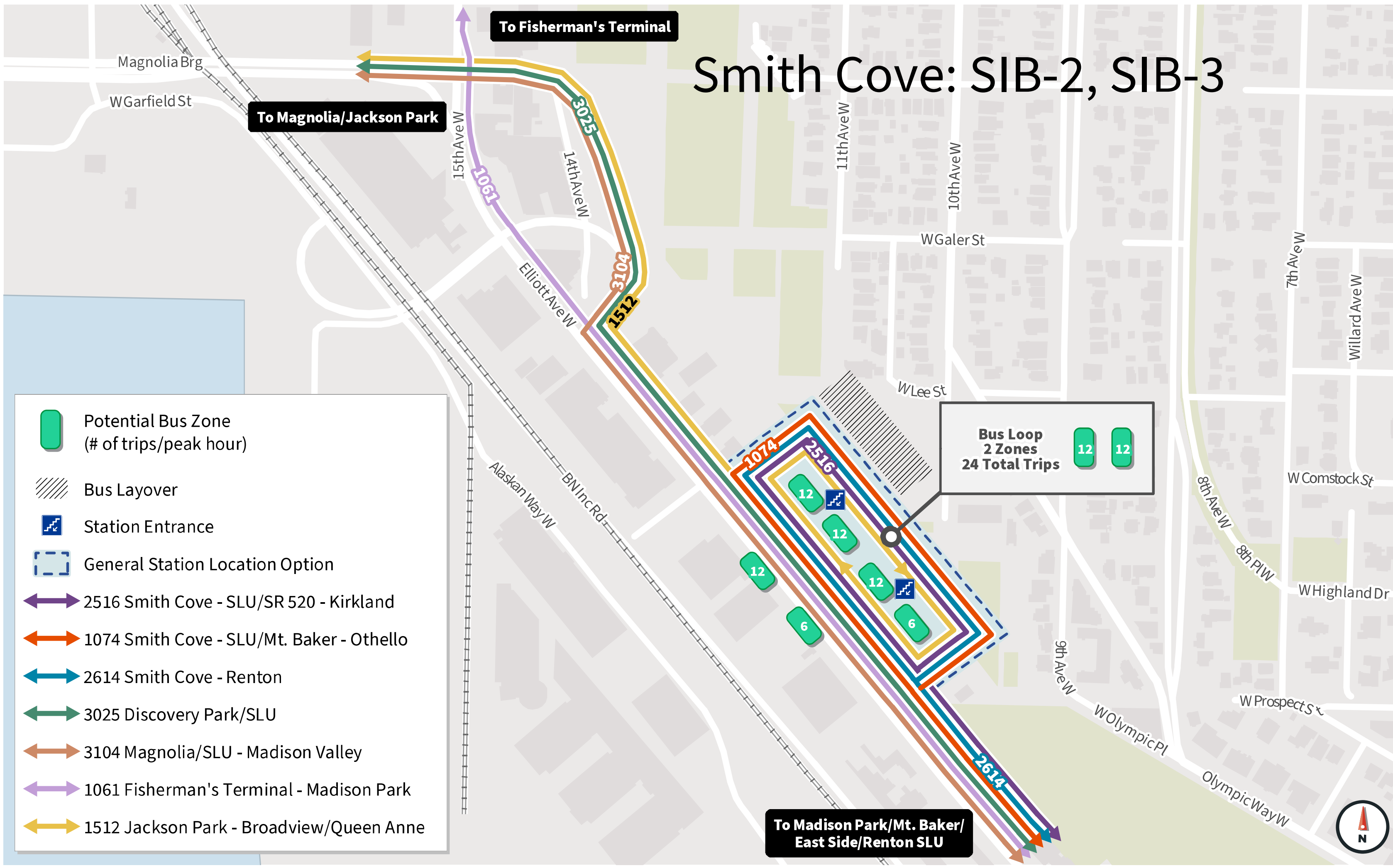

Seattle Center: DT-1
To Interbay/Smith Cove/Magnolia
Queen Anne
To Eastside/Madison Valley/
Central District/Renton
To Mt. Baker/Madrona
W Mercer St
Mercer St
W Republican St
Republican St
W Harrison St
Harrison St
W Thomas St
Thomas St
John St
Denny Way
Roy St
W Roy St
W Mercer Pl
5th Ave W
4th Ave W
2nd Ave W
1st Ave W
Queen Anne Ave N
1st Ave N
Warren Ave N
3rd Ave N
Nob Hill Ave N
4th Ave N
2nd Ave N
Warren Pl
1st Ave
2nd Ave
3rd Ave
Western Ave
Elliott Ave
Elliott Ave W
BN Inc Rd
Broad St
Monorail
2614
2516
3104
3028
3025
1074
1214
1505
34
18
N
Potential Bus Zone
(# of trips/peak hour)
Station Entrance
General Station Location Option
1061 RR Interbay - Madison Valley
1074 Smith Cove - SLU/
Mt. Baker - Othello
1214 Queen Anne - Mt. Baker
1505 Queen Anne - Madrona
2516 Smith Cove - Kirkland
2614 Smith Cove - Renton
3025 Discovery Park/SLU
3028 Queen Anne - Madison Valley
3104 Magnolia/
SLU - Madison Valley



Seattle Center: DT-2
To Interbay/Smith Cove/Magnolia
Queen Anne
To Eastside/Madison Valley/ Central District/Renton
To Mt. Baker/Madrona
W Mercer St
Mercer St
Roy St
W Roy St
W Republican St
Republican St
W Harrison St
Harrison St
W Thomas St
Thomas St
W John St
John St
Denny Way
Queen Anne Ave N
1st Ave N
1st Ave W
2nd Ave W
4th Ave W
5th Ave W
6th Ave W
Warren Ave N
3rd Ave N
Nob Hill Ave N
4th Ave N
2nd Ave N
Warren Pl
1st Ave
2nd Ave
3rd Ave
Western Ave
Elliott Ave
Elliott Ave W
BN Inc Rd
Broad St
Monorail
2614
2516
3104
1074
3028
3025
1505
1214
34
12
18
6
Potential Bus Zone (# of trips/peak hour)
Station Entrance
General Station Location Option
1061 RR Interbay - Madison Valley
1074 Smith Cove - SLU/ Mt. Baker - Othello
1214 Queen Anne - Mt. Baker
1505 Queen Anne - Madrona
2516 Smith Cove - Kirkland
2614 Smith Cove - Renton
3025 Discovery Park/SLU
3028 Queen Anne - Madison Valley
3104 Magnolia/ SLU - Madison Valley
N

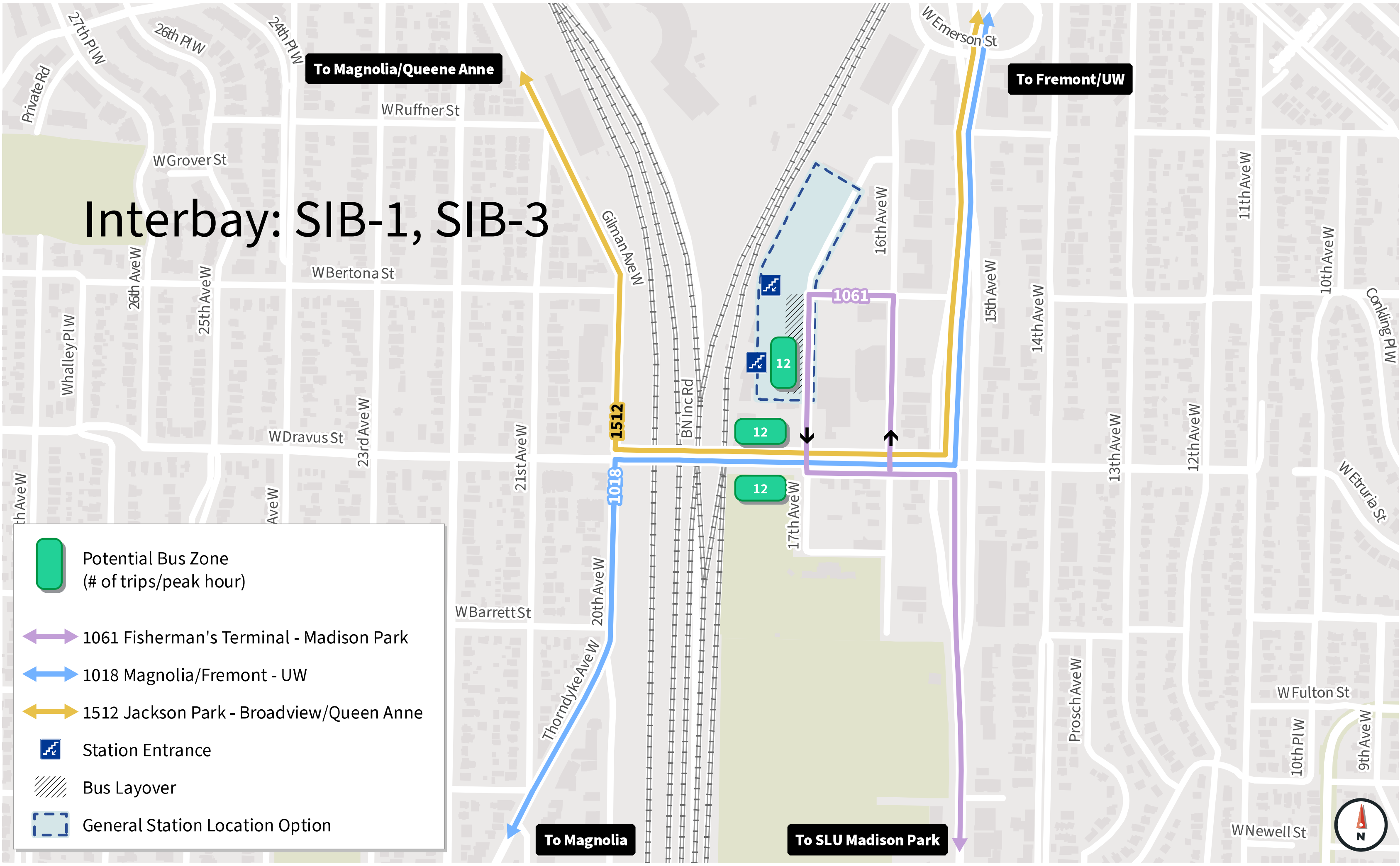


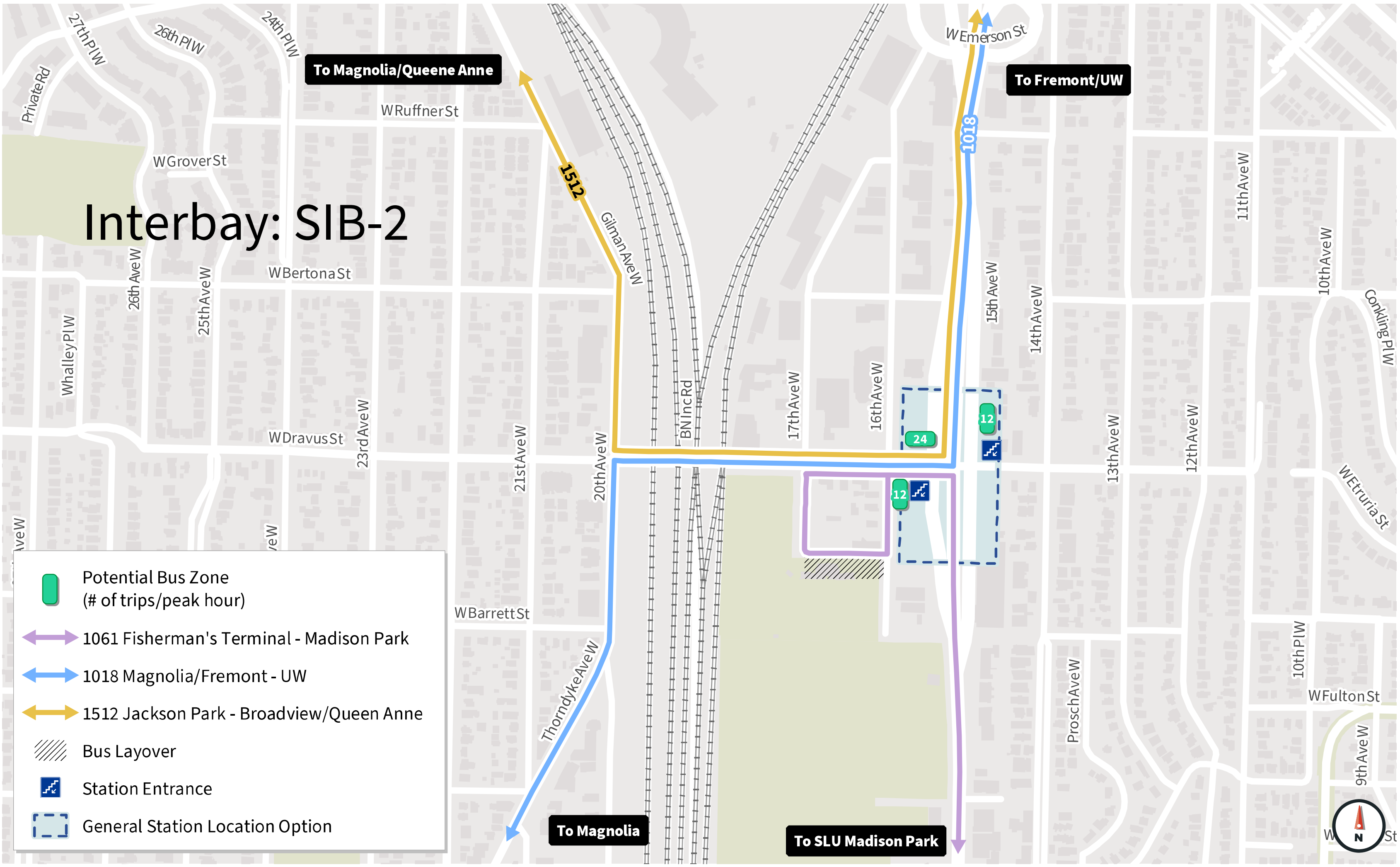
Smith Cove: SIB-1
To Magnolia/Jackson Park
To Fisherman's Terminal
To Madison Park/Mt. Baker/ East Side/Renton SLU
Magnolia Brg
Private Rd
W Garfield St
15th Ave W
14th Ave W
12th Ave W
11th Ave W
10th Ave W
16th Ave W
W Galer St
Elliott Ave W
Alaskan Way W
BN Inc Rd
Prospect St
W Lee St
Olympic Way W
3104
3025
1512
1061
2614
2516
1074
Bus Loop
2 Zones
24 Total Trips
Potential Bus Zone
(# of trips/peak hour)
Bus Layover
Station Entrance
General Station Location Option
2516 Smith Cove - SLU/SR 520 - Kirkland
1074 Smith Cove - SLU/Mt. Baker -Othello
2614 Smith Cove - Renton
3025 Discovery Park/SLU
3104 Magnolia/SLU - Madison Valley
1061 Fisherman's Terminal - Madison Park
1512 Jackson Park - Broadview/Queen Anne
N



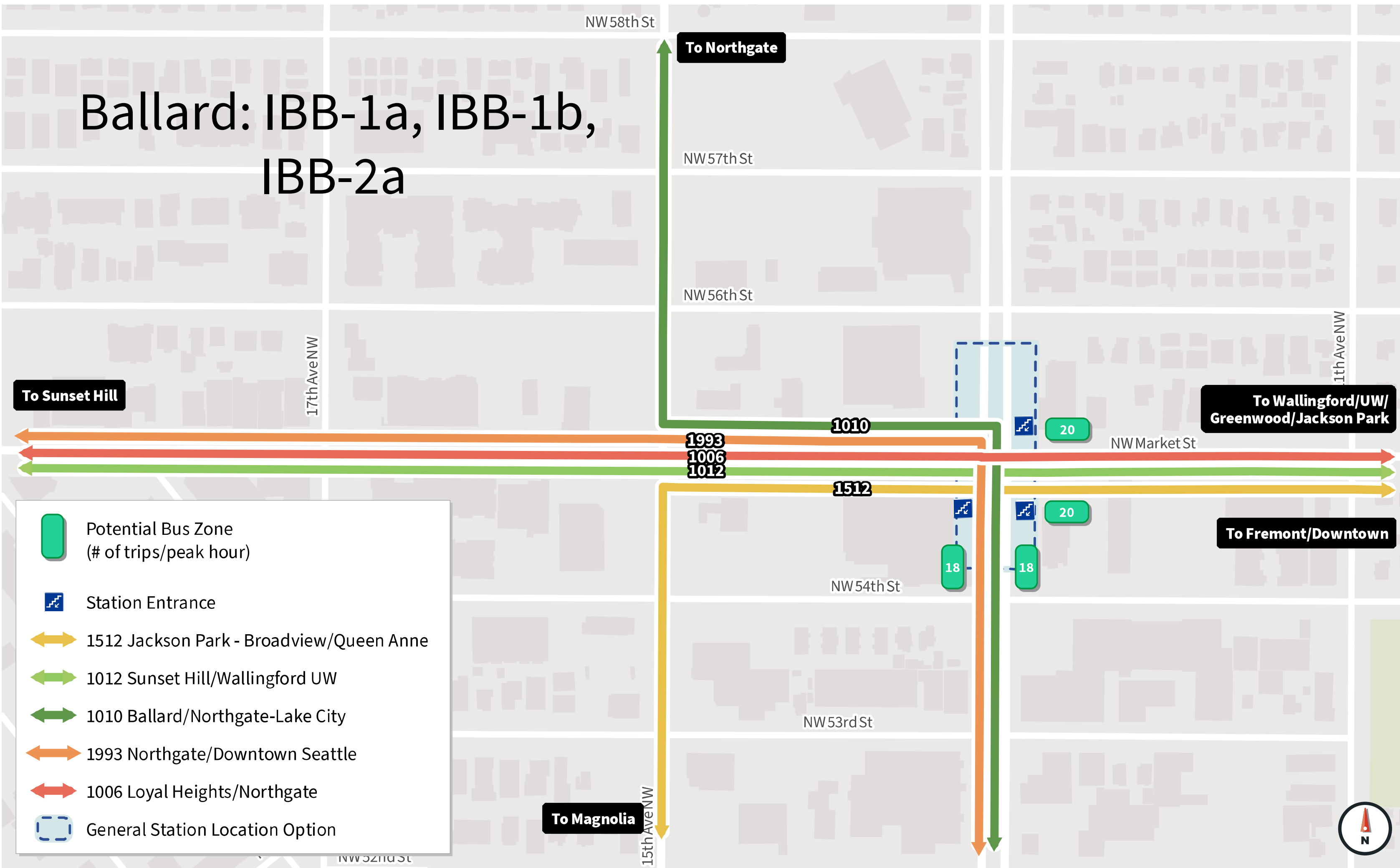
Smith Cove: SIB-2, SIB-3
To Fisherman's Terminal
To Magnolia/Jackson Park
To Madison Park/Mt. Baker/ East Side/Renton SLU
Bus Loop
2 Zones
24 Total Trips
Potential Bus Zone
(# of trips/peak hour)
Bus Layover
Station Entrance
General Station Location Option
2516 Smith Cove - SLU/SR 520 - Kirkland
1074 Smith Cove - SLU/Mt. Baker - Othello
2614 Smith Cove - Renton
3025 Discovery Park/SLU
3104 Magnolia/SLU - Madison Valley
1061 Fisherman's Terminal - Madison Park
1512 Jackson Park - Broadview/Queen Anne
Magnolia Brg
W Garfield St
15th Ave W
14th Ave W
11th Ave W
10th Ave W
W Galer St
W Lee St
Elliott Ave W
Alaskan Way W
BN Inc Rd
7th Ave W
Willard Ave W
8th Ave W
8th Pl W
W Comstock St
W Highland Dr
9th Ave W
W Olympic Pl
W Prospect St
Olympic Way W
N

Interbay: SIB-1, SIB-3

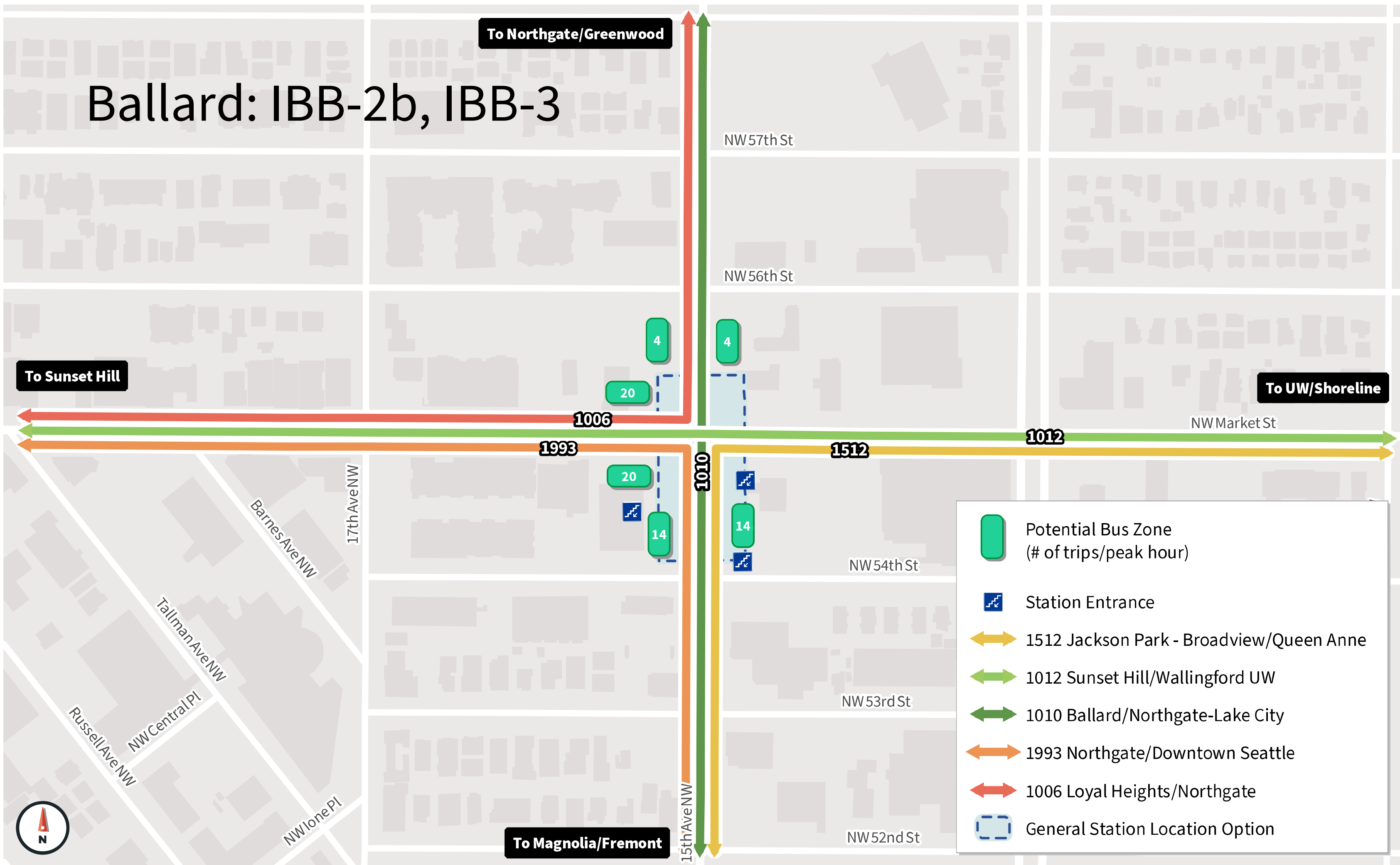




Interbay: SIB-2
To Magnolia/Queene Anne
To Fremont/UW
To Magnolia
To SLU Madison Park
1512
1018
12
24
12
W Ruffner St
W Grover St
W Bertona St
W Dravus St
W Barrett St
W Emerson St
W Fulton St
W Etruria St
Gilman Ave W
Thorndyke Ave W
BNInc Rd
Private Rd
27th Pl W
26th Pl W
24th Pl W
26th Ave W
25th Ave W
23rd Ave W
21st Ave W
20th Ave W
17th Ave W
16th Ave W
15th Ave W
14th Ave W
13th Ave W
12th Ave W
11th Ave W
10th Ave W
10th Pl W
9th Ave W
Whalley Pl W
Prosch Ave W
Conkling Pl W
Potential Bus Zone
(# of trips/peak hour)
1061 Fisherman's Terminal - Madison Park
1018 Magnolia/Fremont - UW
1512 Jackson Park - Broadview/Queen Anne
Bus Layover
Station Entrance
General Station Location Option
N



Ballard: IBB-1a, IBB-1b, IBB-2a
To Northgate
To Sunset Hill
To Wallingford/UW/ Greenwood/Jackson Park
To Fremont/Downtown
To Magnolia
NW 58th St
NW 57th St
NW 56th St
NW Market St
NW 54th St
NW 53rd St
17th Ave NW
15th Ave NW
1010
1993
1006
1012
1512
20
20
18
18
N
Potential Bus Zone (# of trips/peak hour)
Station Entrance
1512 Jackson Park - Broadview/Queen Anne
1012 Sunset Hill/Wallingford UW
1010 Ballard/Northgate-Lake City
1993 Northgate/Downtown Seattle
1006 Loyal Heights/Northgate
General Station Location Option



Ballard: IBB-2b, IBB-3
To Northgate/Greenwood
To Sunset Hill
To UW/Shoreline
To Magnolia/Fremont
NW 57th St
NW 56th St
NW Market St
NW 54th St
NW 53rd St
NW 52nd St
17th Ave NW
15th Ave NW
Barnes Ave NW
Tallman Ave NW
NW Central Pl
Russell Ave NW
NW Ione Pl
1006
1993
1010
1512
1012
4
4
20
20
14
14
N
Potential Bus Zone (# of trips/peak hour)
Station Entrance
1512 Jackson Park - Broadview/Queen Anne
1012 Sunset Hill/Wallingford UW
1010 Ballard/Northgate-Lake City
1993 Northgate/Downtown Seattle
1006 Loyal Heights/Northgate
General Station Location Option

APPENDIX B

Station Area Transit Integration Diagrams – Minimum Operable Segment

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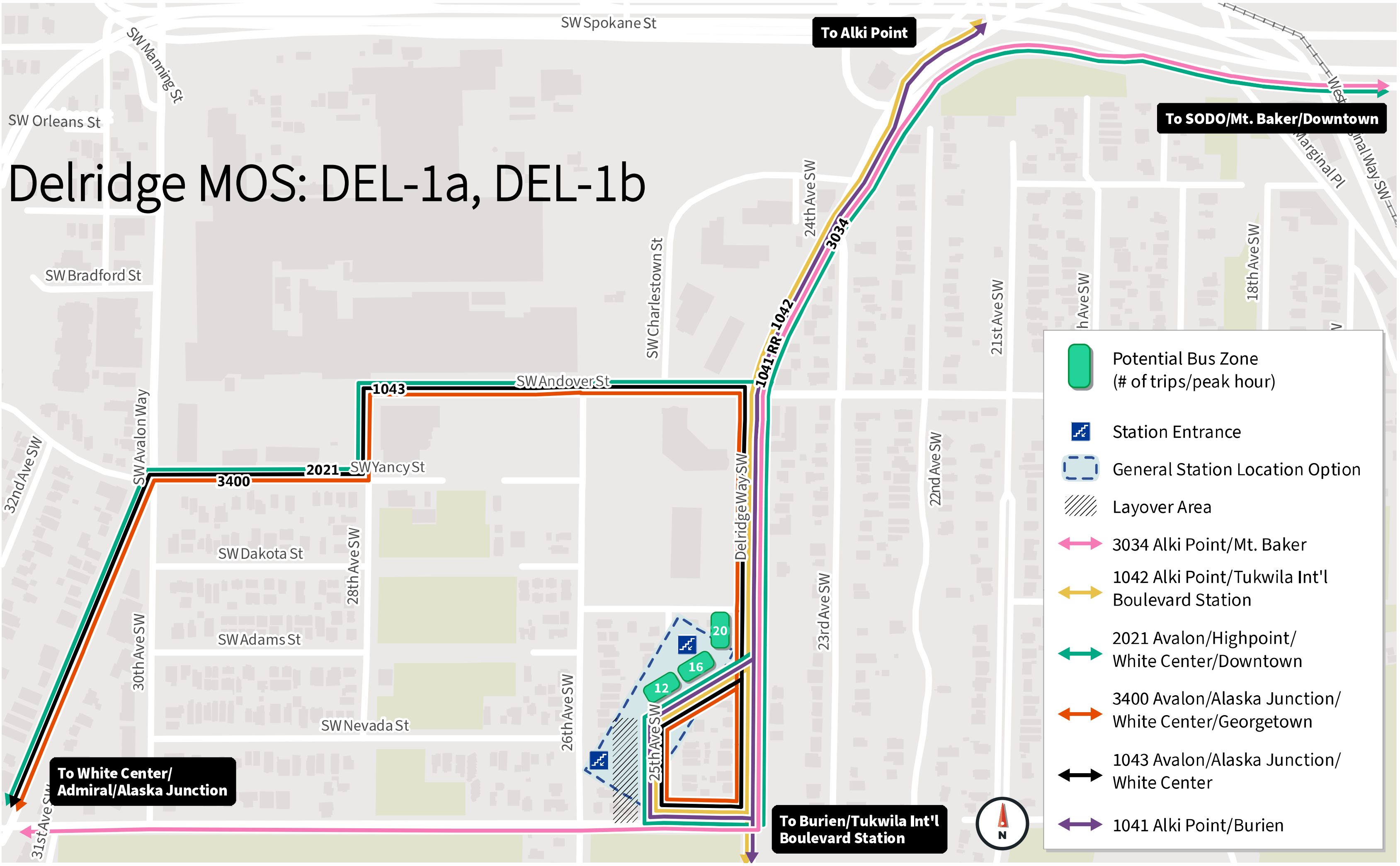
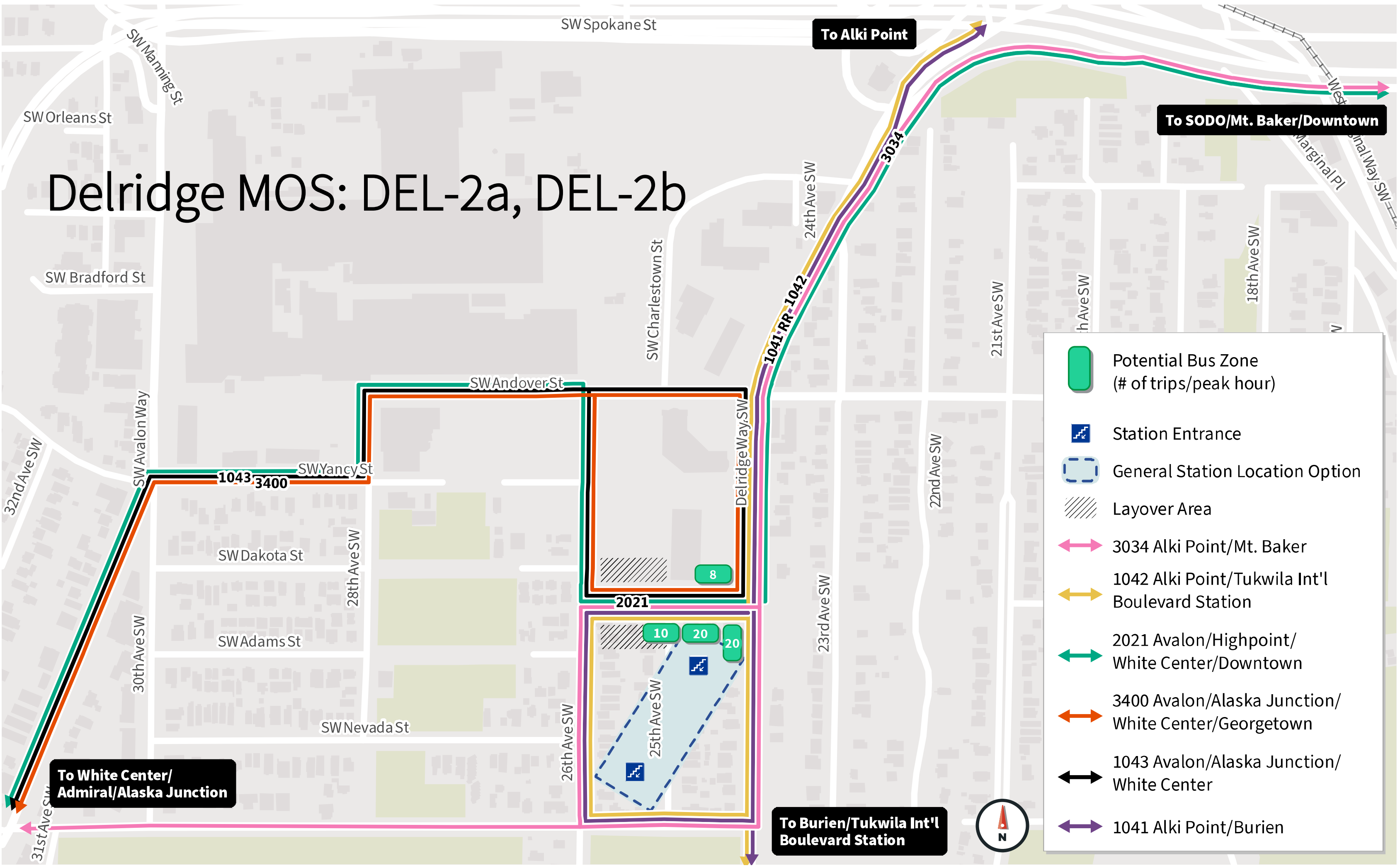
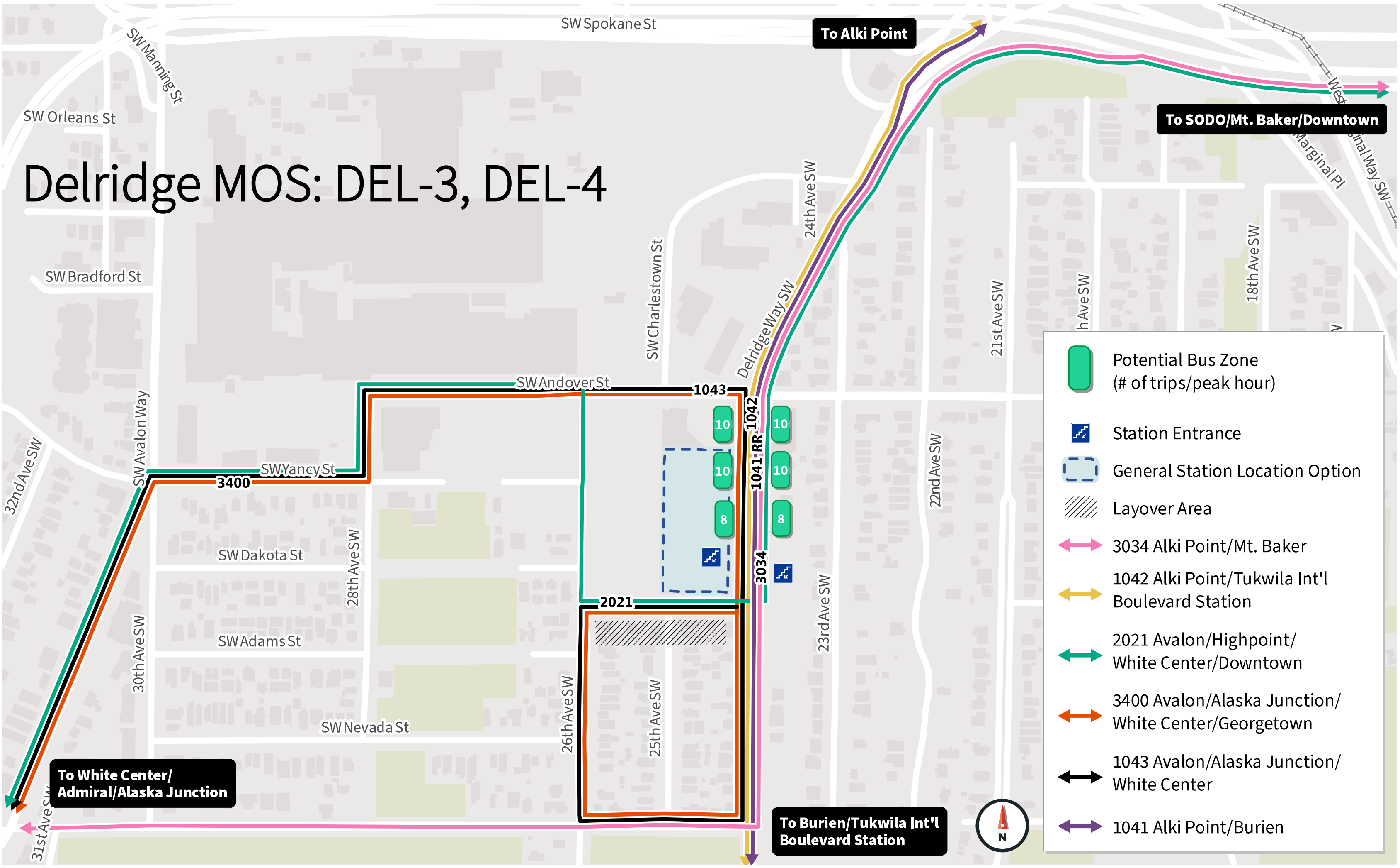
Delridge MOS: DEL-1a, DEL-1b



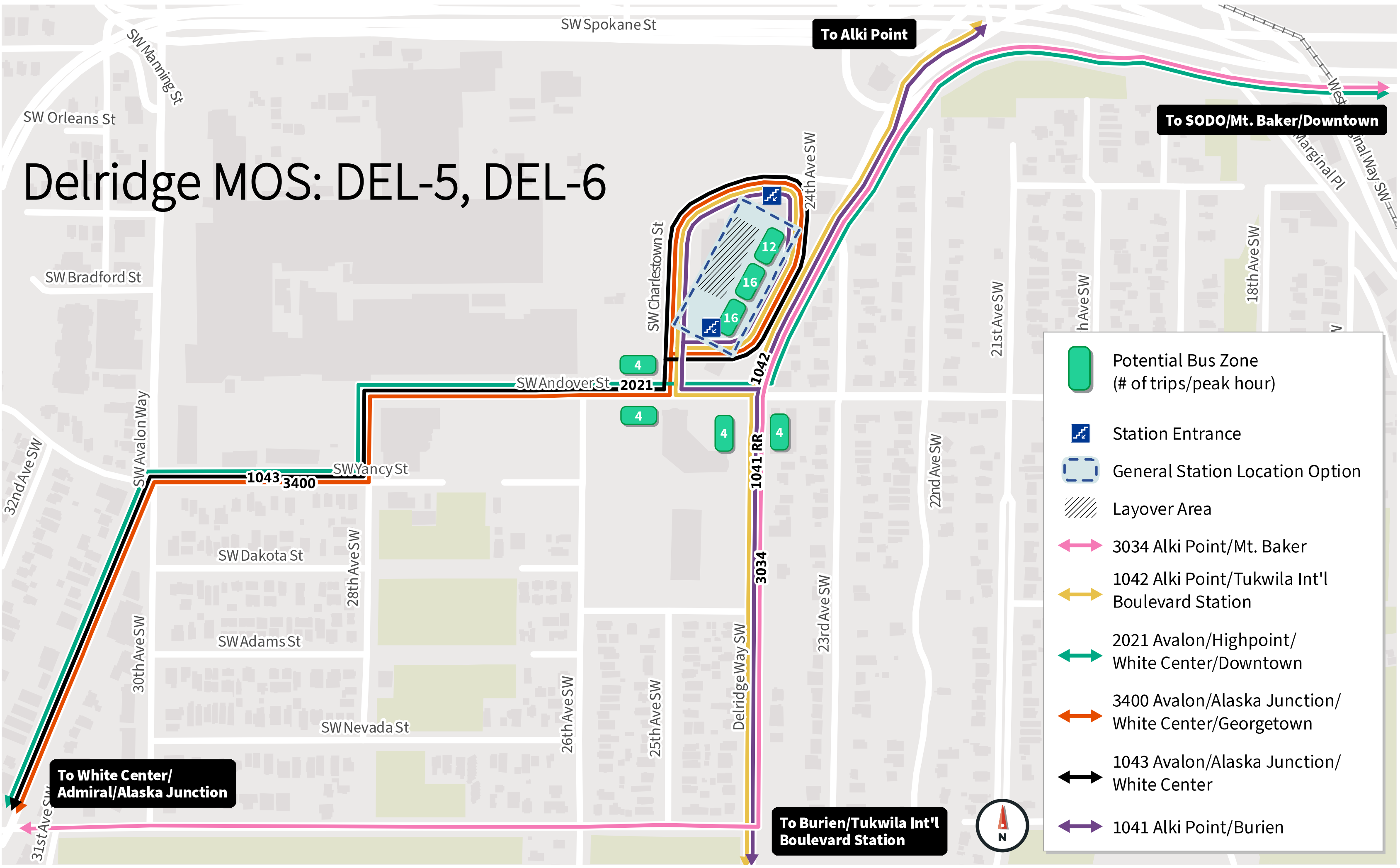
Delridge MOS: DEL-2a, DEL-2b



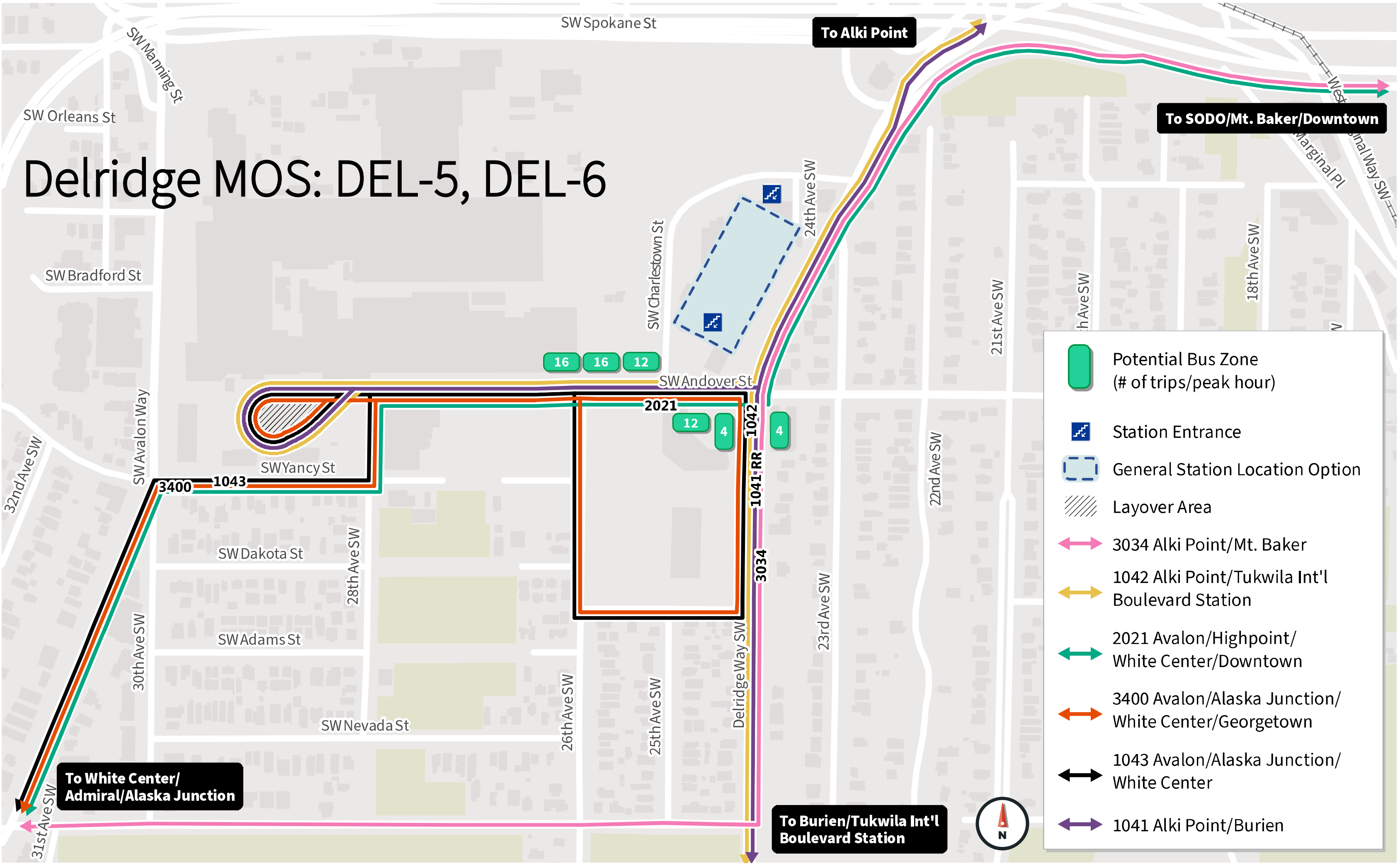
Delridge MOS: DEL-3, DEL-4

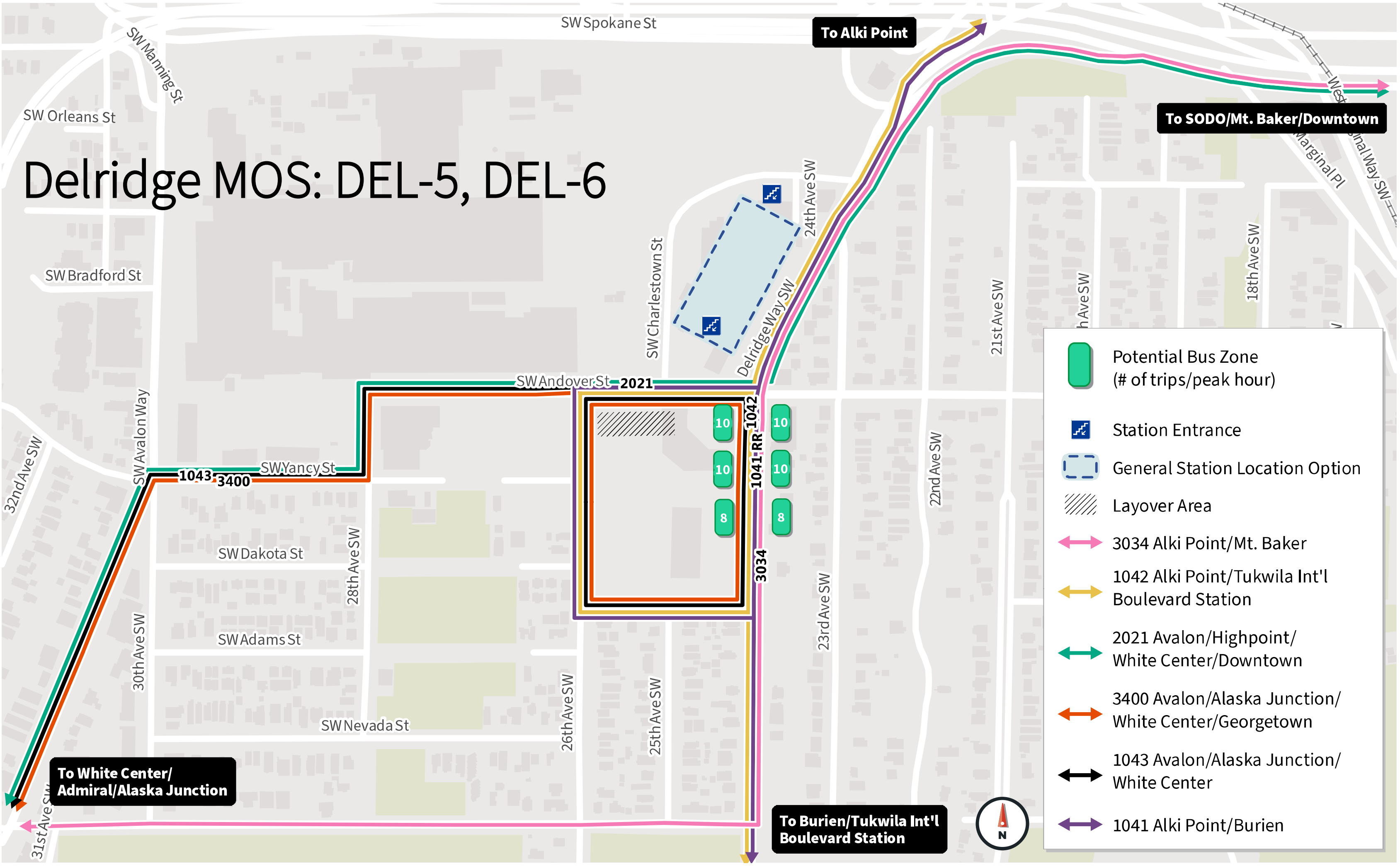


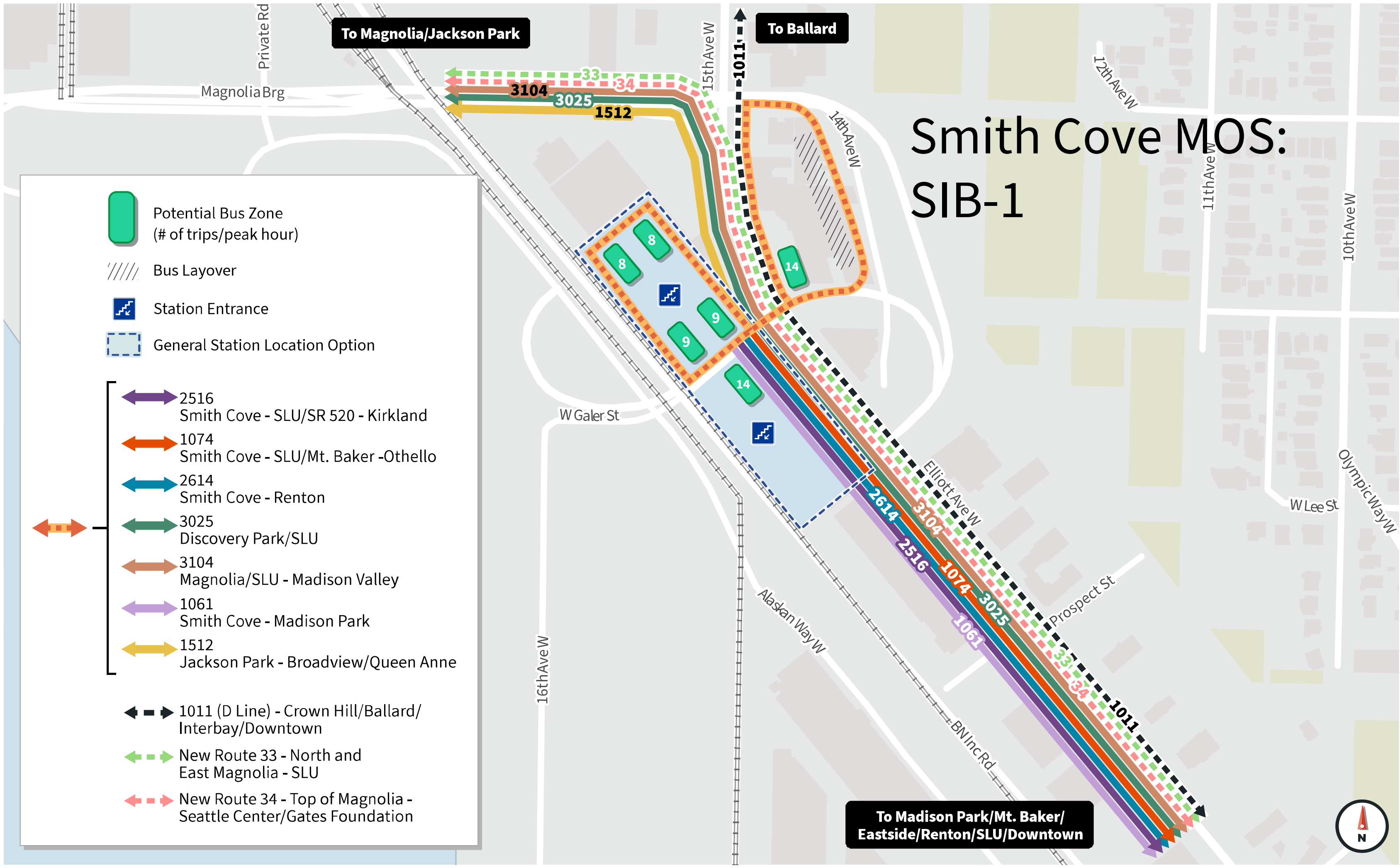
Delridge MOS: DEL-5, DEL-6



Delridge MOS: DEL-5, DEL-6




Delridge MOS: DEL-5, DEL-6
SW Spokane St
To Alki Point
SW Manning St
SW Orleans St
To SODO/Mt. Baker/Downtown
West Marginal Way SW
West Marginal Pl
24th Ave SW
SW Bradford St
SW Charlestown St
Delridge Way SW
21st Ave SW
18th Ave SW
SW Andover St
2021
1042
1041 RR
3034
SW Avalon Way
32nd Ave SW
SW Yancy St
1043
3400
10
10
10
10
8
8
22nd Ave SW
SW Dakota St
28th Ave SW
23rd Ave SW
30th Ave SW
SW Adams St
SW Nevada St
26th Ave SW
25th Ave SW
To White Center/
Admiral/Alaska Junction
31st Ave SW
To Burien/Tukwila Int'l
Boulevard Station
N
Potential Bus Zone
(# of trips/peak hour)
Station Entrance
General Station Location Option
Layover Area
3034 Alki Point/Mt. Baker
1042 Alki Point/Tukwila Int'l
Boulevard Station
2021 Avalon/Highpoint/
White Center/Downtown
3400 Avalon/Alaska Junction/
White Center/Georgetown
1043 Avalon/Alaska Junction/
White Center
1041 Alki Point/Burien



Smith Cove MOS: SIB-1
To Magnolia/Jackson Park
To Ballard
To Madison Park/Mt. Baker/ Eastside/Renton/SLU/Downtown
Potential Bus Zone (# of trips/peak hour)
Bus Layover
Station Entrance
General Station Location Option
2516 Smith Cove - SLU/SR 520 - Kirkland
1074 Smith Cove - SLU/Mt. Baker -Othello
2614 Smith Cove - Renton
3025 Discovery Park/SLU
3104 Magnolia/SLU - Madison Valley
1061 Smith Cove - Madison Park
1512 Jackson Park - Broadview/Queen Anne
1011 (D Line) - Crown Hill/Ballard/ Interbay/Downtown
New Route 33 - North and East Magnolia - SLU
New Route 34 - Top of Magnolia - Seattle Center/Gates Foundation
Magnolia Brg
Private Rd
15th Ave W
14th Ave W
12th Ave W
11th Ave W
10th Ave W
16th Ave W
W Galer St
Elliott Ave W
Alaskan Way W
BN Inc Rd
Prospect St
W Lee St
Olympic Way W
N

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Attachment N.1D
Existing and Future Intersection Levels of Service

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Attachment N.1D
Existing and Future Intersection Levels of Service

Table N.1D-1. Level of Service Definitions for Signalized Intersections

Level of Service	Average Delay (seconds per vehicle)	Traffic Flow Characteristics
A	<10	Most vehicles arrive during the green phase and do not stop at all.
B	>10 to ≤20	Most vehicles stop, causing higher delay.
C	>20 to ≤35	Vehicles stopping is significant, but many still pass through the intersection without stopping.
D	>35 to ≤55	Many vehicles stop, and the influence of congestion becomes more noticeable.
E	>55 to ≤80	Very few vehicles pass through without stopping.
F	>80	Considered unacceptable to most drivers. Intersection is not necessarily over capacity, even though arrivals exceed capacity of lane groups.

