3.10 Transportation

Source: City of Seattle, 2023.

The transportation section provides a multimodal analysis of transportation in Seattle to evaluate the potential impacts of the proposed land use alternatives. This section discusses the current transportation conditions in addition to future conditions under the alternatives. Further detail on each alternative can be found in **Chapter 2**.

Transportation impacts are identified under each alternative, as appropriate. Although not individually modeled, the potential impacts of Alternative 4 are expected to fall between the other action alternatives due to the overall magnitude of growth and pattern of density. The citywide growth total for Alternative 4 is equivalent to Alternative 2 and Alternative 3, while Alternative 5 and the Preferred Alternative have higher growth. The pattern of growth assumed in Alternative 4 falls between the more concentrated growth of Alternative 2 and more dispersed growth of Alternative 3.

Thresholds of significance utilized in this impact analysis are defined in **Section 3.10.2 Impacts**. Additionally, potential strategies to mitigate adverse impacts are discussed.

3.10.1 Affected Environment

This section presents existing transportation conditions throughout the City of Seattle for all modes as well as the current performance of the transportation network and methodologies used to quantitatively evaluate the current system. Evaluations address people walking and biking, transit, autos, freight, and safety. The geographies used for analysis depend on the metric. Some evaluation metrics are performed for each of the eight EIS analysis subareas