Source: Transportation Research Board, *Highway Capacity Manual: 6th Edition*.

Table N.1D-2. Level of Service Definitions for Unsignalized Intersections

Level of Service	Average Delay (seconds per vehicle)	Traffic Flow Characteristics
A	<10	Little or no traffic delays.
B	>10 to ≤15	Short traffic delays.
C	>15 to ≤25	Average traffic delays.
D	>25 to ≤35	Long traffic delays.
E	>35 to ≤50	Very long traffic delays.
F	>50	Queueing on minor approaches and not enough gaps of suitable size to allow safe crossing of major streets. Signalization should be investigated at this point, but warrants must be satisfied before implementation.

Source: Transportation Research Board, *Highway Capacity Manual: 6th Edition*.

Table N.1D-3. Existing A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Segment	Intersection	Level of Service	Delay
SODO	4th Avenue South & South Lander Street	D	39.6
SODO	6th Avenue South & South Lander Street	B	12.5
SODO	6th Avenue South & South Holgate Street	B	19.2
SODO	4th Avenue South & South Holgate Street	D	35.8
DUW	East Marginal Way & South Spokane Street	A	6.1
DUW	4th Avenue South & South Spokane Street (North)	A	8.8
DUW	4th Avenue South & South Spokane Street (South)	D	46.5
DUW	West Marginal Way/Chelan Avenue Southwest & Southwest Spokane Street	D	48
DUW	Chelan Avenue Southwest & Southwest Spokane Street	B	12.7
DUW	Southwest Spokane Street & West Marginal Way/Terminal 5	A	3.3
DUW	Southwest Spokane Street & 11th Avenue Southwest	A	6.9
DEL	Southwest Dakota Street & Delridge Way Southwest (T.W.S.C.)	D	26.7
DEL	Southwest Genesee Street & Delridge Way Southwest	*F*	86.3
DEL	Southwest Andover Street & Delridge Way Southwest	*F*	235.2
DEL	Delridge Way Southwest & 23rd Avenue Southwest (T.W.S.C.)	C	24.5
WSJ	44th Avenue Southwest & Southwest Alaska Street (A.W.S.C.)	A	8.4
WSJ	42nd Avenue Southwest & Southwest Alaska Street	B	16.1
WSJ	42nd Avenue Southwest & Southwest Oregon Street	B	12
WSJ	California Avenue Southwest & Southwest Edmunds Street	D	40.3
WSJ	Fauntleroy Way Southwest & Southwest Oregon Street	B	18.2
WSJ	Fauntleroy Way Southwest & Southwest Alaska Street	D	53.2
WSJ	California Avenue Southwest & Southwest Alaska Street	*F*	80
WSJ	41st Avenue Southwest & Southwest Alaska Street (T.W.S.C.)	B	10.6
WSJ	Fauntleroy Way Southwest & Southwest Avalon Way	C	22.8
WSJ	35th Avenue Southwest & Southwest Avalon Way	B	16.9
WSJ	Fauntleroy Way Southwest & 35th Avenue Southwest	*F*	185.2
WSJ	Southwest Avalon Way & Southwest Genesee Street	*F*	119.3
WSJ	42nd Avenue Southwest and Southwest Edmunds Street (A.W.S.C.)	A	9.8
WSJ	41st Avenue Southwest and Southwest Edmunds Street (T.W.S.C.)	B	13.2
WSJ	Southwest Alaska Street and 38th Avenue Southwest (T.W.S.C.)	C	15.4

Segment	Intersection	Level of Service	Delay
WSJ	Fauntleroy Way Southwest and 38th Avenue Southwest (T.W.S.C.)	B	13.4
WSJ	40th Avenue Southwest and Southwest Oregon Street (T.W.S.C.)	C	16.9

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as two-way stop-controlled (T.W.S.C.) or all-way stop-controlled (A.W.S.C.).

Results are reported using Highway Capacity Manual (H.C.M.) 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-4. Existing P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Segment	Intersection	Level of Service	Delay
SODO	4th Avenue South & South Lander Street	D	51.2
SODO	6th Avenue South & South Lander Street	B	14.7
SODO	6th Avenue South & South Holgate Street	C	26.3
SODO	4th Avenue South & South Holgate Street	C	29.4
DUW	East Marginal Way & South Spokane Street	A	6.1
DUW	4th Avenue South & South Spokane Street (North)	A	8.6
DUW	4th Avenue South & South Spokane Street (South)	B	19.6
DUW	West Marginal Way/Chelan Avenue Southwest & Southwest Spokane Street	D	53.2
DUW	Chelan Avenue Southwest & Southwest Spokane Street	B	11.7
DUW	Southwest Spokane Street & West Marginal Way/Terminal 5	A	5.3
DUW	Southwest Spokane Street & 11th Avenue Southwest	A	9.9
DEL	Southwest Dakota Street & Delridge Way Southwest (T.W.S.C.)	C	18
DEL	Southwest Genesee Street & Delridge Way Southwest	D	38.3
DEL	Southwest Andover Street & Delridge Way Southwest	*F*	116
DEL	Delridge Way Southwest & 23rd Avenue Southwest (T.W.S.C.)	C	15.7
WSJ	44th Avenue Southwest & Southwest Alaska Street (A.W.S.C.)	A	9.1
WSJ	42nd Avenue Southwest & Southwest Alaska Street	C	22.3
WSJ	42nd Avenue Southwest & Southwest Oregon Street	B	13.6

Segment	Intersection	Level of Service	Delay
WSJ	California Avenue Southwest & Southwest Edmunds Street	*E*	73
WSJ	Fauntleroy Way Southwest & Southwest Oregon Street	C	34.1
WSJ	Fauntleroy Way Southwest & Southwest Alaska Street	D	51.2
WSJ	California Avenue Southwest & Southwest Alaska Street	*E*	74.3
WSJ	41st Avenue Southwest & Southwest Alaska Street (T.W.S.C.)	B	14.2
WSJ	Fauntleroy Way Southwest & Southwest Avalon Way	D	40.2
WSJ	35th Avenue Southwest & Southwest Avalon Way	D	42.4
WSJ	Fauntleroy Way Southwest & 35th Avenue Southwest	*E*	59.8
WSJ	Southwest Avalon Way & Southwest Genesee Street	*F*	117.2
WSJ	42nd Avenue Southwest and Southwest Edmunds Street (A.W.S.C.)	B	13.1
WSJ	41st Avenue Southwest and Southwest Edmunds Street (T.W.S.C.)	C	20.6
WSJ	Southwest Alaska Street and 38th Avenue Southwest (T.W.S.C.)	D	26.8
WSJ	Fauntleroy Way Southwest and 38th Avenue Southwest (T.W.S.C.)	*F*	>300
WSJ	40th Avenue Southwest and Southwest Oregon Street (T.W.S.C.)	C	19.5

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-5. SODO Segment 2042 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	SODO-1a Level of Service	SODO-1a Delay	SODO-1b Level of Service	SODO-1b Delay	SODO-2 Level of Service	SODO-2 Delay
4th Avenue South & South Lander Street	D	55	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
6th Avenue South & South Lander Street	B	12.6	not applicable	not applicable	B	12.9	not applicable	not applicable
6th Avenue South & South Holgate Street	C	21.5	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & South Holgate Street	C	22.6	C	22.7	C	21.5	C	22.4

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-6. SODO Segment 2042 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	SODO-1a Level of Service	SODO-1a Delay	SODO-1b Level of Service	SODO-1b Delay	SODO-2 Level of Service	SODO-2 Delay
4th Avenue South & South Lander Street	D	40.5	D	39.7	D	39.9	D	39.8
6th Avenue South & South Lander Street	B	15.4	B	15.8	B	15.8	B	15.6
6th Avenue South & South Holgate Street	C	21.2	C	21.2	C	21.2	C	21.2
4th Avenue South & South Holgate Street	C	28.8	C	28.6	C	28.6	C	28.6

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with the City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-7. Duwamish Segment 2042 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DUW-1a Level of Service	DUW-1a Delay	DUW-1b Level of Service	DUW-1b Delay	DUW-2 Level of Service	DUW-2 Delay
West Marginal Way/Chelan Avenue Southwest & Southwest Spokane Street	D	38	D	39.1	D	39.1	D	39.1
Chelan Avenue Southwest & Southwest Spokane Street	B	12.7	B	13.4	B	13.4	B	13.4
Southwest Spokane Street & West Marginal Way/Terminal 5	C	20.1	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
Southwest Spokane Street & 11th Avenue Southwest	D	51.1	D	51.1	D	51.1	D	51.1
East Marginal Way & South Spokane Street	B	10.3	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & South Spokane Street (North)	A	9.5	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & South Spokane Street (South)	C	21.8	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-8. Duwamish Segment 2042 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DUW-1a Level of Service	DUW-1a Delay	DUW-1b Level of Service	DUW-1b Delay	DUW-2 Level of Service	DUW-2 Delay
West Marginal Way/Chelan Avenue Southwest & Southwest Spokane Street	*E*	67.1	*E*	68	*E*	68	*E*	68
Chelan Avenue Southwest & Southwest Spokane Street	B	13.6	B	13.7	B	13.7	B	13.7
Southwest Spokane Street & West Marginal Way/Terminal 5	D	35.7	D	36.4	D	36.4	D	36.4
Southwest Spokane Street & 11th Avenue Southwest	B	15.7	B	15.7	B	15.7	B	15.7
East Marginal Way & South Spokane Street	A	5.8	A	5.8	A	5.8	A	5.8
4th Avenue South & South Spokane Street (North)	A	7.3	A	7.3	A	7.3	A	7.3
4th Avenue South & South Spokane Street (South)	C	20.3	C	20.5	C	21.1	C	21.1

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-9. Delridge Segment 2042 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DEL-1a-1b-2a*-2b* Level of Service	DEL-1a-1b-2a*-2b* Delay	DEL-3 Level of Service	DEL-3 Delay	DEL-4* Level of Service	DEL-4* Delay	DEL-5 Level of Service	DEL-5 Delay	DEL-6* Level of Service	DEL-6* Delay
Southwest Dakota Street & Delridge Way Southwest (T.W.S.C.)	*F*	88.7	*F* [a]	101.6	*F* [a]	138.3	*F* [a]	116	*F* [a]	101	*F* [a]	101
Southwest Genesee Street & Delridge Way Southwest	*E*	62.9	*E*	63.1	*E*	68.9	*E*	68.9	*E*	64.7	*E*	64.7
Southwest Andover Street & Delridge Way Southwest	*F*	185.7	*F*	191.9	*F*	191.1	*F*	190.8	*F*	197.8	*F*	197.8
Delridge Way Southwest & 23rd Avenue Southwest (T.W.S.C.)	*E*	35.1	*E*	35.6	*E*	35.6	*E*	35.6	*F* [a]	148.1	*F* [a]	147.7

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

[a] Indicates an impacted intersection. An impacted intersection in the Build Alternative is expected to degrade from Level of Service D or better in the No Build Alternative to Level of Service E or F with the project or, if it already operates at Level of Service E or F in the No Build Alternative, have noticeably worse vehicle delays in the Build Alternative.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-10. Delridge Segment 2042 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DEL-1a-1b-2a*-2b* Level of Service	DEL-1a-1b-2a*-2b* Delay	DEL-3 Level of Service	DEL-3 Delay	DEL-4* Level of Service	DEL-4* Delay	DEL-5 Level of Service	DEL-5 Delay	DEL-6* Level of Service	DEL-6* Delay
Southwest Dakota Street & Delridge Way Southwest (T.W.S.C.)	*F*	51.7	*F* [a]	124	*F* [a]	92.5	*F* [a]	78.7	*F* [a]	61.5	*F* [a]	63.9
Southwest Genesee Street & Delridge Way Southwest	C	26.9	C	29.8	C	28.6	C	28.6	C	30.9	C	29.7
Southwest Andover Street & Delridge Way Southwest	*F*	119.2	*F*	123.4	*F*	122.4	*F*	121.7	*F*	128.8	*F*	128.1
Delridge Way Southwest & 23rd Avenue Southwest (T.W.S.C.)	C	16.4	C	16.5	C	16.5	C	16.5	*F* [a]	132.5	*F* [a]	126.8

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

[a] Indicates an impacted intersection. An impacted intersection in the Build Alternative is expected to degrade from Level of Service D or better in the No Build Alternative to Level of Service E or F with the project or, if it already operates at Level of Service E or F in the No Build Alternative, have noticeably worse vehicle delays in the Build Alternative.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-11. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DEL-1a-1b-2a*-2b* Level of Service	DEL-1a-1b-2a*-2b* Delay	DEL-3 Level of Service	DEL-3 Delay	DEL-4* Level of Service	DEL-4* Delay	DEL-5 Level of Service	DEL-5 Delay	DEL-6* Level of Service	DEL-6* Delay
Southwest Dakota Street & Delridge Way Southwest (T.W.S.C.)	*F*	88.7	*F*[a]	128	*F*[a]	>300	*F*[a]	>300	*F*[a]	131.5	*F*[a]	131.5
Southwest Genesee Street & Delridge Way Southwest	*E*	62.9	*E*	61.4	*E*[a]	77.2	*E*[a]	77.2	*E*	62.9	*E*	62.9
Southwest Andover Street & Delridge Way Southwest	*F*	185.7	*F*	191.2	*F*	191.1	*F*	191.1	*F*[a]	246.3	*F*[a]	246.3
Delridge Way Southwest & 23rd Avenue Southwest (T.W.S.C.)	*E*	35.1	*E*	35.1	*E*	35.1	*E*	35.1	*F*[a]	148.7	*F*[a]	148.7

* As described in the introduction to Chapter 2, Alternatives Considered, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

M.O.S. = minimum operable segment

[a] Indicates an impacted intersection. An impacted intersection in the Build Alternative is expected to degrade from Level of Service D or better in the No Build Alternative to Level of Service E or F with the project or, if it already operates at Level of Service E or F in the No Build Alternative, have noticeably worse vehicle delays in the Build Alternative.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-12. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DEL-1a-1b-2a*-2b* Level of Service	DEL-1a-1b-2a*-2b* Delay	DEL-3 Level of Service	DEL-3 Delay	DEL-4* Level of Service	DEL-4* Delay	DEL-5 Level of Service	DEL-5 Delay	DEL-6* Level of Service	DEL-6* Delay
Southwest Dakota Street & Delridge Way Southwest (T.W.S.C.)	*F*	51.7	*F*[a]	>300	*F*[a]	207.3	*F*[a]	207.3	*F*[a]	83.8	*F*[a]	83.8
Southwest Genesee Street & Delridge Way Southwest	C	26.9	D	53.3	D	45.8	D	45.8	D	52.3	D	52.3
Southwest Andover Street & Delridge Way Southwest	*F*	119.2	*F*	122.9	*F*	122.1	*F*	122.1	*F*[a]	153	*F*[a]	153
Delridge Way Southwest & 23rd Avenue Southwest (T.W.S.C.)	C	16.4	C	16.4	C	16.4	C	16.4	*F*[a]	131.4	*F*[a]	131.4

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

[a] Indicates an impacted intersection. An impacted intersection in the Build Alternative is expected to degrade from Level of Service D or better in the No Build Alternative to Level of Service E or F with the project or, if it already operates at Level of Service E or F in the No Build Alternative, have noticeably worse vehicle delays in the Build Alternative.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-13. West Seattle Junction Segment 2042 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
44th Avenue Southwest & Southwest Alaska Street (A.W.S.C.)	A	8.7	A	8.6	A	8.6	A	8.6	A	8.6	A	8.6	A	8.6
42nd Avenue Southwest & Southwest Alaska Street	B	16.8	B	16.9	B	15.8	B	16.6	C	20.6	B	16.2	B	16.2
42nd Avenue Southwest & Southwest Oregon Street	B	11.8	not applic-able	not applic-able	B	12.3	B	13	B	13.4	not applic-able	not applic-able	not applic-able	not applic-able
California Avenue Southwest & Southwest Edmunds Street	D	49.1	D	53.2	D	48.7	D	50.4	D	53	D	50.2	D	50.2
Fauntleroy Way Southwest & Southwest Oregon Street	C	21.9	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
Fauntleroy Way Southwest & Southwest Alaska Street	*E*	74.5	*E*	79.6	*F*[a]	108.1	*E*	78.4	*E*	75.5	*E*	79.6	*E*	79.6
California Avenue Southwest & Southwest Alaska Street	D	52.8	*E*[a]	57.1	D	54.2	*E*[a]	60.2	*E*[a]	65.2	D	53.3	D	53.3
41st Avenue Southwest & Southwest Alaska Street (T.W.S.C.)	B	11.1	C	19	B	12	C	20.2	B	11.1	B	12	B	12
Fauntleroy Way Southwest & Southwest Avalon Way	C	23.3	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
35th Avenue Southwest & Southwest Avalon Way	B	18.8	B	19	B	19	B	18.9	B	19	B	18.7	B	18.7
Fauntleroy Way Southwest & 35th Avenue Southwest	*F*	193.8	*F*	201.7	*F*	201.7	*F*	202	*F*	201.7	*F*	197.8	*F*	201.7

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
Southwest Avalon Way & Southwest Genesee Street	C	21.8	C	22.3	C	22.3	C	23.5	C	22.3	C	23.3	C	23.6
42nd Avenue Southwest and Southwest Edmunds Street (A.W.S.C.)	A	9.6	B	10.7	not applic-able	not applic-able	B	10.2	B	10.6	A	10	A	10
41st Avenue Southwest and Southwest Edmunds Street (T.W.S.C.)	B	12.6	not applic-able	not applic-able	not applic-able	not applic-able	C	15.5	not applic-able	not applic-able	B	12.9	B	12.9
Southwest Alaska Street and 38th Avenue Southwest (T.W.S.C.)	B	13.8	not applic-able	not applic-able	C	17.9	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
Fauntleroy Way Southwest and 38th Avenue Southwest (T.W.S.C.)	*E*	40.1	not applic-able	not applic-able	*F*[a]	69.7	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
40th Avenue Southwest and Southwest Oregon Street (T.W.S.C.)	C	19.2	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able

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Notes:

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All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-14. West Seattle Junction Segment 2042 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
44th Avenue Southwest & Southwest Alaska Street (A.W.S.C.)	A	9.7	A	9.4	A	9.3	A	9.4	A	9.4	A	9.4	A	9.4
42nd Avenue Southwest & Southwest Alaska Street	C	20.4	C	20.1	C	20.5	C	21.1	C	26.4	B	19.8	B	19.8
42nd Avenue Southwest & Southwest Oregon Street	B	13.1	B	13.3	B	13.5	B	13.5	B	13.9	B	13.4	B	13.4
California Avenue Southwest & Southwest Edmunds Street	*E*	56.5	*E*	59.6	*E*	56.4	*E*	58	*E*	59.9	*E*	58.2	*E*	58.2
Fauntleroy Way Southwest & Southwest Oregon Street	*F*	172.9	*F*	177.2	*F*	187.9	*F*	177.2	*F*	177.2	*F*	177.2	*F*	177.2
Fauntleroy Way Southwest & Southwest Alaska Street	*E*	59.4	*E*	64.9	*E*[a]	79.6	*E*	63.6	*E*	60.2	*E*	64.6	*E*	64.6

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
California Avenue Southwest & Southwest Alaska Street	*E*	63	*E*	65.3	*E*	67.3	*E*[a]	73.8	*E*[a]	75.1	*E*	68.9	*E*	68.9
41st Avenue Southwest & Southwest Alaska Street (T.W.S.C.)	C	16.3	D	34	C	17.5	C	16.2	C	16.3	C	15.9	C	15.9
Fauntleroy Way Southwest & Southwest Avalon Way	D	53.3	D	53.3	D	53.3	D	53.3	D	53.3	D	54.1	D	53.3
35th Avenue Southwest & Southwest Avalon Way	C	33.7	C	31.5	C	31.5	C	31.5	C	31.5	C	33.6	C	33.7
Fauntleroy Way Southwest & 35th Avenue Southwest	*E*	64.1	*E*	64.4	*E*	64.4	*E*	65.1	*E*	64.4	*E*	63.9	*E*	64.4
Southwest Avalon Way & Southwest Genesee Street	C	25.6	C	27.9	C	27.9	C	33.3	C	27.9	C	30.6	C	33.7

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
42nd Avenue Southwest and Southwest Edmunds Street (A.W.S.C.)	C	16.1	C	18.9	not applic-able	not applic-able	C	16.1	C	18.6	C	18	C	18
41st Avenue Southwest and Southwest Edmunds Street (T.W.S.C.)	C	17.8	*E* [a]	38.2	not applic-able	not applic-able	D	32.6	D	25.9	D	27.8	D	27.8
Southwest Alaska Street and 38th Avenue Southwest (T.W.S.C.)	C	22.6	not applic-able	not applic-able	*E* [a]	44.6	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
Fauntleroy Way Southwest and 38th Avenue Southwest (T.W.S.C.)	*F*	>300	not applic-able	not applic-able	*F* [a]	>300	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
40th Avenue Southwest and Southwest Oregon Street (T.W.S.C.)	C	20.7	C	22.9	C	21.9	C	24.6	C	22.9	C	24.6	C	24.6

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

[a] Indicates an impacted intersection. An impacted intersection in the Build Alternative is expected to degrade from Level of Service D or better in the No Build Alternative to Level of Service E or F with the project or, if it already operates at Level of Service E or F in the No Build Alternative, have noticeably worse vehicle delays in the Build Alternative.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-15. SODO Segment 2032 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	SODO-1a Level of Service	SODO-1a Delay	SODO-1b Level of Service	SODO-1b Delay	SODO-2 Level of Service	SODO-2 Delay
4th Avenue South & South Lander Street	*E*	55.4	D	52	D	52.2	D	51.9
6th Avenue South & South Lander Street	B	12.6	not applicable	not applicable	B	12.9	not applicable	not applicable
6th Avenue South & South Holgate Street	C	21.5	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & South Holgate Street	C	21.5	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-16. SODO Segment 2032 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	SODO-1a Level of Service	SODO-1a Delay	SODO-1b Level of Service	SODO-1b Delay	SODO-2 Level of Service	SODO-2 Delay
4th Avenue South & South Lander Street	D	38.4	D	38.9	D	38.9	D	38.8
6th Avenue South & South Lander Street	B	15.1	B	15.4	B	15.4	B	15.2
6th Avenue South & South Holgate Street	C	21.2	C	21.2	C	21.2	C	21.2
4th Avenue South & South Holgate Street	C	28.8	C	28.8	C	28.8	C	28.8

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-17. Duwamish Segment 2032 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DUW-1a Level of Service	DUW-1a Delay	DUW-1b Level of Service	DUW-1b Delay	DUW-2 Level of Service	DUW-2 Delay
West Marginal Way/Chelan Avenue Southwest & Southwest Spokane Street	D	38	D	36.1	D	36.1	D	36.1
Chelan Avenue Southwest & Southwest Spokane Street	B	12.7	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
Southwest Spokane Street & West Marginal Way/Terminal 5	C	20.1	C	20.1	C	20.1	C	20.1
Southwest Spokane Street & 11th Avenue Southwest	C	51.1	C	29.1	C	29.1	C	29.1
East Marginal Way & South Spokane Street	B	10.4	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & South Spokane Street (North)	A	9.8	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & South Spokane Street (South)	C	21.6	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-18. Duwamish Segment 2032 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DUW-1a Level of Service	DUW-1a Delay	DUW-1b Level of Service	DUW-1b Delay	DUW-2 Level of Service	DUW-2 Delay
West Marginal Way/Chelan Avenue Southwest & Southwest Spokane Street	*E*	65.1	*E*	65.1	*E*	65.4	*E*	65.4
Chelan Avenue Southwest & Southwest Spokane Street	B	12.8	B	12.8	B	12.8	B	12.8
Southwest Spokane Street & West Marginal Way/Terminal 5	C	30.7	C	31.6	C	31.6	C	31.6
Southwest Spokane Street & 11th Avenue Southwest	B	13.7	B	13.3	B	13.7	B	13.7
East Marginal Way & South Spokane Street	A	5.8	A	5.8	A	5.8	A	5.8
4th Avenue South & South Spokane Street (North)	A	7.2	A	7.2	A	7.2	A	7.2
4th Avenue South & South Spokane Street (South)	C	20	C	19.9	C	19.9	B	19.9

Notes:

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Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-19. Delridge Segment 2032 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DEL-1a-1b-2a*-2b* Level of Service	DEL-1a-1b-2a*-2b* Delay	DEL-3 Level of Service	DEL-3 Delay	DEL-4* Level of Service	DEL-4* Delay	DEL-5 Level of Service	DEL-5 Delay	DEL-6* Level of Service	DEL-6* Delay
Southwest Dakota Street & Delridge Way Southwest (T.W.S.C.)	*F*	88.7	*F*	83.7	*F* [a]	98.7	*F*	90.6	*F*	88.7	*F*	88.7
Southwest Genesee Street & Delridge Way Southwest	*E*	62.9	*E*	64.1	*E*	64.1	*E*	64.1	*E*	62.3	*E*	62.3
Southwest Andover Street & Delridge Way Southwest	*F*	185.7	*F*	186.8	*F*	187	*F*	187	*F*	190.9	*F*	190.9
Delridge Way Southwest & 23rd Avenue Southwest (T.W.S.C.)	D	32.7	D	32.9	D	32.9	D	32.9	*F*	144.9	*F*	144.9

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-20. Delridge Segment 2032 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	DEL-1a-1b-2a*-2b* Level of Service	DEL-1a-1b-2a*-2b* Delay	DEL-3 Level of Service	DEL-3 Delay	DEL-4* Level of Service	DEL-4* Delay	DEL-5 Level of Service	DEL-5 Delay	DEL-6* Level of Service	DEL-6* Delay
Southwest Dakota Street & Delridge Way Southwest (T.W.S.C.)	D	31.1	D	34.8	*E* [a]	37.1	*E* [a]	36	D	31.3	D	31.3
Southwest Genesee Street & Delridge Way Southwest	C	23.3	C	24.4	C	24.9	C	24.4	C	25	C	25
Southwest Andover Street & Delridge Way Southwest	*F*	113.8	*F*	114.3	*F*	114.9	*F*	114.6	*F*	108.8	*F*	108.8
Delridge Way Southwest & 23rd Avenue Southwest (T.W.S.C.)	C	16	C	16.2	C	16.2	C	16.2	*F* [a]	125	*F* [a]	125

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-21. West Seattle Junction Segment 2032 A.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
44th Avenue Southwest & Southwest Alaska Street (A.W.S.C.)	A	8.6	A	8.7	A	8.7	A	8.7	A	8.7	A	8.7	A	8.7
42nd Avenue Southwest & Southwest Alaska Street	B	17.3	B	16.7	B	16.7	B	16.8	B	19.3	B	16.8	B	16.8
42nd Avenue Southwest & Southwest Oregon Street	B	11.7	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	B	12.6	not applic-able	not applic-able	not applic-able	not applic-able
California Avenue Southwest & Southwest Edmunds Street	D	48.2	D	49.2	D	48.4	D	48.6	D	48.7	D	48.5	D	48.5
Fauntleroy Way Southwest & Southwest Oregon Street	C	25.4	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
Fauntleroy Way Southwest & Southwest Alaska Street	*E*	70.5	*E*	72	*F*[a]	81.6	*E*	71.4	*E*	69.8	*E*	71.8	*E*	71.8

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
California Avenue Southwest & Southwest Alaska Street	D	51.7	D	53.8	D	53.2	*E*	56.4	*E*	56	D	53.6	D	53.6
41st Avenue Southwest & Southwest Alaska Street (T.W.S.C.)	B	11	B	13.9	B	11.4	B	14.3	B	11	B	11.4	B	11.4
Fauntleroy Way Southwest & Southwest Avalon Way	C	21.7	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
35th Avenue Southwest & Southwest Avalon Way	B	18.6	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
Fauntleroy Way Southwest & 35th Avenue Southwest	*F*	212.9	*F*	220.8	*F*	220.8	*F*	222.1	*F*	222.1	*F*	221.1	*F*	220.9
Southwest Avalon Way & Southwest Genesee Street	C	22	not applic-able	not applic-able	not applic-able	not applic-able	C	23.5	C	22.3	not applic-able	not applic-able	not applic-able	not applic-able

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
42nd Avenue Southwest and Southwest Edmunds Street (A.W.S.C.)	A	9.6	A	9.8	not applic-able	not applic-able	A	9.8	A	9.9	A	10	A	10
41st Avenue Southwest and Southwest Edmunds Street (T.W.S.C.)	B	12.6	B	13.7	not applic-able	not applic-able	C	15.5	not applic-able	not applic-able	B	12.9	B	12.9
Southwest Alaska Street and 38th Avenue Southwest (T.W.S.C.)	B	13.9	not applic-able	not applic-able	C	15.3	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
Fauntleroy Way Southwest and 38th Avenue Southwest (T.W.S.C.)	*E*	39.5	not applic-able	not applic-able	*F* [a]	57	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
40th Avenue Southwest and Southwest Oregon Street (T.W.S.C.)	C	18	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

[a] Indicates an impacted intersection. An impacted intersection in the Build Alternative is expected to degrade from Level of Service D or better in the No Build Alternative to Level of Service E or F with the project or, if it already operates at Level of Service E or F in the No Build Alternative, have noticeably worse vehicle delays in the Build Alternative.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-22. West Seattle Junction Segment 2032 P.M. Peak Hour Intersection Level of Service – West Seattle Link Extension

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
44th Avenue Southwest & Southwest Alaska Street (A.W.S.C.)	A	9.1	A	9.2	A	9.2	A	9.2	A	9.2	A	9.2	A	9.2
42nd Avenue Southwest & Southwest Alaska Street	C	20.6	B	19.9	C	20.2	C	20.2	C	23.5	B	19.8	B	19.8
42nd Avenue Southwest & Southwest Oregon Street	B	11.2	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	B	13.5	not applic-able	not applic-able	not applic-able	not applic-able
California Avenue Southwest & Southwest Edmunds Street	*E*	55.3	*E*	57.8	*E*	57.3	*E*	57.4	*E*	57.7	*E*	57	*E*	57
Fauntleroy Way Southwest & Southwest Oregon Street	*F*	165.5	*F*	172.4	*F*	173	*F*	172.4	*F*	172.4	*F*	172.4	*F*	172.4
Fauntleroy Way Southwest & Southwest Alaska Street	*E*	59.4	*E*	62.7	*E*	62	*E*	61.9	*E*	60.7	*E*	62.4	*E*	62.4

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
California Avenue Southwest & Southwest Alaska Street	*E*	65.2	*E*	63.1	*E*	64	*E*	65.8	*E*	69.5	*E*	59.8	*E*	59.8
41st Avenue Southwest & Southwest Alaska Street (T.W.S.C.)	C	16.2	C	22	not applic-able	not applic-able	C	16.1	C	16.2	C	15.9	C	15.9
Fauntleroy Way Southwest & Southwest Avalon Way	D	49.2	D	49.2	D	49.2	D	49.2	D	49.2	D	49.4	D	49.4
35th Avenue Southwest & Southwest Avalon Way	C	30.9	C	31	C	31	C	30.9	C	30.9	C	31	C	31
Fauntleroy Way Southwest & 35th Avenue Southwest	*E*	62.7	*E*	63.1	*E*	63.1	*E*	61.5	*E*	61.5	*E*	62.9	*E*	63
Southwest Avalon Way & Southwest Genesee Street	C	26.7	C	26.7	C	26.7	C	31.5	C	31.5	C	28.9	C	30.1

Intersection	No Build Level of Service	No Build Delay	WSJ-1 Level of Service	WSJ-1 Delay	WSJ-2 Level of Service	WSJ-2 Delay	WSJ-3a* Level of Service	WSJ-3a* Delay	WSJ-3b* Level of Service	WSJ-3b* Delay	WSJ-4* Level of Service	WSJ-4* Delay	WSJ-5* Level of Service	WSJ-5* Delay
42nd Avenue Southwest and Southwest Edmunds Street (A.W.S.C.)	C	15.7	C	16.7	not applic-able	not applic-able	C	15.7	not applic-able	not applic-able	C	16.5	C	16.5
41st Avenue Southwest and Southwest Edmunds Street (T.W.S.C.)	C	17.8	C	20.8	not applic-able	not applic-able	not applic-able	not applic-able	D	25	D	25.7	D	25.7
Southwest Alaska Street and 38th Avenue Southwest (T.W.S.C.)	C	24.3	not applic-able	not applic-able	D	30.3	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
Fauntleroy Way Southwest and 38th Avenue Southwest (T.W.S.C.)	*F*	>300	not applic-able	not applic-able	*F* [a]	>300	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able
40th Avenue Southwest and Southwest Oregon Street (T.W.S.C.)	C	22	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able	not applic-able

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

[a] Indicates an impacted intersection. An impacted intersection in the Build Alternative is expected to degrade from Level of Service D or better in the No Build Alternative to Level of Service E or F with the project or, if it already operates at Level of Service E or F in the No Build Alternative, have noticeably worse vehicle delays in the Build Alternative.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-23. Existing A.M. Peak Hour Intersection Level of Service - Ballard Link Extension

Segment	Intersection	Level of Service	Delay
SODO	4th Avenue South & South Lander Street	D	39.6
SODO	6th Avenue South & South Lander Street	B	12.5
SODO	6th Avenue South & South Holgate Street	B	19.2
SODO	4th Avenue South & South Holgate Street	D	35.8
CID	4th Avenue South & South Royal Brougham Way	C	22.2
CID	Seattle Boulevard South & 4th Avenue South	*E*	56.8
CID	5th Avenue South Midblock Crossing south of South Weller Street (T.W.S.C.)	D	33.2
CID	4th Avenue South @ Weller Street Bridge	C	21.2
CID	South Weller Street & 5th Avenue South	B	12.1
CID	South King Street & 5th Avenue South (A.W.S.C.)	A	8.9
CID	South Jackson Street & 5th Avenue South	C	23.2
CID	Edgar Martinez Drive & 4th Avenue South	B	14.1
CID	South Jackson Street & 4th Avenue South	*F*	234.9
CID	5th Avenue and South Dearborn Street	*E*	69.8
Downtown	1st Avenue North & Mercer Street	B	16.6
Downtown	1st Avenue North & Republican Street	B	12.5
Downtown	Queen Anne Avenue North & West Mercer Street	C	28.1
Downtown	Queen Anne Avenue North & West Republican Street	C	28.5
Downtown	Warren Avenue North & Mercer Street	A	4.7
Downtown	Warren Avenue North & Roy Street (T.W.S.C.)	C	17.2
Downtown	6th Avenue North & Harrison Street	A	8.5
Downtown	Taylor Avenue North & Mercer Street	B	17.7
Downtown	Dexter Avenue North & Republican Street	*F*	99.0
Downtown	5th Avenue North & Mercer Street	*E*	66.8
Downtown	Aurora Avenue North & Harrison Street	C	27.7
Downtown	Taylor Avenue North & Roy Street (A.W.S.C.)	B	13.3
Downtown	6th Avenue North & Thomas Street (A.W.S.C.)	A	8.2
Downtown	State Route 99 & Thomas Street (T.W.S.C.)	B	11.9

Segment	Intersection	Level of Service	Delay
Downtown	Westlake Avenue & Thomas Street	B	16.8
Downtown	Terry Avenue North & John Street (Unsignalized)	A	7.9
Downtown	Westlake Avenue North & John Street (T.W.S.C.)	A	2.1
Downtown	Terry Avenue North & Denny Way	A	5.7
Downtown	9th Avenue North & Denny Way	A	8.9
Downtown	Westlake Avenue & Blanchard Street	C	35.0
Downtown	Westlake Avenue North & Denny Way	D	40.9
Downtown	8th Avenue & Blanchard Street	C	21.9
Downtown	5th Avenue & Olive Way	B	18.3
Downtown	6th Avenue & Olive Way	C	21.9
Downtown	6th Avenue & Pine Street	C	21.2
Downtown	5th Avenue & Pine Street	B	16.9
Downtown	6th Avenue & Pike Street	D	50.4
Downtown	5th Avenue & Pike Street	D	38.1
Downtown	4th Avenue & Pine Street	D	42.9
Downtown	6th Avenue & Spring Street	*F*	141.1
Downtown	5th Avenue & Spring Street	B	18.4
Downtown	5th Avenue & Madison Street	C	24.3
Downtown	4th Avenue & Madison Street	*F*	132.7
Downtown	5th Avenue & Marion Street	*F*	83.9
Downtown	4th Avenue & Marion Street	D	46.8
Downtown	5th Avenue & Columbia Street	*E*	70.9
Downtown	6th Avenue & Seneca Street	*F*	184.7
Downtown	5th Avenue & Seneca Street	C	28.1
South Interbay	Alaskan Way West & West Galer Street Flyover (T.W.S.C.)	B	10.1
South Interbay	Elliott Avenue West & West Galer Street Flyover	B	12.6
South Interbay	Elliott Avenue North & West Mercer Place	D	43.2
South Interbay	West Prospect Street & Elliott Avenue West	*E*	73.0
South Interbay	Elliott Avenue & West Galer Street	A	5.3
Interbay-Ballard	14th Avenue Northwest & Northwest Market Street	B	14.9

Segment	Intersection	Level of Service	Delay
Interbay-Ballard	15th Avenue Northwest & Northwest Market Street	*E*	72.3
Interbay-Ballard	17th Avenue Northwest & Northwest Market Street	B	11.2
Interbay-Ballard	15th Avenue Northwest & Northwest 54th Street (T.W.S.C.)	*E*	46.5
Interbay-Ballard	15th Avenue Northwest - Northbound Ramps & Northwest Leary Way	C	21.6
Interbay-Ballard	15th Avenue Northwest - Southbound Ramps & Northwest Leary Way	C	26.0
Interbay-Ballard	15th Avenue West & West Bertona Street (T.W.S.C.)	*E*	41.2
Interbay-Ballard	15th Avenue West Northbound Ramps & West Dravus Street	C	21.7
Interbay-Ballard	15th Avenue West Southbound Ramps & West Dravus Street	D	42.0
Interbay-Ballard	17th Avenue West & West Dravus Street	A	4.2

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-24. Existing P.M. Peak Hour Intersection Level of Service - Ballard Link Extension

Segment	Intersection	Level of Service	Delay
SODO	4th Avenue South & South Lander Street	D	51.2
SODO	6th Avenue South & South Lander Street	B	14.7
SODO	6th Avenue South & South Holgate Street	C	26.3
SODO	4th Avenue South & South Holgate Street	C	29.4
CID	4th Avenue South & South Royal Brougham Way	B	19.2
CID	Seattle Boulevard South & 4th Avenue South	*E*	66.7
CID	5th Avenue South Midblock Crossing south of South Weller Street (T.W.S.C.)	*F*	253.8
CID	4th Avenue South @ Weller Street Bridge	D	39
CID	South Weller Street & 5th Avenue South	B	12.7
CID	South King Street & 5th Avenue South (A.W.S.C.)	A	9.4
CID	South Jackson Street & 5th Avenue South	B	19.7
CID	Edgar Martinez Drive & 4th Avenue South	D	37.6
CID	South Jackson Street & 4th Avenue South	C	26.1
CID	5th Avenue and South Dearborn Street	*F*	81.3
Downtown	1st Avenue North & Mercer Street	B	16.6
Downtown	1st Avenue North & Republican Street	B	15.0
Downtown	Queen Anne Avenue North & West Mercer Street	B	15.9
Downtown	Queen Anne Avenue North & West Republican Street	C	22.1
Downtown	Warren Avenue North & Mercer Street	A	9.4
Downtown	Warren Avenue North & Roy Street (T.W.S.C.)	C	23.2
Downtown	6th Avenue North & Harrison Street	B	12.0
Downtown	Taylor Avenue North & Mercer Street	B	10.5
Downtown	Dexter Avenue North & Republican Street	D	35.4
Downtown	5th Avenue North & Mercer Street	C	33.3
Downtown	Aurora Avenue North & Harrison Street	D	40.0
Downtown	Taylor Avenue North & Roy Street (A.W.S.C.)	C	16.5
Downtown	6th Avenue North & Thomas Street (A.W.S.C.)	B	11.9
Downtown	State Route 99 & Thomas Street (T.W.S.C.)	B	13.5
Downtown	Westlake Avenue & Thomas Street	C	24.9
Downtown	Terry Avenue North & John Street (Unsignalized)	A	8.0
Downtown	Westlake Avenue North & John Street (T.W.S.C.)	*F*	>300
Downtown	Terry Avenue North & Denny Way	A	5.1

Segment	Intersection	Level of Service	Delay
Downtown	9th Avenue North & Denny Way	B	10.2
Downtown	Westlake Avenue & Blanchard Street	C	26.2
Downtown	Westlake Avenue North & Denny Way	C	33.5
Downtown	8th Avenue & Blanchard Street	C	28.3
Downtown	5th Avenue & Olive Way	C	23.5
Downtown	6th Avenue & Olive Way	C	22.2
Downtown	6th Avenue & Pine Street	B	14.7
Downtown	5th Avenue & Pine Street	B	17.8
Downtown	6th Avenue & Pike Street	D	51.3
Downtown	5th Avenue & Pike Street	D	46.8
Downtown	4th Avenue & Pine Street	C	22.1
Downtown	6th Avenue & Spring Street	*F*	215.6
Downtown	5th Avenue & Spring Street	D	37.1
Downtown	5th Avenue & Madison Street	C	26.2
Downtown	4th Avenue & Madison Street	D	35.6
Downtown	5th Avenue & Marion Street	D	43.6
Downtown	4th Avenue & Marion Street	D	51.5
Downtown	5th Avenue & Columbia Street	*F*	84.5
Downtown	6th Avenue & Seneca Street	*F*	133.7
Downtown	5th Avenue & Seneca Street	C	23.4
South Interbay	Alaskan Way West & West Galer Street Flyover (T.W.S.C.)	B	11.5
South Interbay	Elliott Avenue West & West Galer Street Flyover	B	13.8
South Interbay	Elliott Avenue North & West Mercer Place	*E*	67
South Interbay	West Prospect Street & Elliott Avenue West	*E*	61.1
South Interbay	Elliott Avenue & West Galer Street	A	6.1
Interbay-Ballard	14th Avenue Northwest & Northwest Market Street	B	18.1
Interbay-Ballard	15th Avenue Northwest & Northwest Market Street	D	52.6
Interbay-Ballard	17th Avenue Northwest & Northwest Market Street	B	11.1
Interbay-Ballard	15th Avenue Northwest & Northwest 54th Street (T.W.S.C.)	D	26.4
Interbay-Ballard	15th Avenue Northwest - Northbound Ramps & Northwest Leary Way	D	42.4
Interbay-Ballard	15th Avenue Northwest - Southbound Ramps & Northwest Leary Way	D	44.2
Interbay-Ballard	15th Avenue West & West Bertona Street (T.W.S.C.)	D	33.7

Segment	Intersection	Level of Service	Delay
Interbay-Ballard	15th Avenue West Northbound Ramps & West Dravus Street	C	34.7
Interbay-Ballard	15th Avenue West Southbound Ramps & West Dravus Street	D	35.8
Interbay-Ballard	17th Avenue West & West Dravus Street	A	4.9

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Italicized and shaded text indicates intersection operates at Level of Service E or F.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-25. SODO Segment 2042 A.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	SODO-1a Level of Service	SODO-1a Delay	SODO-1b Level of Service	SODO-1b Delay	SODO-2 Level of Service	SODO-2 Delay
4th Avenue South & South Lander Street	D	55	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
6th Avenue South & South Lander Street	B	12.6	not applicable	not applicable	B	12.9	not applicable	not applicable
6th Avenue South & South Holgate Street	C	21.5	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & South Holgate Street	C	22.6	C	22.7	C	21.5	C	22.4

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-26. SODO Segment 2042 P.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	SODO-1a Level of Service	SODO-1a Delay	SODO-1b Level of Service	SODO-1b Delay	SODO-2 Level of Service	SODO-2 Delay
4th Avenue South & South Lander Street	D	40.5	D	39.7	D	39.9	D	39.8
6th Avenue South & South Lander Street	B	15.4	B	15.8	B	15.8	B	15.6
6th Avenue South & South Holgate Street	C	21.2	C	21.2	C	21.2	C	21.2
4th Avenue South & South Holgate Street	C	28.8	C	28.6	C	28.6	C	28.6

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-27. CID Segment 2042 A.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	CID-1a* Level of Service	CID-1a* Delay	CID-1b* Level of Service	CID-1b* Delay	CID-2a Level of Service	CID-2a Delay	CID-2b Level of Service	CID-2b Delay
4th Avenue South & South Royal Brougham Way	C	32.3	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & Seattle Blvd	*E*	65.9	*E* [a]	78.7	*E* [a]	78.7	*E*	68.6	*E*	68.6
5th Avenue South Midblock Crossing south of South Weller Street (T.W.S.C.)	*F*	102.1	*F* [a]	147.4	*F* [a]	147.4	*F* [a]	145.2	*F* [a]	145.2
4th Avenue South & South Weller Street Bridge	D	51.6	D	53.2	D	53.2	D	50.6	D	50.6
5th Avenue South & South Weller Street	A	9.1	A	9.8	A	9.8	B	12.1	B	12.1
5th Avenue South & South King Street (A.W.S.C.)	A	9.2	A	9.4	A	9.4	A	9.4	A	9.4
5th Avenue South & South Jackson Street	B	19.8	C	21.4	C	21.4	C	22.4	C	22.4
4th Avenue South & Edgar Martinez Drive	B	13.5	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
4th Avenue South & South Jackson Street	*F*	174.1	*F*	189.4	*F*	189.4	*F*	189.4	*F*	189.4
5th Avenue and South Dearborn Street	C	30.4	C	30.6	C	30.6	C	30.6	C	30.6

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

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[a] Indicates an impacted intersection. An impacted intersection in the Build Alternative is expected to degrade from Level of Service D or better in the No Build Alternative to Level of Service E or F with the project or, if it already operates at Level of Service E or F in the No Build Alternative, have noticeably worse vehicle delays in the Build Alternative.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-28. CID Segment 2042 P.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	CID-1a* Level of Service	CID-1a* Delay	CID-1b* Level of Service	CID-1b* Delay	CID-2a Level of Service	CID-2a Delay	CID-2b Level of Service	CID-2b Delay
4th Avenue South & South Royal Brougham Way	D	40.6	D	40.5	D	40.5	D	40.5	D	40.5
4th Avenue South & Seattle Blvd	*E*	56.5	*E*	58.4	*E*	58.4	D	50.4	D	50.4
5th Avenue South Midblock Crossing south of South Weller Street (T.W.S.C.)	*F*	>300	*F* [a]	>300	*F* [a]	>300	*F* [a]	>300	*F* [a]	>300
4th Avenue South & South Weller Street Bridge	D	48	D	49.3	D	49.3	C	33.5	C	33.5
5th Avenue South & South Weller Street	B	11.7	B	12	B	12	B	14.2	B	14.2
5th Avenue South & South King Street (A.W.S.C.)	A	9.8	A	10	A	10	A	10	A	10
5th Avenue South & South Jackson Street	C	34.6	D	38.7	D	38.7	D	38.6	D	38.6
4th Avenue South & Edgar Martinez Drive	C	29	C	29	C	29	C	29	C	29
4th Avenue South & South Jackson Street	*E*	57.2	*E*	59.6	*E*	59.6	*E*	60.4	*E*	60.4
5th Avenue and South Dearborn Street	D	36.7	D	38	D	38	D	38	D	38

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

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All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-29. Downtown Segment 2042 A.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	DT -1 Level of Service	DT-1 Delay	DT-2 Level of Service	DT-2 Delay
1st Avenue North & Mercer Street	A	9.4	B	11.5	B	10.8
1st Avenue North & Republican Street	A	9.4	B	15.9	A	6.8
Queen Anne Avenue North & West Mercer Street	*F*	89.6	*F* [a]	109.2	*F* [a]	108.8
Queen Anne Avenue North & West Republican Street	C	26.3	*F* [a]	146.9	C	27.8
Warren Avenue North & Mercer Street	A	5.9	A	8.1	A	9.6
Warren Avenue North & Roy Street (T.W.S.C.)	C	17.6	D	27.6	*E* [a]	49.7
6th Avenue North & Harrison Street	D	36.0	C	30.0	D	36.1
Taylor Avenue North & Mercer Street	B	17.1	B	18.6	C	21.2
Dexter Avenue North & Republican Street	*F*	186.5	*F* [a]	278	*F* [a]	247.1
5th Avenue North & Mercer Street	D	41.9	D	40.1	D	41.0
Aurora Avenue North & Harrison Street	D	47.6	D	54.0	D	42.1
Taylor Avenue North & Roy Street (A.W.S.C.)	B	14.0	B	14.0	C	17.5
6th Avenue North & Thomas Street (A.W.S.C.)	A	8.1	A	8.7	A	8.2
State Route 99 & Thomas Street (T.W.S.C.)	A	2.3	A	5.1	A	2.4
Westlake Avenue & Thomas Street	C	30.5	D	48.0	D	45.7
Terry Avenue North & John Street (Unsignalized)	A	8.9	A	8.9	B	10.6
Westlake Avenue North & John Street (T.W.S.C.)	*F*	207.7	*F* [a]	>300	*F* [a]	>300
Terry Avenue North & Denny Way	A	8.0	A	9.0	*F* [a]	96.4
9th Avenue North & Denny Way	B	12.9	B	12.6	B	12.8
Westlake Avenue & Blanchard Street	*F*	107.6	*F* [a]	>300	*F* [a]	>300
Westlake Avenue North & Denny Way	*E*	64.9	*F* [a]	88.8	*F* [a]	127.7

Intersection	No Build Level of Service	No Build Delay	DT -1 Level of Service	DT-1 Delay	DT-2 Level of Service	DT-2 Delay
8th Avenue & Blanchard Street	C	23.8	D	46.9	C	25.6
5th Avenue & Olive Way	C	29.5	C	30.1	C	33.9
6th Avenue & Olive Way	B	15.1	not applicable	not applicable	not applicable	not applicable
6th Avenue & Pine Street	A	9.5	B	11.8	B	13.0
5th Avenue & Pine Street	B	14.1	B	14.9	B	17.4
6th Avenue & Pike Street	*F*	81.1	*F* [a]	95.7	*F* [a]	103.1
5th Avenue & Pike Street	*E*	59.5	*F* [a]	92	*E* [a]	75.2
4th Avenue & Pine Street	D	39.4	D	47.6	D	52
6th Avenue & Spring Street	*F*	161.5	*F*	170.8	*F* [a]	205.3
5th Avenue & Spring Street	C	20.2	C	21.2	B	18.7
5th Avenue & Madison Street	C	26.8	C	26.5	C	27.2
4th Avenue & Madison Street	*E*	64.3	*E*	67.8	*E*	70.7
5th Avenue & Marion Street	C	32.9	*F* [a]	90.4	*E* [a]	62.9
4th Avenue & Marion Street	*E*	72.4	*F* [a]	87.2	*E*	77.5
5th Avenue & Columbia Street	*E*	79.7	*F* [a]	97.2	*E*	60.6
6th Avenue & Seneca Street	*F*	266.3	*F*	275.3	*F*[a]	294.8
5th Avenue & Seneca Street	C	34.1	D	37.1	*E* [a]	58.4

Notes:

In the absence of an adopted City of Seattle Level of Service threshold for intersection operations, a threshold of Level of Service E was selected in coordination with City of Seattle.

All intersections are signalized unless noted as T.W.S.C. or A.W.S.C.

Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-30. Downtown Segment 2042 P.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	DT -1 Level of Service	DT-1 Delay	DT-2 Level of Service	DT-2 Delay
1st Avenue North & Mercer Street	B	13.3	B	14.2	B	13.9
1st Avenue North & Republican Street	B	14.9	C	22.3	B	18.0
Queen Anne Avenue North & West Mercer Street	C	23.6	D	44.9	D	39.4
Queen Anne Avenue North & West Republican Street	B	17.2	C	24.2	B	18.2
Warren Avenue North & Mercer Street	A	6.2	A	6.6	A	7.7
Warren Avenue North & Roy Street (T.W.S.C.)	D	26.3	*F* [a]	66.0	*F* [a]	166.5
6th Avenue North & Harrison Street	C	29.3	C	29.8	C	29.1
Taylor Avenue North & Mercer Street	B	10.6	B	11.0	B	13.2
Dexter Avenue North & Republican Street	*F*	83.4	*F* [a]	131.4	*F* [a]	102.9
5th Avenue North & Mercer Street	D	43.0	D	44.6	D	45.7
Aurora Avenue North & Harrison Street	*E*	59.1	*F* [a]	81.4	*E*	57.8
Taylor Avenue North & Roy Street (A.W.S.C.)	C	16.5	C	15.4	C	19.3
6th Avenue North & Thomas Street (A.W.S.C.)	C	17.7	C	20.0	C	16.2
State Route 99 & Thomas Street (T.W.S.C.)	A	2.6	A	5.0	A	2.7
Westlake Avenue & Thomas Street	D	39.1	*E* [a]	59.3	*E* [a]	69.7
Terry Avenue North & John Street (Unsignalized)	A	9.2	A	9.2	B	11.1
Westlake Avenue North & John Street (T.W.S.C.)	*F*	>300	*F* [a]	>300	*F* [a]	>300
Terry Avenue North & Denny Way	A	7.9	A	8.9	*F* [a]	133
9th Avenue North & Denny Way	B	16.6	B	15.8	B	14.8
Westlake Avenue & Blanchard Street	*F*	125.6	*F* [a]	>300	*F* [a]	>300
Westlake Avenue North & Denny Way	D	51.0	*E* [a]	65.7	*E* [a]	70.7
8th Avenue & Blanchard Street	*F*	94.3	*F*	100.3	*F* [a]	120.2
5th Avenue & Olive Way	C	21.5	C	21.8	C	22.0

Intersection	No Build Level of Service	No Build Delay	DT -1 Level of Service	DT-1 Delay	DT-2 Level of Service	DT-2 Delay
6th Avenue & Olive Way	B	14.5	B	15.3	B	15.9
6th Avenue & Pine Street	B	12.3	B	13.8	B	14.6
5th Avenue & Pine Street	B	19.2	B	18.3	B	19.9
6th Avenue & Pike Street	*E*	62.4	*E* [a]	77.4	*F* [a]	83.2
5th Avenue & Pike Street	C	27.7	D	44.5	D	41.8
4th Avenue & Pine Street	C	29.4	C	30.2	C	33.8
6th Avenue & Spring Street	*F*	251.4	*F*	263.1	*F* [a]	>300
5th Avenue & Spring Street	C	26.4	C	32.8	C	31.6
5th Avenue & Madison Street	C	34.4	D	46.0	D	37.5
4th Avenue & Madison Street	B	11.6	B	11.6	B	12.8
5th Avenue & Marion Street	C	34.6	*E* [a]	59.2	D	51.3
4th Avenue & Marion Street	D	53.7	*E* [a]	66.2	*E* [a]	57.3
5th Avenue & Columbia Street	B	14.0	C	30.4	B	12.6
6th Avenue & Seneca Street	*F*	163.0	*F*	171.5	*F* [a]	186.5
5th Avenue & Seneca Street	C	23.0	C	23.9	C	29.2

Notes:

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Results are reported using H.C.M. 6 methodology where available, otherwise H.C.M. 2000 methodology.

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-31. South Interbay Segment 2042 A.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	SIB-1 Level of Service	SIB-1 Delay	SIB-2 Level of Service	SIB-2 Delay	SIB-3 Level of Service	SIB-3 Delay
Alaskan Way West & West Galer Street Flyover	B	17.0	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
Elliott Avenue West & West Galer Street Flyover	*F*	111.4	*F*	122.5	*F*	101.4	*F*	100.0
Elliott Avenue North & West Mercer Place	*E*	64.3	*E*	67.2	*E*	66.6	*E*	65.3
Elliott Avenue West & West Prospect Street	*F*	103.7	*F*	105.2	*F*	102.7	*F*	114.1
Elliott Avenue & West Galer Street	A	7.5	A	8.5	A	7.7	A	7.7

Notes:

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Italicized and shaded text indicates intersection operates at Level of Service E or F.

Delay is measured by average seconds of delay per vehicle.

Table N.1D-32. South Interbay Segment 2042 P.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	SIB-1 Level of Service	SIB-1 Delay	SIB-2 Level of Service	SIB-2 Delay	SIB-3 Level of Service	SIB-3 Delay
Alaskan Way West & West Galer Street Flyover	*E*	59.5	*E*	59.5	*E*	60.0	*E*	59.5
Elliott Avenue West & West Galer Street Flyover	D	45.1	*F*[a]	99.9	*E*[a]	60.7	*E*[a]	60.4
Elliott Avenue North & West Mercer Place	*F*	99.8	*F*	93.8	*F*	94.3	*F*	94.3
Elliott Avenue West & West Prospect Street	*F*	104.8	*F*	103.0	*F*	104.4	*F*	103.3
Elliott Avenue & West Galer Street	A	6.0	B	10.3	A	6.0	A	6.0

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Italicized and shaded text indicates intersection operates at Level of Service E or F.

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-33. South Interbay Segment 2042 A.M. Peak Hour Intersection Level of Service – Ballard Link Extension M.O.S.

Intersection	No Build Level of Service	No Build Delay	SIB-1 Level of Service	SIB-1 Delay	SIB-2 Level of Service	SIB-2 Delay	SIB-3 Level of Service	SIB-3 Delay
Alaskan Way West & West Galer Street Flyover	B	17.0	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
Elliott Avenue West & West Galer Street Flyover	*F*	111.4	*E*	64.5	*F*	97.3	*F*	93.4
Elliott Avenue North & West Mercer Place	*E*	64.3	*E*	67.4	*E*	68.0	*E*	66.6
Elliott Avenue West & West Prospect Street	*F*	103.7	*F*	102.1	*F*	101.6	*F* [a]	130.7
Elliott Avenue & West Galer Street	A	7.5	D	44.5	A	8.0	A	8.0

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-34. South Interbay Segment 2042 P.M. Peak Hour Intersection Level of Service – Ballard Link Extension M.O.S.

Intersection	No Build Level of Service	No Build Delay	SIB-1 Level of Service	SIB-1 Delay	SIB-2 Level of Service	SIB-2 Delay	SIB-3 Level of Service	SIB-3 Delay
Alaskan Way West & West Galer Street Flyover	*E*	59.5	*E*	54.7	*E*	54.7	*E*	54.7
Elliott Avenue West & West Galer Street Flyover	D	45.1	*E* [a]	60.4	*F* [a]	69.1	*F* [a]	68.9
Elliott Avenue North & West Mercer Place	*F*	99.8	*F*	97.4	*F*	97.8	*F*	97.9
Elliott Avenue West & West Prospect Street	*F*	104.8	*F*	104.3	*F*	105.5	*F*	114.4
Elliott Avenue & West Galer Street	A	6.0	B	19.6	A	7.2	A	7.2

Notes:

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-35. Interbay-Ballard Segment 2042 A.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	IBB-1a Level of Service	IBB-1a Delay	IBB-1b Level of Service	IBB-1b Delay	IBB-2a* Level of Service	IBB-2a* Delay	IBB-2b* Level of Service	IBB-2b* Delay	IBB-3 Level of Service	IBB-3 Delay
14th Avenue Northwest & Northwest Market Street	B	17.4	B	17.0	B	17.0	C	20.1	B	17.2	B	17.2
15th Avenue Northwest & Northwest Market Street	*F*	115.4	*F*	107.8	*F*	107.8	*F*	107.8	*F*	116.2	*F*	116.2
17th Avenue Northwest & Northwest Market Street	B	11.3	B	11.8	B	11.8	B	11.9	B	12.9	B	12.9
15th Avenue Northwest & Northwest 54th Street (T.W.S.C.)	*F*	89.1	*F*	87.5	*F*	87.5	*F*	87.5	*F* [a]	116.2	*F* [a]	116.2
15th Avenue Northwest - Northbound Ramps & Northwest Leary Way	C	21.9	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
15th Avenue Northwest - Southbound Ramps & Northwest Leary Way	C	23.2	C	22.8	C	22.8	C	22.8	C	22.8	C	22.8
15th Avenue West & West Bertona Street (T.W.S.C.)	*F*	78.8	*F*	86.4	*F*	80.2	*F*	86.4	*F*	86.4	*F*	80.2

Intersection	No Build Level of Service	No Build Delay	IBB-1a Level of Service	IBB-1a Delay	IBB-1b Level of Service	IBB-1b Delay	IBB-2a* Level of Service	IBB-2a* Delay	IBB-2b* Level of Service	IBB-2b* Delay	IBB-3 Level of Service	IBB-3 Delay
15th Avenue West Northbound Ramps & West Dravus Street	C	27.6	C	31.7	D	42.2	C	31.7	C	31.7	D	42.2
15th Avenue West Southbound Ramps & West Dravus Street	C	29.3	C	30.0	D	45.4	C	30.0	C	30.0	D	45.4
17th Avenue West & West Dravus Street	A	3.6	B	12.4	A	4.2	B	12.4	B	12.4	A	4.2

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-36. Interbay-Ballard Segment 2042 P.M. Peak Hour Intersection Level of Service – Ballard Link Extension

Intersection	No Build Level of Service	No Build Delay	IBB-1a Level of Service	IBB-1a Delay	IBB-1b Level of Service	IBB-1b Delay	IBB-2a* Level of Service	IBB-2a* Delay	IBB-2b* Level of Service	IBB-2b* Delay	IBB-3 Level of Service	IBB-3 Delay
14th Avenue Northwest & Northwest Market Street	C	20.2	C	25.7	C	25.7	C	21	B	19	B	19
15th Avenue Northwest & Northwest Market Street	*E*	73.1	*F* [a]	92.4	*F* [a]	92.4	*F* [a]	100.6	*F*	82.4	*F*	82.4
17th Avenue Northwest & Northwest Market Street	B	12.9	B	13.4	B	13.4	B	13.5	B	17.1	B	17.1
15th Avenue Northwest & Northwest 54th Street (T.W.S.C.)	*E*	37.1	D	28.7	D	28.7	D	28.7	*E*	37	*E*	37
15th Avenue Northwest - Northbound Ramps & Northwest Leary Way	D	40.9	D	38.4	D	38.4	D	38.4	D	38.1	D	38.1
15th Avenue Northwest - Southbound Ramps & Northwest Leary Way	D	36.5	D	35.4	D	35.4	D	35.3	D	35.3	D	35.3
15th Avenue West & West Bertona Street (T.W.S.C.)	*E*	45.7	*F*	50.4	*E*	45.2	*F*	50.4	*F*	50.4	*E*	45.2
15th Avenue West Northbound Ramps & West Dravus Street	D	42.7	D	45.6	D	51.3	D	45.6	D	45.6	D	51.3
15th Avenue West Southbound Ramps & West Dravus Street	D	41.2	D	45	D	54	D	45	D	45	D	54
17th Avenue West & West Dravus Street	A	6.5	B	12.1	A	6.6	B	12.1	B	12.1	A	6.6

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Delay is measured by average seconds of delay per vehicle.

Table N.1D-37. West Seattle Junction Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-1 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-1 E.B.	Build WSJ-1 W.B.	Build WSJ-1 N.B.	Build WSJ-1 S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	375	425	300	500	375	425	300	500
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	250	150	325	375	250
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	325	500	250	300	375	550	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	750
41st Avenue Southwest and Southwest Edmunds Street	340	670	340	230	25	0	0	50	25	0	0	150 [a]
Southwest Alaska Street and 38th Avenue Southwest	350	960	260	190	25	0	25	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

E.B. = eastbound; N.B. = northbound; S.B. = southbound; W.B. = westbound

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-38. West Seattle Junction Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-2 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	WSJ-2 E.B.	WSJ-2 W.B.	WSJ-2 N.B.	WSJ-2 S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	750	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	375	425	300	500	400	500 [a]	300	525
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	250	150	350	325	250
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	325	500	250	300	350	550	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	150	None	325 [a]	750
41st Avenue Southwest and Southwest Edmunds Street	340	670	340	230	25	0	0	50	25	0	0	50
Southwest Alaska Street and 38th Avenue Southwest	350	960	260	190	25	0	25	50	25	0	25	175 [a]
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	25	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-39. West Seattle Junction Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-3a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	WSJ-3a* E.B.	WSJ-3a* W.B.	WSJ-3a* N.B.	WSJ-3a* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	375	425	300	500	37	425	275	500
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	250	150	350	325	275
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	325	500	250	300	325	550	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	750
41st Avenue Southwest and Southwest Edmunds Street	340	670	340	230	25	0	0	50	25	0	0	100 [a]
Southwest Alaska Street and 38th Avenue Southwest	350	960	260	190	25	0	25	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-40. West Seattle Junction Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-3b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	WSJ-3b* E.B.	WSJ-3b* W.B.	WSJ-3b* N.B.	WSJ-3b* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	375	425	300	500	37	425	275	500
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	250	150	350	325	275
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	325	500	250	300	325	550	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	750
41st Avenue Southwest and Southwest Edmunds Street	340	670	340	230	25	0	0	50	25	0	0	100 [a]
Southwest Alaska Street and 38th Avenue Southwest	350	960	260	190	25	0	25	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-41. West Seattle Junction Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	WSJ-4* E.B.	WSJ-4* W.B.	WSJ-4* N.B.	WSJ-4* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	375	425	300	500	375	425	275	500
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	250	175	300	350	250
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	325	500	250	300	375	550	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	750
41st Avenue Southwest and Southwest Edmunds Street	340	670	340	230	25	0	0	50	25	0	0	100 [a]
Southwest Alaska Street and 38th Avenue Southwest	350	960	260	190	25	0	25	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-42. West Seattle Junction Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-5* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	WSJ-5* E.B.	WSJ-5* W.B.	WSJ-5* N.B.	WSJ-5* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	375	425	300	500	375	425	275	500
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	250	175	300	350	250
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	325	500	250	300	375	550	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	750
41st Avenue Southwest and Southwest Edmunds Street	340	670	340	230	25	0	0	50	25	0	0	100 [a]
Southwest Alaska Street and 38th Avenue Southwest	350	960	260	190	25	0	25	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-43. West Seattle Junction Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-1 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-1 E.B.	Build WSJ-1 W.B.	Build WSJ-1 N.B.	Build WSJ-1 S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	975	275	1225	250	975	275	1250	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	425	450	625	125	450	475	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	250	375	50	125	250	450 [a]	100 [a]
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	210	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-44. West Seattle Junction Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-2 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-2 E.B.	Build WSJ-2 W.B.	Build WSJ-2 N.B.	Build WSJ-2 S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	975	275	1225	250	975	275	1225	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	425	450	625	125	475	600 [a]	700 [a]	150 [a]
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	250	375	50	125	275	375	75
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	210	180	25	25	75	50	25	25	125	75 [a]

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-45. West Seattle Junction Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-3a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-3a* E.B.	Build WSJ-3a* W.B.	Build WSJ-3a* N.B.	Build WSJ-3a* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	975	275	1225	250	1000	275	1225	225
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	425	450	625	125	425	475	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	250	375	50	125	275	375	125 [a]
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	210	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-46. West Seattle Junction Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-3b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-3b* E.B.	Build WSJ-3b* W.B.	Build WSJ-3b* N.B.	Build WSJ-3b* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	975	275	1225	250	1000	275	1225	225
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	425	450	625	125	425	475	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	250	375	50	125	275	375	125 [a]
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	210	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-47. West Seattle Junction Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-4* E.B.	Build WSJ-4* W.B.	Build WSJ-4* N.B.	Build WSJ-4* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	975	275	1225	250	975	275	1250	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	425	450	625	125	450	475	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	250	375	50	125	250	400	100 [a]
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	210	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-48. West Seattle Junction Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-5* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-5* E.B.	Build WSJ-5* W.B.	Build WSJ-5* N.B.	Build WSJ-5* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	975	275	1225	250	975	275	1250	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	425	450	625	125	45	475	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	250	375	50	12	250	40	100
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	210	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-49. Delridge Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1a – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1a E.B.	Build DEL-1a W.B.	Build DEL-1a N.B.	Build DEL-1a S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	75	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-50. Delridge Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1b – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1b E.B.	Build DEL-1b W.B.	Build DEL-1b N.B.	Build DEL-1b S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	75	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-51. Delridge Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2a* E.B.	Build DEL-2a* W.B.	Build DEL-2a* N.B.	Build DEL-2a* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	75	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-52. Delridge Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2b* E.B.	Build DEL-2b* W.B.	Build DEL-2b* N.B.	Build DEL-2b* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	75	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-53. Delridge Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-3 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-3 E.B.	Build DEL-3 W.B.	Build DEL-3 N.B.	Build DEL-3 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	100	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	750	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-54. Delridge Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-4* E.B.	Build DEL-4* W.B.	Build DEL-4* N.B.	Build DEL-4* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	100	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	750	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-55. Delridge Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-5 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-5 E.B.	Build DEL-5 W.B.	Build DEL-5 N.B.	Build DEL-5 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	75	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	450	150	725	575
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	0	275 [a]	1700 [a]

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-56. Delridge Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-6* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-6* E.B.	Build DEL-6* W.B.	Build DEL-6* N.B.	Build DEL-6* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	75	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	450	150	725	575
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	0	275 [a]	1700 [a]

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-57. Delridge Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1a – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1a E.B.	Build DEL-1a W.B.	Build DEL-1a N.B.	Build DEL-1a S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1075	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-58. Delridge Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1b – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1b E.B.	Build DEL-1b W.B.	Build DEL-1b N.B.	Build DEL-1b S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1075	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-59. Delridge Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2a* E.B.	Build DEL-2a* W.B.	Build DEL-2a* N.B.	Build DEL-2a* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1075	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-60. Delridge Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2b* E.B.	Build DEL-2b* W.B.	Build DEL-2b* N.B.	Build DEL-2b* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1075	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-61. Delridge Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-3 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-3 E.B.	Build DEL-3 W.B.	Build DEL-3 N.B.	Build DEL-3 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	150	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	325	None	1100	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1050	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-62. Delridge Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-4* E.B.	Build DEL-4* W.B.	Build DEL-4* N.B.	Build DEL-4* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	150	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	325	None	1100	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1050	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-63. Delridge Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-5 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-5 E.B.	Build DEL-5 W.B.	Build DEL-5 N.B.	Build DEL-5 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	325	None	1075	500
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	400	325	1075	500
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	25	750 [a]	400 [a]

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-64. Delridge Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-6* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-6* E.B.	Build DEL-6* W.B.	Build DEL-6* N.B.	Build DEL-6* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	325	None	1075	500
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	400	325	1075	500
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	25	750 [a]	400 [a]

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-65. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1a – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1a E.B.	Build DEL-1a W.B.	Build DEL-1a N.B.	Build DEL-1a S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	320 [a]	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-66. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1b – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1b E.B.	Build DEL-1b W.B.	Build DEL-1b N.B.	Build DEL-1b S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	320 [a]	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-67. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2a* E.B.	Build DEL-2a* W.B.	Build DEL-2a* N.B.	Build DEL-2a* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	320 [a]	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-68. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2b* E.B.	Build DEL-2b* W.B.	Build DEL-2b* N.B.	Build DEL-2b* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	320 [a]	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-69. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-3 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-3 E.B.	Build DEL-3 W.B.	Build DEL-3 N.B.	Build DEL-3 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	175 [a]	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-70. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-4* E.B.	Build DEL-4* W.B.	Build DEL-4* N.B.	Build DEL-4* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	175 [a]	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	425	150	725	1275
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-71. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-5 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-5 E.B.	Build DEL-5 W.B.	Build DEL-5 N.B.	Build DEL-5 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	100 [a]	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	575 [a]	150	725	575
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	0	200 [a]	1700 [a]

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-72. Delridge Segment (M.O.S. Condition) 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-6* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-6* E.B.	Build DEL-6* W.B.	Build DEL-6* N.B.	Build DEL-6* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	75	None	0	0	100 [a]	None	25	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	500	350	300	725	525	350	300	725
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1250	575 [a]	150	725	575
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	0	200 [a]	1700 [a]

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-73. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1a – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1a E.B.	Build DEL-1a W.B.	Build DEL-1a N.B.	Build DEL-1a S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1075	75
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1075	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-74. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1b – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1b E.B.	Build DEL-1b W.B.	Build DEL-1b N.B.	Build DEL-1b S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1075	75
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1075	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-75. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2a* E.B.	Build DEL-2a* W.B.	Build DEL-2a* N.B.	Build DEL-2a* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1075	75
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1075	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-76. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2b* E.B.	Build DEL-2b* W.B.	Build DEL-2b* N.B.	Build DEL-2b* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1075	75
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1075	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-77. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-3 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-3 E.B.	Build DEL-3 W.B.	Build DEL-3 N.B.	Build DEL-3 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	150 [a]	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	350 [a]	None	1125	100
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1000	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-78. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-4* E.B.	Build DEL-4* W.B.	Build DEL-4* N.B.	Build DEL-4* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	150 [a]	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	350 [a]	None	1125	100
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	375	325	1000	475
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	50	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-79. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-5 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-5 E.B.	Build DEL-5 W.B.	Build DEL-5 N.B.	Build DEL-5 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1075	100
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	550 [a]	325	1100	550 [a]
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	25	120 [a]	400 [a]

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-80. Delridge Segment (M.O.S. Condition) 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-6* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-6* E.B.	Build DEL-6* W.B.	Build DEL-6* N.B.	Build DEL-6* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	25	125	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	50	300	None	1075	100
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1050	475	550 [a]	325	1100	550 [a]
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	50	0	0	None	25	120 [a]	400 [a]

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-81. West Seattle Junction Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-1 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-1 E.B.	Build WSJ-1 W.B.	Build WSJ-1 N.B.	Build WSJ-1 S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	350	425	250	475	400	400	275	475
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	225	175	325	325	225
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	375	500	250	325	350	500	225
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	725
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-82. West Seattle Junction Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-2 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-2 E.B.	Build WSJ-2 W.B.	Build WSJ-2 N.B.	Build WSJ-2 S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	750	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	350	425	250	475	400	400	275	475
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	225	175	350	325	225
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	375	500	250	325	350	500	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	725
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	25	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-83. West Seattle Junction Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-3a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-3a* E.B.	Build WSJ-3a* W.B.	Build WSJ-3a* N.B.	Build WSJ-3a* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	350	425	250	475	375	400	275	475
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	225	175	350	325	225
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	375	500	250	325	325	500	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	725
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-84. West Seattle Junction Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-3b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-3b* E.B.	Build WSJ-3b* W.B.	Build WSJ-3b* N.B.	Build WSJ-3b* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	350	425	250	475	375	400	275	475
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	225	175	350	325	225
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	375	500	250	325	325	500	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	725
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-85. West Seattle Junction Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-4* E.B.	Build WSJ-4* W.B.	Build WSJ-4* N.B.	Build WSJ-4* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	350	425	250	475	375	400	275	475
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	225	175	325	325	225
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	375	500	250	325	350	500	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	725
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-86. West Seattle Junction Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-5* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-5* E.B.	Build WSJ-5* W.B.	Build WSJ-5* N.B.	Build WSJ-5* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	425	725	325	175	425	725	325	175
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	450	350	425	250	475	375	400	275	475
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	175	325	325	225	175	325	325	225
California Avenue Southeast and Southwest Edmunds Street	170	250	130	590	300	375	500	250	325	350	500	250
Fauntleroy Way Southwest and Southwest Oregon Street	810	None	260	510	175	None	275	1125	125	None	275	725
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	0	0	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-87. West Seattle Junction Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-1 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-1 E.B.	Build WSJ-1 W.B.	Build WSJ-1 N.B.	Build WSJ-1 S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	1000	275	1300	225	1000	275	1325	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	400	450	625	125	425	450	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	225	350	75	125	250	375	75
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-88. West Seattle Junction Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-2 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-2 E.B.	Build WSJ-2 W.B.	Build WSJ-2 N.B.	Build WSJ-2 S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	1000	275	1300	225	1000	275	1325	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	400	450	625	125	425	500	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	225	350	75	125	250	350	75
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	75	50	25	25	50	50

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-89. West Seattle Junction Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-3a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-3a* E.B.	Build WSJ-3a* W.B.	Build WSJ-3a* N.B.	Build WSJ-3a* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	1000	275	1300	225	1000	275	1325	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	400	450	625	125	425	450	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	225	350	75	125	275	350	75
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-90. West Seattle Junction Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-3b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-3b* E.B.	Build WSJ-3b* W.B.	Build WSJ-3b* N.B.	Build WSJ-3b* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	1000	275	1300	225	1000	275	1325	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	400	450	625	125	425	450	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	225	350	75	125	275	350	75
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-91. West Seattle Junction Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-4* E.B.	Build WSJ-4* W.B.	Build WSJ-4* N.B.	Build WSJ-4* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	1000	275	1300	225	1000	275	1325	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	400	450	625	125	425	450	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	225	350	75	125	250	350	75
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-92. West Seattle Junction Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build WSJ-5* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build WSJ-5* E.B.	Build WSJ-5* W.B.	Build WSJ-5* N.B.	Build WSJ-5* S.B.
Fauntleroy Way Southwest & 35th Avenue Southwest	150	500	270	400	1000	275	1300	225	1000	275	1325	250
Fauntleroy Way Southwest & Southwest Alaska Street	570	270	600	390	400	450	625	125	425	450	625	125
Southwest Alaska Street & California Avenue Southwest	260	240	590	580	125	225	350	75	125	250	350	75
Fauntleroy Way Southwest and 38th Avenue Southwest	530	330	207	180	25	25	75	50	Not analyzed	Not analyzed	Not analyzed	Not analyzed

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-93. Delridge Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1a – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1a E.B.	Build DEL-1a W.B.	Build DEL-1a N.B.	Build DEL-1a S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	25	None	0	0	50	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	375	300	275	575	375	300	275	575
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1275	425	150	725	1225
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-94. Delridge Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1b – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1b E.B.	Build DEL-1b W.B.	Build DEL-1b N.B.	Build DEL-1b S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	25	None	0	0	50	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	375	300	275	575	375	300	275	575
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1275	425	150	725	1225
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-95. Delridge Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2a* E.B.	Build DEL-2a* W.B.	Build DEL-2a* N.B.	Build DEL-2a* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	25	None	0	0	50	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	375	300	275	575	375	300	275	575
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1275	425	150	725	1225
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-96. Delridge Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2b* E.B.	Build DEL-2b* W.B.	Build DEL-2b* N.B.	Build DEL-2b* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	25	None	0	0	50	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	375	300	275	575	375	300	275	575
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1275	425	150	725	1225
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-97. Delridge Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-3 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-3 E.B.	Build DEL-3 W.B.	Build DEL-3 N.B.	Build DEL-3 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	25	None	0	0	50	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	375	300	275	575	375	300	275	575
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1275	425	150	725	1225
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-98. Delridge Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-4* E.B.	Build DEL-4* W.B.	Build DEL-4* N.B.	Build DEL-4* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	25	None	0	0	50	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	375	300	275	575	375	300	275	575
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1275	425	150	725	1225
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-99. Delridge Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-5 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-5 E.B.	Build DEL-5 W.B.	Build DEL-5 N.B.	Build DEL-5 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	25	None	0	0	25	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	375	300	275	575	375	300	275	575
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1275	425	150	725	575
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	0	125	1650 [a]

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-100. Delridge Segment 2032 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-6* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-6* E.B.	Build DEL-6* W.B.	Build DEL-6* N.B.	Build DEL-6* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	25	None	0	0	25	None	0	0
West Marginal Way/Chelan Avenue & Southwest Spokane Street	420	230	250	250	375	300	275	575	375	300	275	575
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	425	150	725	1275	425	150	725	575
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	0	125	1650 [a]

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-101. Delridge Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1a – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1a E.B.	Build DEL-1a W.B.	Build DEL-1a N.B.	Build DEL-1a S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	0	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	325	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1450	500	375	325	1050	450
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-102. Delridge Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-1b – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-1b E.B.	Build DEL-1b W.B.	Build DEL-1b N.B.	Build DEL-1b S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	0	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	325	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1450	500	375	325	1050	450
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-103. Delridge Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2a* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2a* E.B.	Build DEL-2a* W.B.	Build DEL-2a* N.B.	Build DEL-2a* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	0	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	325	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1450	500	375	325	1050	450
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-104. Delridge Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-2b* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-2b* E.B.	Build DEL-2b* W.B.	Build DEL-2b* N.B.	Build DEL-2b* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	0	125	None	0	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	325	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1450	500	375	325	1050	450
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-105. Delridge Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-3 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-3 E.B.	Build DEL-3 W.B.	Build DEL-3 N.B.	Build DEL-3 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	0	125	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	325	300	None	1075	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1450	500	375	325	1050	450
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-106. Delridge Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-4* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-4* E.B.	Build DEL-4* W.B.	Build DEL-4* N.B.	Build DEL-4* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	0	125	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	325	300	None	1075	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1450	500	375	325	1050	450
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-107. Delridge Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-5 – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-5 E.B.	Build DEL-5 W.B.	Build DEL-5 N.B.	Build DEL-5 S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	0	125	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	325	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1450	500	375	325	1050	450
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	850 [a]	400 [a]

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-108. Delridge Segment 2032 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DEL-6* – West Seattle Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DEL-6* E.B.	Build DEL-6* W.B.	Build DEL-6* N.B.	Build DEL-6* S.B.
Southwest Dakota Street & Delridge Way Southwest	530	None	670	650	125	None	0	0	125	None	25	0
Southwest Genesee Street & Delridge Way Southwest	450	None	240	590	300	None	1050	325	300	None	1050	50
Delridge Way Southwest & Southwest Andover Street	1100	410	580	460	375	325	1450	500	375	325	1050	450
Delridge Way Southwest & 23rd Avenue Southwest	None	100	540	790	None	25	0	0	None	25	850 [a]	400 [a]

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2032 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-109. CID Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build CID-1a* – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build CID-1a* E.B.	Build CID-1a* W.B.	Build CID-1a* N.B.	Build CID-1a* S.B.
Seattle Boulevard South & 4th Avenue South	None	310	730	310	None	325	550	600	None	350	625 [a]	525
5th Avenue South Midblock Crossing south of South Weller Street	None	None	None	None	None	None	None	None	None	None	None	None
South Jackson Street & 4th Avenue South	80	250	180	None	75	50	450	None	100 [a]	25	475	None

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-110. CID Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build CID-1b* – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build CID-1b* E.B.	Build CID-1b* W.B.	Build CID-1b* N.B.	Build CID-1b* S.B.
Seattle Boulevard South & 4th Avenue South	None	310	730	310	None	325	550	600	None	350	625 [a]	525
5th Avenue South Midblock Crossing south of South Weller Street	None	None	None	None	None	None	None	None	None	None	None	None
South Jackson Street & 4th Avenue South	80	250	180	None	75	50	450	None	100 [a]	25	475	None

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-111. CID Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build CID-2a – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build CID-2a E.B.	Build CID-2a W.B.	Build CID-2a N.B.	Build CID-2a S.B.
Seattle Boulevard South & 4th Avenue South	None	310	730	310	None	325	550	600	None	350	550	600
5th Avenue South Midblock Crossing south of South Weller Street	None	None	None	None	None	None	None	None	None	None	None	None
South Jackson Street & 4th Avenue South	80	250	180	None	75	50	450	None	100*	75	475	None

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-112. CID Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build CID-2b – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build CID-2b E.B.	Build CID-2b W.B.	Build CID-2b N.B.	Build CID-2b S.B.
Seattle Boulevard South & 4th Avenue South	None	310	730	310	None	325	550	600	None	350	550	600
5th Avenue South Midblock Crossing south of South Weller Street	None	None	None	None	None	None	None	None	None	None	None	None
South Jackson Street & 4th Avenue South	80	250	180	None	75	50	450	None	100*	75	475	None

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-113. CID Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build CID-1a* – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build CID-1a* E.B.	Build CID-1a* W.B.	Build CID-1a* N.B.	Build CID-1a* S.B.
Seattle Boulevard South & 4th Avenue South	None	310	730	310	None	450	675	325	None	450	700	375 [a]
5th Avenue South Midblock Crossing south of South Weller Street	None	None	None	None	None	None	None	None	None	None	None	None
South Jackson Street & 4th Avenue South	80	250	180	None	75	275	650	None	75	300	650	None

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-114. CID Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build CID-1b* – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build CID-1b* E.B.	Build CID-1b* W.B.	Build CID-1b* N.B.	Build CID-1b* S.B.
Seattle Boulevard South & 4th Avenue South	None	310	730	310	None	450	675	325	None	450	700	375 [a]
5th Avenue South Midblock Crossing south of South Weller Street	None	None	None	None	None	None	None	None	None	None	None	None
South Jackson Street & 4th Avenue South	80	250	180	None	75	275	650	None	75	300	650	None

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-115. CID Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build CID-2a – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build CID-2a E.B.	Build CID-2a W.B.	Build CID-2a N.B.	Build CID-2a S.B.
Seattle Boulevard South & 4th Avenue South	None	310	730	310	None	450	675	325	None	450	675	300
5th Avenue South Midblock Crossing south of South Weller Street	None	None	None	None	None	None	None	None	None	None	None	None
South Jackson Street & 4th Avenue South	80	250	180	None	75	275	650	None	75	300	650	None

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-116. CID Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build CID-2b – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build CID-2b E.B.	Build CID-2b W.B.	Build CID-2b N.B.	Build CID-2b S.B.
Seattle Boulevard South & 4th Avenue South	None	310	730	310	None	450	675	325	None	450	675	300
5th Avenue South Midblock Crossing south of South Weller Street	None	None	None	None	None	None	None	None	None	None	None	None
South Jackson Street & 4th Avenue South	80	250	180	None	75	275	650	None	75	300	650	None

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-117. Downtown Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DT-1 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DT-1 E.B.	Build DT-1 W.B.	Build DT-1 N.B.	Build DT-1 S.B.
Dexter Avenue North/Republican Street	750	310	340	340	350	350	500	475	375	400 [a]	550 [a]	575 [a]
Aurora Avenue North/Harrison Street	230	240	390	1200	175	375	675	875	375 [a]	500 [a]	825 [a]	1025
Westlake Avenue North/John Street	250	280	370	370	500	500	25	250	500	500	25	300
Westlake Avenue/Blanchard Street	225	330	320	210	200	250	150	475	275 [a]	300	200	400
8th Avenue/Blanchard Street	225	225	235	350	550	25	350	75	550	25	400 [a]	150
6th Avenue/Pike Street	225	not applicable	315	not applicable	425	not applicable	125	not applicable	425	not applicable	375 [a]	not applicable
6th Avenue/Spring Street	250	not applicable	220	not applicable	275	not applicable	100	not applicable	550 [a]	not applicable	775 [a]	not applicable
6th Avenue/Seneca Street	not applicable	320	205	not applicable	not applicable	500	150	not applicable	not applicable	125	125	not applicable

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-118. Downtown Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DT-2 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DT-2 E.B.	Build DT-2 W.B.	Build DT-2 N.B.	Build DT-2 S.B.
Dexter Avenue North/Republican Street	750	310	340	340	350	350	500	475	375	375	525	550 [a]
Aurora Avenue North/Harrison Street	230	240	390	1200	175	375	675	875	300 [a]	450 [a]	675	975
Westlake Avenue North/John Street	250	280	370	370	500	500	25	250	500	500	25	400 [a]
Westlake Avenue/Blanchard Street	225	330	320	210	200	250	150	475	175	300	225	525 [a]
8th Avenue/Blanchard Street	225	225	235	350	550	25	350	75	525	25	425 [a]	75
6th Avenue/Pike Street	225	not applicable	315	not applicable	425	not applicable	125	not applicable	450	not applicable	450 [a]	not applicable
6th Avenue/Spring Street	250	not applicable	220	not applicable	275	not applicable	100	not applicable	575 [a]	not applicable	775 [a]	not applicable
6th Avenue/Seneca Street	not applicable	320	205	not applicable	not applicable	500	150	not applicable	not applicable	425	150	not applicable

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-119. Downtown Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DT-1 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DT-1 E.B.	Build DT-1 W.B.	Build DT-1 N.B.	Build DT-1 S.B.
Queen Anne Avenue North/West Mercer Street	240	250	not applicable	310	425	450	not applicable	675	400	425	not applicable	675
Dexter Avenue North/Republican Street	750	310	340	340	1125	125	300	1175	950	125	350 [a]	1225
Westlake Avenue North/John Street	250	280	370	370	500	500	25	125	500	500	25	150
Westlake Avenue/Blanchard Street	225	330	320	210	225	100	150	575	250 [a]	100	150	650 [a]
Westlake Avenue North/Denny Way	230	240	210	370	450	500	400	275	475	525	475 [a]	325
6th Avenue/Pike Street	225	not applicable	315	not applicable	225	not applicable	475	not applicable	350 [a]	not applicable	475	not applicable
5th Avenue/Pike Street	215	not applicable	not applicable	350	425	not applicable	not applicable	400	450	not applicable	not applicable	425
6th Avenue/Spring Street	250	not applicable	220	not applicable	525	not applicable	175	not applicable	525	not applicable	675 [a]	not applicable
4th Avenue/Madison Street	not applicable	235	210	not applicable	not applicable	325	150	not applicable	not applicable	325	100	not applicable
5th Avenue/Marion Street	230	not applicable	not applicable	225	100	not applicable	not applicable	100	100	not applicable	not applicable	100
4th Avenue/Marion Street	225	not applicable	210	not applicable	300	not applicable	525	not applicable	325	not applicable	275	not applicable

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DT-1 E.B.	Build DT-1 W.B.	Build DT-1 N.B.	Build DT-1 S.B.
5th Avenue/Columbia Street	not applic-able	265	300	230	not applic-able	200	300	350	not applic-able	250	300	325
6th Avenue/Seneca Street	not applic-able	320	205	not applic-able	not applic-able	450	175	not applic-able	not applic-able	450	500 [a]	not applic-able

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-120. Downtown Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build DT-2 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DT-2 E.B.	Build DT-2 W.B.	Build DT-2 N.B.	Build DT-2 S.B.
Queen Anne Avenue North/West Mercer Street	240	250	not applicable	310	425	450	not applicable	675	400	425	not applicable	675
Dexter Avenue North/Republican Street	750	310	340	340	1125	125	300	1175	875	125	325	1200
Westlake Avenue North/John Street	250	280	370	370	500	500	25	125	500	500	25	275
Westlake Avenue/Blanchard Street	225	330	320	210	225	100	150	575	225	100	150	575
Westlake Avenue North/Denny Way	230	240	210	370	450	500	400	275	425	500	450 [a]	275
6th Avenue/Pike Street	225	not applicable	315	not applicable	225	not applicable	475	not applicable	350 [a]	not applicable	475	not applicable
5th Avenue/Pike Street	215	not applicable	not applicable	350	425	not applicable	not applicable	400	425	not applicable	not applicable	425
6th Avenue/Spring Street	250	not applicable	220	not applicable	525	not applicable	175	not applicable	550	not applicable	700 [a]	not applicable
4th Avenue/Madison Street	not applicable	235	210	not applicable	not applicable	325	150	not applicable	not applicable	350	150	not applicable
5th Avenue/Marion Street	230	not applicable	not applicable	225	100	not applicable	not applicable	100	100	not applicable	not applicable	100
4th Avenue/Marion Street	225	not applicable	210	not applicable	300	not applicable	525	not applicable	300	not applicable	550	not applicable

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build DT-2 E.B.	Build DT-2 W.B.	Build DT-2 N.B.	Build DT-2 S.B.
5th Avenue/Columbia Street	not applic-able	265	300	230	not applic-able	200	300	350	not applic-able	200	300	350
6th Avenue/Seneca Street	not applic-able	320	205	not applic-able	not applic-able	450	175	not applic-able	not applic-able	450	200	not applic-able

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-121. South Interbay Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-1 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-1 E.B.	Build SIB-1 W.B.	Build SIB-1 N.B.	Build SIB-1 S.B.
Alaskan Way West/West Galer Street Flyover	1200	not applic-able	745	320	275	not applic-able	1150	125	275	not applic-able	1150	125
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	200	not applic-able	1750	700	200	not applic-able	1175	475
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	2025	1775	25	0	2050	1675

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-122. South Interbay Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-2 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-2 E.B.	Build SIB-2 W.B.	Build SIB-2 N.B.	Build SIB-2 S.B.
Alaskan Way West/West Galer Street Flyover	1200	not applic-able	745	320	275	not applic-able	1150	125	275	not applic-able	1150	125
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	200	not applic-able	1750	700	200	not applic-able	1775	475
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	2025	1775	25	25	2025	1825

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-123. South Interbay Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-3 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-3 E.B.	Build SIB-3 W.B.	Build SIB-3 N.B.	Build SIB-3 S.B.
Alaskan Way West/West Galer Street Flyover	1200	not applic-able	745	320	275	not applic-able	1150	125	275	not applic-able	1150	125
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	200	not applic-able	1750	700	200	not applic-able	1775	475
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	2025	1775	25	25	2025	1825

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-124. South Interbay Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-1 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-1 E.B.	Build SIB-1 W.B.	Build SIB-1 N.B.	Build SIB-1 S.B.
Elliott Avenue West/West Galer Street Flyover	150	1225	1225	400	not applic-able	250	1475	1125	325 [a]	425	1875	500
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	50	not applic-able	1000	1250	50	not applic-able	1025	1250
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	1950	2500	25	0	2000	2450

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-125. South Interbay Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-2 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-2 E.B.	Build SIB-2 W.B.	Build SIB-2 N.B.	Build SIB-2 S.B.
Elliott Avenue West/West Galer Street Flyover	not applic-able	1225	1225	400	not applic-able	250	1475	1125	not applic-able	350	1300	1175
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	50	not applic-able	1000	1250	25	not applic-able	1025	1250
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	1950	2500	25	25	2000	2450

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-126. South Interbay Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-3 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-3 E.B.	Build SIB-3 W.B.	Build SIB-3 N.B.	Build SIB-3 S.B.
Elliott Avenue West/West Galer Street Flyover	not applic-able	1225	1225	400	not applic-able	250	1475	1125	not applic-able	350	1475	1175
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	50	not applic-able	1000	1250	50	not applic-able	1125 [a]	1175
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	1950	2500	100	25	1950	2450

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

[a] Indicates approach queue exceeds available storage length and has at least a 10% increase in queue lengths compared to the No Build Alternative.

Table N.1D-127. South Interbay Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-1 – Ballard Link Extension M.O.S.

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-1 E.B.	Build SIB-1 W.B.	Build SIB-1 N.B.	Build SIB-1 S.B.
Alaskan Way West/West Galer Street Flyover	1200	not applic-able	745	320	275	not applic-able	1150	125	275	not applic-able	1150	125
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	200	not applic-able	1750	700	200	not applic-able	1800	475
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	2025	1775	25	0	2075	1025

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-128. South Interbay Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-2 – Ballard Link Extension M.O.S.

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-2 E.B.	Build SIB-2 W.B.	Build SIB-2 N.B.	Build SIB-2 S.B.
Alaskan Way West/West Galer Street Flyover	1200	not applic-able	745	320	275	not applic-able	1150	125	275	not applic-able	1150	125
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	200	not applic-able	1750	700	200	not applic-able	1800	500
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	2025	1775	25	50	2050	1875

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-129. South Interbay Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-3 – Ballard Link Extension M.O.S.

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-3 E.B.	Build SIB-3 W.B.	Build SIB-3 N.B.	Build SIB-3 S.B.
Alaskan Way West/West Galer Street Flyover	1200	not applic-able	745	320	275	not applic-able	1150	125	275	not applic-able	1150	125
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	200	not applic-able	1750	700	200	not applic-able	1800	475
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	2025	1775	75	50	2025	1875

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-130. South Interbay Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-1 – Ballard Link Extension M.O.S.

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-1 E.B.	Build SIB-1 W.B.	Build SIB-1 N.B.	Build SIB-1 S.B.
Elliott Avenue West/West Galer Street Flyover	not applic-able	1225	1225	400	not applic-able	250	1475	1125	not applic-able	225	1900	1225
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	50	not applic-able	1000	1250	50	not applic-able	1025	1250
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	1950	2500	25	0	2000	1325

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-131. South Interbay Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-2 – Ballard Link Extension M.O.S.

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-2 E.B.	Build SIB-2 W.B.	Build SIB-2 N.B.	Build SIB-2 S.B.
Elliott Avenue West/West Galer Street Flyover	not applic-able	1225	1225	400	not applic-able	250	1475	1125	not applic-able	350	1300	1150
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	50	not applic-able	1000	1250	50	not applic-able	1025	1275
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	1950	2500	25	50	2000	2450

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-132. South Interbay Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build SIB-3 – Ballard Link Extension M.O.S.

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build SIB-3 E.B.	Build SIB-3 W.B.	Build SIB-3 N.B.	Build SIB-3 S.B.
Elliott Avenue West/West Galer Street Flyover	not applic-able	1225	1225	400	not applic-able	250	1475	1125	not applic-able	350	1250	1150
Elliott Avenue North/West Mercer Place	120	not applic-able	920	875	50	not applic-able	1000	1250	50	not applic-able	1025	575
Elliott Avenue West/ West Prospect Street	120	120	875	1225	25	0	1950	2500	125	50	2000	2450

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-133. Interbay-Ballard Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-1a – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-1a E.B.	Build IBB-1a W.B.	Build IBB-1a N.B.	Build IBB-1a S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	400	400	1000	500	475	500	975	500
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	25	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	50	not applic-able	0	0	50	not applic-able	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-134. Interbay-Ballard Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-1b – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-1b E.B.	Build IBB-1b W.B.	Build IBB-1b N.B.	Build IBB-1b S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	400	400	1000	500	475	500	975	500
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	25	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	50	not applic-able	0	0	50	not applic-able	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-135. Interbay-Ballard Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-2a* – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-2a* E.B.	Build IBB-2a* W.B.	Build IBB-2a* N.B.	Build IBB-2a* S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	400	400	1000	500	475	450	1000	550
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	100	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	50	not applic-able	0	0	50	not applic-able	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-136. Interbay-Ballard Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-2b* – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-2b* E.B.	Build IBB-2b* W.B.	Build IBB-2b* N.B.	Build IBB-2b* S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	400	400	1000	500	475	450	1000	550
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	100	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	50	not applic-able	0	0	50	not applic-able	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-137. Interbay-Ballard Segment 2042 P.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-3 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-3 E.B.	Build IBB-3 W.B.	Build IBB-3 N.B.	Build IBB-3 S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	400	400	1000	500	475	450	1000	550
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	100	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	50	not applic-able	0	0	50	not applic-able	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-138. Interbay-Ballard Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-1a – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-1a E.B.	Build IBB-1a W.B.	Build IBB-1a N.B.	Build IBB-1a S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	350	550	450	1250	450	550	475	1225
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	25	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	25	not applic-able	0	0	25	not applic-able	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-139. Interbay-Ballard Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-1b – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-1b E.B.	Build IBB-1b W.B.	Build IBB-1b N.B.	Build IBB-1b S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	350	550	450	1250	450	550	475	1225
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	25	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	25	not applic-able	0	0	25	not applic-able	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-140. Interbay-Ballard Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-2a* – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-2a* E.B.	Build IBB-2a* W.B.	Build IBB-2a* N.B.	Build IBB-2a* S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	350	550	450	1250	450	550	475	1225
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	25	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	25	not applic-able	0	0	25	not applic-able	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-141. Interbay-Ballard Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-2b* – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-2b* E.B.	Build IBB-2b* W.B.	Build IBB-2b* N.B.	Build IBB-2b* S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	350	550	450	1250	400	575	450	1300
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	50	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	25	not applic-able	0	0	25	not applic-able	0	0

* As described in the introduction to Chapter 2, Alternatives Considered, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

Table N.1D-142. Interbay-Ballard Segment 2042 A.M. Peak Hour 95th Percentile Approach Queues, No Build and Build IBB-3 – Ballard Link Extension

Intersection	Storage E.B.	Storage W.B.	Storage N.B.	Storage S.B.	No Build E.B.	No Build W.B.	No Build N.B.	No Build S.B.	Build IBB-3 E.B.	Build IBB-3 W.B.	Build IBB-3 N.B.	Build IBB-3 S.B.
15th Avenue Northwest/Northwest Market Street	525	575	225	725	350	550	450	1250	400	575	450	1300
15th Avenue Northwest/Northwest 54th Street	525	575	250	225	25	25	0	0	25	50	0	0
15th Avenue Northwest/West Bertona Street	200	not applic-able	1950	1275	25	not applic-able	0	0	25	not applic-able	0	0

Notes:

95th percentile queues are reported for intersections expected to operate at Level of Service E or F in 2042 No Build.

Queue lengths are shown for the lane group with the highest queue length. Synchro reports queue lengths based on isolated lane groups and does not account for interaction between the lane groups.

Queue lengths are rounded up to the nearest 25 feet.

Storage length is measured to the adjacent intersection.

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Attachment N.1E
Construction-Related Roadway Modifications

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Attachment N.1E
Construction-related Roadway Modifications

The following tables summarize public roadway closures that would affect motor vehicle, pedestrian, and bicycle traffic on or adjacent to public roadways. Vehicular access to specific properties is assumed to be maintained wherever possible. Where access cannot be maintained, the effect to the property is covered in Section 4.1.1, Acquisitions, Displacements, and Relocations, of the Draft Environmental Impact Statement.

The physical limits of street closures, including bicycle and pedestrian facilities, as well as their durations are approximate based on knowledge at the current conceptual engineering phase, and are subject to change based on final design and construction planning. Many roads will need to be closed, when allowed, to construct and perform work near or over the roadways. These tables do not attempt to define all miscellaneous lane, sidewalk, or bicycle facility closures.

Roadway closures could also include short-term or long-term closure of sidewalks. Extent and duration of sidewalk closures will be coordinated with the City of Seattle in later phases of project development. Pedestrian and bicycle facilities on or adjacent to public roadways are specifically included in this list only where there would be an effect that is known at this phase. Off-street pedestrian and bicycle facility effects are covered in Section 6, Non-Motorized Facilities, of the Transportation Technical Report.

Additional road or lane closures may be needed for utility relocation, which will be determined during final design in coordination with the utility owner.

Definitions

- Full closure: All travel lanes closed; sidewalks may be closed.
- Partial closure: One or two lanes, minimum, can be maintained in each direction during construction; phased traffic control may be required.
- Sidewalk closure: Sidewalk on the side of the street indicated would be fully closed.
- Parking lane closure: Parking lane on the side of the street indicated would be fully closed.
- Permanent closure: All lanes would be closed permanently.
- Nights and weekends: Intermittent closures during off-peak times could occur throughout construction duration; local access would be maintained using flaggers.

Closures listed do not include cross streets unless specifically stated.

Durations of closures are approximate and based on what is known during conceptual design. They will be refined during final design. Some locations include more than one duration for multiple construction activities assumed to occur separately (such as ground improvements, foundation construction, or elevated guideway construction). The exact timing of these activities will be refined in final design, and there may be some overlap between construction activities at the same location.

N.1E.1 West Seattle Link Extension

Table N.1E-1. Preferred At-Grade Alternative (SODO-1a) – SODO Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
South Lander Street Overcrossing	South Lander Street between 4th Avenue South and 6th Avenue South	Full Closure	2 years
South Lander Street Overcrossing	4th Avenue South at South Lander Street Intersection	Partial Closure	3 months
South Lander Street Overcrossing	6th Avenue South at South Lander Street Intersection	Partial Closure	3 months
SODO Station	5th Place South between South Lander Street and South Bayview Street	Full Closure	Permanent
SODO Station	South Bayview Street between 5th Place South and 6th Avenue South	Full Closure	Permanent
SODO Busway	SODO Busway between South Massachusetts Street and South Spokane Street [a]	Full Closure	Permanent

[a] While the full length of the SODO Busway includes portions of the Chinatown-International District and Duwamish segments, the SODO Busway closure is listed only in the SODO Segment.

Table N.1E-2. At-Grade South Station Option (SODO-1b) – SODO Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
South Lander Street Overcrossing	South Lander Street between 4th Avenue South and 6th Avenue South	Full Closure	3 years
South Lander Street Overcrossing	4th Avenue South at South Lander Street Intersection	Partial Closure	3 months
South Lander Street Overcrossing	6th Avenue South at South Lander Street Intersection	Partial Closure	3 months
SODO Station	5th Place South between South Lander Street and South Bayview Street	Full Closure	Nights and weekends
SODO Busway	SODO Busway between South Massachusetts Street and South Spokane Street [a]	Full Closure	Permanent

[a] While the full length of the SODO Busway includes portions of the Chinatown-International District and Duwamish segments, the SODO Busway closure is listed only in the SODO Segment.

Table N.1E-3. Mixed Profile Alternative (SODO-2) – SODO Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
South Lander Street	South Lander Street at SODO Busway Intersection	Full Closure	Nights and weekends
SODO Station	5th Place South between South Lander Street and South Bayview Street	Full Closure	Nights and weekends
SODO Busway	SODO Busway between South Massachusetts Street and South Spokane Street [a]	Full Closure	5 years

[a] While the full length of the SODO Busway includes portions of the Chinatown-International District and Duwamish segments, the SODO Busway closure is listed only in the SODO Segment

Table N.1E-4. Preferred South Crossing Alternative (DUW-1a) – Duwamish Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Operations and Maintenance Facility Connection	6th Avenue South between South Forest Street and South Horton Street	Full Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	4th Avenue South north of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	4th Avenue South north of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	South Spokane Street between 2nd Avenue South and 4th Avenue South	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	South Spokane Street and West Seattle Bridge between 2nd Avenue South and 4th Avenue South	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	2nd Avenue South south of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	2nd Avenue South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	1st Avenue South south of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	1st Avenue South south of South Spokane Street	Partial Closure	Nights and weekends

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between SODO Station and Delridge Segment	Colorado Avenue South south of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	Colorado Avenue South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	West Seattle Bridge eastbound to State Route 99 northbound ramp	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	State Route 99 south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	East Marginal Way South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Duwamish Avenue South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	West Marginal Way Southwest south of West Seattle Bridge	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Delridge Way Southwest south of West Seattle Bridge	Partial Closure	9 months
Guideway between SODO Station and Delridge Segment	Delridge Way Southwest south of West Seattle Bridge	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Delridge Way Southwest northbound ramp to West Seattle Bridge	Partial Closure	Nights and weekends

Table N.1E-5. South Crossing South Edge Crossing Alignment Option (DUW-1b) – Duwamish Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Operations and Maintenance Facility Connection	6th Avenue South between South Forest Street and South Horton Street	Full Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	4th Avenue South north of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	4th Avenue South north of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	South Spokane Street between 2nd Avenue South and 4th Avenue South	Partial Closure	6 months

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between SODO Station and Delridge Segment	South Spokane Street and West Seattle Bridge between 2nd Avenue South and 4th Avenue South	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	2nd Avenue South south of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	2nd Avenue South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	1st Avenue South south of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	1st Avenue South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Colorado Avenue South south of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	Colorado Avenue South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	West Seattle Bridge eastbound to State Route 99 northbound ramp	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	State Route 99 south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	East Marginal Way South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Duwamish Avenue South south of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	West Marginal Way Southwest south of West Seattle Bridge	Partial Closure	3 months
Guideway between SODO Station and Delridge Segment	West Marginal Way Southwest south of West Seattle Bridge	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Delridge Way Southwest south of West Seattle Bridge	Partial Closure	9 months
Guideway between SODO Station and Delridge Segment	Delridge Way Southwest south of West Seattle Bridge	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Delridge Way Southwest northbound ramp to West Seattle Bridge	Partial Closure	Nights and weekends

Table N.1E-6. North Crossing Alternative (DUW-2) – Duwamish Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Operations and Maintenance Facility Connection	6th Avenue South between South Forest Street and South Horton Street	Full Closure	Nights and weekends
Operations and Maintenance Facility Connection	6th Avenue South between South Hinds Street and South Spokane Street	Full Closure	Nights and weekends
Operations and Maintenance Facility Connection	4th Avenue South just north of South Spokane Street	Full Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	South Horton Street between 4th Avenue South and SODO Busway	Full Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	South Hinds Street between 4th Avenue South and SODO Busway	Full Closure	Permanent
Guideway between SODO Station and Delridge Segment	4th Avenue South between South Horton Street and South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	4th Avenue South between South Horton Street and South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	2nd Avenue South north of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	2nd Avenue South north of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	1st Avenue South north of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	1st Avenue South north of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Colorado Avenue South north of South Spokane Street	Partial Closure	6 months
Guideway between SODO Station and Delridge Segment	Colorado Avenue South north of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	State Route 99 north of South Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	East Marginal Way South north of South Spokane Street	Partial Closure	Nights and weekends

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between SODO Station and Delridge Segment	Ramp from State Route 99 southbound to West Seattle Bridge westbound	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Ramp from State Route 99 southbound to South Spokane Street westbound	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Terminal 18 Bridge north of Southwest Spokane Street	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	Chelan Avenue Southwest west of West Marginal Way Southwest/Southwest Spokane Street Intersection	Partial Closure	3 months
Guideway between SODO Station and Delridge Segment	Chelan Avenue Southwest north of West Marginal Way Southwest/Southwest Spokane Street Intersection	Partial Closure	Nights and weekends
Guideway between SODO Station and Delridge Segment	West Seattle Bridge and Southwest Spokane Street west of Delridge Way Southwest	Partial Closure	Nights and weekends

Table N.1E-7. Preferred Dakota Street Station Alternative (DEL-1a) – Delridge Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between West Seattle Bridge and Delridge Station	Delridge Way Southwest north and south of Southwest Andover Street	Partial Closure	9 months
Guideway between West Seattle Bridge and Delridge Station	Delridge Way Southwest north and south of Southwest Andover Street	Full Closure	Nights and weekends
Guideway between West Seattle Bridge and Delridge Station	Southwest Andover Street at Delridge Way Southwest Intersection	Full Closure	Nights and weekends
Delridge Station	Southwest Dakota Street between 25th Avenue Southwest and Delridge Way Southwest	Full Closure	Nights and weekends
Delridge Station	25th Avenue Southwest south of Southwest Dakota Street	Full Closure	4 years
Delridge Station	26th Avenue Southwest between Southwest Nevada Street and Southwest Genesee Street	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between 26th Avenue Southwest and Southwest Avalon Way	Full Closure	2 years

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between Delridge Station and Avalon Station	Southwest Avalon Way at Southwest Genesee Street Intersection	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between Southwest Avalon Way and 32nd Avenue Southwest	Full Closure	3 years

Table N.1E-8. Dakota Street Station North Alignment Option (DEL-1b) – Delridge Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between West Seattle Bridge and Delridge Station	Delridge Way Southwest north and south of Southwest Andover Street	Partial Closure	9 months
Guideway between West Seattle Bridge and Delridge Station	Delridge Way Southwest north and south of Southwest Andover Street	Full Closure	Nights and weekends
Guideway between West Seattle Bridge and Delridge Station	Southwest Andover Street at Delridge Way Southwest Intersection	Full Closure	Nights and weekends
Delridge Station	Southwest Dakota Street between 25th Avenue Southwest and Delridge Way Southwest	Full Closure	Nights and weekends
Delridge Station	25th Avenue Southwest south of Southwest Dakota Street	Full Closure	4 years
Delridge Station	26th Avenue Southwest between Southwest Nevada Street and Southwest Genesee Street	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between 26th Avenue Southwest and 31st Avenue Southwest	Full Closure	2 years
Guideway between Delridge Station and Avalon Station	Southwest Avalon Way north of Southwest Genesee Street	Partial Closure	9 months
Guideway between Delridge Station and Avalon Station	Southwest Avalon Way north of Southwest Genesee Street	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between Southwest Avalon Way and 32nd Avenue Southwest	Full Closure	3 years

Table N.1E-9. Preferred Dakota Street Station Lower Height Alternative (DEL-2a)* – Delridge Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between West Seattle Bridge and Delridge Station	Delridge Way Southwest north and south of Southwest Andover Street	Partial Closure	9 months
Guideway between West Seattle Bridge and Delridge Station	Delridge Way Southwest north and south of Southwest Andover Street	Full Closure	Nights and weekends
Guideway between West Seattle Bridge and Delridge Station	Southwest Andover Street at Delridge Way Southwest Intersection	Full Closure	Nights and weekends
Delridge Station	Southwest Dakota Street between 25th Avenue Southwest and Delridge Way Southwest	Full Closure	Nights and weekends
Delridge Station	25th Avenue Southwest south of Southwest Dakota Street	Full Closure	Permanent
Delridge Station	26th Avenue Southwest between Southwest Nevada Street and Southwest Genesee Street	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between 26th Avenue Southwest and 28th Avenue Southwest	Full Closure	Nights and weekends

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-10. Dakota Street Station Lower Height North Alignment Option (DEL-2b)* – Delridge Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between West Seattle Bridge and Delridge Station	Delridge Way Southwest north and south of Southwest Andover Street	Partial Closure	9 months
Guideway between West Seattle Bridge and Delridge Station	Delridge Way Southwest north and south of Southwest Andover Street	Full Closure	Nights and weekends
Guideway between West Seattle Bridge and Delridge Station	Southwest Andover Street at Delridge Way Southwest Intersection	Full Closure	Nights and weekends
Delridge Station	Southwest Dakota Street between 25th Avenue Southwest and Delridge Way Southwest	Full Closure	Nights and weekends
Delridge Station	25th Avenue Southwest south of Southwest Dakota Street	Full Closure	Permanent
Delridge Station	26th Avenue Southwest between Southwest Nevada Street and Southwest Genesee Street	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	30th Avenue Southwest north of Southwest Genesee Street	Full Closure	Permanent
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between 26th Avenue Southwest and 30th Avenue Southwest	Partial Closure	9 months
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between 26th Avenue Southwest and 30th Avenue Southwest	Full Closure	Nights and weekends

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-11. Delridge Way Station Alternative (DEL-3) – Delridge Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Delridge Station	Delridge Way Southwest between 23rd Avenue Southwest and south of Southwest Dakota Street	Partial Closure	3 years
Delridge Station	Delridge Way Southwest between 23rd Avenue Southwest and south of Southwest Dakota Street	Full Closure	Nights and weekends
Delridge Station	Southwest Andover Street at Delridge Way Southwest Intersection	Full Closure	Nights and weekends
Delridge Station	Southwest Dakota Street at Delridge Way Southwest Intersection	Full Closure	Nights and weekends
Delridge Station	Southwest Dakota Street between 25th Avenue Southwest and Delridge Way Southwest	Full Closure	3 years
Guideway between Delridge Station and Avalon Station	25th Avenue Southwest north of Southwest Genesee Street	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	26th Avenue Southwest at Southwest Genesee Street Intersection	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between 26th Avenue Southwest and Southwest Avalon Way	Full Closure	2 years
Guideway between Delridge Station and Avalon Station	Southwest Avalon Way at Southwest Genesee Street Intersection	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between Southwest Avalon Way and 32nd Avenue Southwest	Full Closure	3 years

Table N.1E-12. Delridge Way Station Lower Height Alternative (DEL-4)* – Delridge Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Delridge Station	Delridge Way Southwest between 23rd Avenue Southwest and south of Southwest Dakota Street	Partial Closure	3 years
Delridge Station	Delridge Way Southwest between 23rd Avenue Southwest and south of Southwest Dakota Street	Full Closure	Nights and weekends
Delridge Station	Southwest Andover Street at Delridge Way Southwest Intersection	Full Closure	Nights and weekends
Delridge Station	Southwest Dakota Street at Delridge Way Southwest Intersection	Full Closure	Nights and weekends
Delridge Station	Southwest Dakota Street between 25th Avenue Southwest and Delridge Way Southwest	Full Closure	3 years
Guideway between Delridge Station and Avalon Station	25th Avenue Southwest north of Southwest Genesee Street	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	26th Avenue Southwest at Southwest Genesee Street Intersection	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between 26th Avenue Southwest and 28th Avenue Southwest	Partial Closure	9 months
Guideway between Delridge Station and Avalon Station	Southwest Genesee Street between 26th Avenue Southwest and 28th Avenue Southwest	Full Closure	Nights and weekends

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-13. Andover Street Station Alternative (DEL-5) – Delridge Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between Delridge Station and Avalon Station	Southwest Andover Street between 26th Avenue Southwest and 28th Avenue Southwest	Full Closure	2 years
Guideway between Delridge Station and Avalon Station	Southwest Andover Street at 26th Avenue Southwest Intersection	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Yancy Street east of Southwest Avalon Way	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	30th Avenue Southwest south of Southwest Avalon Way	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Avalon Way between Southwest Yancy Street/Southwest Andover Street and Southwest Genesee Street	Full Closure	1 year

Table N.1E-14. Andover Street Station Lower Height Alternative (DEL-6)* – Delridge Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Guideway between Delridge Station and Avalon Station	Southwest Andover Street between 26th Avenue Southwest and 28th Avenue Southwest	Full Closure	2 years
Guideway between Delridge Station and Avalon Station	Southwest Andover Street at 26th Avenue Southwest Intersection	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Avalon Way north of Southwest Yancy Street/Southwest Andover Street	Full Closure	Nights and weekends
Guideway between Delridge Station and Avalon Station	Southwest Andover Street at 32nd Avenue Southwest Intersection	Full Closure	Nights and weekends

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-15. Preferred Elevated 41st/42nd Avenue Station Alternative (WSJ-1) – West Seattle Junction Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Avalon Station	Southwest Genesee Street between 32nd Avenue Southwest and West Seattle Bridge/35th Avenue Southwest Intersection	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	35th Avenue Southwest south of West Seattle Bridge/ Southwest Genesee Street Intersection	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	36th Avenue Southwest north of Fauntleroy Way Southwest	Full Closure	1.5 years
Guideway between Avalon Station and Alaska Junction Station	37th Avenue Southwest at Fauntleroy Way Southwest Intersection	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	Fauntleroy Way Southwest between 35th Avenue Southwest/Southwest Genesee Street and Southwest Oregon Street	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	Southwest Oregon Street at Fauntleroy Way Intersection	Partial Closure	9 months
Guideway between Avalon Station and Alaska Junction Station	Southwest Oregon Street at Fauntleroy Way Intersection	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	38th Avenue Southwest between Southwest Oregon Street and Fauntleroy Way Southwest	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	39th Avenue Southwest between Southwest Oregon Street and Fauntleroy Way Southwest	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	40th Avenue Southwest north of Southwest Alaska Street	Partial Closure	9 months
Guideway between Avalon Station and Alaska Junction Station	40th Avenue Southwest north of Southwest Alaska Street	Full Closure	Nights and weekends
Alaska Junction Station	Southwest Alaska Street at 41st Avenue Southwest Intersection	Full Closure	Nights and weekends
Alaska Junction Station	42nd Avenue Southwest north of Southwest Edmunds Street	Partial Closure	9 months
Alaska Junction Station	42nd Avenue Southwest north of Southwest Edmunds Street	Full Closure	Nights and weekends
Alaska Junction Station	Southwest Edmunds Street west of 42nd Avenue Southwest	Full Closure	Nights and weekends

Table N.1E-16. Preferred Elevated Fauntleroy Way Station Alternative (WSJ-2) – West Seattle Junction Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Avalon Station	Southwest Genesee Street between 32nd Avenue Southwest and West Seattle Bridge/ 35th Avenue Southwest Intersection	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	35th Avenue Southwest south of West Seattle Bridge/ Southwest Genesee Street Intersection	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	Fauntleroy Way Southwest between 35th Avenue Southwest and 36th Avenue Southwest	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	36th Avenue Southwest between Southwest Genesee Street and Fauntleroy Way Southwest	Full Closure	3 years
Guideway between Avalon Station and Alaska Junction Station	Southwest Genesee Street between Fauntleroy Way Southwest and 36th Avenue Southwest	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	37th Avenue Southwest north of Fauntleroy Way Southwest	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	Southwest Oregon Street between Fauntleroy Way Southwest and 38th Avenue Southwest	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	38th Avenue Southwest between Southwest Oregon Street and Fauntleroy Way Southwest	Full Closure	Nights and weekends
Alaska Junction Station	Fauntleroy Way Southwest between 38th Avenue Southwest and 39th Avenue Southwest	Full Closure	Nights and weekends
Alaska Junction Station	Southwest Alaska Street between 38th Avenue Southwest and Fauntleroy Way Southwest	Full Closure	3 Years
Alaska Junction Station	Fauntleroy Way Southwest between Southwest Alaska Street and Southwest Edmunds Street	Partial Closure	9 months
Alaska Junction Station	Fauntleroy Way Southwest between Southwest Alaska Street and Southwest Edmunds Street	Full Closure	Nights and weekends
Alaska Junction Station	Southwest Edmunds Street at Fauntleroy Way Southwest Intersection	Full Closure	Nights and weekends

Table N.1E-17. Preferred Tunnel 41st Avenue Station Alternative (WSJ-3a)* – West Seattle Junction Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Avalon Station	35th Avenue Southwest between Fauntleroy Way Southwest and Southwest Avalon Way	Full Closure	3 years
Avalon Station	36th Avenue Southwest between Southwest Genesee Street and Fauntleroy Way Southwest	Full Closure	3 years
Avalon Station	Fauntleroy Way Southwest between Southwest Genesee Street and Southwest Avalon Way	Partial Closure	1.5 years
Avalon Station	Southwest Genesee Street between Fauntleroy Way Southwest and 37th Avenue Southwest (only when connecting to Option DEL-2b*)	Full Closure	3 years
Alaska Junction Station	41st Avenue Southwest between north of Southwest Alaska Street and Southwest Hudson Street	Full Closure	4 years
Alaska Junction Station	Southwest Alaska Street at 41st Avenue Southwest Intersection	Partial Closure	6 months
Alaska Junction Station	Southwest Edmunds Street at 41st Avenue Southwest Intersection	Full Closure	4 years

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-18. Preferred Tunnel 42nd Avenue Station Option (WSJ-3b)* – West Seattle Junction Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Avalon Station	35th Avenue Southwest between Fauntleroy Way Southwest and Southwest Avalon Way	Full Closure	3 years
Avalon Station	36th Avenue Southwest between Southwest Genesee Street and Fauntleroy Way Southwest	Full Closure	3 years
Avalon Station	Fauntleroy Way Southwest between Southwest Genesee Street and Southwest Avalon Way	Partial Closure	1.5 years
Alaska Junction Station	42nd Avenue Southwest between north of Southwest Alaska Street and Southwest Hudson Street	Full Closure	4 years

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Alaska Junction Station	Southwest Alaska Street at 42nd Avenue Southwest Intersection	Partial Closure	6 months
Alaska Junction Station	Southwest Edmunds Street at 42nd Avenue Southwest Intersection	Full Closure	4 years
Alaska Junction Station	Southwest Hudson Street at 42nd Avenue Southwest Intersection	Partial Closure	4 years

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-19. Short Tunnel 41st Avenue Station Alternative (WSJ-4)* – West Seattle Junction Segment

Guideway Area	Roadway Work Location	Closure Type	Approximate Closure Duration
Avalon Station	Southwest Genesee Street between 32nd Avenue Southwest and West Seattle Bridge/35th Avenue Southwest Intersection	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	35th Avenue Southwest south of West Seattle Bridge/ Southwest Genesee Street Intersection	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	Fauntleroy Way Southwest between 35th Avenue Southwest and 36th Avenue Southwest	Partial Closure	9 months
Guideway between Avalon Station and Alaska Junction Station	Fauntleroy Way Southwest between 35th Avenue Southwest and 36th Avenue Southwest	Full Closure	Nights and weekends
Guideway between Avalon Station and Alaska Junction Station	36th Avenue Southwest between Southwest Genesee Street and Fauntleroy Way Southwest	Full Closure	9 months
Guideway between Avalon Station and Alaska Junction Station	37th Avenue Southwest between Southwest Genesee Street and Fauntleroy Way Southwest	Full Closure	Permanent
Guideway between Avalon Station and Alaska Junction Station	38th Avenue Southwest north of Southwest Oregon Street	Full Closure	Permanent
Alaska Junction Station	41st Avenue Southwest between Southwest Alaska Street and south of Southwest Hudson Street	Full Closure	4 years
Alaska Junction Station	Southwest Alaska Street at 41st Avenue Southwest Intersection	Partial Closure	3 months

Guideway Area	Roadway Work Location	Closure Type	Approximate Closure Duration
Alaska Junction Station	Southwest Alaska Street east of 41st Avenue Southwest	Partial Closure	1 year
Alaska Junction Station	Southwest Edmunds Street at 41st Avenue Intersection	Full Closure	4 years

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-20. Medium Tunnel 41st Avenue Station Alternative (WSJ-5)* – West Seattle Junction Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Avalon Station	35th Avenue Southwest south of West Seattle Bridge/ Southwest Genesee Street Intersection	Full Closure	1 year
Guideway between Avalon Station and Alaska Junction Station	Fauntleroy Way Southwest at Southwest Avalon Way Intersection	Partial Closure	1.5 years
Guideway between Avalon Station and Alaska Junction Station	37th Avenue Southwest between Southwest Genesee Street and Fauntleroy Way Southwest	Partial Closure	6 months
Alaska Junction Station	41st Avenue Southwest between north of Southwest Alaska Street and Southwest Hudson Street	Full Closure	4 years
Alaska Junction Station	Southwest Alaska Street at 41st Avenue Southwest Intersection	Partial Closure	6 months
Alaska Junction Station	Southwest Edmunds Street at 41st Avenue Southwest Intersection	Full Closure	4 years

N.1E.2 Ballard Link Extension

Table N.1E-21. Preferred At-Grade Alternative (SODO-1a) – SODO Segment

Station/Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
South Holgate Street Overcrossing	South Holgate Street between 4th Avenue South and 6th Avenue South	Full Closure	2 years (if connecting to Alternative CID-2a or Option CID-2b) 3 years (if connecting to Alternative CID-1a* or Option CID-1b*)
South Holgate Street Overcrossing	4th Avenue South at South Holgate Street Intersection	Partial Closure	3 months
South Holgate Street Overcrossing	6th Avenue South at South Holgate Street Intersection	Partial Closure	3 months
SODO Busway	SODO Busway between South Massachusetts Street and South Spokane Street [a]	Full Closure	Permanent

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

[a] While the full length of the SODO Busway includes portions of the Chinatown-International District and Duwamish segments, the SODO Busway closure is listed only in the SODO Segment.

Table N.1E-22. At-Grade South Station Option (SODO-1b) – SODO Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
South Holgate Street Overcrossing	South Holgate Street between 4th Avenue South and 6th Avenue South	Full Closure	2 years (if connecting to Alternative CID-2a or Option CID-2b) 3 years (if connecting to Alternative CID-1a* or Option CID-1b*)
South Holgate Street Overcrossing	4th Avenue South at South Holgate Street Intersection	Partial Closure	3 months
South Holgate Street Overcrossing	6th Avenue South at South Holgate Street Intersection	Partial Closure	3 months
SODO Busway	SODO Busway between South Massachusetts Street and South Spokane Street [a]	Full Closure	Permanent

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

[a] While the full length of the SODO Busway includes portions of the Chinatown-International District and Duwamish segments, the SODO Busway closure is listed only in the SODO Segment.

Table N.1E-23. Mixed Profile Alternative (SODO-2) – SODO Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
South Holgate Bridge	South Holgate Street between 4th Avenue South and 6th Avenue South	Full Closure	3 years
South Holgate Bridge	4th Avenue South at South Holgate Street Intersection	Partial Closure	3 months
South Holgate Bridge	6th Avenue South at South Holgate Street Intersection	Partial Closure	3 months
SODO Busway	SODO Busway from South Massachusetts Street to South Spokane Street [a]	Full Closure	7 years

[a] While the full length of the SODO Busway includes portions of the Chinatown-International District and Duwamish segments, the SODO Busway closure is listed only in the SODO Segment.

Table N.1E-24. 4th Avenue Shallow Alternative (CID-1a)* – Chinatown-International District Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
SODO Busway	SODO Busway/Ryerson Bus Base access north of South Massachusetts Street	Full Closure	4 years
International District/Chinatown Station	4th Avenue South between South Jackson Street and Interstate 90 Off-ramp	Partial Closure	6 years
International District/Chinatown Station	Seattle Boulevard South between 4th Avenue South and 5th Avenue South	Full Closure	2 years
International District/Chinatown Station	South Jackson Street between 2nd Avenue Extension South and 5th Avenue South	Full Closure	2 years
International District/Chinatown Station	4th Avenue South at South Jackson Street Intersection	Full Closure	2 years
International District/Chinatown Station	2nd Avenue Extension South between South Jackson Street and 4th Avenue South	Full Closure	2 years
International District/Chinatown Station	4th Avenue South between South Main Street and South Jackson Street	Full Closure	4 years
International District/Chinatown Station	South Main Street between 3rd Avenue South and 4th Avenue South	Full Closure	4 years
International District/Chinatown Station	South Main Street at 4th Avenue South Intersection	Full Closure	4 years
International District/Chinatown Station	4th Avenue South between South Washington Street and South Main Street	Partial Closure	9 months
International District/Chinatown Station	4th Avenue South at South Washington Street Intersection	Partial Closure	9 months

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-25. 4th Avenue Deep Station Option (CID-1b)* – Chinatown-International District Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Tunnel Portal	SODO Busway/Ryerson Bus Base Access north of South Massachusetts Street	Full Closure	Permanent
Tunnel Portal	South Massachusetts Street between SODO Busway and 6th Avenue South	Full Closure	Permanent
International District/Chinatown Station	4th Avenue South between South Jackson Street and Seattle Boulevard South	Full Closure	6.5 years

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
International District/Chinatown Station	4th Avenue South between South Jackson Street and Seattle Boulevard South	Partial Closure	2 years
International District/Chinatown Station	South Jackson Street between 2nd Avenue Extension South and 5th Avenue South	Full Closure	2 years
International District/Chinatown Station	4th Avenue South at South Jackson Street Intersection	Full Closure	2 years
International District/Chinatown Station	2nd Avenue Extension South between South Jackson Street and 4th Avenue South	Full Closure	6.5 years

Table N.1E-26. 5th Avenue Shallow Alternative (CID-2a) – Chinatown-International District Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Tunnel Portal	South Massachusetts Street between SODO Busway and 6th Avenue South	Full Closure	Permanent
Tunnel Portal	6th Avenue South north of South Massachusetts Street	Partial Closure	6 months
Tunnel between Portal and International District/Chinatown Station	6th Avenue South south of South Royal Brougham Way	Partial Closure	9 months
Tunnel between Portal and International District/Chinatown Station	South Royal Brougham Way at 6th Avenue South Intersection	Partial Closure	6 months
Tunnel between Portal and International District/Chinatown Station	6th Avenue South north of South Royal Brougham Way	Partial Closure	1 year
Tunnel between Portal and International District/Chinatown Station	Seattle Boulevard South at 6th Avenue South Intersection	Partial Closure	6 months
International District/Chinatown Station	South Weller Street between 5th Avenue South and 6th Avenue South	Full Closure	2 years
International District/Chinatown Station	South King Street between 5th Avenue South and 6th Avenue South	Full Closure	4 years (3 years if diagonal station configuration)
International District/Chinatown Station	5th Avenue South between South Jackson Street and South Weller Street	Partial Closure	2.5 years

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
International District/Chinatown Station	5th Avenue South between South Jackson Street and South Weller Street	Full Closure	9 months
International District/Chinatown Station	5th Avenue South between South Jackson Street and South King Street (only with diagonal station configuration)	Partial Closure	1 year
International District/Chinatown Station	6th Avenue South between South Jackson Street and South Weller Street	Partial Closure	1 year
International District/Chinatown Station	6th Avenue South Sidewalk and Parking Lane between South King Street and South Weller Street – West Side (only with diagonal station configuration)	Sidewalk and Parking Lane Closure	4 years
International District/Chinatown Station	South Jackson Street at 5th Avenue South Intersection	Partial Closure	6 months

Table N.1E-27. 5th Avenue Deep Station Option (CID-2b) – Chinatown-International District Segment

Guideway Area	Affected Streets and Extents	Closure Type	Approximate Closure Duration
Tunnel Portal	South Massachusetts Street between SODO Busway and 6th Avenue South	Full Closure	Permanent
Tunnel Portal	6th Avenue South north of South Massachusetts Street	Partial Closure	6 months
Tunnel between Portal and International District/Chinatown Station	South Royal Brougham Way at 6th Avenue South Intersection	Partial Closure	3 months
Tunnel between Portal and International District/Chinatown Station	6th Avenue South near Seattle Boulevard South	Partial Closure	3 months
International District/Chinatown Station	5th Avenue South at South Weller Street Intersection	Partial Closure	9 months
International District/Chinatown Station	South Weller Street between 5th Avenue South and 6th Avenue South	Partial Closure	9 months
International District/Chinatown Station	5th Avenue South at South King Street Intersection	Partial Closure	1 year

Table N.1E-28. Preferred 5th Avenue/Harrison Street Alternative (DT-1) – Downtown Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Only When Connecting to Option CID-2a			
Midtown Station	5th Avenue between Columbia Street and Marion Street	Partial Closure	1.5 years
Midtown Station	5th Avenue Sidewalk between Columbia Street and Marion Street – East Side	Sidewalk Closure	6 years
Midtown Station	Columbia Street Sidewalk and Parking Lane between 5th Avenue and 6th Avenue – North Side	Sidewalk and Parking Lane Closure	6 years
Midtown Station	4th Avenue between James Street and Columbia Street	Partial Closure	6 years
Midtown Station	Madison Street Sidewalk between 4th Avenue and 5th Avenue – South Side	Sidewalk Closure	6 years
Midtown Station	Madison Street between 4th Avenue and 5th Avenue	Partial Closure	3 years
Midtown Station	4th Avenue Sidewalk between Marion Street and Madison Street - East Side	Sidewalk Closure	6 years
Midtown Station	4th Avenue between Marion Street and Madison Street	Partial Closure	6 years
Only When Connecting to Alternative CID-1a*, Option CID-1b*, or Option CID 2b			
Midtown Station	5th Avenue between Madison Street and Columbia Street	Full Closure	15 months
Midtown Station	5th Avenue Sidewalk between Columbia Street and Marion Street – East Side	Sidewalk Closure	4 years
Midtown Station	Columbia Street Sidewalk and Parking Lane between 5th Avenue and 6th Avenue – North Side	Sidewalk and Parking Lane Closure	4 years
Midtown Station	4th Avenue between James Street and Columbia Street	Partial Closure	6 years
Midtown Station	4th Avenue Sidewalk between Marion Street and Madison Street - East Side	Sidewalk Closure	6 years
Midtown Station	4th Avenue between Marion Street and Madison Street	Partial Closure	6 years
Midtown Station	Madison Street between 4th Avenue and 5th Avenue	Full Closure	1 year
Midtown Station	Cherry Street between 3rd Avenue and 4th Avenue	Full Closure	1 year
Midtown Station	Cherry Street between 4th Avenue and 5th Avenue	Full Closure	1 year
Midtown Station	Madison Street at 5th Avenue Intersection	Full Closure	9 months

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Midtown Station	Marion Street at 5th Avenue Intersection	Full Closure	9 months
Midtown Station	Columbia Street at 5th Avenue Intersection	Full Closure	9 months
Midtown Station	Madison Street at 4th Avenue Intersection	Partial Closure	4 years
Midtown Station	Express High-Occupancy-Vehicle Reversible entrance - 5th Avenue and Columbia Street	Full Closure	9 months
Same Regardless of Chinatown-International District Segment Connection			
Westlake Station	5th Avenue between Union Street and Pike Street	Partial Closure	6 years
Westlake Station	4th Avenue between Pine Street and Olive Way	Full Closure	2 years
Westlake Station	Pine Street between 4th Avenue and 5th Avenue	Full Closure	6 years
Westlake Station	Pike Street between 4th Avenue and 5th Avenue	Partial Closure	6 years
Westlake Station	Pike Street Sidewalks between 4th Avenue and 5th Avenue – Both Sides	Sidewalk Closure	6 years
Denny Station	Westlake Avenue between 7th Avenue and 8th Avenue	Full Closure	4 years
Denny Station	Westlake Avenue between 8th Avenue and 9th Avenue/ Blanchard Street	Full Closure	4 years
Denny Station	Westlake Avenue between 9th Avenue/Blanchard Street and Denny Way	Full Closure	4 years
Denny Station	8th Avenue at Westlake Avenue Intersection	Partial Closure	9 months
Denny Station	9th Avenue/Blanchard Street at Westlake Avenue Intersection	Partial Closure	9 months
Denny Station	8th Avenue between Westlake Avenue and Blanchard Street	Partial Closure	4 years
Denny Station	Blanchard Street between 8th Avenue and 9th Avenue/ Westlake Avenue	Partial Closure	5 years
Denny Station	7th Avenue between Westlake Avenue and Lenora Street	Partial Closure	4 years
South Lake Union Station	Harrison Street between 6th Avenue North and 7th Avenue North	Full Closure	4 years
South Lake Union Station	Harrison Street between 7th Avenue North and Dexter Avenue North	Full Closure	4 years

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
South Lake Union Station	7th Avenue North at Harrison Street Intersection	Partial Closure	1.5 years
South Lake Union Station	Dexter Avenue North at Harrison Street Intersection	Partial Closure	1.5 years
South Lake Union Station	Harrison Street between Dexter Avenue North and 8th Avenue North	Partial Closure	1.5 years
Seattle Center Station	Republican Street between Queen Anne Avenue North and 1st Avenue North	Full Closure	5 years
Seattle Center Station	1st Avenue North at Republican Street Intersection	Full Closure	15 months
Seattle Center Station	Republican Street between 1st Avenue North and Warren Avenue North	Full Closure	5 Years

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-29. 6th Avenue/Mercer Street Alternative (DT-2) – Downtown Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Midtown Station	6th Avenue between University Street and Madison Street	Partial Closure	1 year
Midtown Station	6th Avenue at Seneca Street Intersection	Partial Closure	1 year
Midtown Station	6th Avenue at Spring Street Intersection	Partial Closure	1 year
Midtown Station	6th Avenue at Marion Street Intersection	Partial Closure	1 year
Midtown Station	5th Avenue Sidewalk and Parking Lane between Spring Street and Seneca Street - East Side	Sidewalk and Parking Lane Closure	6 years
Midtown Station	James Street Southbound Interstate 5 Off-ramp between Interstate 5 and James Street	Partial Closure	6 years
Midtown Station	Interstate 5 Southbound mainline between Seneca Street and Madison Street	Partial Closure (west lane)	Nights and weekends
Westlake Station	6th Avenue between Stewart Street and Olive Way	Full Closure	6 years
Westlake Station	Pine Street between 5th Avenue and 6th Avenue	Full Closure	4 years
Westlake Station	Pine Street Sidewalks between 5th Avenue and 6th Avenue – Both Sides	Sidewalk Closure	6 years

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Westlake Station	Pine Street Sidewalk between 6th Avenue and 7th Avenue – South Side	Sidewalk Closure	6 years
Westlake Station	6th Avenue Sidewalk and Parking Lane between Pike Street and Pine Street – East Side	Sidewalk and Parking Lane Closure	6 years
Denny Station	Thomas Street at Terry Avenue North Intersection	Full Closure	4 years
Denny Station	John Street at Terry Avenue North Intersection	Full Closure	4 years
Denny Station	Denny Street at Terry Avenue North Intersection	Partial Closure	9 months
Denny Station	Terry Avenue North between Denny Way and Thomas Street	Full Closure	4 years
Denny Station	Terry Avenue North just south of Denny Way	Partial Closure	3 months
South Lake Union Station	Taylor Avenue North between Mercer Street and Roy Street	Full Closure	4 years
South Lake Union Station	6th Avenue North just north of Mercer Street	Full Closure	4 years
Seattle Center Station	Mercer Street between Warren Avenue North and 1st Avenue West	Partial Closure	3.5 years
Seattle Center Station	Warren Avenue North between Mercer Street and Roy Street	Full Closure	6 months
Seattle Center Station	Warren Avenue North at Mercer Street Intersection	Full Closure	6 months
Seattle Center Station	1st Avenue North at Mercer Street Intersection	Full Closure	6 months
Seattle Center Station	Queen Anne Avenue North at Mercer Street Intersection	Full Closure	6 months
Seattle Center Station	1st Avenue West at West Mercer Street Intersection	Full Closure	6 months
Seattle Center Station	West Mercer Street between 1st Avenue West and 2nd Avenue West	Partial Closure	6 months
Seattle Center Station	Mercer Street between Warren Avenue North and 2nd Avenue North	Partial Closure	6 months

Table N.1E-30. Preferred Galer Street Station/Central Interbay Alternative (SIB-1) – South Interbay Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Republican Street Tunnel Portal	West Republican Street between 3rd Avenue West and 5th Avenue West	Full Closure	5 years
Republican Street Tunnel Portal	3rd Avenue West at West Republican Street Intersection	Full Closure	5 years
Republican Street Tunnel Portal	4th Avenue West at West Republican Street Intersection	Full Closure	5 years
Republican Street Tunnel Portal	West Republican Street between 2nd Avenue West and 3rd Avenue West	Full Closure	6 months
Guideway between Republican Street Tunnel Portal and Smith Cove Station	Elliot Avenue West between West Republican Street and West Galer Street	Partial Closure	1.5 years
Guideway between Republican Street Tunnel Portal and Smith Cove Station	Elliot Avenue West between West Republican Street and West Galer Street	Partial Closure	Nights and weekends
Guideway between Republican Street Tunnel Portal and Smith Cove Station	West Mercer Place just east of Elliott Avenue West	Partial Closure	3 months
Guideway between Republican Street Tunnel Portal and Smith Cove Station	West Mercer Place just east of Elliott Avenue West	Full Closure	Nights and weekends
Smith Cove Station	West Galer Street Bridge (including pedestrian bridge connection to Elliott Avenue West)	Full Closure	Night and weekends
Smith Cove Station	West Armory Way east of BNSF Railway tracks	Full Closure	Nights and weekends

Table N.1E-31. Prospect Street Station/15th Avenue Alternative (SIB-2) – South Interbay Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Republican Street Tunnel Portal	West Republican Street between 3rd Avenue West and 5th Avenue West	Full Closure	5 years
Republican Street Tunnel Portal	3rd Avenue West at West Republican Street Intersection	Full Closure	5 years
Republican Street Tunnel Portal	4th Avenue West at West Republican Street Intersection	Full Closure	5 years
Republican Street Tunnel Portal	West Republican Street between 2nd Avenue West and 3rd Avenue West	Full Closure	6 months

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Guideway between Republican Street Tunnel Portal and Smith Cove Station	Elliott Avenue West between West Republican Street and West Mercer Place	Partial Closure	9 months
Guideway between Republican Street Tunnel Portal and Smith Cove Station	Elliott Avenue West between West Republican Street and West Mercer Place	Partial Closure	Nights and weekends
Guideway between Republican Street Tunnel Portal and Smith Cove Station	West Mercer Place just east of Elliott Avenue West	Partial Closure	3 months
Guideway between Republican Street Tunnel Portal and Smith Cove Station	West Mercer Place just east of Elliott Avenue West	Full Closure	Nights and weekends
Guideway between Smith Cove Station and Interbay Station	15th Avenue West between West Barrett Street and West Howe Street	Partial Closure	1 year
Guideway between Smith Cove Station and Interbay Station	15th Avenue West between West Barrett Street and West Howe Street	Partial Closure	Nights and weekends

Table N.1E-32. Prospect Street Station/Central Interbay Alternative (SIB-3) – South Interbay Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Guideway between Republican Street Tunnel Portal and Smith Cove Station	Elliot Avenue West between south of West Prospect Street and West Galer Street Flyover	Partial Closure	Nights and weekends
Guideway between Smith Cove Station and Interbay Station	West Howe Street between 14th Avenue West and 15th Avenue West	Full Closure	3 months
Guideway between Smith Cove Station and Interbay Station	West Howe Street between 14th Avenue West and 15th Avenue West	Full Closure	Nights and weekends
Guideway between Smith Cove Station and Interbay Station	West Newton Street between 14th Avenue West and 15th Avenue West	Full Closure	3 months
Guideway between Smith Cove Station and Interbay Station	West Newton Street between 14th Avenue West and 15th Avenue West	Full Closure	Nights and weekends
Guideway between Smith Cove Station and Interbay Station	15th Avenue West near West Armory Way	Partial Closure	9 months
Guideway between Smith Cove Station and Interbay Station	15th Avenue West near West Armory Way	Full Closure	Nights and weekends

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Guideway between Smith Cove Station and Interbay Station	Unpaved access road north of West Armory Way and east of BNSF Railway tracks	Full Closure	Nights and weekends

Table N.1E-33. Preferred Elevated 14th Avenue Alternative (IBB-1a) – Interbay/Ballard Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Interbay Station	West Dravus Street between BNSF Railway tracks and 17th Avenue West	Full Closure	Nights and weekends
Interbay Station	17th Avenue West at West Bertona Street Intersection	Full Closure	3 years
Interbay Station	Thorndyke Avenue West between 17th Avenue West and 16th Avenue West	Full Closure	3 years
Interbay Station	16th Avenue West at Thorndyke Avenue West Intersection (only when connecting to SIB-1)	Full Closure	3 years
Interbay Station	16th Avenue West between West Bertona Street and Thorndyke Avenue West (only when connecting to SIB-3)	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	West Nickerson Street at 13th Avenue West Intersection	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	West Emerson Street between 13th Avenue West and 14th Avenue West	Full Closure	1.5 years
Guideway between Interbay Station and Ballard Station	14th Avenue West at West Emerson Street Intersection and south of West Emerson Street	Full Closure	1.5 years
Guideway between Interbay Station and Ballard Station	West Nickerson Street overcrossing over 15th Avenue West	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	15th Avenue West in the vicinity of West Emerson Street	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	14th Avenue Northwest between Northwest 45th Street and Northwest Leary Way	Partial Closure	3 months
Guideway between Interbay Station and Ballard Station	14th Avenue Northwest between Northwest 45th Street and Northwest 51st Street	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest 45th Street at 14th Avenue Northwest Intersection	Full Closure	Nights and weekends

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Guideway between Interbay Station and Ballard Station	Northwest 46th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest Ballard Way at 14th Avenue Northwest Intersection	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest Leary Way at 14th Avenue Northwest Intersection	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	Northwest 49th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest 50th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest 51st Street at 14th Avenue Northwest Intersection	Full Closure	Nights and weekends
Ballard Station	14th Avenue Northwest between Northwest 51st Street and Northwest 58th Street	Full Closure	Nights and weekends
Ballard Station	Northwest 53rd at 14th Avenue Northwest Intersection	Full Closure	3 years
Ballard Station	Northwest 54th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Ballard Station	Northwest Market Street at 14th Avenue Northwest Intersection	Full Closure	Nights and weekends

Table N.1E-34. Elevated 14th Avenue Alignment Option (from Prospect Street Station/15th Avenue) (IBB-1b) – Interbay/Ballard Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Interbay Station	15th Avenue West between West Barrett Street and West Ruffner Street	Partial Closure (Center Lanes and Median Only)	6 months
Interbay Station	15th Avenue West Northbound On-ramp from West Dravus Street	Full Closure	Nights and weekends
Interbay Station	15th Avenue West Southbound Off-ramp to West Dravus Street	Full Closure	Nights and weekends
Interbay Station	15th Avenue West between West Barrett Street and West Ruffner Street	Full Closure	Nights and weekends

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Interbay Station	West Dravus Street and 15th Avenue West On and Off-ramp Intersections	Full Closure	Approximately 1-month rolling closures over 3 years
Interbay Station	West Dravus Street Overcrossing of 15th Avenue West	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	West Nickerson Street at 13th Avenue West Intersection	Partial Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	West Emerson Street east of 14th Avenue West	Full Closure	1 year
Guideway between Interbay Station and Ballard Station	14th Avenue West south of West Emerson Street	Partial Closure	6 months
Guideway between Interbay Station and Ballard Station	West Nickerson Street Overcrossing of 15th Avenue West	Partial Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	West Ruffner Street east of 15th Avenue West	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	14th Avenue Northwest between Northwest Leary Way and Northwest 45th Street	Partial Closure	3 months
Guideway between Interbay Station and Ballard Station	14th Avenue Northwest between Northwest 45th Street and Northwest 51st Street	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest 45th Street at 14th Avenue Northwest Intersection	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	Northwest 46th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest Ballard Way at 14th Avenue Northwest Intersection	Full Closure	3 years

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Guideway between Interbay Station and Ballard Station	Northwest Leary Way at 14th Avenue Northwest Intersection	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	Northwest 49th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest 50th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Guideway between Interbay Station and Ballard Station	Northwest 51st Street at 14th Avenue Northwest Intersection	Full Closure	Nights and weekends
Ballard Station	14th Avenue Northwest between Northwest 51st Street and Northwest 58th Street	Full Closure	Nights and weekends
Ballard Station	Northwest 53rd at 14th Avenue Northwest Intersection	Full Closure	3 years
Ballard Station	Northwest 54th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Ballard Station	Northwest Market Street at 14th Avenue Northwest Intersection	Full Closure	Nights and weekends

Table N.1E-35. Preferred Tunnel 14th Avenue Alternative (IBB-2a)* – Interbay/Ballard Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Interbay Station	16th Avenue West between West Bertona Street and Thorndyke Avenue West	Full Closure	3 years
Interbay Station	17th Avenue West between West Dravus Street and Thorndyke Avenue West	Full Closure	3 years
Interbay Station	Thorndyke Avenue West between 17th Avenue West and 16th Avenue West	Full Closure	3 years
Interbay Station	15th Avenue West at West Nickerson Street Overcrossing	Partial Closure	6 months

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Ballard Station	14th Avenue Northwest between Northwest 52nd Street and Northwest 58th Street	Full Closure	3 years
Ballard Station	Northwest 52nd Street at 14th Avenue Northwest Intersection	Full Closure	3 months
Ballard Station	Northwest 53rd Street at 14th Avenue Northwest Intersection	Full Closure	6 months
Ballard Station	Northwest 54th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Ballard Station	Northwest Market Street at 14th Avenue Northwest Intersection	Partial Closure	9 months
Ballard Station	Northwest 56th Street at 14th Avenue Northwest Intersection	Full Closure	3 years
Ballard Station	Northwest 57th Street at 14th Avenue Northwest Intersection	Full Closure	6 months

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-36. Preferred Tunnel 15th Avenue Station Option (IBB-2b)* – Interbay/Ballard Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Interbay Station	16th Avenue West between West Bertona Street and Thorndyke Avenue West	Full Closure	3 years
Interbay Station	17th Avenue West between West Dravus Street and Thorndyke Avenue West	Full Closure	3 years
Interbay Station	Thorndyke Avenue West between 17th Avenue West and 16th Avenue West	Full Closure	3 years
Interbay Station	15th Avenue West at West Nickerson Street Overcrossing	Partial Closure	6 months
Ballard Station	Northwest 51st Street east of 15th Avenue Northwest	Full Closure	3 months
Ballard Station	Northwest 52nd Street East of 15th Avenue Northwest	Full Closure	4 years
Ballard Station	Northwest 53rd Street east of 15th Avenue Northwest	Partial Closure	6 months

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Ballard Station	Northwest 54th Street east of 15th Avenue Northwest	Full Closure	4 years
Ballard Station	15th Avenue Northwest between Northwest 54th Street and Northwest Market Street	Partial Closure	9 months
Ballard Station	Northwest Market Street at 15th Avenue Northwest Intersection	Partial Closure	3 years

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1E-37. Elevated 15th Avenue Alternative (IBB-3) – Interbay/Ballard Segment

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Interbay Station	15th Avenue West between West Bertona Street and West Barrett Street	Partial Closure (Center Lanes and Median Only)	6 months
Interbay Station	15th Avenue West Northbound On-ramp from West Dravus Street	Full Closure	9 months
Interbay Station	15th Avenue West Southbound Off-ramp to West Dravus Street	Full Closure	Nights and weekends
Interbay Station	15th Avenue West between West Bertona Street and West Barrett Street	Full Closure	Nights and weekends
Interbay Station	West Bertona Street west of 15th Avenue West	Full Closure	Nights and weekends
Interbay Station	West Dravus Street and 15th Avenue West On and Off-ramp Intersections	Full Closure	Approximately 1 month rolling closures over 3 years
Interbay Station	West Dravus Street Overcrossing of 15th Avenue West	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	West Thurman Street west of 15th Avenue West	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	West Emerson Street west of 15th Avenue West	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	West Nickerson Street Overcrossing of 15th Avenue West	Full Closure	Nights and weekends

Station/Guideway Area	Affected Street and Extents	Closure Type	Approximate Closure Duration
Guideway between Interbay Station and Ballard Station	Shilshole Avenue Northwest West of 15th Avenue Northwest	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	Northwest 46th Street west of 15th Avenue Northwest	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	Northwest Ballard Way west of 15th Avenue Northwest	Partial Closure	3 months
Guideway between Interbay Station and Ballard Station	Northwest Ballard Way west of 15th Avenue Northwest	Full Closure	Nights and weekends
between Interbay Station and Ballard Station	Northwest Leary Way west of 15th Avenue Northwest	Partial Closure	3 months
between Interbay Station and Ballard Station	Northwest Leary Way west of 15th Avenue Northwest	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	Northwest 49th Street west of 15th Avenue Northwest	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	Northwest 50th Street west of 15th Avenue Northwest	Partial Closure	3 months
Guideway between Interbay Station and Ballard Station	Northwest 50th Street west of 15th Avenue Northwest	Full Closure	Nights and weekends
Guideway between Interbay Station and Ballard Station	Northwest 51st Street west of 15th Avenue Northwest	Full Closure	Nights and weekends
Ballard Station	15th Avenue Northwest between Northwest 52nd Street and Northwest 57th Street	Partial Closure	3 months
Ballard Station	15th Avenue Northwest between Northwest 52nd Street and Northwest 57th Street	Full Closure	Nights and weekends
Ballard Station	Northwest 52nd Street at 15th Avenue Northwest Intersection	Full Closure	Nights and weekends
Ballard Station	Northwest 53rd Street at 15th Avenue Northwest Intersection	Full Closure	Nights and weekends
Ballard Station	Northwest 54th Street at 15th Avenue Northwest Intersection	Full Closure	3 years
Ballard Station	Northwest Market Street at 15th Avenue Northwest Intersection	Full Closure	Nights and weekends
Ballard Station	Northwest 56th Street at 15th Avenue Northwest Intersection	Full Closure	Nights and weekends

Attachment N.1F
Pedestrian Level of Service

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Attachment N.1F Pedestrian Level of Service

Table N.1F-1. Pedestrian Level of Service Thresholds

Level of Service	Sidewalk Average Space (square feet per person)	Crosswalk Average Space (square feet per person)	Corner Average Space (square foot per person)
A	>60	>530	Not applicable
B	>40 to 60	>90 to 530	Not applicable
C	>24 to 40	>40 to 90	Not applicable
D	>15 to 24	>23 to 40	Not applicable
E	>8 to 15	>11 to 23	Not applicable
F	≤8	≤11	Not applicable
Pass	Not applicable	Not applicable	>4
Fail	Not applicable	Not applicable	≤4

Notes:

≤ = less than or equal to

> = greater than

Table N.1F-2. SODO Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SODO-1a	2042 SODO-1b	2042 SODO-2
South Lander Street between 4th Avenue and SODO Busway	North	A	B	B	C	C
South Lander Street between 4th Avenue and SODO Busway	South	A	A	A	A	A
South Lander Street between 6th Avenue and SODO Busway	North	A	A	A	A	A
South Lander Street between 6th Avenue and SODO Busway	South	A	A	A	A	A
4th Avenue South north of South Lander Street	East	A	A	A	A	A
4th Avenue South north of South Lander Street	West	A	A	A	A	A
6th Avenue north of South Lander Street	East	A	A	A	A	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SODO-1a	2042 SODO-1b	2042 SODO-2
6th Avenue north of South Lander Street	West	A	A	A	A	A
SODO Busway/Platform north of South Lander Street	East	A	A	Not applicable	A	A
SODO Busway/Platform north of South Lander Street	West	A	A	Not applicable	A	A
South Stacy Street between 5th Avenue South and 6th Avenue South	North	Not applicable	Not applicable	A	Not applicable	Not applicable
South Stacy Street between 5th Avenue South and 6th Avenue South	South	Not applicable	Not applicable	A	Not applicable	Not applicable
South Stacy Street between 4th Avenue South and 5th Avenue South	North	Not applicable	Not applicable	B	Not applicable	Not applicable
South Stacy Street between 4th Avenue South and 5th Avenue South	South	Not applicable	Not applicable	A	Not applicable	Not applicable
4th Avenue South between South Lander Street and South Stacy Street	East	Not applicable	Not applicable	A	Not applicable	Not applicable
4th Avenue South between South Lander Street and South Stacy Street	West	Not applicable	Not applicable	A	Not applicable	Not applicable
6th Avenue South between South Lander Street and South Stacy Street	East	Not applicable	Not applicable	A	Not applicable	Not applicable
6th Avenue South between South Lander Street and South Stacy Street	West	Not applicable	Not applicable	A	Not applicable	Not applicable

Table N.1F-3. SODO Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2024 SODO-1a	2042 SODO-1b	2042 SODO-2
South Lander Street at 4th Avenue South	North	B	C	C	C	C
South Lander Street at 4th Avenue South	South	A	A	A	A	A
South Lander Street at 4th Avenue South	East	A	A	A	A	A
South Lander Street at 4th Avenue South	West	A	A	A	A	A
South Lander Street at 6th Avenue South	North	A	A	A	A	A

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2024 SODO-1a	2042 SODO-1b	2042 SODO-2
South Lander Street at 6th Avenue South	South	A	A	A	A	A
South Lander Street at 6th Avenue South	East	A	A	A	A	A
South Lander Street at 6th Avenue South	West	A	A	A	A	A
South Lander Street at SODO Busway [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Lander Street at SODO Busway [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Lander Street at SODO Busway [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Lander Street at SODO Busway [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street at 6th Avenue South [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street at 6th Avenue South [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street at 6th Avenue South [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street at 6th Avenue South [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street at 4th Avenue South [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street at 4th Avenue South [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street at 4th Avenue South [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street at 4th Avenue South [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-4. SODO Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 SODO-1a	2042 SODO-1b	2042 SODO-2
South Lander Street and 4th Avenue South	Northwest	PASS	PASS	PASS	PASS	PASS
South Lander Street and 4th Avenue South	Northeast	PASS	PASS	PASS	PASS	PASS
South Lander Street and 4th Avenue South	Southwest	PASS	PASS	PASS	PASS	PASS
South Lander Street and 4th Avenue South	Southeast	PASS	PASS	PASS	PASS	PASS
South Lander Street and 6th Avenue South	Northwest	PASS	PASS	PASS	PASS	PASS
South Lander Street and 6th Avenue South	Northeast	PASS	PASS	PASS	PASS	PASS

Intersection	Corner	Existing	2042 No Build	2042 SODO-1a	2042 SODO-1b	2042 SODO-2
South Lander Street and 6th Avenue South	Southwest	PASS	PASS	PASS	PASS	PASS
South Lander Street and 6th Avenue South	Southeast	PASS	PASS	PASS	PASS	PASS
South Lander Street and SODO Busway [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Lander Street and SODO Busway [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Lander Street and SODO Busway [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Lander Street and SODO Busway [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street and 6th Avenue South [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street and 6th Avenue South [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street and 6th Avenue South [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street and 6th Avenue South [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street and 4th Avenue South [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street and 4th Avenue South [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street and 4th Avenue South [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
South Stacy Street and 4th Avenue South [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-5. Delridge Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
26th Avenue Southwest between Genesee and Nevada	East	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
26th Avenue Southwest between Genesee and Nevada	West	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
26th Avenue Southwest between Dakota and Nevada	East	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
26th Avenue Southwest between Dakota and Nevada	West	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Dakota Street between 25th and Delridge	North	A	A	A	A	A	A	A	A	Not applicable	Not applicable
Southwest Dakota Street between 25th and Delridge	South	A	A	C	C	C	C	A	A	Not applicable	Not applicable
Southwest Dakota Street between 26th Avenue Southwest and 25th Avenue Southwest	North	A	A	A	A	A	A	A	A	Not applicable	Not applicable
Southwest Dakota Street between 26th Avenue Southwest and 25th Avenue Southwest	South	A	A	A	A	A	A	A	A	Not applicable	Not applicable
Southwest Genesee Street between 26th and 25th	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street between 26th and 25th	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Southwest Genesee Street between 25th and Delridge	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street between 25th and Delridge	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street west of 26th Avenue Southwest	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street west of 26th Avenue Southwest	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest between Genesee and Dakota	East	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest between Genesee and Dakota	West	A	A	C	C	C	C	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest north of Southwest Dakota Street	West	A	A	A	A	A	A	C	C	A	A
Delridge Way Southwest north of Southwest Dakota Street	East	A	A	A	A	A	A	A	A	A	A
Delridge Way north of Southwest Andover Street	East	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	A	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Delridge Way north of Southwest Andover Street	West	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	E	E
Southwest Nevada Street west of 26th Avenue Southwest	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street west of 26th Avenue Southwest	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest between Dakota and Genesee	West	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest between Dakota and Genesee	East	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Andover Street west of Delridge Avenue Southwest	North	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	A	A
Southwest Andover Street west of Delridge Avenue Southwest	South	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	A	A

Table N.1F-6. Delridge Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Southwest Genesee Street at 26th Avenue Southwest	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 26th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 26th Avenue Southwest	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 26th Avenue Southwest	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street at 26th Avenue Southwest	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street at 26th Avenue Southwest	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street at 26th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Dakota Street at 25th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Dakota Street at 25th Avenue Southwest	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Dakota Street at 25th Avenue Southwest	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Delridge Way Southwest at Southwest Dakota Street	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest at Southwest Dakota Street	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest at Southwest Dakota Street	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest at Southwest Genesee Street	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest at Southwest Genesee Street	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest at Southwest Genesee Street	West	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest at Southwest Genesee Street	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest at Southwest Genesee Street	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest at Southwest Genesee Street	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Southwest Andover Street at Delridge Way Southwest	North	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	B	B
Southwest Andover Street at Delridge Way Southwest	South	B	B	Not applicable	Not applicable	Not applicable	Not applicable	B	B	B	B
Southwest Andover Street at Delridge Way Southwest	East	A	A	Not applicable	Not applicable	Not applicable	Not applicable	B	B	B	B
Southwest Andover Street at Delridge Way Southwest	West	A	A	Not applicable	Not applicable	Not applicable	Not applicable	B	B	B	B

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-7. Delridge Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a	2042 DEL-2b	2042 DEL-3	2042 DEL-4	2042 DEL-5	2042 DEL-6
West Andover Street and Delridge Way Southwest	Northwest	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS	PASS	PASS	PASS
West Andover Street and Delridge Way Southwest	Southwest	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS	PASS	PASS	PASS
West Andover Street and Delridge Way Southwest	Northeast	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS	PASS	PASS	PASS
West Andover Street and Delridge Way Southwest	Southeast	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS	PASS	PASS	PASS
Southwest Dakota Street and 25th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a	2042 DEL-2b	2042 DEL-3	2042 DEL-4	2042 DEL-5	2042 DEL-6
Southwest Dakota Street and 25th Avenue Southwest [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Dakota Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Dakota Street [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Genesee Street	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Genesee Street	Southwest	PASS	PASS	PASS	PASS	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest [a]	Northwest	PASS	PASS	PASS	PASS	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street and 26th Avenue Southwest [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a	2042 DEL-2b	2042 DEL-3	2042 DEL-4	2042 DEL-5	2042 DEL-6
Southwest Nevada Street and 26th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest and Southwest Genesee Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest and Southwest Genesee Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-8. Avalon Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-5*
Southwest Avalon Way north of Southwest Genesee Street	West	A	A	A	A	A	A
Southwest Avalon Way north of Southwest Genesee Street	East	A	A	A	A	A	A
Southwest Avalon Way between Southwest Genesee Street and 35th Avenue Southwest	North	A	A	A	A	A	A
Southwest Avalon Way between Southwest Genesee Street and 35th Avenue Southwest	South	A	A	A	A	A	A
Southwest Avalon Way between 35th Avenue Southwest and Fauntleroy Way Southwest	North	A	A	A	A	A	A
Southwest Avalon Way between 35th Avenue Southwest and Fauntleroy Way Southwest	South	A	A	A	A	A	A
Fauntleroy Way Southwest between Southwest Avalon Way and 35th Avenue Southwest	West	A	A	A	A	A	A
Fauntleroy Way Southwest between Southwest Avalon Way and 35th Avenue Southwest	East	A	A	A	A	A	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-5*
35th Avenue Southwest north of Fauntleroy Way Southwest	West	A	A	A	A	A	A
35th Avenue Southwest north of Fauntleroy Way Southwest	East	A	A	A	A	A	A
35th Avenue Southwest between Fauntleroy Way Southwest and Avalon Way Southwest	West	A	A	A	A	A	A
35th Avenue Southwest between Fauntleroy Way Southwest and Avalon Way Southwest	East	A	A	B	A	A	A
35th Avenue Southwest south of Avalon Way	West	A	A	A	A	A	A
35th Avenue Southwest south of Avalon Way	East	A	A	A	A	A	A
Southwest Genesee Street between 35th Avenue Southwest and Southwest Avalon Way	West	A	A	A	A	A	A
Southwest Genesee Street between 35th Avenue Southwest and Southwest Avalon Way	East	A	A	A	A	A	A
Fauntleroy Way Southwest south of Avalon Way	East	A	A	A	A	A	A
Southwest Genesee Street between Fauntleroy Way Southwest and 36th Avenue Southwest	North	A	A	Not applicable	Not applicable	A	Not applicable
36th Avenue Southwest north of Southwest Genesee Street	West	A	A	Not applicable	Not applicable	A	Not applicable
36th Avenue Southwest north of Southwest Genesee Street	East	A	A	Not applicable	Not applicable	A	Not applicable
36th Avenue Southwest south of Southwest Genesee Street	West	A	A	Not applicable	Not applicable	A	Not applicable
Southwest Genesee Street between 36th Avenue Southwest and 37th Avenue Southwest	North	A	A	Not applicable	Not applicable	A	Not applicable
Southwest Genesee Street between 36th Avenue Southwest and 37th Avenue Southwest	South	A	A	Not applicable	Not applicable	A	Not applicable
37th Avenue Southwest north of Southwest Genesee Street	West	A	A	Not applicable	Not applicable	A	Not applicable
37th Avenue Southwest north of Southwest Genesee Street	East	A	A	Not applicable	Not applicable	A	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-5*
37th Avenue Southwest south of Southwest Genesee Street	West	A	A	Not applicable	Not applicable	A	Not applicable
37th Avenue Southwest south of Southwest Genesee Street	East	A	A	Not applicable	Not applicable	A	Not applicable
Southwest Genesee Street west of 37th Avenue Southwest	North	A	A	Not applicable	Not applicable	A	Not applicable
Southwest Genesee Street west of 37th Avenue Southwest	South	A	A	Not applicable	Not applicable	A	Not applicable

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1F-9. Avalon Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-5*
Southwest Avalon Way at Southwest Genesee Street	North	A	A	A	A	A	A
Southwest Avalon Way at Southwest Genesee Street	South	A	A	A	A	A	A
Southwest Avalon Way at Southwest Genesee Street	East	A	A	A	B	A	A
Southwest Avalon Way at Southwest Genesee Street	West	B	B	B	B	B	B
Southwest Avalon Way at 35th Avenue Southwest	North	B	B	B	B	B	B
Southwest Avalon Way at 35th Avenue Southwest	South	B	B	B	B	B	B
Southwest Avalon Way at 35th Avenue Southwest	East	B	B	B	B	B	B
Southwest Avalon Way at 35th Avenue Southwest	West	B	B	B	B	B	B

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-5*
Southwest Avalon Way at Fauntleroy Way Southwest	North	A	A	A	A	A	A
Southwest Avalon Way at Fauntleroy Way Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Avalon Way at Fauntleroy Way Southwest	East	A	A	A	A	A	A
Fauntleroy Way Southwest at 35th Avenue Southwest	North	A	A	A	A	A	A
Fauntleroy Way Southwest at 35th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at 35th Avenue Southwest	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at 35th Avenue Southwest	West	A	A	B	B	Not applicable	B
Southwest Genesee Street at 36th Avenue Southwest	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 36th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 36th Avenue Southwest	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 36th Avenue Southwest	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 37th Avenue Southwest	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 37th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street at 37th Avenue Southwest	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1F-10. Avalon Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-5*
Southwest Avalon Way and Southwest Genesee Street	Northwest	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and Southwest Genesee Street	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and Southwest Genesee Street	Southwest	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and Southwest Genesee Street	Southeast	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and 35th Avenue Southwest	Northwest	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and 35th Avenue Southwest	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and 35th Avenue Southwest	Southwest	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and 35th Avenue Southwest	Southeast	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and Fauntleroy Way Southwest	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
Southwest Avalon Way and Fauntleroy Way Southwest	Southeast	PASS	PASS	PASS	PASS	PASS	PASS
Fauntleroy Way Southwest and 35th Avenue Southwest	Northwest	PASS	PASS	PASS	PASS	PASS	PASS
Fauntleroy Way Southwest and 35th Avenue Southwest	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
Fauntleroy Way Southwest and 35th Avenue Southwest	Southwest	PASS	PASS	PASS	PASS	PASS	PASS
Fauntleroy Way Southwest and 35th Avenue Southwest [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 36th Avenue Southwest [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-5*
Southwest Genesee Street and 36th Avenue Southwest [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 36th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 36th Avenue Southwest [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 37th Avenue Southwest [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 37th Avenue Southwest [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 37th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 37th Avenue Southwest [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-11. Alaska Junction Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
Southwest Alaska Street between California Avenue Southwest and 42nd Avenue Southwest	North	A	A	A	Not applicable	Not applicable	C	Not applicable	Not applicable
Southwest Alaska Street between California Avenue Southwest and 42nd Avenue Southwest	South	A	A	A	Not applicable	Not applicable	A	Not applicable	Not applicable
Southwest Alaska Street east of 42nd Avenue Southwest	North	A	A	A	Not applicable	A	A	A	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
Southwest Alaska Street east of 42nd Avenue Southwest	South	A	A	B	Not applicable	A	A	A	A
Southwest Alaska Street between 41st Southwest and 40th Avenue Southwest	North	A	A	A	Not applicable	B	Not applicable	B	B
Southwest Alaska Street between 41st Southwest and 40th Avenue Southwest	South	A	A	A	Not applicable	A	Not applicable	A	A
Southwest Alaska Street east of 40th Avenue Southwest	North	A	A	Not applicable	A	A	Not applicable	A	A
Southwest Alaska Street east of 40th Avenue Southwest	South	A	A	Not applicable	A	A	Not applicable	A	A
Southwest Alaska Street between Fauntleroy Way Southwest and 38th Avenue Southwest	North	A	A	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Alaska Street between Fauntleroy Way Southwest and 38th Avenue Southwest	South	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Alaska Street west of California Avenue Southwest	North	A	A	Not applicable	Not applicable	Not applicable	A	Not applicable	Not applicable
Southwest Alaska Street west of California Avenue Southwest	South	A	A	Not applicable	Not applicable	Not applicable	A	Not applicable	Not applicable
California Avenue Southwest north of Southwest Alaska Street	West	A	A	Not applicable	Not applicable	Not applicable	A	Not applicable	Not applicable
California Avenue Southwest north of Southwest Alaska Street	East	A	A	Not applicable	Not applicable	Not applicable	A	Not applicable	Not applicable
California Avenue Southwest south of Southwest Alaska Street	West	A	A	Not applicable	Not applicable	Not applicable	A	Not applicable	Not applicable
California Avenue Southwest south of Southwest Alaska Street	East	A	A	Not applicable	Not applicable	Not applicable	A	Not applicable	Not applicable
38th Avenue Southwest between Fauntleroy Way Southwest and Southwest Alaska Street	West	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
38th Avenue Southwest between Fauntleroy Way Southwest and Southwest Alaska Street	East	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	West	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	East	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest north of Southwest Alaska Street	West	A	A	Not applicable	Not applicable	A	Not applicable	A	A
40th Avenue Southwest north of Southwest Alaska Street	East	A	A	Not applicable	Not applicable	A	Not applicable	A	A
40th Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	West	A	A	Not applicable	Not applicable	A	Not applicable	A	A
40th Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	East	A	A	Not applicable	Not applicable	A	Not applicable	A	A
41st Avenue Southwest north of Southwest Alaska Street	West	A	A	A	Not applicable	A	Not applicable	A	A
41st Avenue Southwest north of Southwest Alaska Street	East	A	A	A	Not applicable	B	Not applicable	A	A
41st Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	West	A	A	A	Not applicable	A	Not applicable	A	A
41st Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	East	A	A	A	Not applicable	C	Not applicable	A	D
42nd Avenue Southwest north of Southwest Alaska Street	West	A	A	A	Not applicable	Not applicable	A	Not applicable	Not applicable
42nd Avenue Southwest north of Southwest Alaska Street	East	A	A	A	Not applicable	Not applicable	A	Not applicable	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
42nd Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	West	A	A	A	Not applicable	Not applicable	A	Not applicable	Not applicable
42nd Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	East	A	A	B	Not applicable	Not applicable	A	Not applicable	Not applicable
Southwest Edmunds Street west of 42nd Avenue Southwest	North	A	A	A	Not applicable	Not applicable	A	Not applicable	Not applicable
Southwest Edmunds Street west of 42nd Avenue Southwest	South	A	A	A	Not applicable	Not applicable	A	Not applicable	Not applicable
Southwest Edmunds Street east of 42nd Avenue Southwest	North	A	A	A	Not applicable	A	A	A	A
Southwest Edmunds Street east of 42nd Avenue Southwest	South	A	A	A	Not applicable	A	A	A	A
Southwest Edmunds Street between 40th Avenue Southwest and 41st Avenue Southwest	North	A	A	A	Not applicable	A	Not applicable	B	A
Southwest Edmunds Street between 40th Avenue Southwest and 41st Avenue Southwest	South	A	A	A	Not applicable	A	Not applicable	A	A
Southwest Edmunds Street east of 40th Avenue Southwest	North	A	A	Not applicable	A	A	Not applicable	A	A
Southwest Edmunds Street east of 40th Avenue Southwest	South	A	A	Not applicable	A	A	Not applicable	A	A
Southwest Edmunds Street east of Fauntleroy Wat Southwest	North	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Edmunds Street east of Fauntleroy Wat Southwest	South	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest between 38th Avenue Southwest and Southwest Alaska Street	Northwest	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
Fauntleroy Way Southwest between 38th Avenue Southwest and Southwest Alaska Street	Southeast	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest between Southwest Alaska Street and Southwest Edmunds Street	West	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest between Southwest Alaska Street and Southwest Edmunds Street	East	A	A	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1F-12. Alaska Junction Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
California Avenue Southwest and Southwest Alaska Street	North	B	B	Not applicable	Not applicable	Not applicable	B	Not applicable	Not applicable
California Avenue Southwest and Southwest Alaska Street	South	B	B	Not applicable	Not applicable	Not applicable	B	Not applicable	Not applicable
California Avenue Southwest and Southwest Alaska Street	East	B	B	Not applicable	Not applicable	Not applicable	B	Not applicable	Not applicable
California Avenue Southwest and Southwest Alaska Street	West	B	B	Not applicable	Not applicable	Not applicable	B	Not applicable	Not applicable
38th Avenue Southwest and Southwest Alaska Street [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Alaska Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
38th Avenue Southwest and Southwest Alaska Street [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest& Southwest Alaska Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Edmunds Street [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Edmunds Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Edmunds Street [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Edmunds Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Alaska Street	North	B	B	C	Not applicable	Not applicable	B	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Alaska Street	South	B	B	B	Not applicable	Not applicable	C	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Alaska Street	East	B	B	C	Not applicable	Not applicable	B	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Alaska Street	West	B	B	C	Not applicable	Not applicable	C	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Edmunds Street [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
42nd Avenue Southwest at Southwest Edmunds Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
42nd Avenue Southwest at Southwest Edmunds Street [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
42nd Avenue Southwest at Southwest Edmunds Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41st Avenue Southwest at Southwest Alaska Street	North	B	B	B	Not applicable	Not applicable	Not applicable	Not applicable	B
41st Avenue Southwest at Southwest Alaska Street	South	B	B	B	Not applicable	Not applicable	Not applicable	Not applicable	B
41st Avenue Southwest at Southwest Alaska Street	East	A	A	B	Not applicable	Not applicable	Not applicable	Not applicable	A
41st Avenue Southwest at Southwest Alaska Street	West	A	A	C	Not applicable	Not applicable	Not applicable	Not applicable	A
41st Avenue Southwest at Southwest Edmunds Street [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41st Avenue Southwest at Southwest Edmunds Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41st Avenue Southwest at Southwest Edmunds Street [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41st Avenue Southwest at Southwest Edmunds Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest at Southwest Alaska Street [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest at Southwest Alaska Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest at Southwest Alaska Street [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
40th Avenue Southwest at Southwest Alaska Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest at Southwest Edmunds Street [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest at Southwest Edmunds Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest at Southwest Edmunds Street [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest at Southwest Edmunds Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at 38th Avenue Southwest [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at 38th Avenue Southwest [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at 38th Avenue Southwest [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at 38th Avenue Southwest [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at Southwest Alaska Street	North	B	B	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at Southwest Alaska Street	South	B	B	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at Southwest Alaska Street	East	B	B	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
Fauntleroy Way Southwest at Southwest Alaska Street	West	B	B	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at Southwest Edmunds Street	North	A	A	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at Southwest Edmunds Street	South	A	A	Not applicable	A	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at Southwest Edmunds Street	East	A	A	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest at Southwest Edmunds Street	West	A	A	Not applicable	B	Not applicable	Not applicable	Not applicable	Not applicable

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1F-13. Alaska Junction Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
California Avenue Southwest and Southwest Alaska Street	Northwest	PASS	PASS	Not applicable	Not applicable	Not applicable	PASS	Not applicable	Not applicable
California Avenue Southwest and Southwest Alaska Street	Northeast	PASS	PASS	Not applicable	Not applicable	Not applicable	PASS	Not applicable	Not applicable
California Avenue Southwest and Southwest Alaska Street	Southwest	PASS	PASS	Not applicable	Not applicable	Not applicable	PASS	Not applicable	Not applicable
California Avenue Southwest and Southwest Alaska Street	Southeast	PASS	PASS	Not applicable	Not applicable	Not applicable	PASS	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Alaska Street	Northwest	PASS	PASS	PASS	Not applicable	Not applicable	PASS	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
42nd Avenue Southwest and Southwest Alaska Street	Northeast	PASS	PASS	PASS	Not applicable	Not applicable	PASS	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Alaska Street	Southwest	PASS	PASS	PASS	Not applicable	Not applicable	PASS	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Alaska Street	Southeast	PASS	PASS	PASS	Not applicable	Not applicable	PASS	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Edmunds Street	Northwest	PASS	PASS	Not applicable	Not applicable	Not applicable	PASS	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Edmunds Street	Northeast	PASS	PASS	Not applicable	Not applicable	Not applicable	PASS	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Edmunds Street	Southwest	PASS	PASS	Not applicable	Not applicable	Not applicable	PASS	Not applicable	Not applicable
42nd Avenue Southwest and Southwest Edmunds Street	Southeast	PASS	PASS	Not applicable	Not applicable	Not applicable	PASS	Not applicable	Not applicable
41st Avenue Southwest and Southwest Alaska Street	Northwest	Not applicable	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS
41st Avenue Southwest and Southwest Alaska Street	Northeast	Not applicable	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS
41st Avenue Southwest and Southwest Alaska Street	Southwest	Not applicable	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS
41st Avenue Southwest and Southwest Alaska Street	Southeast	Not applicable	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS
40th Avenue Southwest and Southwest Alaska Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest and Southwest Alaska Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest and Southwest Alaska Street [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest and Southwest Alaska Street [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest and Southwest Edmunds Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
40th Avenue Southwest and Southwest Edmunds Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest and Southwest Edmunds Street [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40th Avenue Southwest and Southwest Edmunds Street [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41st Avenue Southwest and Southwest Edmunds Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41st Avenue Southwest and Southwest Edmunds Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41st Avenue Southwest and Southwest Edmunds Street [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41st Avenue Southwest and Southwest Edmunds Street [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Alaska Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Alaska Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Alaska Street [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Alaska Street [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Edmunds Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Edmunds Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Edmunds Street [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
38th Avenue Southwest and Southwest Edmunds Street [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and 38th Avenue Southwest [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 WSJ-1	2042 WSJ-2	2042 WSJ-3a*	2042 WSJ-3b*	2042 WSJ-4*	2042 WSJ-5*
Fauntleroy Way Southwest and 38th Avenue Southwest [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and 38th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and 38th Avenue Southwest [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and Southwest Alaska Street	Northwest	PASS	PASS	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and Southwest Alaska Street	Northeast	PASS	PASS	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and Southwest Alaska Street	Southwest	PASS	PASS	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and Southwest Alaska Street	Southeast	PASS	PASS	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and Southwest Edmunds Street	Northwest	PASS	PASS	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and Southwest Edmunds Street	Northeast	PASS	PASS	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and Southwest Edmunds Street	Southwest	PASS	PASS	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Fauntleroy Way Southwest and Southwest Edmunds Street	Southeast	PASS	PASS	Not applicable	PASS	Not applicable	Not applicable	Not applicable	Not applicable

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1F-14. Stadium Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 Option 2
South Royal Brougham Way between 4th Avenue and SODO Busway	North	A	A	A
South Royal Brougham Way between 4th Avenue and SODO Busway	South	A	A	A
South Royal Brougham Way between 6th Avenue and SODO Busway	North	A	A	A
South Royal Brougham Way between 6th Avenue and SODO Busway	South	A	A	A

Table N.1F-15. Stadium Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 Option 2
South Royal Brougham Way at 4th Avenue South	North	A	B	B
South Royal Brougham Way at 4th Avenue South	South	B	C	C
South Royal Brougham Way at 4th Avenue South	East	B	B	B
South Royal Brougham Way at 4th Avenue South	West	B	B	B
South Royal Brougham Way at 6th Avenue South	North	A	A	A
South Royal Brougham Way at 6th Avenue South	South	A	A	A
South Royal Brougham Way at 6th Avenue South	East	A	A	A
South Royal Brougham Way at 6th Avenue South	West	A	A	A
South Royal Brougham Way at SODO Busway [a]	North	Not applicable	Not applicable	Not applicable
South Royal Brougham Way at SODO Busway [a]	South	Not applicable	Not applicable	Not applicable
South Royal Brougham Way at SODO Busway [a]	East	Not applicable	Not applicable	Not applicable
South Royal Brougham Way at SODO Busway [a]	West	Not applicable	Not applicable	Not applicable

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-16. Stadium Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 Option 2
South Royal Brougham Way and 4th Avenue South	Northwest	PASS	PASS	PASS
South Royal Brougham Way and 4th Avenue South	Northeast	PASS	PASS	PASS
South Royal Brougham Way and 4th Avenue South	Southwest	PASS	PASS	PASS
South Royal Brougham Way and 4th Avenue South	Southeast	PASS	PASS	PASS
South Royal Brougham Way and 6th Avenue South	Northwest	PASS	PASS	PASS
South Royal Brougham Way and 6th Avenue South	Northeast	PASS	PASS	PASS
South Royal Brougham Way and 6th Avenue South	Southwest	PASS	PASS	PASS
South Royal Brougham Way and 6th Avenue South	Southeast	PASS	PASS	PASS
South Royal Brougham Way and SODO Busway	Northwest	PASS	PASS	PASS
South Royal Brougham Way and SODO Busway	Northeast	PASS	PASS	PASS
South Royal Brougham Way and SODO Busway	Southwest	PASS	PASS	PASS
South Royal Brougham Way and SODO Busway	Southeast	PASS	PASS	PASS

Table N.1F-17. International District/Chinatown Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 CID-1a	2042 CID-1b	2042 CID-2a	2042 CID-2b
South Jackson Street between 5th and 6th	North	A	A	A	A	A	A
South Jackson Street between 5th and 6th	South	A	A	A	A	A	A
South King Street between 5th and 6th	North	A	A	A	A	A	A
South King Street between 5th and 6th	South	A	A	A	A	A	A
South Weller Street between 5th and 6th	North	A	A	A	A	A	A
South Weller Street between 5th and 6th	South	C	C	C	C	C	C
5th Avenue South between Jackson and King	East	A	A	A	A	F	F
5th Avenue South between Jackson and King	West	A	A	A	A	C	C
5th Avenue South between King and Weller	East	A	A	A	A	D	D

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 CID-1a	2042 CID-1b	2042 CID-2a	2042 CID-2b
6th Avenue South between King and Jackson	East	A	A	Not applicable	Not applicable	A	A
6th Avenue South between King and Jackson	West	A	A	Not applicable	Not applicable	A	A
6th Avenue South between King and Weller	East	A	A	Not applicable	Not applicable	A	A
6th Avenue South between King and Weller	West	A	A	Not applicable	Not applicable	A	A
4th Avenue South between King and Jackson	East	B	B	D	D	Not applicable	Not applicable
4th Avenue South between King and Jackson	West	A	A	B	B	Not applicable	Not applicable
South Jackson Street between 4th and 5th	North	A	A	B	B	Not applicable	Not applicable
South Jackson Street between 4th and 5th	South	A	B	C	C	Not applicable	Not applicable
Weller Street Bridge west of 4th Avenue South	North	A	A	B	B	Not applicable	Not applicable
South Weller Street between 4th and 5th Avenue	North	B	C	C	C	Not applicable	Not applicable
South Weller Street between 4th and 5th Avenue	South	A	A	A	A	Not applicable	Not applicable

Table N.1F-18. International District/Chinatown Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 CID-1a	2042 CID-1b	2042 CID-2a	2042 CID-2b
5th Avenue South at South Jackson Street	North	C	C	D	D	C	C
5th Avenue South at South Jackson Street	South	C	D	D	D	D	D
5th Avenue South at South Jackson Street	East	C	C	D	D	D	D
5th Avenue South at South Jackson Street	West	B	C	C	C	C	C

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 CID-1a	2042 CID-1b	2042 CID-2a	2042 CID-2b
5th Avenue South at South King Street [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5th Avenue South at South King Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5th Avenue South at South King Street [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5th Avenue South at South Weller Street	North	B	C	C	C	E	E
5th Avenue South at South Weller Street	South	C	D	D	D	D	D
5th Avenue South at South Weller Street	East	B	C	C	C	C	C
6th Avenue South at South Jackson	North	B	B	Not applicable	Not applicable	B	B
6th Avenue South at South Jackson	South	B	C	Not applicable	Not applicable	C	C
6th Avenue South at South Jackson	East	B	B	Not applicable	Not applicable	B	B
6th Avenue South at South Jackson	West	B	C	Not applicable	Not applicable	C	C
6th Avenue South at South King Street [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6th Avenue South at South King Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6th Avenue South at South King Street [a]	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6th Avenue South at South King Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
4th Avenue South at South Jackson	North	C	D	D	D	Not applicable	Not applicable
4th Avenue South at South Jackson	South	E	E	E	E	Not applicable	Not applicable
4th Avenue South at South Jackson	East	C	D	E	E	Not applicable	Not applicable
4th Avenue South at South Jackson	West	C	C	D	D	Not applicable	Not applicable
4th Avenue South at South Weller Street	North	F	F	F	F	Not applicable	Not applicable
4th Avenue South at South Weller Street	East	C	C	C	C	Not applicable	Not applicable
4th Avenue South at South Weller Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
4th Avenue South at South Weller Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-19. International District/Chinatown Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 CID-1a	2042 CID-1b	2042 CID-2a	2042 CID-2b
5th Avenue South and South Jackson Street	Northwest	PASS	PASS	PASS	PASS	PASS	PASS
5th Avenue South and South Jackson Street	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
5th Avenue South and South Jackson Street	Southwest	PASS	PASS	PASS	PASS	PASS	PASS
5th Avenue South and South Jackson Street	Southeast	PASS	PASS	PASS	PASS	PASS	PASS
5th Avenue South and South King Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5th Avenue South and South King Street [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
5th Avenue South and South Weller Street	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
5th Avenue South and South Weller Street	Southeast	PASS	PASS	PASS	PASS	PASS	PASS
6th Avenue South and South Jackson	Northwest	PASS	PASS	Not applicable	Not applicable	PASS	PASS
6th Avenue South and South Jackson	Northeast	PASS	PASS	Not applicable	Not applicable	PASS	PASS
6th Avenue South and South Jackson	Southwest	PASS	PASS	Not applicable	Not applicable	PASS	PASS
6th Avenue South and South Jackson	Southeast	PASS	PASS	Not applicable	Not applicable	PASS	PASS
6th Avenue South and South King Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6th Avenue South and South King Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6th Avenue South and South King Street [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6th Avenue South and South King Street [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
4th Avenue South and South Jackson	Northwest	PASS	PASS	PASS	PASS	Not applicable	Not applicable
4th Avenue South and South Jackson	Northeast	PASS	PASS	PASS	PASS	Not applicable	Not applicable
4th Avenue South and South Jackson	Southwest	PASS	FAIL	FAIL	FAIL	Not applicable	Not applicable
4th Avenue South and South Jackson	Southeast	PASS	PASS	PASS	PASS	Not applicable	Not applicable
4th Avenue South and South Weller Street	Northwest	PASS	PASS	PASS	PASS	Not applicable	Not applicable
4th Avenue South and South Weller Street	Northeast	PASS	PASS	PASS	PASS	Not applicable	Not applicable
4th Avenue South and South Weller Street	Southeast	PASS	PASS	PASS	PASS	Not applicable	Not applicable

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-20. Midtown Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
Spring Street west of 4th Avenue	North	A	A	A	Not applicable
Spring Street west of 4th Avenue	South	A	A	A	Not applicable
Spring Street east of 4th Avenue	North	A	A	A	Not applicable
Spring Street east of 4th Avenue	South	A	A	A	Not applicable
4th Avenue north of Spring Street	West	A	A	A	Not applicable
4th Avenue north of Spring Street	East	A	A	A	Not applicable
4th Avenue south of Spring Street	West	A	A	A	Not applicable
4th Avenue south of Spring Street	East	A	A	A	Not applicable
4th Avenue north of Madison Street	West	A	A	A	Not applicable
4th Avenue north of Madison Street	East	A	A	A	Not applicable
4th Avenue south of Madison Street	West	A	A	A	Not applicable
4th Avenue south of Madison Street	East	A	A	C	Not applicable
4th Avenue south of Marion Street	West	A	A	A	Not applicable
4th Avenue south of Marion Street	East	A	A	A	Not applicable
Madison Street west of 4th Avenue	North	A	A	A	Not applicable
Madison Street west of 4th Avenue	South	A	A	A	Not applicable
Madison Street east of 4th Avenue	North	A	A	A	Not applicable
Madison Street east of 4th Avenue	South	A	B	B	Not applicable
Marion Street west of 4th Avenue	North	A	A	A	Not applicable
Marion Street west of 4th Avenue	South	A	A	A	Not applicable
Marion Street east of 4th Avenue	North	A	A	A	Not applicable
Marion Street east of 4th Avenue	South	A	A	A	Not applicable
5th Avenue north of Columbia Street	West	A	A	A	Not applicable
5th Avenue north of Columbia Street	East	A	A	C	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
5th Avenue south of Columbia Street	West	A	A	A	Not applicable
5th Avenue south of Columbia Street	East	A	A	A	Not applicable
Columbia Street east of 4th Avenue	North	A	A	A	Not applicable
Columbia Street east of 4th Avenue	South	A	A	A	Not applicable
Columbia Street east of 5th Avenue	North	A	A	A	Not applicable
Columbia Street east of 5th Avenue	South	A	A	A	Not applicable
5th Avenue between Spring Street and Seneca Street	West	A	A	Not applicable	A
5th Avenue between Spring Street and Seneca Street	East	A	A	Not applicable	E
5th Avenue between Madison Street and Spring Street	West	A	A	Not applicable	A
5th Avenue between Madison Street and Spring Street	East	A	A	Not applicable	A
Spring Street west of 5th Avenue	North	A	A	Not applicable	A
Spring Street west of 5th Avenue	South	A	A	Not applicable	A
Spring Street east of 5th Avenue	North	A	A	Not applicable	A
Spring Street east of 5th Avenue	South	A	A	Not applicable	A
6th Avenue between Spring Street and Seneca Street	West	A	A	Not applicable	A
6th Avenue between Spring Street and Seneca Street	East	A	A	Not applicable	A
Spring Street between 6th Avenue and Hubbell Place	North	A	A	Not applicable	A
Spring Street between 6th Avenue and Hubbell Place	South	A	A	Not applicable	A
Seneca Street between 5th and 6th Street	North	A	A	Not applicable	A
Seneca Street between 5th and 6th Street	South	A	A	Not applicable	A
Seneca Street between 6th Avenue and Hubbell Place	North	A	A	Not applicable	A
Seneca Street between 6th Avenue and Hubbell Place	South	A	A	Not applicable	A

Table N.1F-21. Midtown Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
4th Avenue at Spring Street	North	B	B	B	Not applicable
4th Avenue at Spring Street	West	B	B	C	Not applicable
4th Avenue at Spring Street	South	B	B	B	Not applicable
4th Avenue at Spring Street	East	B	B	C	Not applicable
4th Avenue at Madison Street	North	B	B	B	Not applicable
4th Avenue at Madison Street	West	B	B	B	Not applicable
4th Avenue at Madison Street	South	C	C	D	Not applicable
4th Avenue at Madison Street	East	B	B	B	Not applicable
4th Avenue at Marion	North	B	B	C	Not applicable
4th Avenue at Marion	West	B	B	C	Not applicable
4th Avenue at Marion	South	B	B	B	Not applicable
4th Avenue at Marion	East	B	B	C	Not applicable
5th Avenue at Marion	North	B	B	B	Not applicable
5th Avenue at Marion	West	B	C	C	Not applicable
5th Avenue at Marion	South	B	C	C	Not applicable
5th Avenue at Marion	East	C	C	C	Not applicable
5th Avenue at Columbia	North	B	B	B	Not applicable
5th Avenue at Columbia	West	B	C	C	Not applicable
5th Avenue at Columbia	South	B	B	B	Not applicable
5th Avenue at Columbia	East	B	B	C	Not applicable
5th Avenue at Seneca Street	North	B	B	Not applicable	B
5th Avenue at Seneca Street	West	B	B	Not applicable	B
5th Avenue at Seneca Street	South	B	B	Not applicable	C
5th Avenue at Seneca Street	East	B	B	Not applicable	C

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
5th Avenue at Spring Street	North	B	B	Not applicable	C
5th Avenue at Spring Street	West	B	C	Not applicable	C
5th Avenue at Spring Street	South	B	B	Not applicable	B
5th Avenue at Spring Street	East	C	C	Not applicable	D
6th Avenue at Seneca Street	North	B	B	Not applicable	C
6th Avenue at Seneca Street	West	B	B	Not applicable	C
6th Avenue at Seneca Street	South	B	B	Not applicable	B
6th Avenue at Seneca Street	East	B	B	Not applicable	C
6th Avenue at Spring Street	North	B	B	Not applicable	B
6th Avenue at Spring Street [a]	West	Not applicable	Not applicable	Not applicable	Not applicable
6th Avenue at Spring Street [a]	South	Not applicable	Not applicable	Not applicable	Not applicable
6th Avenue at Spring Street	East	A	B	Not applicable	B

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-22. Midtown Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
4th Avenue and Spring Street	Northwest	PASS	PASS	PASS	Not applicable
4th Avenue and Spring Street	Northeast	PASS	PASS	PASS	Not applicable
4th Avenue and Spring Street	Southwest	PASS	PASS	PASS	Not applicable
4th Avenue and Spring Street	Southeast	PASS	PASS	PASS	Not applicable
4th Avenue and Madison Street	Northwest	PASS	PASS	PASS	Not applicable
4th Avenue and Madison Street	Northeast	PASS	PASS	PASS	Not applicable
4th Avenue and Madison Street	Southwest	PASS	PASS	PASS	Not applicable
4th Avenue and Madison Street	Southeast	PASS	PASS	PASS	Not applicable
4th Avenue and Marion	Northwest	PASS	PASS	PASS	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
4th Avenue and Marion	Northeast	PASS	PASS	PASS	Not applicable
4th Avenue and Marion	Southwest	PASS	PASS	PASS	Not applicable
4th Avenue and Marion	Southeast	PASS	PASS	PASS	Not applicable
5th Avenue and Marion	Northwest	PASS	PASS	PASS	Not applicable
5th Avenue and Marion	Northeast	PASS	PASS	PASS	Not applicable
5th Avenue and Marion	Southwest	PASS	PASS	PASS	Not applicable
5th Avenue and Marion	Southeast	PASS	PASS	PASS	Not applicable
5th Avenue and Columbia	Northwest	PASS	PASS	PASS	Not applicable
5th Avenue and Columbia	Northeast	PASS	PASS	PASS	Not applicable
5th Avenue and Columbia	Southwest	PASS	PASS	PASS	Not applicable
5th Avenue and Columbia	Southeast	PASS	PASS	PASS	Not applicable
5th Avenue and Seneca Street	Northwest	PASS	PASS	Not applicable	PASS
5th Avenue and Seneca Street	Northeast	PASS	PASS	Not applicable	PASS
5th Avenue and Seneca Street	Southeast	PASS	PASS	Not applicable	PASS
5th Avenue and Seneca Street	Southwest	PASS	PASS	Not applicable	PASS
5th Avenue and Spring Street	Northwest	PASS	PASS	Not applicable	PASS
5th Avenue and Spring Street	Northeast	PASS	PASS	Not applicable	PASS
5th Avenue and Spring Street	Southeast	PASS	PASS	Not applicable	PASS
5th Avenue and Spring Street	Southwest	PASS	PASS	Not applicable	PASS
6th Avenue and Seneca Street	Northwest	PASS	PASS	Not applicable	PASS
6th Avenue and Seneca Street	Northeast	PASS	PASS	Not applicable	PASS
6th Avenue and Seneca Street	Southeast	PASS	PASS	Not applicable	PASS
6th Avenue and Seneca Street	Southwest	PASS	PASS	Not applicable	PASS
6th Avenue, Seneca Street, and I-5 Off-ramp	Southeast	PASS	PASS	Not applicable	PASS
6th Avenue and Spring Street	Northwest	PASS	PASS	Not applicable	PASS
6th Avenue and Spring Street	Northeast	PASS	PASS	Not applicable	PASS

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
6th Avenue and Spring Street	Southeast	PASS	PASS	Not applicable	PASS
6th Avenue and Spring Street	Southwest	PASS	PASS	Not applicable	PASS

Table N.1F-23. Westlake Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
Pike Street west of 4th Avenue	North	A	A	A	Not applicable
Pike Street west of 4th Avenue	South	A	A	A	Not applicable
Pike Street between 4th Avenue and 5th Avenue	North	A	A	A	A
Pike Street between 4th Avenue and 5th Avenue	South	A	A	A	A
Pike Street between 5th Avenue and 6th Avenue	North	A	A	A	A
Pike Street between 5th Avenue and 6th Avenue	South	A	A	A	A
Pike Street east of 6th Avenue	North	A	A	A	A
Pike Street east of 6th Avenue	South	A	A	A	A
Pine Street west of 4th Avenue	North	A	B	B	Not applicable
Pine Street west of 4th Avenue	South	A	A	A	Not applicable
Pine Street between 4th Avenue and 5th Avenue	North	A	A	A	A
Pine Street between 4th Avenue and 5th Avenue	South	A	A	A	A
Pine Street between 5th Avenue and 6th Avenue	North	A	A	A	B
Pine Street between 5th Avenue and 6th Avenue	South	A	A	A	B
Pine Street east of 6th Avenue	North	A	A	A	A
Pine Street east of 6th Avenue	South	A	A	A	C
4th Avenue south of Pike Street	West	A	A	A	Not applicable
4th Avenue south of Pike Street	East	A	A	A	Not applicable
4th Avenue between Pike Street and Pine Street	West	A	A	A	Not applicable
4th Avenue between Pike Street and Pine Street	East	A	A	A	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
4th Avenue north of Pine Street	West	A	A	A	Not applicable
4th Avenue north of Pine Street	East	A	A	A	Not applicable
5th Avenue south of Pike Street	West	A	A	A	Not applicable
5th Avenue south of Pike Street	East	A	A	A	Not applicable
5th Avenue between Pike Street and Pine Street	West	A	A	A	C
5th Avenue between Pike Street and Pine Street	East	A	B	B	C
5th Avenue north of Pine Street	West	A	A	A	Not applicable
5th Avenue north of Pine Street	East	A	B	B	Not applicable
5th Avenue north of Stewart Street	East	A	A	Not applicable	B
5th Avenue north of Stewart Street	West	A	A	Not applicable	A
5th Avenue between Stewart Street and Olive Way	East	A	A	Not applicable	B
5th Avenue between Stewart Street and Olive Way	West	B	B	Not applicable	B
5th Avenue between Olive Way and Pine Street	West	B	B	Not applicable	C
5th Avenue between Olive Way and Pine Street	East	B	B	Not applicable	A
5th Avenue south of Pike Street	West	A	A	Not applicable	C
5th Avenue south of Pike Street	East	A	A	Not applicable	C
6th Avenue south of Pike Street	West	A	A	A	Not applicable
6th Avenue south of Pike Street	East	A	A	A	Not applicable
6th Avenue between Pike Street and Pine Street	West	A	B	B	A
6th Avenue between Pike Street and Pine Street	East	A	A	A	F
6th Avenue north of Pine Street	West	A	B	B	Not applicable
6th Avenue north of Pine Street	East	A	A	A	Not applicable
6th Avenue north of Stewart Street	West	A	A	Not applicable	C
6th Avenue north of Stewart Street	East	A	A	Not applicable	A
6th Avenue between Stewart Street and Olive Way	West	A	A	Not applicable	D
6th Avenue between Stewart Street and Olive Way	East	A	A	Not applicable	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
6th Avenue between Olive Way and Pine Street	West	A	A	Not applicable	C
6th Avenue between Olive Way and Pine Street	East	A	B	Not applicable	D
6th Avenue south of Pike Street	West	A	A	Not applicable	A
6th Avenue south of Pike Street	East	A	A	Not applicable	A
Stewart Street west of 5th Avenue	North	A	A	Not applicable	A
Stewart Street west of 5th Avenue	South	A	A	Not applicable	A
Stewart Street between 5th Avenue and 6th Avenue	North	A	A	Not applicable	A
Stewart Street between 5th Avenue and 6th Avenue	South	A	A	Not applicable	A
Stewart Street east of 6th Avenue	North	A	A	Not applicable	A
Stewart Street east of 6th Avenue	South	A	A	Not applicable	A
Olive Way west of 5th Avenue	North	A	A	Not applicable	A
Olive Way west of 5th Avenue	South	A	A	Not applicable	A
Olive Way between 5th Avenue and 6th Avenue	North	A	A	Not applicable	D
Olive Way between 5th Avenue and 6th Avenue	South	A	A	Not applicable	A
Olive Way east of 6th Avenue	North	A	A	Not applicable	A
Olive Way east of 6th Avenue	South	A	A	Not applicable	A

Table N.1F-24. Westlake Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
Pike Street and 4th Avenue	West	C	C	C	Not applicable
Pike Street and 4th Avenue	North	C	C	D	Not applicable
Pike Street and 4th Avenue	East	B	B	B	Not applicable
Pike Street and 4th Avenue	South	C	C	C	Not applicable
Pike Street and 5th Avenue	West	B	B	B	Not applicable
Pike Street and 5th Avenue	North	C	C	D	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
Pike Street and 5th Avenue	East	C	D	C	Not applicable
Pike Street and 5th Avenue	South	C	D	D	Not applicable
Pike Street and 6th Avenue	West	C	C	C	Not applicable
Pike Street and 6th Avenue	North	C	C	B	Not applicable
Pike Street and 6th Avenue	East	B	C	C	Not applicable
Pike Street and 6th Avenue	South	B	B	B	Not applicable
Pine Street and 4th Avenue	West	C	C	C	Not applicable
Pine Street and 4th Avenue	North	C	C	C	Not applicable
Pine Street and 4th Avenue	East	B	C	B	Not applicable
Pine Street and 4th Avenue	South	C	C	C	Not applicable
Pine Street and 5th Avenue	West	C	D	B	Not applicable
Pine Street and 5th Avenue	North	B	C	B	Not applicable
Pine Street and 5th Avenue	East	C	D	C	Not applicable
Pine Street and 5th Avenue	South	B	B	B	Not applicable
Pine Street and 6th Avenue	West	C	D	C	Not applicable
Pine Street and 6th Avenue	North	D	D	C	Not applicable
Pine Street and 6th Avenue	East	C	C	C	Not applicable
Pine Street and 6th Avenue	South	C	C	C	Not applicable
5th Avenue and Stewart Street	West	B	C	Not applicable	D
5th Avenue and Stewart Street	North	C	C	Not applicable	C
5th Avenue and Stewart Street	East	C	C	Not applicable	D
5th Avenue and Stewart Street	South	B	B	Not applicable	B
5th Avenue and Olive Way	West	D	D	Not applicable	E
5th Avenue and Olive Way	North	D	D	Not applicable	F
5th Avenue and Olive Way	East	D	D	Not applicable	E
5th Avenue and Olive Way	South	C	D	Not applicable	E

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
5th Avenue and Pine Street	West	C	C	Not applicable	C
5th Avenue and Pine Street	North	B	B	Not applicable	B
5th Avenue and Pine Street	East	C	C	Not applicable	C
5th Avenue and Pine Street	South	B	B	Not applicable	B
5th Avenue and Pike Street	West	B	B	Not applicable	C
5th Avenue and Pike Street	North	C	D	Not applicable	D
5th Avenue and Pike Street	East	C	C	Not applicable	D
5th Avenue and Pike Street	South	C	D	Not applicable	D
6th Avenue and Stewart Street	West	D	D	Not applicable	E
6th Avenue and Stewart Street	North	B	B	Not applicable	C
6th Avenue and Stewart Street	East	C	C	Not applicable	D
6th Avenue and Stewart Street	South	B	C	Not applicable	D
6th Avenue and Olive Way	West	C	C	Not applicable	F
6th Avenue and Olive Way	North	B	B	Not applicable	C
6th Avenue and Olive Way	East	D	D	Not applicable	E
6th Avenue and Olive Way	South	B	C	Not applicable	C
6th Avenue and Pine Street	West	B	C	Not applicable	C
6th Avenue and Pine Street	North	B	C	Not applicable	C
6th Avenue and Pine Street	East	C	C	Not applicable	E
6th Avenue and Pine Street	South	B	C	Not applicable	D
6th Avenue and Pike Street	West	B	C	Not applicable	C
6th Avenue and Pike Street	North	B	B	Not applicable	C
6th Avenue and Pike Street	East	B	C	Not applicable	C
6th Avenue and Pike Street	South	B	B	Not applicable	B
4th Avenue and Pine Street	West	B	C	Not applicable	Not applicable
4th Avenue and Pine Street	North	C	C	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
4th Avenue and Pine Street	East	B	B	Not applicable	Not applicable
4th Avenue and Pine Street	South	C	C	Not applicable	Not applicable

Table N.1F-25. Westlake Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
Pike Street and 4th Avenue	Southwest	PASS	PASS	PASS	Not applicable
Pike Street and 4th Avenue	Northwest	PASS	PASS	PASS	Not applicable
Pike Street and 4th Avenue	Northeast	PASS	PASS	PASS	Not applicable
Pike Street and 4th Avenue	Southeast	PASS	PASS	PASS	Not applicable
Pike Street and 5th Avenue	Southwest	PASS	PASS	PASS	Not applicable
Pike Street and 5th Avenue	Northwest	PASS	PASS	PASS	Not applicable
Pike Street and 5th Avenue	Northeast	PASS	PASS	PASS	Not applicable
Pike Street and 5th Avenue	Southeast	PASS	PASS	PASS	Not applicable
Pike Street and 6th Avenue	Southwest	PASS	PASS	PASS	Not applicable
Pike Street and 6th Avenue	Northwest	PASS	PASS	PASS	Not applicable
Pike Street and 6th Avenue	Northeast	PASS	PASS	PASS	Not applicable
Pike Street and 6th Avenue	Southeast	PASS	PASS	PASS	Not applicable
Pine Street and 4th Avenue	Southwest	PASS	PASS	PASS	Not applicable
Pine Street and 4th Avenue	Northwest	PASS	PASS	PASS	Not applicable
Pine Street and 4th Avenue	Northeast	PASS	PASS	PASS	Not applicable
Pine Street and 4th Avenue	Southeast	PASS	PASS	PASS	Not applicable
Pine Street and 5th Avenue	Southwest	PASS	PASS	PASS	Not applicable
Pine Street and 5th Avenue	Northwest	PASS	PASS	PASS	Not applicable
Pine Street and 5th Avenue	Northeast	PASS	PASS	PASS	Not applicable
Pine Street and 5th Avenue	Southeast	PASS	PASS	PASS	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
Pine Street and 6th Avenue	Southwest	PASS	PASS	PASS	Not applicable
Pine Street and 6th Avenue	Northwest	PASS	PASS	PASS	Not applicable
Pine Street and 6th Avenue	Northeast	PASS	PASS	PASS	Not applicable
Pine Street and 6th Avenue	Southeast	PASS	PASS	PASS	Not applicable
5th Avenue and Stewart Street	Northwest	PASS	PASS	Not applicable	PASS
5th Avenue and Stewart Street	Northeast	PASS	PASS	Not applicable	PASS
5th Avenue and Stewart Street	Southeast	PASS	PASS	Not applicable	PASS
5th Avenue and Stewart Street	Southwest	PASS	PASS	Not applicable	PASS
5th Avenue and Olive Way	Northwest	PASS	PASS	Not applicable	PASS
5th Avenue and Olive Way	Northeast	PASS	PASS	Not applicable	PASS
5th Avenue and Olive Way	Southeast	PASS	PASS	Not applicable	PASS
5th Avenue and Olive Way	Southwest	PASS	PASS	Not applicable	PASS
5th Avenue and Pine Street	Northwest	PASS	PASS	Not applicable	PASS
5th Avenue and Pine Street	Northeast	PASS	PASS	Not applicable	PASS
5th Avenue and Pine Street	Southeast	PASS	PASS	Not applicable	PASS
5th Avenue and Pine Street	Southwest	PASS	PASS	Not applicable	PASS
5th Avenue and Pike Street	Northwest	PASS	PASS	Not applicable	PASS
5th Avenue and Pike Street	Northeast	PASS	PASS	Not applicable	PASS
5th Avenue and Pike Street	Southeast	PASS	PASS	Not applicable	PASS
5th Avenue and Pike Street	Southwest	PASS	PASS	Not applicable	PASS
6th Avenue and Stewart Street	Northwest	PASS	PASS	Not applicable	PASS
6th Avenue and Stewart Street	Northeast	PASS	PASS	Not applicable	PASS
6th Avenue and Stewart Street	Southeast	PASS	PASS	Not applicable	PASS
6th Avenue and Stewart Street	Southwest	PASS	PASS	Not applicable	PASS
6th Avenue and Olive Way	Northwest	PASS	PASS	Not applicable	PASS
6th Avenue and Olive Way	Northeast	PASS	PASS	Not applicable	PASS

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
6th Avenue and Olive Way	Southeast	PASS	PASS	Not applicable	PASS
6th Avenue and Olive Way	Southwest	PASS	PASS	Not applicable	PASS
6th Avenue and Pine Street	Northwest	PASS	PASS	Not applicable	PASS
6th Avenue and Pine Street	Northeast	PASS	PASS	Not applicable	PASS
6th Avenue and Pine Street	Southeast	PASS	PASS	Not applicable	PASS
6th Avenue and Pine Street	Southwest	PASS	PASS	Not applicable	PASS
6th Avenue and Pike Street	Northwest	PASS	PASS	Not applicable	PASS
6th Avenue and Pike Street	Northeast	PASS	PASS	Not applicable	PASS
6th Avenue and Pike Street	Southeast	PASS	PASS	Not applicable	PASS
6th Avenue and Pike Street	Southwest	PASS	PASS	Not applicable	PASS
4th Avenue and Pine Street	Northwest	PASS	PASS	Not applicable	Not applicable
4th Avenue and Pine Street	Northeast	PASS	PASS	Not applicable	Not applicable
4th Avenue and Pine Street	Southeast	PASS	PASS	Not applicable	Not applicable
4th Avenue and Pine Street	Southwest	PASS	PASS	Not applicable	Not applicable

Table N.1F-26. Denny Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
Westlake Avenue North between Denny Way and John Street	West	A	A	A	Not applicable
Westlake Avenue North between Denny Way and John Street	East	A	A	A	Not applicable
Westlake Avenue North north of Denny Way	West	A	A	Not applicable	Not applicable
Westlake Avenue North north of Denny Way	East	A	A	Not applicable	Not applicable
Westlake Avenue North south of Denny Way, north of 9th Avenue	West	A	A	B	Not applicable
Westlake Avenue North south of Denny Way, north of 9th Avenue	East	A	A	A	Not applicable
Westlake Avenue North between Blanchard Street and Lenora Street	West	A	A	C	Not applicable
Westlake Avenue North between Blanchard Street and Lenora Street	East	A	A	A	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
Westlake Avenue North between Blanchard Street and Denny Way	West	A	A	Not applicable	Not applicable
Westlake Avenue North between Blanchard Street and Denny Way	East	A	A	Not applicable	Not applicable
9th Avenue north of Westlake	West	A	A	Not applicable	Not applicable
9th Avenue north of Westlake	East	A	B	Not applicable	Not applicable
Lenora Street east of Westlake	North	A	A	A	Not applicable
Lenora Street east of Westlake	South	A	B	A	Not applicable
Lenora Street west of Westlake	North	A	A	A	Not applicable
Lenora Street west of Westlake	South	A	A	A	Not applicable
Denny Way west of Westlake	North	A	A	A	Not applicable
Denny Way west of Westlake	South	A	B	C	Not applicable
Denny Way between Westlake and Terry	North	A	A	A	A
Denny Way between Westlake and Terry	South	A	A	B	C
Denny Way west of Terry Avenue North	North	A	A	Not applicable	A
Denny Way west of Terry Avenue North	South	A	B	Not applicable	D
Denny way between Terry and Boren	North	A	A	Not applicable	B
Denny Way between Terry and Boren	South	A	A	Not applicable	A
John Street west of Terry Avenue North	North	A	A	Not applicable	A
John Street west of Terry Avenue North	South	A	A	Not applicable	A
Terry Avenue North north of Denny Way	West	A	A	Not applicable	A
Terry Avenue North north of Denny Way	East	A	A	Not applicable	C
Terry Avenue North north of John Street	West	A	B	Not applicable	B
Terry Avenue North north of John Street	East	F	F	Not applicable	A
Terry Avenue North between Denny Way and Lenora	West	A	B	Not applicable	D
Terry Avenue North between Denny Way and Lenora	East	A	A	Not applicable	A
Terry Avenue North north of Thomas Street	West	A	A	Not applicable	A
Terry Avenue North north of Thomas Street	East	A	A	Not applicable	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
Terry Avenue North south of Thomas Street	West	A	A	Not applicable	A
Thomas Street between Westlake and Terry	North	A	A	Not applicable	A
Thomas Street between Westlake and Terry	South	A	A	Not applicable	A
Thomas Street between Terry and Boren	North	A	A	Not applicable	A
Thomas Street between Terry and Boren	South	A	A	Not applicable	A

Table N.1F-27. Denny Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
Westlake Avenue at Lenora Street	West	C	C	E	Not applicable
Westlake Avenue at Lenora Street	North	B	B	B	Not applicable
Westlake Avenue at Lenora Street	South	C	C	D	Not applicable
Westlake Avenue at Lenora Street	East	E	E	E	Not applicable
Westlake Avenue at Blanchard Street	West	C	D	C	Not applicable
Westlake Avenue at Blanchard Street	North	B	C	B	Not applicable
Westlake Avenue at Blanchard Street	South	B	B	B	Not applicable
Westlake Avenue at Blanchard Street	East	F	F	E	Not applicable
Westlake Avenue at Denny Way	West	C	D	E	Not applicable
Westlake Avenue at Denny Way	North	B	C	C	Not applicable
Westlake Avenue at Denny Way	South	C	C	D	Not applicable
Westlake Avenue at Denny Way	East	D	E	E	Not applicable
Denny Way at Terry Avenue North	West	B	B	Not applicable	D
Denny Way at Terry Avenue North [a]	North	Not applicable	Not applicable	Not applicable	Not applicable
Denny Way at Terry Avenue North	South	B	B	Not applicable	C
Denny Way at Terry Avenue North [a]	East	Not applicable	Not applicable	Not applicable	Not applicable

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-28. Denny Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
Westlake Avenue and Lenora Street	Northwest	PASS	PASS	PASS	PASS
Westlake Avenue and Lenora Street	Northeast	PASS	PASS	PASS	PASS
Westlake Avenue and Lenora Street	Southwest	PASS	PASS	PASS	PASS
Westlake Avenue and Lenora Street	Southeast	PASS	PASS	PASS	PASS
Westlake Avenue and Blanchard Street	Northwest	PASS	PASS	PASS	PASS
Westlake Avenue and Blanchard Street	Northeast	PASS	PASS	PASS	PASS
Westlake Avenue and Blanchard Street	Southwest	PASS	PASS	PASS	PASS
Westlake Avenue and Blanchard Street	Southeast	PASS	PASS	PASS	PASS
Westlake Avenue and Denny Way	Northwest	PASS	PASS	PASS	PASS
Westlake Avenue and Denny Way	Northeast	PASS	PASS	PASS	PASS
Westlake Avenue and Denny Way	Southwest	PASS	PASS	PASS	PASS
Westlake Avenue and Denny Way	Southeast	PASS	PASS	PASS	PASS
Denny Way and Terry Avenue North	Northwest	PASS	PASS	PASS	PASS
Denny Way and Terry Avenue North	Northeast	PASS	PASS	PASS	PASS
Denny Way and Terry Avenue North	Southwest	PASS	PASS	PASS	PASS
Denny Way and Terry Avenue North	Southeast	PASS	PASS	PASS	PASS

Table N.1F-29. South Lake Union Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-2	2042 DT-1
Mercer Street west of Taylor Avenue North	North	A	A	A	Not applicable
Mercer Street west of Taylor Avenue North	South	A	A	A	Not applicable
Mercer Street between Aurora Avenue North and Dexter Avenue North	North	A	A	A	Not applicable
Mercer Street between Aurora Avenue North and Dexter Avenue North	South	A	A	A	Not applicable
Mercer Street east of Dexter Avenue North	North	A	A	A	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-2	2042 DT-1
Mercer Street east of Dexter Avenue North	South	A	A	A	Not applicable
Roy Street west of Taylor Avenue North	North	A	A	A	Not applicable
Roy Street west of Taylor Avenue North	South	A	A	A	Not applicable
Roy Street between Taylor Avenue North and 6th Avenue North	North	A	A	A	Not applicable
Roy Street between Taylor Avenue North and 6th Avenue North	South	A	A	A	Not applicable
Roy Street between 6th Avenue North and Aurora Avenue North	North	A	A	A	Not applicable
Roy Street between 6th Avenue North and Aurora Avenue North	South	A	A	A	Not applicable
Roy Street between Aurora Avenue North and Dexter Avenue North	North	A	A	A	Not applicable
Roy Street between Aurora Avenue North and Dexter Avenue North	South	A	A	A	Not applicable
Roy Street east of Dexter Avenue North	North	A	A	A	Not applicable
Roy Street east of Dexter Avenue North	South	A	A	A	Not applicable
Taylor Avenue North south of Mercer Street	South	A	A	A	Not applicable
Taylor Avenue North south of Mercer Street	West	A	A	A	Not applicable
Taylor Avenue North south of Mercer Street	East	A	A	A	Not applicable
Taylor Avenue North between Mercer Street and Roy Street	West	A	A	A	Not applicable
Taylor Avenue North between Mercer Street and Roy Street	East	A	A	A	Not applicable
Taylor Avenue North north of Roy Street	West	A	A	A	Not applicable
Taylor Avenue North north of Roy Street	East	A	A	A	Not applicable
6th Avenue North south of Mercer Street	West	A	A	A	Not applicable
6th Avenue North south of Mercer Street	East	A	A	A	Not applicable
6th Avenue North north of Roy Street	West	A	A	A	Not applicable
6th Avenue North north of Roy Street	East	A	A	A	Not applicable
6th Avenue North south of Thomas Street	East	A	A	Not applicable	A
6th Avenue North south of Thomas Street	West	A	A	Not applicable	A
6th Avenue North between Thomas Street and Harrison Street	West	A	A	Not applicable	A
6th Avenue North between Thomas Street and Harrison Street	East	A	A	Not applicable	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-2	2042 DT-1
6th Avenue North north of Harrison Street	West	A	A	Not applicable	Not applicable
6th Avenue North north of Harrison Street	East	A	A	Not applicable	Not applicable
Aurora Avenue North between Mercer Street and Roy Street	West	A	A	A	Not applicable
Aurora Avenue North between Mercer Street and Roy Street	East	A	A	A	Not applicable
Aurora Avenue North north of Roy Street	West	A	A	A	Not applicable
Aurora Avenue North north of Roy Street	East	A	A	A	Not applicable
Aurora Avenue North south of Thomas Street	West	A	A	Not applicable	A
Aurora Avenue North south of Thomas Street	East	A	A	Not applicable	A
Aurora Avenue North between Thomas Street and Harrison Street	West	A	A	Not applicable	A
Aurora Avenue North between Thomas Street and Harrison Street	East	A	A	Not applicable	A
Dexter Avenue North south of Mercer Street	West	A	A	A	Not applicable
Dexter Avenue North south of Mercer Street	East	A	A	A	Not applicable
Dexter Avenue North between Mercer Street and Roy Street	West	A	A	A	Not applicable
Dexter Avenue North between Mercer Street and Roy Street	East	A	A	A	Not applicable
Dexter Avenue North north of Roy Street	West	A	A	A	Not applicable
Dexter Avenue North north of Roy Street	East	A	A	A	Not applicable
Dexter Avenue North south of Harrison Street	West	A	A	Not applicable	A
Dexter Avenue North south of Harrison Street	East	A	A	Not applicable	A
Dexter Avenue North north of Harrison Street	West	A	A	Not applicable	A
Dexter Avenue North north of Harrison Street	East	A	A	Not applicable	A
Dexter Avenue North south of Thomas Street	West	A	A	Not applicable	Not applicable
Dexter Avenue North south of Thomas Street	East	A	A	Not applicable	Not applicable
Dexter Avenue North between Harrison Street and Republican Street	West	A	A	Not applicable	A
Dexter Avenue North between Harrison Street and Republican Street	East	A	A	Not applicable	A
Thomas Street west of 6th Avenue North	North	A	A	Not applicable	A
Thomas Street west of 6th Avenue North	South	A	A	Not applicable	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-2	2042 DT-1
Thomas Street between 6th Avenue North and Aurora Avenue North	North	A	A	Not applicable	A
Thomas Street between 6th Avenue North and Aurora Avenue North	South	A	A	Not applicable	A
Thomas Street between Aurora Avenue North and Dexter Avenue North	North	A	A	Not applicable	A
Thomas Street between Aurora Avenue North and Dexter Avenue North	South	A	A	Not applicable	A
Thomas Street east of Dexter Avenue North	North	A	A	Not applicable	Not applicable
Thomas Street east of Dexter Avenue North	South	A	A	Not applicable	Not applicable
Harrison Street west of 6th Avenue North	North	A	A	Not applicable	A
Harrison Street west of 6th Avenue North	South	A	A	Not applicable	A
Harrison Street between 6th Avenue North and Aurora Avenue North	North	A	A	Not applicable	A
Harrison Street between 6th Avenue North and Aurora Avenue North	South	A	A	Not applicable	A
Harrison Street between Aurora Avenue North and Dexter Avenue North	North	A	A	Not applicable	B
Harrison Street between Aurora Avenue North and Dexter Avenue North	South	A	A	Not applicable	A
Harrison Street east of Dexter Avenue North	North	A	A	Not applicable	A
Harrison Street east of Dexter Avenue North	South	A	A	Not applicable	A
Republican Street west of Dexter Avenue North	North	A	A	Not applicable	A
Republican Street west of Dexter Avenue North	South	A	A	Not applicable	A
Republican Street east of Dexter Avenue North	North	A	A	Not applicable	A
Republican Street east of Dexter Avenue North	South	A	A	Not applicable	A

Table N.1F-30. South Lake Union Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-2	2042 DT-1
Mercer Street and Taylor Avenue North	West	B	B	B	Not applicable
Mercer Street and Taylor Avenue North	North	E	E	F	Not applicable
Mercer Street and Taylor Avenue North	East	A	A	B	Not applicable
Mercer Street and 6th Avenue North	South	A	B	B	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-2	2042 DT-1
Mercer Street and Dexter Avenue North	West	B	B	B	Not applicable
Mercer Street and Dexter Avenue North	North	B	B	B	Not applicable
Mercer Street and Dexter Avenue North	South	B	B	B	Not applicable
Mercer Street and Dexter Avenue North	East	A	B	B	Not applicable
Roy Street and Dexter Avenue North	West	A	A	A	Not applicable
Roy Street and Dexter Avenue North	North	A	A	B	Not applicable
Roy Street and Dexter Avenue North	South	A	A	B	Not applicable
Roy Street and Dexter Avenue North	East	A	A	A	Not applicable
Harrison Street and 6th Avenue North	West	A	A	Not applicable	B
Harrison Street and 6th Avenue North	North	A	A	Not applicable	B
Harrison Street and 6th Avenue North	East	A	A	Not applicable	B
Harrison Street and 6th Avenue North	South	A	A	Not applicable	C
Harrison Street and Aurora Avenue North	West	A	A	Not applicable	B
Harrison Street and Aurora Avenue North	North	A	A	Not applicable	A
Harrison Street and Aurora Avenue North	East	A	B	Not applicable	B
Harrison Street and Aurora Avenue North	South	B	B	Not applicable	B
Harrison Street and Dexter Avenue North	West	B	B	Not applicable	C
Harrison Street and Dexter Avenue North	North	B	B	Not applicable	C
Harrison Street and Dexter Avenue North	East	B	C	Not applicable	C
Harrison Street and Dexter Avenue North	South	A	A	Not applicable	B
Republican Street and Dexter Avenue North	West	B	B	Not applicable	B
Republican Street and Dexter Avenue North	North	A	A	Not applicable	B
Republican Street and Dexter Avenue North	East	B	B	Not applicable	B
Republican Street and Dexter Avenue North	South	A	B	Not applicable	B

Table N.1F-31. South Lake Union Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 DT-2	2042 DT-1
Mercer Street and Taylor Avenue North	Northwest	PASS	PASS	PASS	Not applicable
Mercer Street and Taylor Avenue North	Northeast	PASS	PASS	PASS	Not applicable
Mercer Street and Taylor Avenue North	Southeast	PASS	PASS	PASS	Not applicable
Mercer Street and Taylor Avenue North	Southwest	PASS	PASS	PASS	Not applicable
Mercer Street and 6th Avenue North	Southeast	PASS	PASS	PASS	Not applicable
Mercer Street and 6th Avenue North	Southwest	PASS	PASS	PASS	Not applicable
Mercer Street and Dexter Avenue North	Northwest	PASS	PASS	PASS	Not applicable
Mercer Street and Dexter Avenue North	Northeast	PASS	PASS	PASS	Not applicable
Mercer Street and Dexter Avenue North	Southeast	PASS	PASS	PASS	Not applicable
Mercer Street and Dexter Avenue North	Southwest	PASS	PASS	PASS	Not applicable
Roy Street and Dexter Avenue North	Northwest	PASS	PASS	PASS	Not applicable
Roy Street and Dexter Avenue North	Northeast	PASS	PASS	PASS	Not applicable
Harrison Street and 6th Avenue North	Northwest	PASS	PASS	Not applicable	PASS
Harrison Street and 6th Avenue North	Northeast	PASS	PASS	Not applicable	PASS
Harrison Street and 6th Avenue North	Southeast	PASS	PASS	Not applicable	PASS
Harrison Street and 6th Avenue North	Southwest	PASS	PASS	Not applicable	PASS
Harrison Street and Aurora Avenue North	Northwest	PASS	PASS	Not applicable	PASS
Harrison Street and Aurora Avenue North	Northeast	PASS	PASS	Not applicable	PASS
Harrison Street and Aurora Avenue North	Southeast	PASS	PASS	Not applicable	PASS
Harrison Street and Aurora Avenue North	Southwest	PASS	PASS	Not applicable	PASS
Harrison Street and Dexter Avenue North	Northwest	PASS	PASS	Not applicable	PASS
Harrison Street and Dexter Avenue North	Northeast	PASS	PASS	Not applicable	PASS
Harrison Street and Dexter Avenue North	Southeast	PASS	PASS	Not applicable	PASS
Harrison Street and Dexter Avenue North	Southwest	PASS	PASS	Not applicable	PASS

Intersection	Corner	Existing	2042 No Build	2042 DT-2	2042 DT-1
Republican Street and Dexter Avenue North	Northwest	PASS	PASS	Not applicable	PASS
Republican Street and Dexter Avenue North	Northeast	PASS	PASS	Not applicable	PASS
Republican Street and Dexter Avenue North	Southeast	PASS	PASS	Not applicable	PASS
Republican Street and Dexter Avenue North	Southwest	PASS	PASS	Not applicable	PASS

Table N.1F-32. Seattle Center Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
Republican Street west of Queen Anne Avenue North	North	A	A	A	Not applicable
Republican Street west of Queen Anne Avenue North	South	A	A	A	Not applicable
Republican Street between Queen Anne Avenue North and 1st Avenue North	North	A	A	A	Not applicable
Republican Street between Queen Anne Avenue North and 1st Avenue North	South	A	A	A	Not applicable
Republican Street between 2nd Avenue North and Warren Avenue North	North	A	A	Not applicable	Not applicable
Republican Street between 2nd Avenue North and Warren Avenue North	South	A	A	Not applicable	Not applicable
Republican Street east of 2nd Avenue North	North	A	A	Not applicable	Not applicable
Republican Street between 1st Avenue North and Warren Avenue North	North	A	A	A	Not applicable
Republican Street between 1st Avenue North and Warren Avenue North	South	A	A	B	Not applicable
Republican Street east of Warren Avenue North	North	A	A	A	Not applicable
Republican Street east of Warren Avenue North	South	A	A	A	Not applicable
Queen Anne Avenue North south of Republican Street	West	A	A	Not applicable	Not applicable
Queen Anne Avenue North south of Republican Street	East	A	A	Not applicable	Not applicable
Queen Anne Avenue North north of Republican Street	West	A	A	Not applicable	Not applicable
Queen Anne Avenue North north of Republican Street	East	A	A	Not applicable	Not applicable
Queen Anne Avenue North south of Mercer Street	West	A	A	Not applicable	A
Queen Anne Avenue North south of Mercer Street	East	A	A	Not applicable	A
Queen Anne Avenue North north of Mercer Street	West	A	A	Not applicable	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
Queen Anne Avenue North north of Mercer Street	East	A	A	Not applicable	A
2nd Avenue North north of Republican Street	West	A	A	Not applicable	Not applicable
2nd Avenue North north of Republican Street	East	A	A	Not applicable	Not applicable
Mercer Street east of Warren Avenue North	North	A	A	Not applicable	A
Mercer Street east of Warren Avenue North	South	A	A	Not applicable	A
Mercer Street west of Warren Avenue North	North	A	A	Not applicable	Not applicable
Mercer Street west of Warren Avenue North	South	A	A	Not applicable	Not applicable
Mercer Street between Warren Avenue North and 2nd Avenue North	South	A	A	Not applicable	Not applicable
Mercer Street between Warren Avenue North and 2nd Avenue North	North	A	A	Not applicable	Not applicable
Mercer Street between Warren Avenue North and 2nd Avenue North	South	A	A	Not applicable	Not applicable
Mercer Street east of 2nd Avenue North	North	A	A	Not applicable	Not applicable
Mercer Street east of 2nd Avenue North	South	A	A	Not applicable	Not applicable
Mercer Street east of Mercer Street	North	A	A	A	Not applicable
Mercer Street east of Mercer Street	South	A	A	A	Not applicable
Mercer Street west of Queen Anne Avenue North	North	A	A	Not applicable	A
Mercer Street west of Queen Anne Avenue North	South	A	A	Not applicable	A
Mercer Street between Queen Anne Avenue North and 1st Avenue North	North	A	A	Not applicable	B
Mercer Street between Queen Anne Avenue North and 1st Avenue North	South	A	A	Not applicable	A
Mercer Street between 1st Avenue North and Warren Avenue North	North	A	A	Not applicable	A
Mercer Street between 1st Avenue North and Warren Avenue North	South	A	A	Not applicable	B
1st Avenue North west of Mercer Street	North	A	A	A	Not applicable
1st Avenue North west of Mercer Street	South	A	A	A	Not applicable
1st Avenue North north of Republican Street	West	A	A	A	Not applicable
1st Avenue North north of Republican Street	East	A	A	A	Not applicable
1st Avenue North south of Republican Street	West	A	A	A	Not applicable
1st Avenue North south of Republican Street	East	A	A	A	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DT-1	2042 DT-2
1st Avenue North south of Mercer Street	West	A	A	Not applicable	A
1st Avenue North south of Mercer Street	East	A	A	Not applicable	A
1st Avenue North north of Mercer Street	West	A	A	Not applicable	A
1st Avenue North north of Mercer Street	East	A	A	Not applicable	A
Warren Avenue North between Republican Street and Mercer Street	West	A	A	A	Not applicable
Warren Avenue North between Republican Street and Mercer Street	East	A	A	A	Not applicable
Warren Avenue North south of Mercer Street	West	A	A	Not applicable	A
Warren Avenue North south of Mercer Street	East	A	A	Not applicable	A
Warren Avenue North north of Mercer Street	West	A	A	Not applicable	A
Warren Avenue North north of Mercer Street	East	A	A	Not applicable	A

Table N.1F-33. Seattle Center Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
Republican and Queen Anne Avenue North	North	B	B	D	Not applicable
Republican and Queen Anne Avenue North	West	B	B	B	Not applicable
Republican and Queen Anne Avenue North	South	B	B	D	Not applicable
Republican and Queen Anne Avenue North	East	B	B	B	Not applicable
Republican and 1st Avenue North	North	B	B	B	Not applicable
Republican and 1st Avenue North	West	B	B	C	Not applicable
Republican and 1st Avenue North	South	B	B	E	Not applicable
Republican and 1st Avenue North	East	B	B	C	Not applicable
Mercer Street and 2nd Avenue North	North	B	B	Not applicable	Not applicable
Mercer Street and 2nd Avenue North	West	B	B	Not applicable	Not applicable
Mercer Street and 2nd Avenue North	South	B	B	Not applicable	Not applicable
Mercer Street and 2nd Avenue North	East	B	B	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DT-1	2042 DT-2
Mercer Street and Queen Anne Avenue North	North	B	C	Not applicable	D
Mercer Street and Queen Anne Avenue North	West	B	B	Not applicable	B
Mercer Street and Queen Anne Avenue North	South	B	C	Not applicable	D
Mercer Street and Queen Anne Avenue North	East	B	B	Not applicable	D
Mercer Street and 1st Avenue North	North	C	C	Not applicable	D
Mercer Street and 1st Avenue North	West	B	B	Not applicable	C
Mercer Street and 1st Avenue North	South	B	C	Not applicable	C
Mercer Street and 1st Avenue North	East	B	B	Not applicable	C

Table N.1F-34. Seattle Center Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
Republican and Queen Anne Avenue North	Northwest	PASS	PASS	PASS	Not applicable
Republican and Queen Anne Avenue North	Northeast	PASS	PASS	PASS	Not applicable
Republican and Queen Anne Avenue North	Southeast	PASS	PASS	PASS	Not applicable
Republican and Queen Anne Avenue North	Southwest	PASS	PASS	PASS	Not applicable
Republican and 1st Avenue North	Northwest	PASS	PASS	PASS	Not applicable
Republican and 1st Avenue North	Northeast	PASS	PASS	PASS	Not applicable
Republican and 1st Avenue North	Southeast	PASS	PASS	PASS	Not applicable
Republican and 1st Avenue North	Southwest	PASS	PASS	PASS	Not applicable
Mercer Street and 2nd Avenue North	Northwest	PASS	PASS	Not applicable	Not applicable
Mercer Street and 2nd Avenue North	Northeast	PASS	PASS	Not applicable	Not applicable
Mercer Street and 2nd Avenue North	Southeast	PASS	PASS	Not applicable	Not applicable
Mercer Street and 2nd Avenue North	Southwest	PASS	PASS	Not applicable	Not applicable
Mercer Street and Queen Anne Avenue North	Northwest	PASS	PASS	Not applicable	PASS
Mercer Street and Queen Anne Avenue North	Northeast	PASS	PASS	Not applicable	PASS

Intersection	Corner	Existing	2042 No Build	2042 DT-1	2042 DT-2
Mercer Street and Queen Anne Avenue North	Southeast	PASS	PASS	Not applicable	PASS
Mercer Street and Queen Anne Avenue North	Southwest	PASS	PASS	Not applicable	PASS
Mercer Street and 1st Avenue North	Northwest	PASS	PASS	Not applicable	PASS
Mercer Street and 1st Avenue North	Northeast	PASS	PASS	Not applicable	PASS
Mercer Street and 1st Avenue North	Southeast	PASS	PASS	Not applicable	PASS
Mercer Street and 1st Avenue North	Southwest	PASS	PASS	Not applicable	PASS

Table N.1F-35. Smith Cove Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue West north of West Garfield Street	East	A	A	A	Not applicable	Not applicable
Elliott Avenue West north of West Garfield Street	West	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Garfield Street and West Galer Street	East	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Garfield Street and West Galer Street	West	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Galer Street and Galer Flyover	East	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Galer Street and Galer Flyover	West	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Galer Street and West Prospect Street	East	A	A	A	A	A
Elliott Avenue West between West Galer Street and West Prospect Street	West	A	A	A	A	A
Elliott Avenue West south of West Prospect Street	East	A	A	A	Not applicable	Not applicable
Elliott Avenue West south of West Prospect Street	West	A	A	A	Not applicable	Not applicable
Elliott Avenue West north of West Galer Street	East	A	A	Not applicable	A	A
Elliott Avenue West north of West Galer Street	West	A	A	Not applicable	A	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue West between West Prospect Street and West Mercer Street	East	A	A	Not applicable	A	A
Elliott Avenue West between West Prospect Street and West Mercer Street	West	A	A	Not applicable	A	A
Elliott Avenue West south of West Mercer Street	East	A	A	Not applicable	A	A
Elliott Avenue West south of West Mercer Street	West	A	A	Not applicable	A	A
West Garfield Street west of Elliott Avenue West	North	A	A	A	Not applicable	Not applicable
West Garfield Street west of Elliott Avenue West	South	A	A	A	Not applicable	Not applicable
West Garfield Street east of Elliott Avenue West	North	A	A	A	Not applicable	Not applicable
West Garfield Street east of Elliott Avenue West	South	A	A	A	Not applicable	Not applicable
West Galer Street west of Elliott Avenue West	North	A	A	A	Not applicable	Not applicable
West Galer Street west of Elliott Avenue West	South	A	A	A	Not applicable	Not applicable
West Galer Street east of Elliott Avenue West	North	A	A	A	A	A
West Galer Street east of Elliott Avenue West	South	A	A	A	A	A
Galer Flyover east of Elliott Avenue West	North	A	A	A	Not applicable	Not applicable
Galer Flyover east of Elliott Avenue West	South	A	A	A	Not applicable	Not applicable
West Prospect Street west of Elliott Avenue West	North	A	A	A	A	A
West Prospect Street west of Elliott Avenue West	South	A	A	A	A	A
West Prospect Street east of Elliott Avenue West	North	A	A	A	A	A
West Prospect Street east of Elliott Avenue West	South	A	A	A	A	A
West Mercer Street west of Elliott Avenue West	North	A	A	A	A	A
West Mercer Street west of Elliott Avenue West	South	A	A	A	A	A
West Mercer Street east of Elliott Avenue West	North	A	A	A	A	A
West Mercer Street east of Elliott Avenue West	South	A	A	A	A	A

Table N.1F-36. Smith Cove Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue and West Garfield Street	West	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	North	A	A	A	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	East	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	South	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Galer Street	West	A	A	A	Not applicable	Not applicable
Elliott Avenue and West Galer Street	North	A	A	B	B	B
Elliott Avenue and West Galer Street	East	A	A	A	B	B
Elliott Avenue and West Galer Street	South	A	A	A	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	North	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	East	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Prospect Street	West	A	A	B	A	A
Elliott Avenue and West Prospect Street	North	A	A	B	B	B
Elliott Avenue and West Prospect Street	East	A	A	B	B	B
Elliott Avenue and West Prospect Street	South	A	A	A	A	A
Elliott Avenue and West Mercer Street	West	B	B	Not applicable	B	Not applicable
Elliott Avenue and West Mercer Street	East	A	A	Not applicable	C	Not applicable
Elliott Avenue and West Mercer Street	South	A	A	Not applicable	B	Not applicable

Table N.1F-37. Smith Cove Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue and West Garfield Street	Northeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	Southeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	Southwest	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	Northwest	PASS	PASS	PASS	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue and West Galer Street	Northeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Street	Southeast	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Galer Street	Southwest	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Galer Street	Northwest	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	Northeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	Southeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	Northwest	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Prospect Street	Northeast	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Prospect Street	Southeast	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Prospect Street	Southwest	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Prospect Street	Northwest	PASS	PASS	PASS	Not applicable	Not applicable

Table N.1F-38. Interbay Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
West Dravus Street east of 17th Avenue West	North	A	A	A	Not applicable	A
West Dravus Street east of 17th Avenue West	South	A	A	A	Not applicable	A
West Dravus Street west of 17th Avenue West	North	A	A	A	Not applicable	Not applicable
West Dravus Street west of 17th Avenue West	South	A	A	B	Not applicable	Not applicable
West Dravus Street east of 16th Avenue West	North	A	A	Not applicable	Not applicable	A
West Dravus Street east of 16th Avenue West	South	A	A	Not applicable	Not applicable	A
West Dravus Street between 15th Avenue West and 16th Avenue West	North	A	A	Not applicable	A	A
West Dravus Street between 15th Avenue West and 16th Avenue West	South	A	A	Not applicable	A	Not applicable
West Dravus Street between 15th Avenue West (west) and 15th Avenue West (east)	North	A	A	Not applicable	A	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
West Dravus Street between 15th Avenue West (west) and 15th Avenue West (east)	South	A	A	Not applicable	B	Not applicable
West Dravus Street west of 15th Place West	North	A	A	Not applicable	A	Not applicable
West Dravus Street west of 15th Place West	South	A	A	Not applicable	A	Not applicable
West Dravus Street east of 15th Place West	North	A	A	Not applicable	A	Not applicable
West Dravus Street east of 15th Place West	South	A	A	Not applicable	A	Not applicable
17th Avenue West north of Dravus Street	West	A	A	C	Not applicable	A
17th Avenue West north of Dravus Street	East	A	A	A	Not applicable	A
17th Avenue West north of West Barrett Street	West	A	A	A	Not applicable	A
17th Avenue West north of West Barrett Street	East	A	A	A	Not applicable	A
15th Avenue West between West Dravus Street and West Bertona Street	West	A	A	Not applicable	A	Not applicable
15th Avenue West between West Dravus Street and West Bertona Street	East	A	A	Not applicable	A	Not applicable
15th Avenue West north of Dravus	West	A	A	Not applicable	A	Not applicable
15th Avenue West north of Dravus	East	A	A	Not applicable	A	Not applicable

Table N.1F-39. Interbay Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 SIB-1	2042 SIB-3	2042 SIB-2
17th Avenue West and West Dravus Street	North	A	A	B	A	Not applicable
17th Avenue West and West Dravus Street	West	A	A	C	C	Not applicable
17th Avenue West and West Dravus Street	South	A	A	A	A	Not applicable
17th Avenue West and West Dravus Street	East	A	A	A	A	Not applicable
West Dravus Street and west of 15th Avenue West	North	B	B	Not applicable	B	Not applicable
West Dravus Street and west of 15th Avenue West	West	A	A	Not applicable	A	Not applicable
West Dravus Street and west of 15th Avenue West	South	B	B	Not applicable	B	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 SIB-1	2042 SIB-3	2042 SIB-2
West Dravus Street and west of 15th Avenue West	East	A	A	Not applicable	A	Not applicable
West Dravus Street and east of 15th Avenue West	North	B	B	Not applicable	B	Not applicable
West Dravus Street and east of 15th Avenue West	West	A	A	Not applicable	A	Not applicable
West Dravus Street and east of 15th Avenue West	South	B	B	Not applicable	B	Not applicable
West Dravus Street and east of 15th Avenue West	East	A	A	Not applicable	A	Not applicable
West Dravus Street and 15th Avenue West (west side)	North	B	B	Not applicable	Not applicable	C
West Dravus Street and 15th Avenue West (west side)	West	A	A	Not applicable	Not applicable	A
West Dravus Street and 15th Avenue West (west side)	South	B	B	Not applicable	Not applicable	E
West Dravus Street and 15th Avenue West (west side)	East	A	A	Not applicable	Not applicable	A
West Dravus Street and 15th Avenue West (east side)	North	B	B	Not applicable	Not applicable	B
West Dravus Street and 15th Avenue West (east side)	West	A	A	Not applicable	Not applicable	A
West Dravus Street and 15th Avenue West (east side)	South	B	B	Not applicable	Not applicable	B
West Dravus Street and 15th Avenue West (east side)	East	A	A	Not applicable	Not applicable	A

Table N.1F-40. Interbay Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 SIB-1	2042 SIB-3	2042 SIB-2
17th Avenue West and West Dravus Street	Northwest	PASS	PASS	PASS	PASS	PASS
17th Avenue West and West Dravus Street	Northeast	PASS	PASS	PASS	PASS	PASS
17th Avenue West and West Dravus Street	Southwest	PASS	PASS	PASS	PASS	PASS
17th Avenue West and West Dravus Street	Southeast	PASS	PASS	PASS	PASS	PASS
West Dravus Street and west of 15th Avenue West	Northwest	PASS	PASS	PASS	PASS	PASS
West Dravus Street and west of 15th Avenue West	Northeast	PASS	PASS	PASS	PASS	PASS
West Dravus Street and west of 15th Avenue West	Southwest	PASS	PASS	PASS	PASS	PASS
West Dravus Street and west of 15th Avenue West	Southeast	PASS	PASS	PASS	PASS	PASS
West Dravus Street and east of 15th Avenue West	Northwest	PASS	PASS	PASS	PASS	PASS

Intersection	Corner	Existing	2042 No Build	2042 SIB-1	2042 SIB-3	2042 SIB-2
West Dravus Street and east of 15th Avenue West	Northeast	PASS	PASS	PASS	PASS	PASS
West Dravus Street and east of 15th Avenue West	Southwest	PASS	PASS	PASS	PASS	PASS
West Dravus Street and east of 15th Avenue West	Southeast	PASS	PASS	PASS	PASS	PASS
West Dravus Street and 15th Avenue West (west side)	Northwest	PASS	PASS	PASS	PASS	PASS
West Dravus Street and 15th Avenue West (west side)	Northeast	PASS	PASS	PASS	PASS	PASS
West Dravus Street and 15th Avenue West (west side)	Southwest	PASS	PASS	PASS	PASS	PASS
West Dravus Street and 15th Avenue West (west side)	Southeast	PASS	PASS	PASS	PASS	PASS
West Dravus Street and 15th Avenue West (east side)	Northwest	PASS	PASS	PASS	PASS	PASS
West Dravus Street and 15th Avenue West (east side)	Northeast	PASS	PASS	PASS	PASS	PASS
West Dravus Street and 15th Avenue West (east side)	Southwest	PASS	PASS	PASS	PASS	PASS
West Dravus Street and 15th Avenue West (east side)	Southeast	PASS	PASS	PASS	PASS	PASS

Table N.1F-41. Ballard Station – P.M. Peak Hour Sidewalk Level of Service

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 IBB-1a	2042 IBB-2a*	2042 IBB-2b*	2042 IBB-3
Northwest Market Street west of 17th Avenue Northwest	North	A	A	Not applicable	Not applicable	A	A
Northwest Market Street west of 17th Avenue Northwest	South	A	A	Not applicable	Not applicable	A	A
Northwest Market Street west of 15th Avenue Northwest	North	A	A	Not applicable	Not applicable	A	A
Northwest Market Street west of 15th Avenue Northwest	South	A	A	Not applicable	Not applicable	A	A
Northwest Market Street east of 15th Avenue Northwest	North	A	A	Not applicable	Not applicable	A	A
Northwest Market Street east of 15th Avenue Northwest	South	A	A	Not applicable	Not applicable	A	A
Northwest Market Street east of 14th Avenue Northwest	North	A	A	B	B	A	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 IBB-1a	2042 IBB-2a*	2042 IBB-2b*	2042 IBB-3
Northwest Market Street east of 14th Avenue Northwest	South	A	A	A	A	A	A
Northwest Market Street west of 14th Avenue Northwest	North	A	A	A	A	Not applicable	Not applicable
Northwest Market Street west of 14th Avenue Northwest	South	A	A	B	B	Not applicable	Not applicable
Northwest 54th Street east of 14th Avenue Northwest	North	A	A	A	A	A	A
Northwest 54th Street east of 14th Avenue Northwest	South	A	A	A	A	A	A
Northwest 54th Street west of 14th Avenue Northwest	North	A	A	A	A	Not applicable	Not applicable
Northwest 54th Street west of 14th Avenue Northwest	South	A	A	A	A	Not applicable	Not applicable
Northwest 54th Street west of 15th Avenue Northwest	North	A	A	Not applicable	Not applicable	A	A
Northwest 54th Street west of 15th Avenue Northwest	South	A	A	Not applicable	Not applicable	A	A
Northwest 54th Street east of 15th Avenue Northwest	North	A	A	Not applicable	Not applicable	A	A
Northwest 54th Street east of 15th Avenue Northwest	South	A	A	Not applicable	Not applicable	A	A
Northwest 53rd Street west of 15th Avenue Northwest	North	A	A	Not applicable	Not applicable	A	A
Northwest 53rd Street west of 15th Avenue Northwest	South	A	A	Not applicable	Not applicable	A	A
Northwest 53rd Street east of 15th Avenue Northwest	South	A	A	Not applicable	Not applicable	A	A
Northwest 53rd Street east of 15th Avenue Northwest	North	A	A	Not applicable	Not applicable	A	A
15th Avenue Northwest between Northwest 56th Street and Northwest Market Street	West	A	A	Not applicable	Not applicable	A	A
15th Avenue Northwest between Northwest 56th Street and Northwest Market Street	East	A	A	Not applicable	Not applicable	A	A
15th Avenue Northwest between Northwest Market Street and Northwest 54th Street	West	A	A	Not applicable	Not applicable	B	B

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 IBB-1a	2042 IBB-2a*	2042 IBB-2b*	2042 IBB-3
15th Avenue Northwest between Northwest Market Street and Northwest 54th Street	East	A	A	Not applicable	Not applicable	A	A
15th Avenue Northwest between Northwest 54th Street and Northwest 53rd Street	West	A	A	Not applicable	Not applicable	A	A
15th Avenue Northwest between Northwest 54th Street and Northwest 53rd Street	East	A	A	Not applicable	Not applicable	A	A
15th Avenue Northwest south of Northwest 53rd Street	West	A	A	Not applicable	Not applicable	A	A
15th Avenue Northwest south of Northwest 53rd Street	East	A	A	Not applicable	Not applicable	A	A
17th Avenue Northwest between Northwest 54th Street and Northwest Market Street	West	A	A	Not applicable	Not applicable	A	A
17th Avenue Northwest between Northwest 54th Street and Northwest Market Street	East	A	A	Not applicable	Not applicable	A	A
17th Avenue Northwest between Northwest Market Street and Northwest 56th Street	West	A	A	Not applicable	Not applicable	A	A
17th Avenue Northwest between Northwest Market Street and Northwest 56th Street	East	A	A	Not applicable	Not applicable	A	A
14th Avenue Northwest between Northwest 53rd Street and Northwest 54th Street	West	A	A	A	A	A	A
14th Avenue Northwest between Northwest 53rd Street and Northwest 54th Street	East	A	A	A	A	A	A
14th Avenue Northwest north of Northwest 54th Street	West	A	A	B	C	A	A
14th Avenue Northwest north of Northwest 54th Street	East	A	A	B	B	A	A
14th Avenue Northwest between Northwest Market Street and Northwest 56th Street	West	A	A	A	A	A	A
14th Avenue Northwest between Northwest Market Street and Northwest 56th Street	East	A	A	A	A	A	A

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

Table N.1F-42. Ballard Station – P.M. Peak Hour Crosswalk Level of Service

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 IBB-1a	2042 IBB-2a*	2042 IBB-2b*	2042 IBB-3
Northwest Market Street and 15th Avenue Northwest	West	B	B	B	B	C	C
Northwest Market Street and 15th Avenue Northwest	North	B	B	C	B	B	C
Northwest Market Street and 15th Avenue Northwest	South	B	B	C	D	B	B
Northwest Market Street and 15th Avenue Northwest	East	B	B	B	B	B	C
Northwest 53rd Street and 15th Avenue Northwest [a]	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Northwest 53rd Street and 15th Avenue Northwest [a]	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Northwest Market Street and 17th Avenue Northwest	West	B	B	Not applicable	Not applicable	B	B
Northwest Market Street and 17th Avenue Northwest	North	B	B	Not applicable	Not applicable	B	B
Northwest Market Street and 17th Avenue Northwest	South	B	B	Not applicable	Not applicable	C	C
Northwest Market Street and 17th Avenue Northwest	East	B	B	Not applicable	Not applicable	B	B
Northwest Market Street and 14th Avenue Northwest	West	B	B	B	C	B	B
Northwest Market Street and 14th Avenue Northwest	North	A	A	C	B	A	A
Northwest Market Street and 14th Avenue Northwest	East	A	A	B	B	B	B
Northwest Market Street and 14th Avenue Northwest	South	B	B	B	B	A	A

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table N.1F-43. Ballard Station – P.M. Peak Hour Corner Level of Service

Intersection	Corner	Existing	2042 No Build	2042 IBB-1a	2042 IBB-2a*	2042 IBB-2b*	2042 IBB-3
Northwest Market Street and 15th Avenue Northwest	Northwest	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 15th Avenue Northwest	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 15th Avenue Northwest	Southwest	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 15th Avenue Northwest	Southeast	PASS	PASS	PASS	PASS	PASS	PASS
Northwest 53rd Street and 15th Avenue Northwest	Northwest	PASS	PASS	PASS	PASS	PASS	PASS
Northwest 53rd Street and 15th Avenue Northwest	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
Northwest 53rd Street and 15th Avenue Northwest	Southwest	PASS	PASS	PASS	PASS	PASS	PASS
Northwest 53rd Street and 15th Avenue Northwest	Southeast	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 17th Avenue Northwest	Northwest	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 17th Avenue Northwest	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 17th Avenue Northwest	Southwest	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 17th Avenue Northwest	Southeast	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 14th Avenue Northwest	Northwest	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 14th Avenue Northwest	Northeast	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 14th Avenue Northwest	Southwest	PASS	PASS	PASS	PASS	PASS	PASS
Northwest Market Street and 14th Avenue Northwest	Southeast	PASS	PASS	PASS	PASS	PASS	PASS

* As described in the introduction to Chapter 2, Alternatives Considered, of the Environmental Impact Statement, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

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Pedestrian M.O.S. Level of Service

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Table 1. Delridge Station – P.M. Peak Hour Sidewalk Level of Service (M.O.S.)

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a *	2042 DEL-2b *	2042 DEL-3	2042 DEL-4 *	2042 DEL-5	2042 DEL-6 *
26th Avenue Southwest between Genesee Street and Nevada Street	East	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
26th Avenue Southwest between Genesee Street and Nevada Street	West	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
26th Avenue Southwest between Dakota Street and Nevada Street	East	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
26th Avenue Southwest between Dakota Street and Nevada Street	West	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Dakota Street between 25th Avenue and Delridge Way	North	A	A	A	A	A	A	A	A	Not applicable	Not applicable
Southwest Dakota Street between 25th Avenue and Delridge Way	South	A	A	F	F	F	F	A	A	Not applicable	Not applicable
Southwest Dakota Street between 26th Avenue Southwest and 25th Avenue Southwest	North	A	A	A	A	A	A	A	A	Not applicable	Not applicable
Southwest Dakota Street between 26th Avenue Southwest and 25th Avenue Southwest	South	A	A	A	A	A	A	A	A	Not applicable	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a *	2042 DEL-2b *	2042 DEL-3	2042 DEL-4 *	2042 DEL-5	2042 DEL-6 *
Southwest Genesee Street between 26th Avenue and 25th Avenue	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street between 26th Avenue and 25th Avenue	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street between 25th Avenue and Delridge Way	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street between 25th Avenue and Delridge Way	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street west of 26th Avenue Southwest	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street west of 26th Avenue Southwest	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest between Genesee Street and Dakota Street	East	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest between Genesee Street and Dakota Street	West	A	A	D	D	D	D	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest north of Southwest Dakota Street	West	A	A	A	A	A	A	E	E	A	A

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a *	2042 DEL-2b *	2042 DEL-3	2042 DEL-4 *	2042 DEL-5	2042 DEL-6 *
Delridge Way Southwest north of Southwest Dakota Street	East	A	A	A	A	A	A	A	A	A	A
Delridge Way north of Southwest Andover Street	East	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	A	A
Delridge Way north of Southwest Andover Street	West	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	F	F
Southwest Nevada Street west of 26th Avenue Southwest	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street west of 26th Avenue Southwest	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest between Dakota and Genesee	West	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest between Dakota and Genesee	East	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Andover Street west of Delridge Avenue Southwest	North	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	A	A
Southwest Andover Street west of Delridge Avenue Southwest	South	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	A	A

M.O.S. = minimum operable segment

Table 2. Delridge Station – P.M. Peak Hour Crosswalk Level of Service (M.O.S.)

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Southwest Genesee Street and 26th Avenue Southwest	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street and 26th Avenue Southwest	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street and 26th Avenue Southwest	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street and 26th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Dakota Street and 25th Avenue Southwest	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Southwest Dakota Street and 25th Avenue Southwest	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Dakota Street and 25th Avenue Southwest	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Dakota Street	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Dakota Street	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Dakota Street	South	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Genesee Street	North	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Genesee Street	South	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Genesee Street	West	A	A	A	A	A	A	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest and Southwest Genesee Street	North	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
25th Avenue Southwest and Southwest Genesee Street	East	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest and Southwest Genesee Street	West	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Andover Street and Delridge Way Southwest	North	A	A	Not applicable	Not applicable	Not applicable	Not applicable	A	A	B	B
Southwest Andover Street and Delridge Way Southwest	South	B	B	Not applicable	Not applicable	Not applicable	Not applicable	B	B	B	B
Southwest Andover Street and Delridge Way Southwest	East	A	A	Not applicable	Not applicable	Not applicable	Not applicable	B	B	B	B
Southwest Andover Street and Delridge Way Southwest	West	A	A	Not applicable	Not applicable	Not applicable	Not applicable	B	B	B	B

[a] This intersection is included in this analysis but is unsignalized and thus does not have level of service results.

Table 3. Delridge Station – P.M. Peak Hour Corner Level of Service - M.O.S.

Intersection	Corner	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
West Andover Street and Delridge Way Southwest	Northwest	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS	PASS	PASS	PASS
West Andover Street and Delridge Way Southwest	Southwest	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS	PASS	PASS	PASS
West Andover Street and Delridge Way Southwest	Northeast	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS	PASS	PASS	PASS
West Andover Street and Delridge Way Southwest	Southeast	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable	PASS	PASS	PASS	PASS
Southwest Dakota Street and 25th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Dakota Street and 25th Avenue Southwest [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Dakota Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Delridge Way Southwest and Southwest Dakota St [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Genesee Street	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Delridge Way Southwest and Southwest Genesee Street	Southwest	PASS	PASS	PASS	PASS	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest [a]	Northwest	PASS	PASS	PASS	PASS	PASS	PASS	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Genesee Street and 26th Avenue Southwest [a]	Southeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Intersection	Corner	Existing	2042 No Build	2042 DEL-1a	2042 DEL-1b	2042 DEL-2a*	2042 DEL-2b*	2042 DEL-3	2042 DEL-4*	2042 DEL-5	2042 DEL-6*
Southwest Nevada Street and 26th Avenue Southwest [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Southwest Nevada Street and 26th Avenue Southwest [a]	Southwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest and Southwest Genesee Street [a]	Northwest	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
25th Avenue Southwest and Southwest Genesee Street [a]	Northeast	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Table 4. Smith Cove Station – P.M. Peak Hour Sidewalk Level of Service (M.O.S.)

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue West north of West Garfield Street	East	A	A	A	Not applicable	Not applicable
Elliott Avenue West north of West Garfield Street	West	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Garfield Street and West Galer Street	East	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Garfield Street and West Galer Street	West	A	A	C	Not applicable	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue West between West Galer Street and Galer Flyover	East	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Galer Street and Galer Flyover	West	A	A	A	Not applicable	Not applicable
Elliott Avenue West between West Galer Street and West Prospect Street	East	A	A	A	C	C
Elliott Avenue West between West Galer Street and West Prospect Street	West	A	A	A	A	A
Elliott Avenue West south of West Prospect Street	East	A	A	A	Not applicable	Not applicable
Elliott Avenue West south of West Prospect Street	West	A	A	A	Not applicable	Not applicable
Elliott Avenue West north of West Galer Street	East	A	A	Not applicable	A	A
Elliott Avenue West north of West Galer Street	West	A	A	Not applicable	A	A
Elliott Avenue West between West Prospect Street and West Mercer Street	East	A	A	Not applicable	A	A
Elliott Avenue West between West Prospect Street and West Mercer Street	West	A	A	Not applicable	A	A
Elliott Avenue West south of West Mercer Street	East	A	A	Not applicable	A	A
Elliott Avenue West south of West Mercer Street	West	A	A	Not applicable	A	A
West Garfield Street west of Elliott Avenue West	North	A	A	A	Not applicable	Not applicable
West Garfield Street west of Elliott Avenue West	South	A	A	A	Not applicable	Not applicable
West Garfield Street east of Elliott Avenue West	North	A	A	A	Not applicable	Not applicable

Sidewalk Facility	Side of the Street	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
West Garfield Street east of Elliott Avenue West	South	A	A	A	Not applicable	Not applicable
West Galer Street west of Elliott Avenue West	North	A	A	A	Not applicable	Not applicable
West Galer Street west of Elliott Avenue West	South	A	A	A	Not applicable	Not applicable
West Galer Street east of Elliott Avenue West	North	A	A	A	A	A
West Galer Street east of Elliott Avenue West	South	A	A	A	A	A
Galer Flyover east of Elliott Avenue West	North	A	A	A	Not applicable	Not applicable
Galer Flyover east of Elliott Avenue West	South	A	A	A	Not applicable	Not applicable
West Prospect Street west of Elliott Avenue West	North	A	A	A	A	A
West Prospect Street west of Elliott Avenue West	South	A	A	A	A	A
West Prospect Street east of Elliott Avenue West	North	A	A	A	A	A
West Prospect Street east of Elliott Avenue West	South	A	A	A	A	A
West Mercer Street west of Elliott Avenue West	North	A	A	A	A	A
West Mercer Street west of Elliott Avenue West	South	A	A	A	A	A
West Mercer Street east of Elliott Avenue West	North	A	A	A	A	A
West Mercer Street east of Elliott Avenue West	South	A	A	A	A	A

Table 5. Smith Cove Station – P.M. Peak Hour Crosswalk Level of Service (M.O.S.)

Crosswalk Facility	Leg of Intersection	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue and West Garfield Street	West	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	North	A	A	A	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	East	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	South	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Galer Street	West	A	A	A	Not applicable	Not applicable
Elliott Avenue and West Galer Street	North	A	A	D	C	C
Elliott Avenue and West Galer Street	East	A	A	A	C	C
Elliott Avenue and West Galer Street	South	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	North	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	East	A	A	B	Not applicable	Not applicable
Elliott Avenue and West Prospect Street	West	A	A	B	A	A
Elliott Avenue and West Prospect Street	North	A	A	B	B	B
Elliott Avenue and West Prospect Street	East	A	A	B	B	B
Elliott Avenue and West Prospect Street	South	A	A	A	A	A
Elliott Avenue and West Mercer Street	West	B	B	Not applicable	B	Not applicable
Elliott Avenue and West Mercer Street	East	A	A	Not applicable	C	Not applicable
Elliott Avenue and West Mercer Street	South	A	A	Not applicable	B	Not applicable

Table 6. Smith Cove Station – P.M. Peak Hour Corner Level of Service (M.O.S.)

Intersection	Corner	Existing	2042 No Build	2042 SIB-1	2042 SIB-2	2042 SIB-3
Elliott Avenue and West Garfield Street	Northeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	Southeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	Southwest	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Garfield Street	Northwest	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Street	Northeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Street	Southeast	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Galer Street	Southwest	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Galer Street	Northwest	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	Northeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	Southeast	PASS	PASS	PASS	Not applicable	Not applicable
Elliott Avenue and West Galer Flyover	Northwest	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Prospect Street	Northeast	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Prospect Street	Southeast	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Prospect Street	Southwest	PASS	PASS	PASS	PASS	PASS
Elliott Avenue and West Prospect Street	Northwest	PASS	PASS	PASS	Not applicable	Not applicable

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Attachment N.1G
Bicycle Master Plan Project List

Bicycle Master Plan Project List

Project Number	Street	From	To	Length (miles)
100	10TH AVE E	E BLAINE ST	E ALOHA ST	0.58
101	10TH AVE E	E ROANOKE ST	E SHELBY ST	0.26
102	10TH AVE E	E BLAINE ST	E ROANOKE ST	0.60
103	10TH AVE E\E THOMAS ST\FEDERAL AVE E	E DENNY WAY	E REPUBLICAN ST	0.33
104	10TH AVE S TRAIL	S SNOQUALMIE ST	10TH AVE S	1.56
105	10TH AVE S TRAIL	S SNOQUALMIE ST	10TH AVE S	0.22
106	10TH AVE SW/11TH AVE SW/SW PORTLAND ST	SW ROXBURY	SW HOLDEN ST	1.20
107	10TH AVE W	W HOWE ST	W WHEELER ST	0.33
108	10TH AVE W\OLYMPIC AVE W	W PROSPECT ST	W HOWE ST	0.53
109	11TH AVE NE	NE RAVENNA BLVD	NE 47TH ST	0.60
110	11TH AVE NE/12TH AVE NE	NE RAVENNA BLVD	NE 65TH ST	0.29
111	11TH AVE NE/EASTLAKE AVE NE	NE CAMPUS PKWY	NE 47TH ST	0.51
112	11TH AVE NW/NW 60TH ST	LEARY WAY NW	NW 65TH ST	1.06
113	11TH AVE W/14TH AVE W/GILMAN DR W/W HOWE ST	10TH AVE W	W BARRETT ST	0.83
114	12 AVE SW/17TH AVE SW	SW ROXBURY ST	DELRIDGE WAY SW	0.10
115	12TH AVE E	E DENNY WAY	E PROSPECT ST	0.67
116	12TH AVE NE	NE 65TH ST	NE 75TH ST	0.50
117	12TH AVE NE	NE 47TH ST	NE RAVENNA BLVD	0.58
118	12TH AVE NE	BURKE GILMAN TRAIL	NE 47TH ST	0.59
119	12TH AVE NW	NW 65TH ST	NW 100TH ST	1.77
120	12TH AVE NW/NW 132ND ST	NW 122ND ST	8TH AVE NW	0.73
121	12TH AVE S	S CHARLES ST	E YESLER WAY	0.53
122	12TH AVE S/S MASSACHUSETTS ST	GOLF DR S	13TH AVE S	0.48
123	12TH AVE SW/SW WEBSTER ST/11TH AVE SW	SW HOLDEN ST	SW HOLLY ST	0.66
124	13TH AVE S	S ALBRO PL	AIRPORT WAY S	0.15
125	13TH AVE S	BEACON AVE S	S HILL ST	0.17
126	14TH AVE E/E THOMAS ST	E PINE ST	E PROSPECT ST	0.92
127	14TH AVE NW	NW 58TH ST	NW 65TH ST	0.35
128	14TH AVE NW	BURKE GILMAN TRAIL	NW 58TH ST	0.66
129	14TH AVE S/S HINDS ST	15TH AVE S	BEACON AVE S	0.65
130	14TH AVE W	W NICKERSON ST	8TH AVE W	1.32
131	14TH AVE/E ALDER ST/E SPRUCE ST	12TH AVE	18TH AVE	0.42
132	15TH AVE NE	LAKE CITY WAY NE	NE 90TH ST	0.45

Project Number	Street	From	To	Length (miles)
133	15TH AVE NE	PINEHURST WAY NE	NE 125TH ST	0.34
134	15TH AVE NE	NE 90TH ST	NE 98TH ST	0.44
135	15TH AVE NE	NE 125TH ST	NE 145TH ST	1.00
136	15TH AVE NE	NE RAVENNA BLVD	NE 68TH ST	0.47
137	15TH AVE NE	NE CAMPUS PKWY	NE 47TH ST	0.49
138	15TH AVE NE	NE PACIFIC ST	NE CAMPUS PKWY	0.21
139	15TH AVE NE	NE 68TH ST	NE 80TH ST	0.69
140	15TH AVE NE	NE 47TH ST	NE RAVENNA BLVD	0.53
141	15TH AVE NE	NE 98TH ST	PINEHURST WAY NE	0.98
142	15TH AVE NW/NW 100 ST	NW 90TH ST	8TH AVE NW	0.99
143	15TH AVE S	S SPOKANE ST	S HINDS ST	0.10
144	15TH AVE S	S NEVADA ST	S BRADFORD ST	0.25
145	15TH AVE S	S ORCAS ST	S LUCILE ST	0.15
146	16TH AVE S/14TH AVE S	S DIRECTOR ST	EAST MARGINAL WAY S	0.84
147	16TH AVE SW/DUMAR WAY SW/SW AUSTIN ST/SW ORCHARD ST	16TH AVE SW	DELRIDGE WAY SW	0.44
148	16TH AVE W	W DRAVUS ST	SHIP CANAL TRL	0.38
149	16TH AVE/16TH AVE E/17TH AVE/E OLIVE ST	E ALDER ST	E PROSPECT ST	1.80
150	17TH AVE NW	NW BALLARD WAY	NW 90TH ST	2.24
151	18TH AVE/E OLIVE ST	17TH AVE E	E GALER ST	1.16
152	19TH AVE NE	NE 45TH ST	NE 55TH ST	0.50
153	19TH AVE/20TH AVE/E ALDER ST/E FIR ST	S JACKSON ST	18TH AVE S	0.47
154	19TH AVE/20TH AVE/E ALDER ST/E FIR ST	S WELLER ST	18TH AVE S	0.12
155	1ST AVE	BROAD ST	DENNY WAY	0.18
156	1ST AVE N	W DENNY WAY	ROY ST	0.47
157	1ST AVE N/6TH AVE N/QUEEN ANNE DR/ RAYE ST	SMITH ST	DEXTER AVE N	0.70
158	1ST AVE N\BIGELOW AVE N\MCGRAW ST\NOB HILL AVE N\WHEELER ST	BOSTON ST	QUEEN ANNE AVE N	0.62
159	1ST AVE NE	N 92ND ST	NE 103RD ST	0.50
160	1ST AVE NE/KENSINGTON PL N	NE 42ND ST	NE 54TH ST	0.71
161	1ST AVE NE/N 117TH ST	NE 103RD ST	1ST AVE NE	0.83
162	1ST AVE NE/N 65TH ST/SUNNYSIDE AVE N	KEYSTONE PL N	E GREENLAKE WAY N	0.97
163	1ST AVE NE/NE 85TH ST	ROOSEVELT WAY NE	N 92ND ST	0.88
164	1ST AVE NW	N CANAL ST	NW 39TH ST	0.15
165	1ST AVE NW/ N 60TH ST/NW 59TH ST	PHINNEY AVE N	3RD AVE NW	0.39
166	1ST AVE NW/NW 107TH ST	3RD AVE NW	N 130TH ST	1.25
167	1ST AVE NW/NW 41ST ST/2ND AVE NW/ NW BOWDOIN PL	NW 39TH ST	NW 42ND ST	0.40
168	20TH AVE NE	NE 68TH ST	NE 86TH ST	0.94

Project Number	Street	From	To	Length (miles)
169	20TH AVE NE	NE RAVENNA BLVD	NE 68TH ST	0.46
170	20TH AVE NE	NE 45TH ST	NE 52ND ST	0.36
171	20TH AVE NW	SHILSHOLE AVE NW	NW MARKET ST	0.31
172	20TH AVE S/21ST AVE S/S PLUM ST/ VALENTINE PL S	S SPOKANE ST	MTS TRAIL CONNECTOR	1.25
173	20TH AVE W	ELLIOTT BAY TRL	W DRAVUS ST	0.45
174	20TH AVE W/GILMAN AVE W	W DRAVUS ST	W EMERSON PL	0.57
175	21ST AVE E TRL	23RD AVE E	E INTERLAKE DR E	0.07
176	21ST AVE E/E CRESCENT DR	E GALER	E INTERLAKEN BLVD	1.22
177	21ST AVE SW	SW MYRTLE ST	SW DAWSON ST	1.26
178	21ST AVE SW	SW DAWSON ST	SW ANDOVER ST	0.62
179	21ST AVE SW	SW DAWSON ST	SW DAWSON ST	0.15
180	21ST AVE W/40TH AVE W/EAST STEVENS WAY NE/W COMMODORE WAY	W EMERSON PL	W LAWTON ST	1.68
181	21ST/24TH/28TH AVE W/W ARMOUR ST/W RAYE ST	ELLIOTT BAY TRL	32ND AVE W	1.07
182	22ND AVE	S JACKSON ST	E UNION ST	0.96
183	22ND AVE E	BOYER AVE E	E MONTLAKE PL E	0.58
184	22ND AVE NE	NE 45TH ST	NE 54TH ST	0.49
185	22ND AVE SW	SW ANDOVER ST	END	0.15
186	22ND AVE/E DENNY WAY	E UNION ST	E DENNY WAY	0.41
187	23RD AVE W	W GARFIELD ST	W MARINA PL	0.12
188	24TH AVE NE	NE 68TH ST	NE 80TH ST	0.63
189	24TH AVE NW	NW 54TH ST	NW 57TH ST	0.16
190	24TH AVE S/25TH AVE S/S COLLEGE ST	S HANFORD ST	S COLLEGE ST	0.58
191	24TH AVE S/S HILL ST	31ST AVE S	18TH AVE S	0.85
192	24TH AVE S/S MORGAN ST/S WARSAW ST	SWIFT AVE S	BEACON AVE S	0.28
193	24TH AVE SW/25TH AVE SW	SW ROXBURY ST	SW THISTLE ST	0.75
194	24TH AVE/24TH PL S/S ANDOVER ST	CHEASTY BLVD S	S HANFORD ST	0.79
195	25TH AVE E/E UNIVERSITY BLVD	E ROANOKE ST	GLENWILDE PL E	0.07
196	25TH AVE NE/NE 130TH ST/20TH AVE NE	NE 115TH ST	NE 145TH ST	1.76
197	25TH AVE NE/NE113TH ST/23RD AVE NE/ NE 107TH ST/NE 108TH ST	NE 115TH ST	ROOSEVELT WAY NE	1.14
198	25TH AVE SW/SW MYRTLE ST	DELRIDGDE WAY SW	24TH AVE SW	0.55
199	26TH AVE E/28TH AVE E/E GALER ST/E PROSPECT ST	E HARRISON ST	MONTLAKE BLVD E	2.23
200	26TH AVE S/S JUDKINS ST	S JUDKINS ST	E YESLER WAY	0.79
201	26TH AVE SW/SW CLOVERDALE ST	24TH AVE SW	SW THISTLE ST	0.25
202	27TH AVE	E CHERRY ST	E PINE ST	0.50
203	27TH AVE NE	NE 125TH ST	NE 145TH ST	1.00
204	27TH AVE NE	NE BLAKELY ST	NE 68TH ST	0.78
205	27TH AVE/27TH AVE E/E ARTHUR PL	E PINE ST	MLK JR WAY E	0.54

Project Number	Street	From	To	Length (miles)
206	27TH AVE/27TH AVE S/S MAIN ST	MLK JR WAY S	E CHERRY ST	0.58
207	28TH AVE NW	NW MARKET ST	NW 83RD ST	1.38
208	28TH AVE NW	BURKE GILMAN TRAIL	NW MARKET ST	0.05
209	28TH AVE S/31ST AVE S/32ND AVE S/S DAWNSON ST/S FERDINAND ST/S HUDSON ST	BEACON AVE S	ML KING JR WAY S	0.86
210	28TH AVE S/S DEARBORN ST	23RD AVE S	31ST AVE S	0.44
211	28TH AVE SW/SWELMGROVE ST/27TH AVE SW	SW THISTLE ST	SW HOLDEN ST	0.44
212	29TH AVE	E UNION ST	E HARRISON ST	0.65
213	29TH AVE	E YESLER WAY	E UNION ST	0.77
214	29TH AVE W/W RUFFNER ST/36TH AVE W	W GALER ST	W GOVERNMENT WAY	2.24
215	2ND AVE	4TH AVE S	UNION ST	0.80
216	2ND AVE	UNION ST	BROAD ST	0.91
217	2ND AVE N	GALER ST	MCGRAW ST	0.53
218	2ND AVE N/HIGHLAND DR	HIGHLAND DR	GALER ST	0.33
219	2ND AVE NE/N 46TH ST/NE 46TH ST/NE 47TH ST	LATONA AVE NE	SUNNYSIDE AVE N	0.28
220	2ND AVE W	W THOMAS ST	W MERCER ST	0.25
221	30TH AVE NE/RAVENNA AVE NE	NE 105TH ST	NE 115TH ST	0.52
222	30TH AVE/E COLUMBIA ST	29TH AVE	33RD AVE	0.23
223	31ST AVE	E YESLER WAY	E COLUMBIA ST	0.53
224	31ST AVE NE/NE 85TH ST/32ND AVE NE/ NE 100TH ST	NE 75TH ST	NE 106TH ST	1.61
225	31ST AVE S	S MT BAKER BLVD	S MCCLELLAN ST	0.12
226	31ST AVE S	S MASSACHUSETTS ST	S NORMAN ST	0.92
227	32ND AVE NE	NE 135TH ST	NE 145TH ST	0.50
228	32ND AVE NE/33RD AVE NE/34TH AVE NE/NE 62ND ST	NE 55TH ST	NE 75TH ST	1.08
229	32ND AVE NW	NW 58TH ST	NW 85TH ST	1.30
230	32ND AVE SW/LANHAM PL SW/31ST AVE SW	SW HOLDEN ST	SW JUNEAU ST	1.27
231	32ND AVE W	W MCGRAW ST	W BARRETT ST	0.50
232	32ND AVE W/CLISE W/MAGNOLIA W/W GARFIELD/W GALER	23RD AVE W	W MCGRAW ST	0.96
233	32ND AVE W/GILMAN AVE W/W GOVERNMENT WAY	W BARRETT ST	32ND AVE W	1.10
234	32ND AVE W/W MARINA PL EXT/W GALER ST/W MARINA PL	23RD AVE W	CLISE PL W	1.00
235	33RD AVE	E CHERRY ST	E DENNY WAY	0.73
236	33RD AVE S/RENTON AVE S	S ALASKA ST	ML KING JR WAY S	0.80
237	33RD AVE W TRAIL	W GOVERNMENT WAY	CHITTENDEN LOCKS TRL	0.33
238	34TH AVE NW	NW 58TH ST	NW 77TH ST	1.11

Project Number	Street	From	To	Length (miles)
239	34TH AVE S	S EDMUNDS ST	S MOUNT BAKER BLVD	1.33
240	34TH AVE SW	SW ROXBURY ST	SW GRAHAM ST	2.01
241	35TH AVE NE	NE 95TH ST	NE 105TH ST	0.51
242	35TH AVE NE	NE 105TH	NE 115TH	0.50
243	35TH AVE NE	NE 115TH ST	NE 125TH ST	0.52
244	35TH AVE NE	NE 80TH ST	NE 95TH ST	0.74
245	35TH AVE NE	NE 68TH ST	NE 80TH ST	0.63
246	35TH AVE NE	BURKE GILMAN TRAIL	NE 65TH ST	0.98
247	35TH AVE SW	SW MORGAN ST	SW AVALON WAY	1.34
248	35TH AVE SW	SW THISTLE ST	SW MORGAN ST	1.13
249	35TH AVE SW	SW ROXBURY ST	SW THISTLE ST	0.75
250	35TH AVE SW	SW 106TH ST	SW ROXBURY ST	0.64
251	35TH AVE SW	MARINE VIEW DR SW	SW 106TH AVE	0.64
252	35TH AVE W	W MCGRAW ST	W RUFFNER ST	0.88
253	36TH AVE SW	SW CHARLESTOWN ST	SW OLGA ST	0.72
254	36TH AVE SW/SW HUDSON ST/37TH AVE SW	SW GRAHAM ST	SW ALASKA ST	1.07
255	36TH AVE SW/SW ROXBURY ST/37TH AVE SW/SW 102ND ST/37TH AVE SW	SW 104TH ST	SW TRENTON ST	1.10
256	37TH AVE E/E GARFIELD ST	39TH AVE E	E MADISON ST	0.31
257	37TH AVE NE/NE 135TH ST	NE 125TH ST	NE 145TH ST	1.02
258	37TH AVE SW/SW TRENTON ST/36TH AVE SW	35TH AVE SW	SW GRAHAM ST	1.72
259	38TH AVE S\S ALASKA ST	S GENESEE ST	RAINIER AVE S	0.33
260	39TH AVE E/40TH AVE E/E NEWTON ST	E HARRISON ST	E MCGILVRA ST	1.37
261	39TH AVE NE/40TH AVE NE/NE 85TH ST	NE 77TH ST	NE 89TH ST	0.67
262	39TH AVE S	S HOLLY ST	S JUNEAU ST	0.50
263	3RD AVE NE/NE 115TH ST/NE 116TH ST	1ST PL NE	8TH AVE NE	0.39
264	3RD AVE NW/N 117TH ST/NW 117TH ST	NW 97TH ST	NW 107TH ST	0.50
265	3RD AVE NW/N 39TH ST/NW 39TH ST	BURKE GILMAN TRAIL	LINDEN AVE N	0.60
266	3RD AVE S	S MAIN ST	YESLER WAY	0.12
267	3RD AVE W	W MCGRAW ST	W BARRETT ST	0.49
268	3RD AVE W	W THOMAS ST	W HARRISON ST	0.08
269	3RD AVE W BRIDGE	SHIP CANAL TRAIL	BURKE GILMAN TRAIL	0.13
270	3RD AVE/W GALER ST	W HIGHLAND DR	W CROCKETT ST	0.51
271	40TH AVE NE	NE 45TH ST	NE 50TH ST	0.25
272	40TH AVE NE/ALTON AVE NE	NE 105TH ST	NE 123RD ST	0.95
273	41ST AVE E	E PROSPECT ST	E MCGILVRA ST	0.89
274	41ST AVE NE/NE 50TH ST	BURKE GILMAN TRAIL	SANDPOINT WAY NE	0.15
275	42ND AVE NE/43RD AVE NE/NE SURBER DR/SURBER DR NE/WEST LAURELHURST DR NE	E LAURELHURST DR NE	NE 41ST ST	0.82

Project Number	Street	From	To	Length (miles)
276	42ND AVE S	S JUNEAU ST	S FERDINAND ST	0.56
277	42ND AVE S	S MYRTLE ST	S HOLLY ST	0.25
278	42ND AVE S/S JUNEAU ST/35TH AVE S/ RENTON AVE S	S HOLLY ST	S EDMUNDS ST	1.37
279	42ND AVE S\S CONOVER WAY	S GENESEE ST	38TH AVE S	0.31
280	42ND AVE SW/SW HOLLY ST	FAUNTLEROY WAY SW	END (NEAR SW HANFORD ST)	2.49
281	43RD AVE E	E MADISON ST	E MCGILVRA ST	0.36
282	43RD AVE S	S GENESEE ST	LAKE WASHINGTON BLVD S	0.42
283	43RD AVE S	S HOLDEN ST	S MYRTLE ST	0.38
284	44TH AVE NE/45TH AVE NE/NE 47TH ST/ NE 52ND ST	WEST LAURELHURST DRIVE	SAND POINT WAY NE	1.08
285	45TH AVE NE	BURKE GILMAN TRAIL	NE 80TH ST	1.25
286	45TH AVE NE/NE 93RD ST/NE 94TH ST	BURKE GILMAN TRAIL	NE 97TH ST	0.32
287	45TH AVE SW	SW CHARLESTON ST	SW ADMIRAL WAY	0.76
288	45TH AVE SW	SW ALASKA ST	SW CHARLESTON ST	0.63
289	45TH AVE SW/SW EDMUNDS ST	48TH AVE SW	SW ALASKA ST	0.31
290	46TH AVE NE	NE 45TH ST	NE 50TH ST	0.25
291	46TH AVE S	S JUNEAU ST	LAKE WASHINGTON BLVD S	1.44
292	46TH AVE S/S CLOVERDALE ST/S KENYON ST	S HENDERSON ST	46TH AVE S	0.63
293	46TH AVE S/S HOLLY ST	S KENYON ST	42ND AVE S	1.02
294	47TH AVE NE/EAST LAURELHURST DR NE/NE 33RD ST/NE 39TH ST/WEST LAURELHURST DR NE	NE 33RD ST	NE 41ST ST	0.47
295	48TH AVE SW	LINCOLN PARK WAY SW	ERSINE WAY SW	0.98
296	48TH AVE SW	ERSKINE WAY SW	SW ADMIRAL WAY	1.79
297	4TH AVE	OLIVE WAY	CEDAR ST	0.83
298	4TH AVE	YESLER WAY	UNION ST	0.84
299	4TH AVE N	NEWTON ST	WHEELER ST	0.29
300	4TH AVE N/DEXTER AVE N	FULTON ST	FREMONT BRIDGE	0.11
301	4TH AVE NE/NE 42ND ST/BURKE AVE N	NE 40TH ST	N 43RD ST	0.71
302	4TH AVE NW/NW 120TH ST	NW 117TH ST	8TH AVE NW	0.33
303	4TH AVE S/AIRPORT WAY S/S DEABORN ST/SEATTLE BLVD S	S ROYAL BROUGHAM WAY	2ND AVE ET S	0.51
304	50TH AVE NE/NE 65TH ST	NE PRINCETON WAY	NE 75TH ST	0.58
305	50TH AVE S	S GENESEE ST	LAKE WASHINGTON BLVD S	0.24
306	520 TRAIL	BOYLSTON AVE E	MONTLAKE BLVD OFF RP	1.00
307	520 TRAIL CONNECTION	520 TRAIL	E HAMLIN ST	0.07

Project Number	Street	From	To	Length (miles)
308	52ND AVE S	SEWARD PARK AVE S	S HOLLY ST	0.20
309	52ND AVES/S GRAHAM ST/51ST AVE S	S HOLLY ST	S DAWSON ST	0.98
310	54TH ST	LATONA AVE NE	1ST AVE NE	0.13
311	55TH AVE NE/55TH PL NE/56TH AVE NE/57TH AVE NE/58TH AVE NE/NE 75TH ST/NE 77TH ST	NE 75TH ST	SANDPOINT WAY NE	0.69
312	55TH AVE S/56TH AVE S/S LEO ST	BEACON AVE S	RENTON AVE S	1.20
313	55TH AVE SW	SW GENESSEE ST	SW CHARLESTOWN ST	0.38
314	59TH AVE SW	SW ADMIRAL WAY	ALKI AVE SW	0.29
315	59TH AVE SW/SW SPOKANE ST/58TH AVE SW/HILLCREST AVE SW/SW ORLEANS ST	55TH AVE SW	SW ADMIRAL WAY	0.57
316	5TH AVE	YESLER WAY	SPRING ST	0.45
317	5TH AVE	SPRING ST	DENNY WAY	1.07
318	5TH AVE N	NEWTON ST	BOSTON ST	0.12
319	5TH AVE N\CEDAR ST	4TH AVE	REPUBLICAN ST	0.38
320	5TH AVE N\TAYLOR AVE N	MERCER ST	ROY ST	0.12
321	5TH AVE NE	NE 130TH ST	NE 145TH ST	0.76
322	5TH AVE NE	NE 71ST ST	NE 70TH ST	0.05
323	5TH AVE NE	NE 40TH ST	NE 47TH ST	0.58
324	5TH AVE NE/NE100TH ST	15TH AVE NE	NE 98TH ST	0.31
325	5TH AVE NW/6TH AVE NW/NW MARKET ST	NW 42ND ST	NW 56TH ST	0.85
326	5TH AVE S	S KING ST	YESLER WAY	0.23
327	5TH AVE S	S DEARBORN ST	S KING ST	0.18
328	61ST AVE SW	SW BEACH DR	ALKI AVE SW	0.55
329	63RD AVE SW	BEACH DR SW	ALKI AVE SW	0.40
330	6TH AVE NW/NW 65TH ST/NW 97TH ST	NW 56TH ST	1ST AVE NW	2.36
331	6TH AVE S	SEATTLE BLVD S	S DEARBORN ST	0.05
332	6TH AVE S	S FRONT ST	S INDUSTRIAL WAY	1.45
333	6TH AVE W/7TH AVE W/W MCGRAW ST	W CROCKETT ST	W RAYE ST	0.43
334	77TH ST	GREENWOOD AVE N	32ND AVE NW	2.01
335	7TH AVE	UNION ST	STEWART ST	0.70
336	7TH AVE S	S DEARBORN ST	S KING ST	0.17
337	7TH AVE S/S ORCAS ST	EAST MARGINAL WAY S	S HOMER ST	0.62
338	7TH AVE S/S TRENTON ST/8TH AVE S	S CAMBRIDGE ST	S CLOVERDALE ST	0.65
339	7TH AVE W\8TH AVE W\W MCGRAW ST	W BLAINE ST	W FULTON ST	0.90
340	7TH AVE/BATTERY ST	WESTERN AVE	DEXTER AVE	0.44
341	8TH AVE NE	NE 75TH ST	NE 85TH ST	0.50
342	8TH AVE NE	NE 85TH ST	ROOSEVELT WAY NE	2.15
343	8TH AVE NE	NE 55TH ST	NE RAVENNA BLVD	0.33
344	8TH AVE NW	NW 100TH ST	NW 105TH ST	0.25

Project Number	Street	From	To	Length (miles)
345	8TH AVE NW	BURKE GILMAN TRAIL	LEARY WAY NW	0.11
346	8TH AVE NW	NW 120TH ST	NW 137TH ST	0.88
347	8TH AVE S	DUWAMISH RIVER TRL	S CLOVERDALE ST	0.12
348	8TH AVE S	S CLOVERDALE ST	S KENYON ST	0.38
349	8TH AVE W\8TH PL W\W BLAINE ST\W HIGHLAND DR	3RD AVE W	W BLAINE ST	1.81
350	9TH AVE N/WESTLAKE AVE N	ROY ST	DEXTER AVE N	1.24
351	9TH AVE N\BELL ST	7TH AVE	WESTLAKE AVE N	0.70
352	9TH AVE NE	NE 62ND ST	NE 64TH ST	0.11
353	9TH AVE NE	NE 47TH ST	NE 55TH ST	0.38
354	9TH AVE/E UNION ST/UNIVERSITY ST	BROADWAY	SENECA ST	0.51
355	AIRPORT WAY S	S FOREST ST	S ROYAL BROUGHAM WAY	1.04
356	AIRPORT WAY S	S INDUSTRIAL WAY	S FOREST ST	0.94
357	AIRPORT WAY S	CORSON AVE S	S INDUSTRIAL WAY	0.90
358	AIRPORT WAY S	S HARDY ST	CORSON AVE S	0.50
359	AIRPORT WAY S	MILITARY RD S	S HARDY ST	1.40
360	AIRPORT WAY S	S BOEING ACCESS ROAD	MILITARY RD S	1.46
361	ALASKAN WAY	VIRGINIA ST	BROAD ST	0.62
362	ALASKAN WAY	S JACKSON ST	VIRGINIA ST	0.84
363	ALASKAN WAY S/EAST MARGINAL WAY S	S STACY ST	S ROYAL BROUGHAM WAY	0.77
364	ALKI AVE SW/BEACH DR SW	63RD AVE SW	64TH PL SW	0.63
365	ANN ARBOR AVE NE/PRINCETON AVE NE/UNIVERSITY CIR NE	SANDPOINT WAY NE	NE 65TH ST	0.55
366	ASHWORTH AVE N/N 131ST ST/N 135TH ST/STONE AVE N	LINDEN AVE N	CORLISS AVE N	1.13
367	ASHWORTH AVE N/N 47TH ST/N 50TH ST/N 55TH ST/WOODLAWN AVE N	INTERLAKE AVE N	KENWOOD PL N	0.84
368	BALLARD BRIDGE	W 15TH AVE	SHILSHOLE AVE NW	0.40
369	BANNER WAY NE/NE 75TH ST	15TH AVE NE	NE 80TH ST	0.72
370	BEACH DR SW	SW OTHELLO ST	SW JACOBSEN RD	1.77
371	BEACH DR SW/SW JACOBSEN RD/SW HUDSON ST	48TH AVE SW	63RD AVE SW	1.59
372	BEACON AVE S	S ALASKA ST	S SPOKANE ST	0.76
373	BEACON AVE S	39TH AVE S	S ALASKA ST	3.00
374	BEACON AVE S	14TH AVE S	S HOLGATE BR	0.35
375	BEACON HILL/ID I5 TRAIL	S ROYAL BROUGHAM WAY	MOUNTAINS TO SOUND TRAIL	0.52
376	BELL ST	ALASKAN WAY	7TH AVE	0.54
377	BELVIDERE AVE SW/SW CHARLESTOWN ST	36TH AVE SW	SW HINDS ST	0.96

Project Number	Street	From	To	Length (miles)
378	BLANCHARD ST	WESTERN AVE	7TH AVE	0.43
379	BNSF TRAIL	S SPOKANE ST	6TH AVE S	0.79
380	BOREN AVE S/RAINIER AVE S	S DEARBORN ST	12TH AVE S	0.44
381	BOYER AVE E	LAKE WASHINGTON BLVD E	E LYNN ST	0.74
382	BOYLSTON AVE E	E NEWTON ST	E ROANOKE ST	1.11
383	BROAD ST	ALASKAN WAY	2ND AVE	0.22
384	BROAD ST/VALLEY ST	FAIRVIEW AVE N	9TH AVE N	0.25
385	BROADWAY E	E ALOHA ST	E DENNY WAY	0.57
386	BROADWAY E/E SHELBY ST/HARVARD AVE E	E ROANOKE ST	EASTLAKE AVE E	0.56
387	BROOKLYN AVE NE	NE RAVENNA BLVD	NE 66TH ST	0.36
388	BROOKLYN AVE NE	NE 47TH ST	NE RAVENNA BLVD	0.56
389	BROOKLYN AVE NE	BURKE GILMAN TRAIL	NE 47TH ST	0.61
390	BURKE AVE N/N 62ND ST	N 42ND ST	8TH AVE NW	1.62
391	BURKE GILMAN MISSING LINK	CHITTENDEN LOCKS TRAIL	BURKE GILMAN TRAIL	1.36
392	BURKE GILMAN TRAIL ACCESS	BURKE GILMAN TRAIL	SANDPOINT WAY NE	0.11
393	CALIFORNIA AVE SW	SW 104TH ST	SW 98TH ST	0.79
394	CALIFORNIA AVE SW/SW BRACE POINT DR/SW WILDWOOD PL	FAUNTLEROY WAY SW	SW BARTON ST	0.38
395	CANAL RD NE/NE CANAL RD/NE CLARK RD/NE WALLA WALLA RD/SHIP CANAL TRL/WALLA WALL RD NE	MONTLAKE BR	MARY GATES MEMORIAL DR NE	1.41
396	CHIEF SEALTH TRAIL EXTENSION	48TH AVE S	CHIEF SEALTH TRL	0.40
397	CHIEF SEALTH TRAIL EXTENSION	S ANGELINE ST	AIPORT WAY S	0.53
398	CHIEF SEALTH TRL	S KENYON ST	S MYRTLE PL	0.44
399	CHITTENDEN LOCKS TRAIL	30TH AVE NW	W COMMODORE WAY	0.34
400	CITYSDIE TRAIL	S ATLANTIC ST	S JACKSON ST	0.62
401	CONVENTION PL\UNION ST	PIKE ST	2ND AVE	0.46
402	CORLISS AVE N	N 130TH ST	N 145TH ST	0.76
403	CORSON AVE S	EAST MARGINAL WAY S	AIRPORT WAY S	0.82
404	COWEN PL NE	15TH AVE NE	NE RAVENNA BLVD	0.10
405	DALLAS AVE S/10TH AVE S/S KENYON ST	8TH AVE S	16TH AVE S	0.57
406	DELETE	DELETE	DELETE	0.01
407	DELETE	DELETE		0.01
408	DELRIDGE WAY SW	SW BRANDON ST	SW SPOKANE ST	1.32
409	DELRIDGE WAY SW	SW ORCHARD ST	SW BRANDON ST	1.11
410	DENSMORE AVE N/N 42ND ST	BURKE GILMAN TRAIL	WALLINGFORD AVE N	0.82
411	DENSMORE AVE N/N 80TH ST	EAST GREEN LAKE DR N	NE 92ND ST	0.86
412	DENVER AVE S/MAYNARD AVE S/S DAWSON ST/S HOMER ST	CORSON AVE S	EAST MARGINAL WAY S	1.04

Project Number	Street	From	To	Length (miles)
413	DEXTER AVE	7TH AVE	MERCER ST	0.45
414	DIAGONAL AVE S/S SPOKANE ST	EAST MARGINAL WAY S	AIRPORT WAY S	0.81
415	DUWAMISH RIVER TRAIL EXTENSION	DUWAMISH RIVER TRL	SW SPOKANE ST BRIDGE	0.53
416	DUWAMISH RIVER TRAIL EXTENSION	S HOLDEN ST	S KENYON ST	0.56
417	E ALDER ST	19TH AVE	31ST AVE	0.70
418	E ALDER ST	12TH AVE	BROADWAY	0.18
419	E CALHOUN ST	22ND AVE E	18TH AVE E	0.24
420	E CHERRY ST	21ST AVE	24TH AVE	0.17
421	E CHERRY ST	32ND AVE	33RD AVE	0.05
422	E CHERRY ST	BROADWAY	13TH AVE	0.25
423	E COLUMBIA ST	29TH AVE	BROADWAY	1.21
424	E DENNY WAY	21ST AVE E	BROADWAY E	0.76
425	E DENNY WAY/MADRONA DR	LAKE WASHINGTON BLVD	33RD AVE	0.69
426	E EDGAR ST/E HAMLIN /FAIRVIEW/YALE AVE/TER E	E ROANOKE ST	EASTLAKE AVE E	0.78
427	E FOSTER ISLAND RD	LAKE WASHINGTON BLVD E	BROADMOOR DR E	0.25
428	E GALER ST	15TH AVE E	19TH AVE E	0.25
429	E GALER ST	26TH AVE E	21ST AVE E	0.24
430	E GALER ST/21ST AVE E	E DENNY WAY	19TH AVE E	1.07
431	E HARRISON ST/LAKE WASHINGTON BLVD E	29TH AVE E	HILLSIDE DR E	0.47
432	E HARRISON ST/LAKE WASHINGTON BLVD E	E HARRISION ST	E ROY ST	0.27
433	E INTERLAKEN BLVD	24TH AVE E	21ST AVE E	0.13
434	E LAKE WASHINGTON BLVD	LAKE WASHINGTON BLVD E	24TH AVE E	0.44
435	E MADISON ST	43RD AVE E	LAKE WASHINGTON BLVD E	0.46
436	E MADISON ST	43RD AVE E	37TH AVE E	0.55
437	E MCGILVRA ST/37TH AVE E	42ND AVE E	37TH AVE E	0.38
438	E MCGRAW ST	22ND AVE E	25TH AVE E	0.16
439	E MILLER ST/HARVARD AVE E	LAKEVIEW BLVD E	10TH AVE E	0.46
440	E NEWTON ST	43RD AVE E	40TH AVE E	0.23
441	E PIKE ST/PIKE ST	BROADWAY	9TH AVE	0.51
442	E PINE ST	17TH AVE	33RD AVE	0.93
443	E PROSPECT ST	15TH AVE E	18TH AVE E	0.18
444	E REPUBLICAN ST	21ST AVE E	MELROSE AVE E	1.09
445	E ROANOKE ST	YALE AVE E	EASTLAKE AVE E	0.06
446	E ROANOKE ST/BOYER AVE E	DEL MAR DR E	BOYER AVE E	0.12

Project Number	Street	From	To	Length (miles)
447	E SHELBY ST	BROADWAY E	BOYER AVE E	0.18
448	E UNION ST	32ND AVE	33RD AVE	0.05
449	E UNION ST	14TH AVE	BROADWAY	0.31
450	E UNION ST	18TH AVE	14TH AVE	0.25
451	E UNION ST	18TH AVE	22ND AVE	0.24
452	E UNION ST	22ND AVE	ML KING JR WAY	0.35
453	E YESLER WAY	21ST AVE	29TH AVE	0.26
454	E YESLER WAY	14TH AVE S	20TH AVE S	0.36
455	E YESLER WAY	I5 OVERPASS	12TH AVE	0.49
456	E3 BUSWAY TRAIL EXTENSION	S SPOKANE ST	S FOREST ST	0.42
457	EAST GREEN LAKE DR N	NE 71ST ST	GREENLAKE DR N	0.75
458	EAST GREEN LAKE WAY N	E GREENLAKE WAY N	NE 71ST ST	0.84
459	EAST GREEN LAKE WAY N/GREEN LAKE WAY N	N 50TH ST	E GREENLAKE WAY N	0.56
460	EAST MARGINAL WAY S	S STACY ST	S NEVADA ST	1.35
461	EAST MARGINAL WAY S	CITY LIMITS	ELLIS AVE S	0.72
462	EAST MARGINAL WAY S	ELLIS AVE S	S RIVER ST	0.54
463	EAST MARGINAL WAY S	S RIVER ST	1ST AVE S	0.40
464	EAST MARGINAL WAY S	1ST AVE S	S SPOKANE ST	1.29
465	EAST MONTLAKE PL/BLVD/BR/CUT	E NORTH ST	NE PACIFIC PL	0.52
466	EASTLAKE AVE E	E ROANOKE ST	FUHRMAN AVE E	0.63
467	EASTLAKE AVE E	E GALER ST	E ROANOKE ST	0.76
468	EASTLAKE AVE E	THOMAS ST	E GALER ST	0.84
469	ELLIS AVE S	S ALBRO PL	D BAILEY ST	0.18
470	ERSKINE WAY SW	48TH AVE SW	CALIFORNIA AVE SW	0.49
471	EVANSTON AVE N/N 59TH ST/N 60TH ST/ WOODLAND PL N	PHINNEY AVE N	N 65TH ST	0.57
472	FAIRMOUNT AVE SW/FAIRMOUNT AVE SW/	WALNUT AVE SW	ALKI TRAIL	0.71
473	FAIRVIEW AVE E	E ROANOAK ST	FAIRVIEW AVE N	0.92
474	FAIRVIEW AVE N	VALLEY ST	EASTLAKE AVE E	0.59
475	FAUNTLEROY WAY SW	SW WEBSTER ST	SW MORGAN ST	0.73
476	FAUNTLEROY WAY SW	SW WILDWOOD PL	SW WEBSTER ST	0.95
477	FAUNTLEROY WAY SW	SW FINDLAY ST	SW ALASKA ST	0.63
478	FAUNTLEROY WAY SW	SW ALASKA ST	SW AVALON WAY	0.27
479	FAUNTLEROY WAY SW	SW MORGAN ST	SW FINDLAY ST	0.64
480	FEDERAL AVE E	E REPUBLICAN ST	10TH AVE E	1.31
481	FLORENTIA ST/W FLORENTIA ST	3RD AVE W	FREMONT BRIDGE	0.51
482	FOSTER ISLAND RD CONNECTOR	38TH AVE E	E FOSTER ISLAND RD	0.40
483	FRANKLIN AVE E	ALOHA ST	FRANKLIN AVE E	1.49
484	FREMONT AVE N	N 42ND ST	N 50TH ST	0.50
485	FREMONT AVE N	N 34TH ST	N 42ND ST	0.56

Project Number	Street	From	To	Length (miles)
486	FREMONT AVE N	N 110TH ST	N 130TH ST	1.00
487	FREMONT AVE N	N 60TH ST	N 83RD ST	1.15
488	FREMONT AVE TRAIL	N 90TH ST	NW 105TH ST	0.75
489	GALER ST	2ND AVE N	BIGELOW AVE N	0.22
490	GARFIELD ST/ELLIOTT AVE W/W GALER ST	ELLIOTT AVE W	23RD AVE W	2.18
491	GEORGETOWN TRAIL	CORSON AVE S	6TH AVE S	0.25
492	GILMAN AVE W/W GOVERNMENT WAY	W EMERSON PL	32ND AVE W	0.74
493	GLENN WAY SW	SW ALASKA ST	SW GENESEE ST	0.28
494	GOLDEN GARDENS DR NW	NW 85TH ST	VIEW AVE NW	0.30
495	GREEN LAKE DR N	EAST GREENLAKE DR IVE N	N 83RD ST	0.39
496	GREENWOOD AVE N	N 77TH ST	N 90TH ST	0.65
497	GREENWOOD AVE N	N 70TH ST	N 77TH ST	0.36
498	GREENWOOD AVE N/PHINNEY AVE N	N 60TH ST	N 70TH ST	0.51
499	HARRISON ST	QUEEN ANNE AVE N	1ST AVE N	0.06
500	HARRISON ST/W HARRISON ST	3RD AVE W	QUEEN ANNE AVE N	0.18
501	HARVARD AVE E	E ROANOKE ST	E SHELBY ST	0.26
502	HENDERSON PL SW/8TH AVE SW	SW ROXBURY ST	SW BARTON ST	0.39
503	HIAWATHA PL S/S DEARBORN ST	S BUSH PL	RAINIER AVE S	0.31
504	HIGH POINT TRAIL	HIGH POINT DR SW	26TH AVE SW	0.14
505	HIGHLAND PARK WAY SW	SW HOLDEN ST	W MARGINAL WAY SW	0.57
506	HIGHLAND PARK WAY SW/9TH AVE SW	SW HENDERSON ST	SW HOLDEN ST	0.78
507	HIGHLAND PARK WAY SW/SW HOLDEN ST	SW AUSTIN ST	HIGHLAND PARK WAY SW	0.45
508	HILL CLIMB ASSISTANCE	BROADWAY E	THOMAS ST	0.58
509	HUBBELL PL	SPRING ST	PIKE ST	0.34
510	INTERBAY TRAIL	W GALER ST	SHIP CANAL TRAIL	1.80
511	INTERLAKE AVE N	N 43RD ST	N 47TH ST	0.80
512	INTERLAKEN DR E	E GALER ST	DELMAR DR E	1.18
513	JUDKINS PARK TRL CONNECTION	MTS DEARBORN CONNECTOR TRL	S WELLER ST	0.47
514	KENWOOD PL N/KEYSTONE PL N/N 57TH ST	N 53RD ST	ASHWORTH AVE N	0.46
515	KEYSTONE PL N/SUNNYSIDE AVE N	N 46TH ST	N 53RD ST	0.33
516	LAKE PARK DR S	S MCCLELLAN ST	LAKE WASHINGTON BLVD S	0.32
517	LAKE WASHINGTON BLVD	MOUNTAINS TO SOUND TRAIL	LAKESIDE AVE S	1.99
518	LAKE WASHINGTON BLVD	LAKESIDE AVE	HOWELL PL	1.06
519	LAKE WASHINGTON BLVD E	E MADISON ST	BOYER AVE E	0.64
520	LAKE WASHINGTON BLVD E	BOYER AVE E	26TH AVE E	0.48
521	LAKE WASHINGTON BLVD E	E HARRISON ST	E MADISON ST	0.44

Project Number	Street	From	To	Length (miles)
522	LAKE WASHINGTON BLVD E	MCGILVRA BLVD E	LAKE WASHINGTON BLVD E	0.21
523	LAKE WASHINGTON BLVD S	S HORTON ST	LAKE PARK DR S	0.80
524	LAKE WASHINGTON BLVD S	46TH AVE S	S HORTON ST	0.30
525	LAKE WASHINGTON BLVD S	S ADAMS ST	46TH AVE S	0.61
526	LAKE WASHINGTON BLVD S	S ANGELINE ST	S ADAMS ST	0.52
527	LAKE WASHINGTON BLVD S	S ORCAS ST	S ANGELINE ST	0.58
528	LAKE WASHINGTON BLVD S/LAKESIDE AVE S	LAKE PARK DR S	S IRVING ST	0.59
529	LAKE WASHINGTON BLVD TRL	LAKE WASHINGTON BLVD E	E FOSTER ISLAND RD	1.14
530	LAKESHORE DR NE/NE 65TH ST	SANDPOINT WAY NE	MAGNUSON PARK	0.96
531	LAKESIDE AVE/LAKESIDE AVE S	S IRVING ST	LAKE WASHINGTON BLVD	0.86
532	LAKEVIEW BLVD E	EASTLAKE AVE E	MELROSE CONNECTOR TRAIL	0.29
533	LATONA AVE NE	NE 40TH ST	NE 40TH ST	0.01
534	LATONA AVE NE	NE 65TH ST	EAST GREENLAKE WAY N	0.19
535	LATONA AVE NE	NE 54TH ST	NE 65TH ST	0.55
536	LATONA AVE NE/NE 50TH ST/ THACKERAY PL NE	NE 42ND ST	NE 54TH ST	0.75
537	LINCOLN PARK TRAIL EXTENSION	END	BEACH DR SW	0.28
538	LINDEN AVE N/N 38TH ST	FREMONT AVE N	N 50TH ST	0.91
539	LONGFELLOW CREEK GREENSPACE TRAIL	26TH AVE SW	24TH AVE SW	0.06
540	LOYAL WAY NW	28TH AVE NW	32ND AVE NW	0.37
541	M L KING JR WAY	E YESLER WAY	E UNION ST	0.78
542	M L KING JR WAY S	S WALKER ST	I-90 FWY	0.46
543	M L KING JR WAY S	S MCCLELLAN ST	S WALKER ST	0.38
544	M L KING JR WAY S	CITY LIMITS	MERTONWAY S	0.50
545	M L KING JR WAY S	MERTONWAY S	S HENDERSON ST	0.43
546	M L KING JR WAY S	S HENDERSON ST	S KENYON ST	0.59
547	M L KING JR WAY S	S KENYON ST	S OTHELLO ST	0.38
548	M L KING JR WAY S	S OTHELLO ST	S HOLLY ST	0.39
549	M L KING JR WAY S	S HOLLY ST	S ORCA ST	0.64
550	M L KING JR WAY S	S ORCAS ST	S EDMUNDS ST	0.55
551	M L KING JR WAY S	S EDMUNDS ST	S COLUMBIAN WAY	0.31
552	M L KING JR WAY S	S COLUMBIAN WAY	S WALDEN ST	0.65
553	M L KING JR WAY S	S WALDEN ST	S MCLELLAN ST	0.45
554	M L KING JR WAY S	S DEARBORN ST	E YESLER WAY	0.43
555	M L KING JR WAY S	MOUNTAINS TO SOUND TRL	S DEARBORN ST	0.37

Project Number	Street	From	To	Length (miles)
556	MAGNOLIA BLVD W	W DRAVUS ST	W EMERSON ST	0.45
557	MAGNOLIA BLVD W/W HOWE ST	CLISE PL W	W DRAVUS ST	1.61
558	MAGNOLIA BRIDGE	16TH AVE W	ELLIOTT AVE W	0.95
559	MALLARD COVE CROSSING TRAIL	E ROANOKE ST	FAIRVIEW AVE E	0.15
560	MARION ST	BROADWAY	7TH AVE	0.51
561	MARY AVE NW/N 90TH ST/NW 87TH ST/ NW 90TH ST	GREENWOOD AVE N	17TH AVE NW	1.48
562	MARY GATES MEMORIAL DR NE/NE 41ST ST	NE CLARK RD	48TH AVE NE	0.80
563	MCGILVRA BLVD E	MCGILVRA BLVD E	E MADISON ST	0.84
564	MCGILVRA BLVD E/LAKE WASHINGTON BLVD E	E HOWELL ST	MCGILVRA BLVD E	0.61
565	MCGRAW PL/SMITH ST/W MCGRAW PL/W SMITH ST	W MCGRAW ST	MCGRAW ST	0.42
566	MELROSE AVE/MELROSE AVE E	E PIKE ST	E ROY ST	0.77
567	MERIDIAN AVE N	N NORTHGATE WAY	N 122ND ST	0.58
568	MERIDIAN AVE N	NE 46TH ST	N 55TH ST	0.42
569	MERIDIAN AVE N/N 46TH ST	SUNNYSIDE AVE N	WALLINGFORD AVE N	0.33
570	MERIDIAN AVE N/N 55TH ST/ WOODLAWN AVE N	N 55TH ST	N 63RD ST	0.50
571	MERIDIAN AVE N/N 90TH ST/CORLISS AVE N	STONE AVE N	N 92ND ST	0.67
572	MIDVALE AVE N/STONE AVE N	N 77TH ST	N 90TH ST	0.68
573	MILITARY RD S	AIRPORT WAY S	BEACON AVE S	0.64
574	MONTLAKE CUT CONNCTR TRL	E CALHOUN ST	MONTLAKE BLVD E	0.37
575	MOUNTAINS TO SOUND EXTENSION TRAIL	S LUCILE ST	S SNOQUALMIE ST	0.77
576	MOUNTAINS TO SOUND TRL	35TH AVE S	I90	0.94
577	N 100TH ST	FREMONT AVE N	COLLEGE WAY N	0.76
578	N 100TH ST	1ST AVE NW	FREMONT AVE N	0.37
579	N 110TH ST/NW 110TH ST	NW CARKEEK PARK RD	INTERURBAN TRAIL	0.65
580	N 117TH ST	MERIDIAN AVE N	1ST AVE NE	0.25
581	N 127TH ST/NW 127TH ST	12TH AVE NW	INTERURBAN TRAIL	1.07
582	N 130TH ST	1ST AVE NW	LINDEN AVE N	0.47
583	N 130TH ST/NE 130TH ST	5TH AVE NE	LINDEN AVE N	1.15
584	N 137TH ST/NW 137TH ST	8TH AVE NW	LINDEN AVE N	0.89
585	N 34TH ST	FREMONT AVE N	STONE WAY N	0.34
586	N 34TH ST	N NORTHLAKE PL	WALLINGFORD AVE N	0.21
587	N 34TH ST	PHINNEY AVE N	FREMONT AVE N	0.23
588	N 36TH ST	FREMONT AVE N	CORLISS AVE N	0.86
589	N 37TH ST/CORLISS AVE N	SUNNYSIDE AVE N	N 36TH ST	0.16
590	N 39TH ST/WOODLAND PARK AVE N	N 34TH ST	N 41ST ST	0.56

Project Number	Street	From	To	Length (miles)
591	N 40TH ST	WOODLAND PARK AVE N	SUNNYSIDE AVE N	0.68
592	N 40TH ST/NE 40TH ST	7TH AVE NE	SUNNYSIDE AVE N	0.47
593	N 41ST ST	FREMONT AVE N	WOODLAND PARK AVE N	0.25
594	N 42ND ST/NW 42ND ST	6TH AVE NW	LINDEN AVE N	0.72
595	N 43RD ST	WOODLAND PARK AVE N	STONE WAY N	0.11
596	N 46TH ST	WOODLAND PARK AVE N	WALLINGFORD AVE N	0.38
597	N 49TH ST/WOODLAND PARK AVE N	N 41ST ST	N 50TH ST	0.69
598	N 50TH ST	PHINNEY AVE N	GREENLAKE WAY N	0.83
599	N 51ST ST/WALLINGFORD AVE N	N 45TH ST	WOODLAWN AVE N	0.40
600	N 53RD ST	GREENLAKE WAY N	KEYSTONE PL N	0.38
601	N 55TH ST/N 56TH ST	MERIDIAN AVE N	1ST AVE NE	0.26
602	N 57TH ST/NW 56TH ST/PALATINE PL N/ WOODLAND PARK LOOP	6TH AVE NW	N 59TH ST	0.69
603	N 63RD ST	MERIDIAN AVE N	BROOKLYN AVE NE	0.91
604	N 63RD ST/WEST GREEN LAKE WAY N	N 63RD ST	N 66TH ST	0.26
605	N 68TH ST	FREMONT AVE N	AURORA AVE N	0.21
606	N 77TH ST	GREENWOOD AVE N	WINONA AVE N	0.72
607	N 82ND ST	GREEN LAKE DR N	CORLISS AVE N	1.04
608	N 83RD ST	GREENWOOD AVE N	AURORA AVE N	2.48
609	N 87TH ST	1ST AVE NW	FREMONT AVE N	0.38
610	N 90TH ST	FREMONT AVE N	STONE AVE N	0.38
611	N 92ST ST	WALLINGFORD AVE N	1ST AVE NE	0.38
612	NE 103RD ST	1ST AVE NE	15TH AVE NE	0.75
613	NE 105TH ST	40TH AVE NE	RAVENNA AVE NE	0.56
614	NE 110TH ST	ALTON AVE NE	30TH AVE NE	0.63
615	NE 115TH ST	35TH AVE NE	25TH AVE NE	0.52
616	NE 115TH ST	ALTON AVE NE	35TH AVE NE	0.29
617	NE 117TH ST	25TH AVE NE	8TH AVE NE	0.88
618	NE 123RD ST	BURKE GILMAN TRAIL	35TH AVE NE	0.73
619	NE 125TH ST	25TH AVE NE	15TH AVE NE	0.50
620	NE 125TH ST	37TH AVE NE	25TH AVE NE	0.62
621	NE 125TH ST	SAND POINT WAY NE	BURKE GILMAN TRAIL	0.31
622	NE 125TH ST/ROOSEVELT WAY N	15TH AVE NE	5TH AVE NE	0.60
623	NE 135TH ST	32ND AVE NE	15TH AVE NE	0.89
624	NE 140TH ST	37TH AVE NE	27TH AVE NE	0.51
625	NE 40TH ST	UNIVERSITY BR OFF RP	15TH AVE NE	0.41
626	NE 40TH ST/UNIVERSITY BRIDGE	NE PACIFIC ST	EASTLAKE AVE E	0.35
627	NE 40TH ST/UNIVERSITY BRIDGE	NE PACIFIC ST	EASTLAKE AVE E	0.08

Project Number	Street	From	To	Length (miles)
628	NE 43RD ST	ROOSEVELT WAY NE	15TH AVE NE	0.27
629	NE 44TH ST	LATONA AVE NE	5TH AVE NE	0.10
630	NE 45TH ST/48TH AVE NE	40TH AVE NE	NE 41ST ST	0.58
631	NE 45TH ST/49TH AVE NE/NE 50TH ST	48TH AVE NE	44TH AVE NE	0.61
632	NE 47TH ST	11TH AVE NE	19TH AVE NE	0.43
633	NE 47TH ST	11TH AVE NE	LATONA AVE NE	0.41
634	NE 55TH ST	25TH AVE NE	39TH AVE NE	0.69
635	NE 55TH ST	8TH AVE NE	20TH AVE NE	0.64
636	NE 58TH ST/RAVENNA AVE NE/RAVENNA PL NE	NE BLAKELY ST	20TH AVE NE	0.47
637	NE 60TH ST/NE 60TH ST PED BR/NE 61ST ST/NE 62ND ST/NE 62ND ST PED BR	NE RAVENNA BLVD	45TH AVE NE	1.92
638	NE 65TH ST	NE RAVENNA BLVD	12TH AVE NE	0.31
639	NE 65TH ST/20TH AVE NE	NE RAVENNA BLVD	NE 68TH ST	0.55
640	NE 66TH ST/NE 70TH ST/WEEDIN PL NE/5TH AVE NE	NE RAVENNA BLVD	15TH AVE NE	0.71
641	NE 68TH ST	20TH AVE NE	39TH AVE NE	0.96
642	NE 68TH ST	39TH AVE NE	50TH AVE NE	0.55
643	NE 70TH ST	8TH AVE NE	15TH AVE NE	0.37
644	NE 71ST ST	EAST GREEN LAKE WAY N	5TH AVE NE	0.14
645	NE 75TH ST	39TH AVE NE	55TH AVE NE	0.81
646	NE 75TH ST	24TH AVE NE	39TH AVE NE	0.72
647	NE 75TH ST	15TH AVE NE	24TH AVE NE	0.48
648	NE 80TH ST	LAKE CITY WAY NE	BANNER WAY NE	0.55
649	NE 80TH ST	20TH AVE NE	45TH AVE NE	1.27
650	NE 80TH ST	14TH AVE NE	20TH AVE NE	0.31
651	NE 85TH ST/17TH AVE NE/NE 86TH ST/20TH AVE NE	15TH AVE NE	NE 98TH ST	0.94
652	NE 89TH ST	8TH AVE NE	20TH AVE NE	0.63
653	NE 90TH ST	32ND AVE NE	40TH AVE NE	0.38
654	NE 98TH ST	5TH AVE NE	35TH AVE NE	1.51
655	NE 98TH ST/40TH AVE NE/NE 105TH ST/ NE 104TH PL/45TH AVE NE/NE 97TH ST	35TH AVE NE	BURKE GILMAN TRAIL	1.45
656	NE BOAT ST	15TH AVE NE	UNIVERSITY BRIDGE	0.32
657	NE CAMPUS PKWY	EASTLAKE AVE NE	15TH AVE NE	0.27
658	NE PACIFIC ST	UNIVERSITY BRIDGE	UNIVERSITY WAY NE	0.29
659	NE RAVENNA BLVD	ROOSEVELT WAY NE	NE 65TH ST	0.37
660	NE RAVENNA BLVD	15TH AVE NE	ROOSEVELT WAY NE	0.32
661	NE RAVENNA BLVD	NE 65TH ST	EAST GREENLAKE WAY N	0.38
662	NICKERSON ST	4TH AVE N	WARREN AVE N	0.27
663	NORTHGATE BRIDGE	1ST AVE NE	COLLEGE WAY N	0.27

Project Number	Street	From	To	Length (miles)
664	NW 105TH ST	8TH NW	12TH AVE NW	0.50
665	NW 116TH ST/NW CARKEEK PARK RD	NW 110TH ST	NW 117TH ST	0.87
666	NW 117TH ST	6TH AVE NW	INTERURBAN TRAIL	0.72
667	NW 122ND ST	12TH AVE NW	8TH AVE NW	0.25
668	NW 50TH ST	6TH AVE NW	17TH AVE NW	0.70
669	NW 64TH ST	34TH AVE NW	8TH AVE NW	1.63
670	NW 70TH ST	FREMONT AVE N	17TH AVE NW	1.36
671	NW 70TH ST/21ST AVE NW/NW SLOOP PL/19TH AVE NW	17TH AVE NW	34TH AVE NW	1.09
672	NW 80TH ST	28TH AVE NW	32ND AVE NW	0.25
673	NW 90TH ST/NW 89TH PL/23RD AVE NW	15TH AVE NW	NW 83RD ST	0.89
674	NW CARKEEK PARK RD	NW CARKEEK PARK RD	NW CARKEEK PARK RD	0.57
675	NW MARKET ST/NW 54TH ST/32ND AVE NW	24TH AVE NW	32ND AVE NW	0.65
676	OCCIDENTAL AVE S	S ROYAL BROUGHAM WAY	S JACKSON ST	0.82
677	OLYMPIC WAY W\QUEEN ANNE AVE N\ ROY ST\W OLYMPIC PL\W QUEEN ANNE DRIVEWAY	1ST AVE N	W PROSPECT ST	0.69
678	PALATINE AVE N/N 72ND ST/1ST AVE NW	NW 62ND ST	N 101ST ST	1.97
679	PHINNEY AVE N	N 50TH ST	N 60TH ST	0.53
680	PHINNEY AVE N	BURKE GILMAN TRAIL	N 50TH ST	1.01
681	PIKE ST	2ND AVE	CONVENTION PL	0.43
682	PINEHURST WAY NE/ROOSEVELT WAY N	NE NORTHGATE WAY	15TH AVE NE	0.50
683	PORTSIDE TRAIL	S ATLANTIC ST	S ROYAL BROUGHAM WAY	0.44
684	QUEEN ANNE AVE N	W BOSTON ST	MCGRAW ST	0.08
685	QUEEN ANNE AVE N	W DENNY WAY	ROY ST	0.47
686	QUEEN ANNE AVE N	W GALER ST	W CROCKETT ST	0.34
687	QUEEN ANNE CONNECTOR*	QUEEN ANNE AVE N	1ST AVE N	0.06
688	RAINIER AVE S	57TH AVE S	S HENDERSON ST	0.61
689	RAINIER AVE S	S KEPPLER ST	57TH AVE S	0.44
690	RAINIER AVE S	CORNELL AVE S	S KEPPLER ST	0.54
691	RAINIER AVE S	CITY LIMITS	CORNELL AVE S	0.49
692	RAINIER AVE S	S HILL ST	I-90 FWY	0.52
693	RAINIER AVE S	MARTIN LUTHER KING JR WAY S	S HILL ST	0.64
694	RAINIER AVE S	I 90 WB OFF RMP	DEARBORN ST	0.36
695	RENTON AVE S	S LEO ST	S GAZELLE ST	0.86
696	RENTON AVE S	55TH AVE S	51ST AVE S	0.35
697	RENTON AVE S	S BANGOR ST	55TH AVE S	0.69
698	RENTON AVE S	S 112TH ST	S BANGOR ST	0.55
699	RENTON AVE S	S CLOVERDALE ST	S HOLDEN ST	0.51

Project Number	Street	From	To	Length (miles)
700	REPUBLICAN ST	DEXTER AVE N	EASTLAKE AVE E	0.62
701	ROOSEVELT WAY NE	NE 75TH ST	NE 85TH ST	0.50
702	ROOSEVELT WAY NE	NE 85TH ST	NE 98TH ST	0.69
703	ROOSEVELT WAY NE	NE 65TH ST	NE 75TH ST	0.50
704	ROOSEVELT WAY NE	NE RAVENNA BLVD	NE 65TH ST	0.26
705	ROOSEVELT WAY NE	NE CAMPUS PKWY	NE 47TH ST	0.49
706	ROOSEVELT WAY NE	NE 47TH ST	NE RAVENNA BLVD	0.61
707	ROOSEVELT WAY NE	PINEHURST WAY NE	NE 125TH ST	0.66
708	ROOSEVELT WAY NE	NE 98TH ST	NE NORTHGATE WAY	0.57
709	S ALASKA ST	RAINIER AVE S	MARTIN LUTHER KING JR WAY S	0.30
710	S ALASKA ST\S COLUMBIAN WAY	BEACON AVE S	ML KING JR WAY S	0.55
711	S ALBRO PL/ELLIS AVE S	EAST MARGINAL WAY S	SWIFT AVE S	0.89
712	S ATLANTIC ST	1ST AVE S	ALASKAN WAY S	0.15
713	S BAILEY ST	S ALBRO PL	CORSON AVE S	0.34
714	S BANGOR ST	RENTON AVE S	55TH AVE S	0.48
715	S BANGOR ST	55TH AVE S	51ST AVE S	0.25
716	S CLOVERDALE ST	14TH AVE S	7TH AVE S	0.50
717	S CLOVERDALE ST/1ST AVE S/MYERS WAY S	CITY LIMITS	7TH AVE S	1.24
718	S COLLEGE ST/23RD AVE S	24TH AVE S	S HILL ST	0.14
719	S COLUMBIAN WAY	BEACON AVE S	15TH AVE S	0.56
720	S CRESTON ST	55TH AVE S	51ST AVE S	0.25
721	S DAWSON ST/48TH AVE S	42ND AVE S	WILSON AVE S	0.53
722	S DEARBORN ST	5TH AVE S	RAINIER AVE S	0.76
723	S EDMUNDS ST	35TH AVE S	MARTIN LUTHER KING JR S	0.15
724	S FERDINAND ST	LAKE WASHINGTON BLVD S	35TH AVE S	1.26
725	S FOREST ST	SODO TRAIL	AIRPORT WAY S	0.26
726	S FOREST ST	14TH AVE S	21ST AVE S	0.44
727	S GENESEE ST	51ST AVE S	50TH AVE S	0.06
728	S GENESEE ST/37TH AVE S\COURTLAND PL S\S ANDOVER ST\S CHARLESTOWN ST\S DAKOTA ST	42ND AVE S	34TH AVE S	0.82
729	S GRAND ST	MARTIN LUTHER KING JR WAY S	20TH AVE S	0.42
730	S HANFORD ST	18TH AVE S	MARTIN LUTHER KING JR WAY S	0.54
731	S HANFORD ST	18TH AVE S	LAFAYETTE AVE S	0.21
732	S HENDERSON PED BRIDGE	DUWAMISH RIVER TRAIL	S HENDERSON ST	0.04

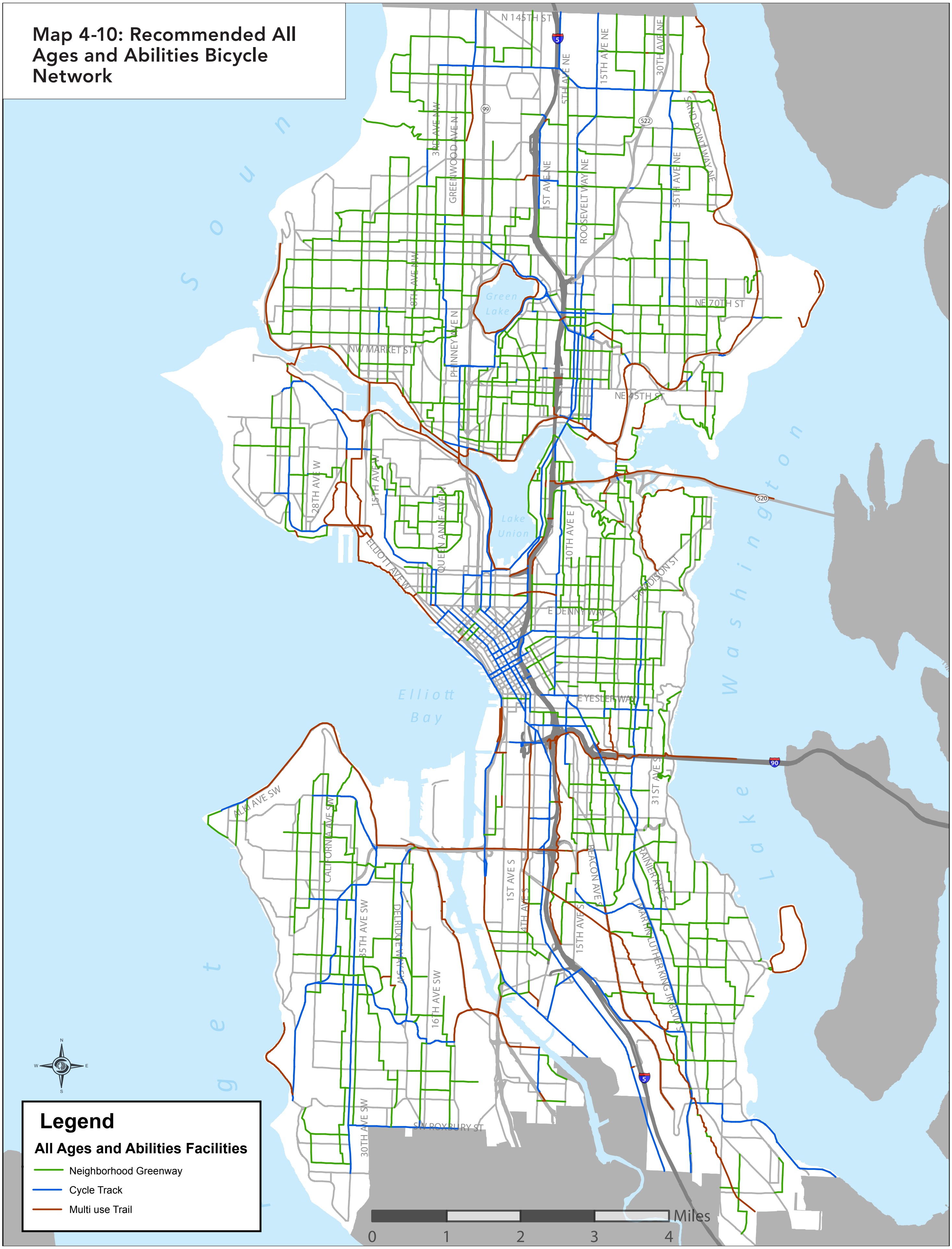
Project Number	Street	From	To	Length (miles)
733	S HENDERSON ST	RAINIER AVE S	MARTIN LUTHER KING JR WAY S	0.43
734	S HENDERSON ST	8TH AVE S	14TH AVE S	0.27
735	S HENDERSON ST	8TH AVE S	S HENDERSON PED BRIDGE	0.07
736	S HILL ST	13TH AVE S	18TH AVE S	0.57
737	S HOLGATE BR/S HOLGATE ST	1ST AVE S	BEACON AVE S	0.40
738	S HOLLY PARK DR/39TH AVE S	S KENYON ST	S MYRTLE PL	0.53
739	S HOLLY ST	SEWARD PARK AVE S	46TH AVE S	0.51
740	S HOLLY ST	42ND AVE S	33RD AVE S	0.44
741	S HORTON ST/COLORADO AVE S/ SLANDER ST/UTAH AVE S	EAST MARGINAL WAY S	S ATLANTIC ST	1.47
742	S HORTON ST\S WALDEN ST	HUNTER BLVD S	MARTIN LUTHER KING JR WAY S	0.59
743	S INDUSTRIAL WAY	AIRPORT WAY S	MOUNTAINS TO SOUND TRAIL	0.33
744	S JACKSON ST	20TH AVE S	31ST AVE S	0.64
745	S JACKSON ST	5TH AVE S	12TH AVE S	0.49
746	S JUNEAU ST	51ST AVE S	42ND AVE S	0.51
747	S KENYON ST	46TH AVE S	SEWARD PARK AVE S	0.38
748	S KENYON ST	46TH AVE S	MARTIN LUTHER KING JR WAY S	0.26
749	S KENYON ST/39TH AVE S/S KENYON WAY	BEACON AVE S	MARTIN LUTHER KING JR WAY S	0.42
750	S KING ST	5TH AVE S	10TH AVE S	1.26
751	S MASSACHUSETTS ST	MARTIN LUTHER KING JR WAY S	21ST AVE S	0.33
752	S MORGAN ST	57TH AVE S	WILSON AVE S	0.11
753	S MORGAN ST	BEACON AVE S	CHIEF SEALTH TRAIL	0.35
754	S MORGAN ST/33RD AVE S	CHIEF SEALTH TRAIL	S HOLLY ST	0.22
755	S MOUNT BAKER BLVD/RAINIER AVE S	S MCCLELLAN ST	MARTIN LUTHER KING JR WAY S	1.06
756	S MYRTLE PL	MARTIN LUTHER KING JR WAY S	BEACON AVE S	0.72
757	S MYRTLE ST	37TH AVE S	SEWARD PARK AVE S	0.87
758	S MYRTLE ST/SWIFT AVE S	BEACON AVE S	S WARSAW ST	0.57
759	S OLSON PL SW/SW ROXBURY ST	8TH AVE SW	MYERS WAY S	0.68
760	S ORCAS ST	42ND AVE S	51ST AVE S	0.51
761	S ORCAS ST	42ND AVE S	MARTIN LUTHER KING JR WAY S	0.34
762	S ORCAS ST	MARTIN LUTHER KING JR WAY S	BEACON AVE S	0.64
763	S ORCAS ST/LAKE WASHINGTON BLVD S	SEWARD PARK	51ST AVE S	0.84

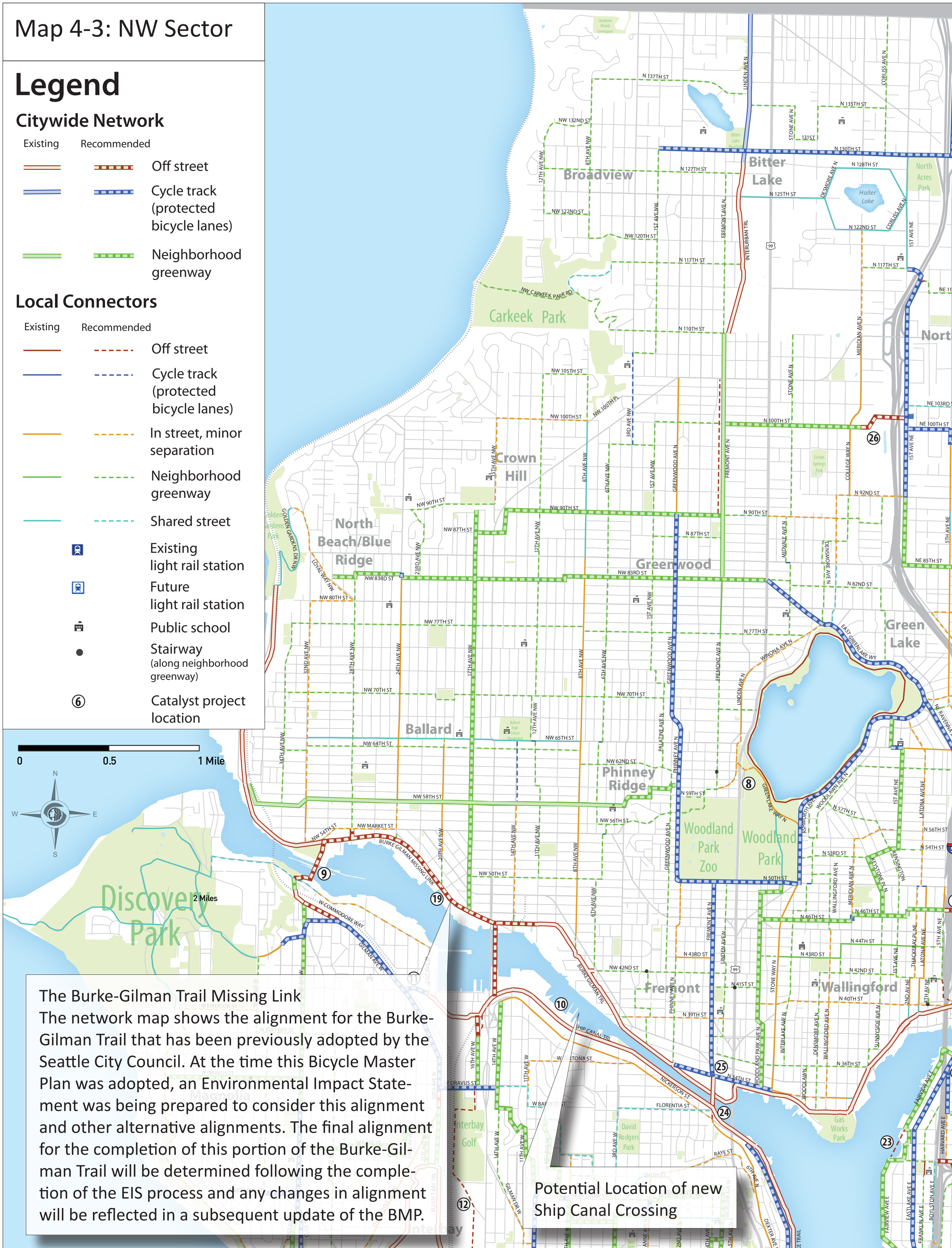
Project Number	Street	From	To	Length (miles)
764	S RIVER ST	S MICHIGAN ST	EAST MARGINAL WAY S	0.97
765	S ROXBURY ST	WATER AVE S	51ST AVE S	0.53
766	S ROXBURY ST	WATER AVE S	51ST AVE S	0.02
767	S ROYAL BROUGHAM WAY	4TH AVE S	AIRPORT WAY S	0.24
768	S ROYAL BROUGHAM WAY	OCCIDENTAL AVE S	4TH AVE S	0.32
769	S SNOQUALMIE ST/CHEASTY BLVD S	13TH AVE S	MARTIN LUTHER KING JR WAY S	1.49
770	S SPOKANE ST	DIAGONAL AVE S	14TH AVE S	0.44
771	S SPOKANE ST	14TH AVE S	19TH AVE S	0.39
772	S WASHINGTON ST	ALASKAN WAY S	5TH AVE S	0.39
773	SAND POINT WAY NE	NE 115TH ST	NE 125TH ST	0.65
774	SAND POINT WAY NE	NE 106TH ST	NE 115TH ST	0.53
775	SAND POINT WAY NE	BURKE GILMAN ACCESS TRAIL	NE 106TH ST	1.46
776	SAND POINT WAY NE	NE 65TH ST	BURKE GILMAN ACCESS TRAIL	0.82
777	SAND POINT WAY NE	PRINCETON AVE NE	NE 65TH ST	0.80
778	SAND POINT WAY NE	41ST AVE NE	PRINCETON AVE NE	0.49
779	SENECA ST	ALASKAN WAY	9TH AVE	0.61
780	SEWARD PARK AVE S	S JUNEAU ST	WILSON AVE S	0.44
781	SEWARD PARK AVE S	S OTHELLO ST	S MORAN ST	0.54
782	SEWARD PARK AVE S	CLOVERDALE PL S	S OTHELLO ST	0.59
783	SEWARD PARK AVE S	RAINIER AVE S	CLOVERDALE PL S	0.63
784	SPRING ST	ALASKAN WAY	7TH AVE	0.49
785	STEWART ST	7TH AVE	THOMAS ST	0.57
786	STONE AVE N	N 90TH ST	N 110TH ST	1.00
787	SUNNYSIDE AVE N	N 42ND ST	N 46TH ST	0.32
788	SUNNYSIDE AVE N	N PACIFIC ST	N 42ND ST	0.44
789	SW 104TH ST	35TH AVE SW	CALIFORNIA AVE SW	0.53
790	SW 106TH ST	35TH AVE SW	SEOLA BEACH DR SW	0.24
791	SW 98TH ST	CALIFORNIA AVE SW	35TH AVE SW	0.51
792	SW ADMIRAL WAY	45TH AVE SW	SW OLGA ST	0.61
793	SW ADMIRAL WAY	SW AVALON WAY	SW OLGA ST	0.74
794	SW ADMIRAL WAY	61ST AVE SW	45TH AVE SW	1.15
795	SW ALASKA ST	45TH AVE SW	35TH AVE SW	0.62
796	SW ALASKA ST	48TH AVE SW	45TH AVE SW	0.19
797	SW ANDOVER ST	DELRIDGE WAY SW	21ST AVE SW	0.15
798	SW ANDOVER ST	CALIFORNIA AVE SW	36TH AVE SW	0.44
799	SW ANDOVER ST/28TH AVE SW/SW YANCY ST/35TH AVE SW	36TH AVE SW	26TH AVE SW	0.68
800	SW AVALON WAY	FAUNTLEROY WAY SW	SW SPOKANE ST	0.77

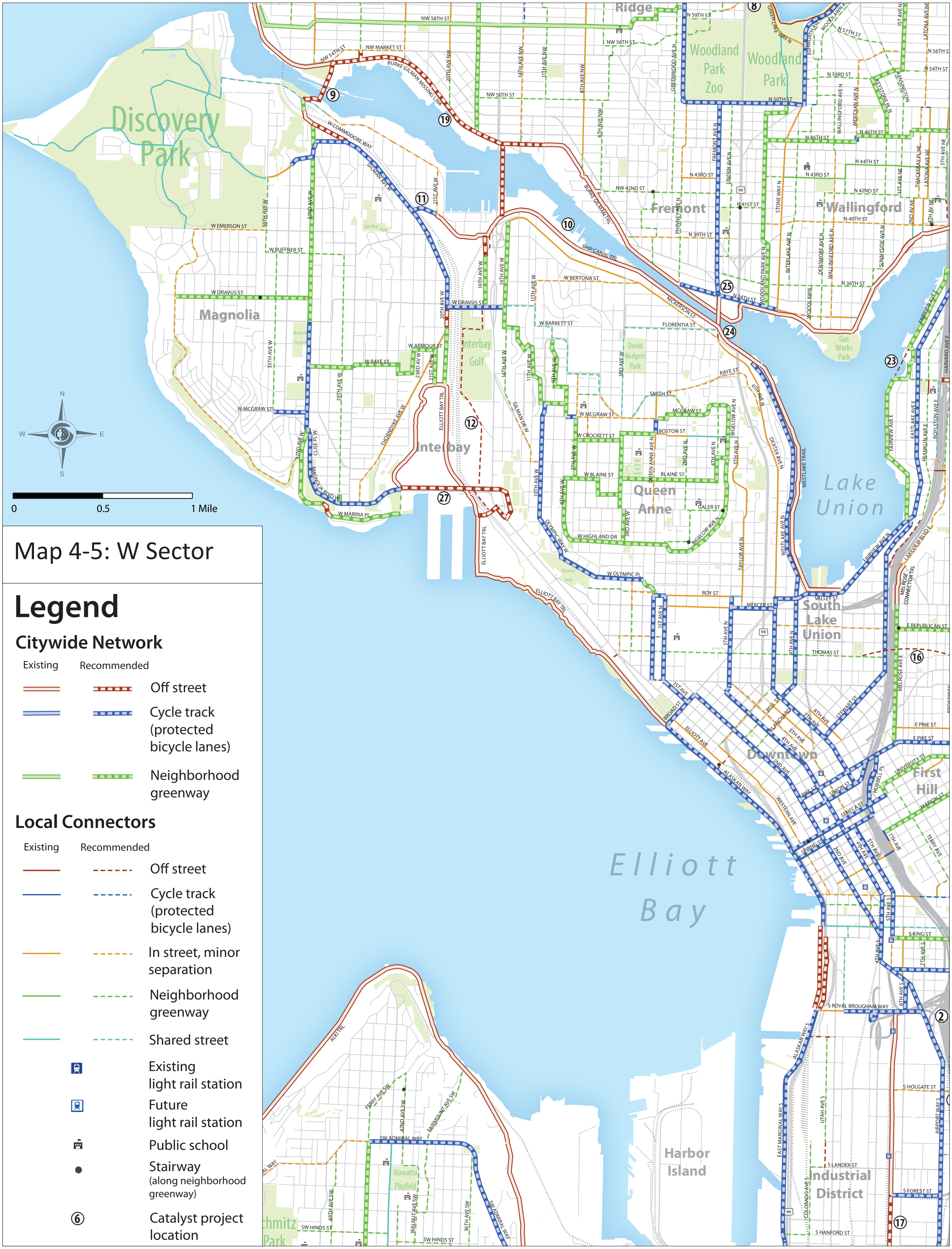
Project Number	Street	From	To	Length (miles)
801	SW BARTON ST	CALIFORNIA AVE SW	35TH AVE SW	0.54
802	SW BARTON ST	35TH AVE SW	25TH AVE SW	0.57
803	SW BRANDON ST/30TH AVE SW/SW JUNEAU ST	32ND AVE SW	DELRIDGE WAY SW	0.75
804	SW CHARLESTOWN ST	55TH AVE SW	CALIFORNIA AVE SW	0.75
805	SW CLOVERDALE ST	10TH AVE SW	4TH AVE SW	0.37
806	SW DAWSON ST	21ST AVE SW	16TH AVE SW	0.32
807	SW FINDLAY ST/38TH AVE SW	SW GRAHAM ST	39TH AVE SW	0.44
808	SW GENESEE ST	DELRIDGE WAY SW	21ST AVE SW	0.15
809	SW GENESEE ST	46TH AVE SW	55TH AVE SW	0.57
810	SW GRAHAM ST	42ND AVE SW	LANHAM PL SW	0.59
811	SW GRAHAM ST/CROFT PL SW/SW JUNEAU ST	26TH AVE SW	END (NEAR 17TH AVE SW)	0.65
812	SW HENDERSON ST	17TH AVE SW	9TH AVE SW	0.45
813	SW HENDERSON ST/ SW BARTON ST/SW BARTON PL	25TH AVE SW	17TH AVE SW	0.43
814	SW HILL ST/FERRY AVE SW/SW WALKER ST/45TH AVE SW	SW ADMIRAL WAY	42ND AVE SW	0.42
815	SW HINDS ST	51ST AVE SW	CALIFORNIA AVE SW	0.49
816	SW HINDS ST	42ND AVE SW	BELVIDERE AVE SW	0.30
817	SW HOLDEN ST	CALIFORNIA AVE SW	35TH AVE SW	0.50
818	SW HOLDEN ST	35TH AVE SW	28TH AVE SW	0.38
819	SW HOLDEN ST/17TH AVE SW	SW THISTLE ST	16TH AVE SW	1.09
820	SW HOLLY ST	34TH AVE SW	SYLVAN WAY SW	0.21
821	SW JUNEAU ST	48TH AVE SW	LANHAM PL SW	0.94
822	SW MORGAN ST	CALIFORNIA AVE SW	35TH AVE SW	0.50
823	SW MORGAN ST/SW ORCHARD ST/ SYLVAN WAY SW	DELRIDGE WAY SW	35TH AVE SW	1.03
824	SW MYRTLE ST/SW ORCHARD ST	21ST AVE SW/DUNMAR WAY SW	12TH AVE SW	0.56
825	SW NEVADA ST/30TH AVE SW	SW YANCY ST	26TH AVE SW	0.40
826	SW OREGON ST/23RD AVE SW/22ND AVE SW	21ST AVE SW	DELRIDGE WAY SW	0.30
827	SW PORTLAND ST	10TH AVE SW	9TH AVE SW	0.05
828	SW RAYMOND ST/HIGH POINT DR SW	SYLVAN WAY SW	32ND AVE SW	0.62
829	SW ROXBURY ST	35TH AVE SW	16TH AVE SW	1.02
830	SW ROXBURY ST	16TH AVE SW	8TH AVE SW	0.46
831	SW THISTLE ST	CALIFORNIA AVE SW	35TH AVE SW	0.50
832	SW THISTLE ST	DELRIDGE WAY SW	10TH AVE SW	0.58
833	SW THISTLE ST	35TH AVE SW	DELRIDGE WAY SW	0.76
834	SW TRENTON ST	10TH AVE SW	17TH AVE SW	0.39
835	SWIFT AVE S	S WARSAW ST	S ALBRO PL	0.47
836	TERRY AVE	BROADWAY	UNIVERSITY ST	0.72

Project Number	Street	From	To	Length (miles)
837	THOMAS ST	3RD AVE W	EASTLAKE AVE E	1.46
838	THORNDYKE AVE W	W GALER ST	W PLYMOUTH ST	0.31
839	W BERTONA ST/11TH AVE W	W ETRURIA ST	W NICKERSON ST	0.72
840	W BLAINE ST\NEWTON ST\BLAINE ST\4TH AVE N	BIGELOW AVE N	7TH AVE W	1.13
841	W CROCKETT ST/3RD AVE W/W BOSTON ST	7TH AVE W	QUEEN ANNE AVE N	0.48
842	W DRAVUS ST	20TH AVE W	14TH AVE W	0.33
843	W DRAVUS ST	MAGNOLIA BLVD W	32ND AVE W	0.75
844	W DRAVUS ST/11TH AVE W/WBARRETT ST	14TH AVE W	W SMITH ST	1.00
845	W EMERSON PL	GILMAN AVE W	SHIP CANAL TRAIL	0.16
846	W EMERSON ST	MAGNOLIA BLVD W	36TH AVE W	0.40
847	W GOVERNMENT WAY	34TH AVE W	32ND AVE W	0.14
848	W MCGRAW PL/W SMITH ST	3RD AVE W	7TH AVE W	0.30
849	W MCGRAW ST	35TH AVE W	32ND AVE W	0.19
850	W MCGRAW ST	6TH AVE W	QUEEN ANNE AVE N	0.38
851	W NICKERSON ST	W BERTONA ST	3RD AVE W	0.09
852	W NICKERSON ST	12TH AVE W	13TH AVE W	0.07
853	W ROY ST	5TH AVE W	QUEEN ANNE AVE N	0.25
854	W ROY ST/2ND AVE W	5TH AVE W	QUEEN ANNE AVE N	0.27
855	WALLINGFORD AVE N	EAST GREEN LAKE DR N	N 92ND ST	0.72
856	WALLINGFORD AVE N	N 34TH ST	N 45TH ST	0.92
857	WALNUT AVE SW/42ND AVE SW	SW HINDS ST	SW HILL ST	0.93
858	WATERS AVE S\57TH AVE S\64TH AVE S	S ROXBURY ST	RAINIER AVE S	0.31
859	WATERS AVE S\57TH AVE S\64TH AVE S	S BANGOR ST	S ROXBURY ST	1.15
860	WEST GREEN LAKE DR N/WINONA AVE N	N 73RD ST	DENSMORE AVE N	0.48
861	WESTERN AVE	YESLER WAY	UNIVERSITY ST	0.37
862	WILSON AVE S	S ORCAS ST	S DAWSON ST	0.32
863	WILSON AVE S	S MORGAN ST	S ORCAS ST	0.51
864	WOODLAWN AVE N	N NORTHLAKE PL	N 36TH ST	0.22
865	YAKIMA AVE S/30TH AVE S	S IRVING ST	E YESLER WAY	0.81

Map 4-10: Recommended All Ages and Abilities Bicycle Network




Map 4-3: NW Sector
Legend
Citywide Network
Existing
Recommended
Off street
Cycle track (protected bicycle lanes)
Neighborhood greenway
Local Connectors
Existing
Recommended
Off street
Cycle track (protected bicycle lanes)
In street, minor separation
Neighborhood greenway
Shared street
Existing light rail station
Future light rail station
Public school
Stairway (along neighborhood greenway)
Catalyst project location
0
0.5
1 Mile
N
S
E
W
2 Miles
The Burke-Gilman Trail Missing Link
The network map shows the alignment for the Burke-Gilman Trail that has been previously adopted by the Seattle City Council. At the time this Bicycle Master Plan was adopted, an Environmental Impact Statement was being prepared to consider this alignment and other alternative alignments. The final alignment for the completion of this portion of the Burke-Gilman Trail will be determined following the completion of the EIS process and any changes in alignment will be reflected in a subsequent update of the BMP.
Potential Location of new Ship Canal Crossing
Broadview
Bitter Lake
North Acres Park
Haller Lake
Carkeek Park
Crown Hill
North Beach/Blue Ridge
Greenwood
Green Lake
Ballard
Phinney Ridge
Woodland Park Zoo
Woodland Park
Discovery Park
Fremont
Wallingford
Gas Works Park
David Rodgers Park
Interbay Golf
BURKE GILMAN MISSING LINK
BURKE-GILMAN TRL
SHIP CANAL TRL
W COMMODORE WAY
NW MARKET ST
NW 58TH ST
NW 65TH ST
NW 85TH ST
N 85TH ST
N 90TH ST
N 100TH ST
N 130TH ST
9
10
12
19
23
24
25
26
8
7



Map 4-5: W Sector

Legend

Citywide Network

Existing | Recommended

- Off street
- Cycle track (protected bicycle lanes)
- Neighborhood greenway

Local Connectors

Existing | Recommended

- Off street
- Cycle track (protected bicycle lanes)
- In street, minor separation
- Neighborhood greenway
- Shared street
- Existing light rail station
- Future light rail station
- Public school
- Stairway (along neighborhood greenway)
- ⑥ Catalyst project location

Map 4-6: E Sector
Legend
Citywide Network
Existing
Recommended
Off street
Cycle track (protected bicycle lanes)
Neighborhood greenway
Local Connectors
Existing
Recommended
Off street
Cycle track (protected bicycle lanes)
In street, minor separation
Neighborhood greenway
Shared street
Existing light rail station
Future light rail station
Public school
Stairway (along neighborhood greenway)
Catalyst project location
0
0.5
1 Mile
Fremont
Wallingford
District
Laurelhurst
Queen Anne
Lake Union
Volunteer Park
Capitol Hill
South Lake Union
Lake Washington
Downtown
First Hill
Central Area
Elliott Bay
Harbor Island
Industrial District
Mount Baker
Jefferson Park Golf Course
Jefferson Park
Gas Works Park
David Rodgers Park
Frink Park
Garfield Playfield
Pigeon Point Park

Map 4-7: SW Sector

Map 4-8: SE Sector

Legend

Citywide Network

Existing | Recommended

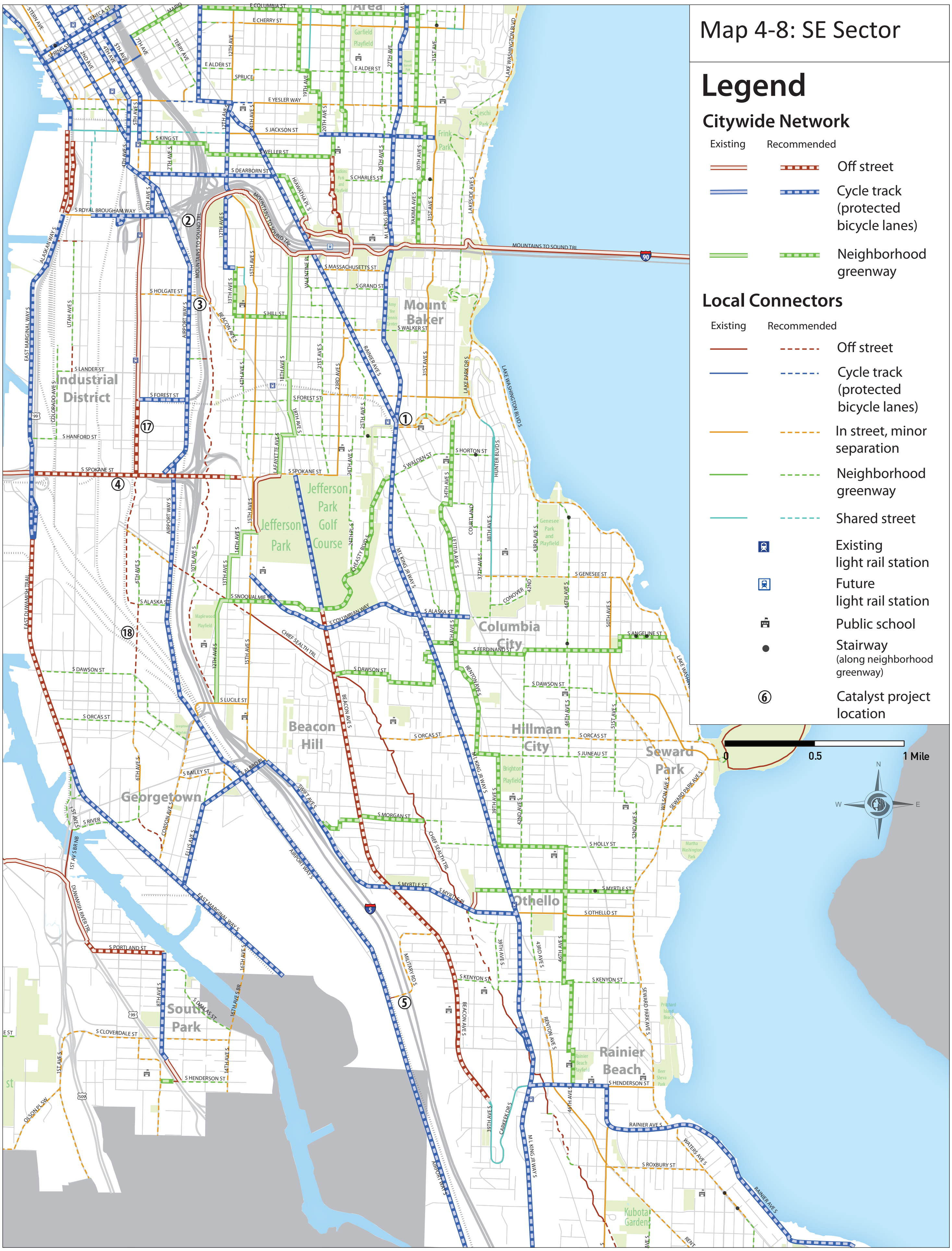
- Off street
- Cycle track (protected bicycle lanes)
- Neighborhood greenway

Local Connectors

Existing | Recommended

- Off street
- Cycle track (protected bicycle lanes)
- In street, minor separation
- Neighborhood greenway
- Shared street

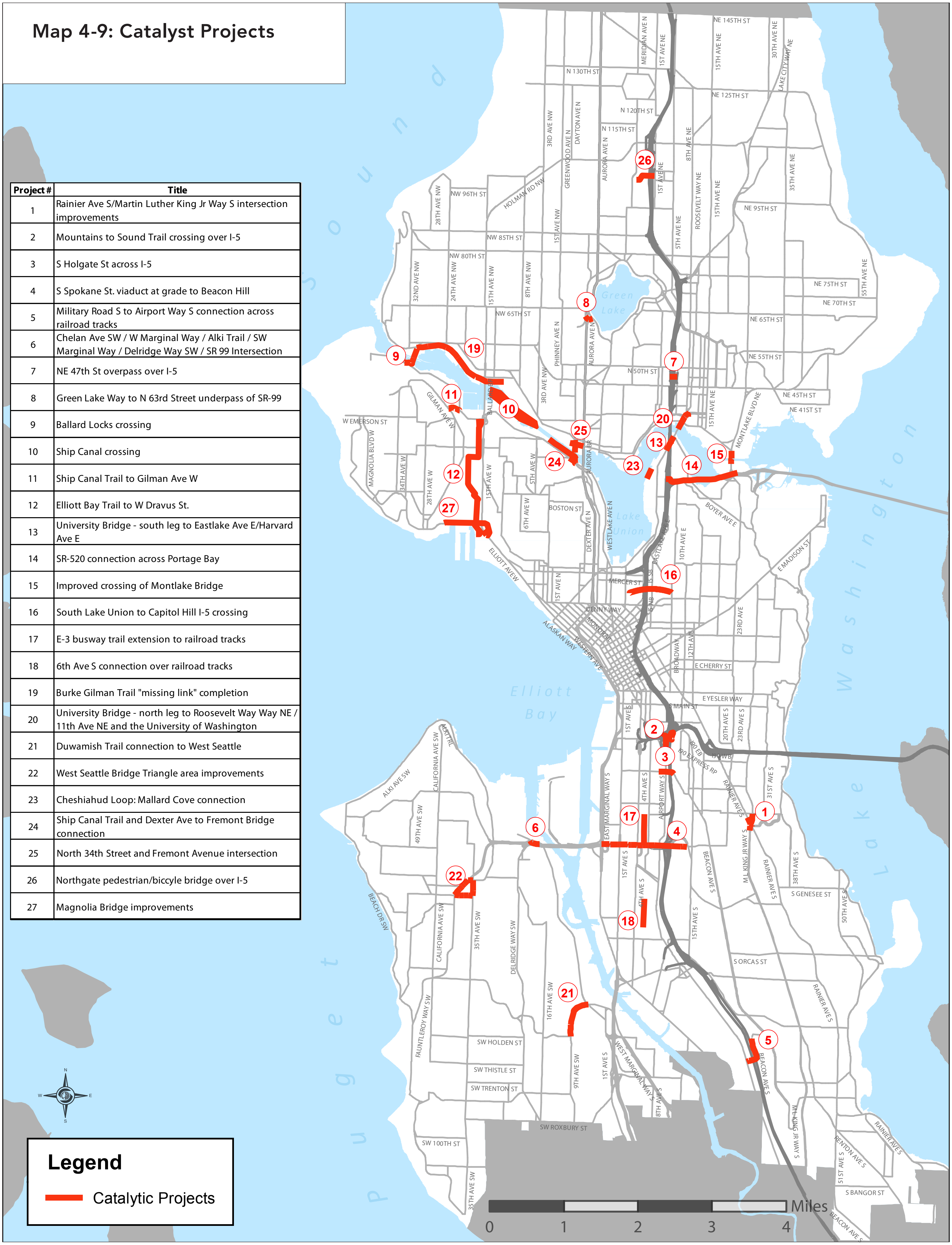
- Existing light rail station
- Future light rail station
- Public school
- Stairway (along neighborhood greenway)
- ⑥ Catalyst project location



Project Number	Project Type	Title	Project Location	Description
12	Corridor Improvement	Elliott Bay Trail to Interbay	Proposed off-street trail parallel to Elliott Ave/15th Ave W.	A trail crossing the Interbay rail yard and along the east side of the rail yard would provide non-motorized connections between the Ship Canal Trail and the Elliot Bay Trail.
13	Intersection Improvement	University Bridge - south leg to Eastlake Ave E/Harvard Ave E	Eastlake Ave E from the University Bridge up to Capitol Hill.	Intersection safety improvements are needed at Eastlake Ave E and Harvard Ave E for southbound bicyclists wanting to continue on Eastlake or travel to Capitol Hill.
14	Overpass	SR-520 connection across Portage Bay	Proposed off-street trail from Boylston Ave E to Montlake Blvd SR - 520 interchange.	A multi-use path on the Portage Bay Bridge to provide direct connection between Montlake and Capitol Hill. This all ages and abilities facility would significantly alleviate travel between these two heavily used corridors and provide access to the east side.
15	Overpass	Montlake Bridge Crossing	Montlake Bridge from NE Pacific St. to E Shelby St.	A future bridge or renovation of the existing bridge to provide adequate capacity for both pedestrians and people riding bikes. Additional capacity across this portion of the Ship Canal will improve due to access to the University of Washington(UW), the UW medical center and the future Link Light Rail Station.
16	Overpass	South Lake Union to Capitol Hill I-5 crossing	Crossing I-5 and between Mercer St and Denny Way.	Explore I-5 crossing to better facilitate bicycle and pedestrian movement between South Lake Union and Capitol Hill. Innovative solutions could also serve as a tourist attraction with great views.
17	Corridor Improvement	E-3 busway trail extension to railroad tracks	Extension of the E-3 busway trail southbound	Explore the feasibility of extending the E-3 busway to the railroad tracks to better facilitate safe bicycle movement from Downtown through SODO and to Georgetown neighborhoods.
18	Overpass	6th Ave S connection over railroad tracks	6th Ave S over Argo railroad tracks	Explore the feasibility of a pedestrian and bike crossing of the railroad tracks to better facilitate safe non-motorized movement from Downtown via SODO to Georgetown. This project could occur in conjunction with or as an extension of project #17.
19	Multi-use Trail Improvement	Burke Gilman Trail “missing link” completion	Fill the gap in the Burke-Gilman Trail from 11th Ave NW to the Ballard Locks.	Completion of the final segment of the Burke Gilman Trail. There are existing bicyclist safety concerns along this corridor. The final alignment will be determined after completion of the project’s Environmental Impact Statement (EIS).

Map 4-9: Catalyst Projects

Project #	Title
1	Rainier Ave S/Martin Luther King Jr Way S intersection improvements
2	Mountains to Sound Trail crossing over I-5
3	S Holgate St across I-5
4	S Spokane St. viaduct at grade to Beacon Hill
5	Military Road S to Airport Way S connection across railroad tracks
6	Chelan Ave SW / W Marginal Way / Alki Trail / SW Marginal Way / Delridge Way SW / SR 99 Intersection
7	NE 47th St overpass over I-5
8	Green Lake Way to N 63rd Street underpass of SR-99
9	Ballard Locks crossing
10	Ship Canal crossing
11	Ship Canal Trail to Gilman Ave W
12	Elliott Bay Trail to W Dravus St.
13	University Bridge - south leg to Eastlake Ave E/Harvard Ave E
14	SR-520 connection across Portage Bay
15	Improved crossing of Montlake Bridge
16	South Lake Union to Capitol Hill I-5 crossing
17	E-3 busway trail extension to railroad tracks
18	6th Ave S connection over railroad tracks
19	Burke Gilman Trail "missing link" completion
20	University Bridge - north leg to Roosevelt Way Way NE / 11th Ave NE and the University of Washington
21	Duwamish Trail connection to West Seattle
22	West Seattle Bridge Triangle area improvements
23	Cheshiahud Loop: Mallard Cove connection
24	Ship Canal Trail and Dexter Ave to Fremont Bridge connection
25	North 34th Street and Fremont Avenue intersection
26	Northgate pedestrian/biccyle bridge over I-5
27	Magnolia Bridge improvements



Attachment N.1H
Historical Collisions by Collision Type

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Attachment N.1H
Historical Collisions by Collision Type

Table N.1H-1. Top 20 Collision Intersections by Collision Type (2014-2018) – West Seattle Link Extension

Location [a]	Segment	Rear-end Collisions	Angle Collisions	Sideswipe Collisions	Head-on Collisions	Right-turn Collisions	Pedestrian Collisions	Bicycle Collisions	Parked Car Collisions	Other/ Unknown Collisions	Total Collisions
4th Avenue South and South Spokane Street (northbound)	Duwamish	2	24	1	0	0	0	1	0	2	30
35th Avenue Southwest and Southwest Avalon Way	West Seattle Junction	0	24	1	0	2	2	0	0	1	30
4th Avenue South and South Spokane Street (southbound)	Duwamish	0	16	3	1	1	0	0	0	2	23
1st Avenue South and South Spokane Street (southbound)	Duwamish	0	10	4	0	3	0	1	0	1	19
Fauntleroy Way Southwest and Southwest Alaska Street	West Seattle Junction	2	7	3	0	0	1	0	0	5	18
California Avenue Southwest and Southwest Oregon Street	West Seattle Junction	0	7	0	0	1	5	0	0	0	13
East Marginal Way South and South Spokane Street (northbound)	Duwamish	0	4	5	0	1	0	0	0	2	12
Fauntleroy Way Southwest and West Seattle Bridge eastbound	West Seattle Junction	1	9	0	0	0	0	0	0	2	12
Delridge Way Southwest and Southwest Andover Street	Delridge	1	5	1	2	1	0	0	0	1	11
Fauntleroy Way Southwest and Southwest Oregon Street	West Seattle Junction	4	5	0	0	0	0	0	0	1	10
1st Avenue South and South Spokane Street (northbound)	Duwamish	0	7	0	0	2	0	0	0	1	10
Fauntleroy Way Southwest and Southwest Avalon Way	West Seattle Junction	1	5	1	0	0	0	0	0	2	9
42nd Avenue Southwest and Southwest Alaska Street	West Seattle Junction	0	4	0	0	0	2	1	0	1	8
2nd Avenue South and South Spokane Street (southbound)	Duwamish	0	5	1	0	0	0	0	0	1	7
37th Avenue Southwest and Fauntleroy Way Southwest	West Seattle Junction	1	4	0	0	0	1	0	0	0	6
38th Avenue Southwest and Southwest Oregon Street	West Seattle Junction	0	6	0	0	0	0	0	0	0	6
1st Avenue South off-ramp and South Spokane Street (southbound)	Duwamish	0	2	1	0	3	0	0	0	0	6
39th Avenue Southwest and Fauntleroy Way Southwest	West Seattle Junction	0	4	0	0	0	1	0	0	1	6
39th Avenue Southwest and Southwest Genesee Street	Delridge	0	5	0	0	0	0	0	0	0	5
40th Avenue Southwest and Southwest Oregon Street	West Seattle Junction	0	2	1	0	0	0	0	0	2	5

[a] Locations are included within 330 feet of the West Seattle Link Extension alignment/station areas.

Table N.1H-2. Top 20 Collision Roadway Segments by Collision Type (2014-2018) – West Seattle Link Extension

Location [a]	Segment	Rear-end Collisions	Angle Collisions	Sideswipe Collisions	Head-on Collisions	Right-turn Collisions	Pedestrian Collisions	Bicycle Collisions	Parked Car Collisions	Other/ Unknown Collisions	Total Collisions
West Seattle Bridge eastbound between Alaskan Way Viaduct northbound on-ramp and Delridge-West Seattle Bridge eastbound on-ramp	Duwamish	29	1	9	0	0	0	0	0	13	52
West Seattle Bridge eastbound between Delridge-West Seattle Bridge eastbound on-ramp and 26th Avenue Southwest on-ramp	Duwamish	13	0	5	1	0	0	0	0	14	33
West Seattle Bridge eastbound between West Seattle Bridge eastbound 4th Avenue off-ramp and 1st Avenue South off-ramp	Duwamish	18	0	6	0	0	0	0	0	3	27
Delridge Way Southwest between Southwest Dakota Street and Southwest Genesee Street	Delridge	16	1	2	0	0	0	1	0	3	23
Southwest Avalon Way between Southwest Genesee Street and 35th Avenue Southwest	Delridge	7	5	0	0	0	1	0	5	4	22
42nd Avenue Southwest between Southwest Alaska Street and Southwest Edmunds Street	West Seattle Junction	1	3	1	1	1	1	0	8	5	21
Delridge Way Southwest between Southwest Andover Street and Southwest Dakota Street	Delridge	9	0	3	0	1	1	0	0	7	21
Alaskan Way Viaduct northbound on-ramp between Spokane Street - Alaskan Ramp and Alaskan Way Viaduct northbound	Duwamish	4	0	1	0	0	0	0	1	12	18
35th Avenue Southwest between Fauntleroy Way Southwest and Southwest Avalon Way	West Seattle Junction	9	2	2	0	0	1	0	0	3	17
West Seattle Bridge westbound off-ramp between West Seattle Bridge westbound and West Seattle Bridge westbound - Chelan off-ramp	Duwamish	3	0	0	0	0	0	0	0	14	17
West Seattle Bridge westbound between Alaskan Way Viaduct southbound West Seattle Bridge westbound off-ramp and West Seattle Bridge westbound off-ramp	Duwamish	12	0	3	0	0	0	0	0	1	16
West Seattle Bridge westbound off-ramp between West Seattle Bridge westbound - Chelan off-ramp and Delridge Way Southwest	Duwamish	1	0	0	0	0	0	0	1	13	15
Alaskan Way Viaduct southbound West Seattle Bridge westbound off-ramp between Alaskan Way Viaduct southbound and West Seattle Bridge westbound	Duwamish	2	0	0	0	0	0	0	1	12	15
42nd Avenue Southwest between Southwest Oregon Street and Southwest Alaska Street	West Seattle Junction	1	4	0	0	0	1	0	5	4	15
West Seattle Bridge between East Marginal Way South and Southwest Spokane Street (northbound)	Duwamish	4	0	5	0	0	0	0	0	5	14
Southwest Avalon Way between 35th Avenue Southwest and 36th Avenue Southwest	Delridge	5	4	1	0	0	0	2	0	2	14
Southwest Avalon Way between 30th Avenue Southwest and Southwest Genesee Street	Delridge	6	0	0	0	0	0	1	5	2	14
South Holgate Street between 4th Avenue South and 5th Avenue South	SODO	1	3	0	0	0	0	0	1	8	13
East Marginal Way South between South Spokane Street (S) and East Marginal Way South (northbound)	SODO	1	0	3	1	0	1	0	0	5	11
Southwest Oregon Street between California Avenue Southwest and 44th Avenue Southwest	West Seattle Junction	0	2	0	0	0	0	0	7	2	11

[a] Locations are included within 330 feet of the West Seattle Link Extension alignment/station areas.

Table N.1H-3. Top 20 Collision Intersections by Collision Type (2014-2018) – Ballard Link Extension

Location [a]	Segment	Rear-end Collisions	Angle Collisions	Sideswipe Collisions	Head-on Collisions	Right-turn Collisions	Pedestrian Collisions	Bicycle Collisions	Parked Car Collisions	Other/ Unknown Collisions	Total Collisions
6th Avenue and James Street	Downtown	5	56	3	0	2	1	1	0	8	76
5th Avenue and University Street	Downtown	0	37	5	0	0	4	0	0	2	48
5th Avenue and Spring Street	Downtown	3	29	5	0	0	9	0	0	2	48
6th Avenue and Madison Street	Downtown	2	5	20	0	4	0	0	0	11	42
5th Avenue and Pike Street	Downtown	0	29	4	0	0	5	2	0	1	41
5th Avenue and Seneca Street	Downtown	2	30	1	0	2	1	2	0	1	39
4th Avenue South and South Jackson Street	Chinatown-International District	2	26	3	0	1	3	1	0	1	37
6th Avenue and Cherry Street	Downtown	0	32	1	0	0	3		0	1	37
5th Avenue and Union Street	Downtown	0	26	4	0	0	3	2	0	2	37
6th Avenue and University Street	Downtown	0	19	5	1	1	5	1	0	2	34
5th Avenue and Olive Way	Downtown	0	18	8	0	0	2	0	0	2	30
Mercer Street and Queen Anne Avenue North	Downtown	2	24	1	0	0	0	1	0	2	30
15th Avenue Northwest and Northwest Market Street	Interbay/ Ballard	1	12	1	0	1	9	0	0	3	27
4th Avenue South and South Spokane Street	SODO	4	5	2	0	3	3	2	0	4	23
5th Avenue South and South Jackson Street	Chinatown-International District	1	6	1	0	2	8	1	0	4	23
6th Avenue and Spring Street	Downtown	0	7	2	0	2	7	0	0	4	22
4th Avenue South and South Royal Brougham Way	Chinatown-International District	4	7	2	0	2	4	1	0	2	22
Northbound 15th Avenue Northwest and Northwest Leary Way	Interbay/ Ballard	0	12	2	1	0	0	0	0	6	21
1st Avenue South and South Spokane Street	SODO	0	10	4	0	3	0	1	0	1	19
6th Avenue and Pine Street	Downtown	0	11	1	0	0	3	2	0	2	19

[a] Locations are included within 330 feet of the Ballard Link Extension alignment/station areas.

Table N.1H-4. Top 20 Collision Roadway Segments by Collision Type (2014-2018) – Ballard Link Extension

Location [a]	Segment	Rear-end Collisions	Angle Collisions	Sideswipe Collisions	Head-on Collisions	Right-turn Collisions	Pedestrian Collisions	Bicycle Collisions	Parked Car Collisions	Other/ Unknown Collisions	Total Collisions
Elliott Avenue West between West Mercer Street and West Mercer Place	South Interbay	10	15	2	1	1	1	2	4	8	44
James Street between 6th Avenue and 7th Avenue	Downtown	21	4	6	0	1	0	0	1	10	43
Elliott Avenue West between West Mercer Place and West Prospect Street	South Interbay	11	10	4	0	0	0	0	1	6	32
Ballard Bridge between south end of drawbridge to north end of bridge	Interbay/ Ballard	13	0	3	5	0	0	0	0	10	31
Elliott Avenue West between West Prospect Street and West Lee Street	South Interbay	8	7	3	0	3	2	1	1	4	29
Denny Way between Westlake Avenue and Terry Avenue	Downtown	9	1	4	0	3	1	0	0	9	27
Northwest Market Street between 14th Avenue Northwest and 15th Avenue Northwest	Interbay/ Ballard	11	7	2	0	1	1	2	0	3	27
4th Avenue South between Interstate 90 westbound 4th Avenue off-ramp and South Royal Brougham Way	Chinatown-International District	5	9	7	0	1	1	0	1	2	26
Elliott Avenue West between West Lee Street and West Galer Street Flyover	South Interbay	4	14	2	0	1	0	0	0	4	25
Mercer Street between 5th Avenue North and Taylor Avenue North	South Interbay	6	0	9	0	0	0	1	1	8	25
7th Avenue North between Thomas Street and Harrison Street	Downtown	8	0	11	0	1	0	0	0	4	24
6th Avenue between Union Street and Pike Street	Downtown	3	0	6	0	1	1	1	9	3	24
Elliott Avenue West between 6th Avenue West and West Mercer Street	South Interbay	7	14	1	0	0	0	0	0	1	23
Queen Anne Avenue North between Mercer Street and Roy Street	Downtown	2	2	5	0	0	0	0	8	6	23
6th Avenue between Pine Street and Olive Way	Downtown	1	0	8	0	0	0	2	6	6	23
5th Avenue between Union Street and Pike Street	Downtown	4	0	8	0	0	1	0	4	5	22
5th Avenue between Pike Street and Pine Street	Downtown	4	1	9	0	0	1	0	1	6	22
4th Avenue South between Seattle Boulevard South and Interstate 90 westbound 4th Avenue off-ramp	Chinatown-International District	6	7	4	0	0	0	0	0	5	22
Ballard Bridge between 15th Avenue West and south end of drawbridge	Interbay/ Ballard	9	0	3	1	0	0	0	0	9	22
Northwest Leary Way between 14th Avenue Northwest and 15th Avenue Northwest (northbound)	Interbay/ Ballard	3	4	4	0	1	0	0	4	5	21

[a] Locations are included within 330 feet of the Ballard Link Extension alignment/station areas.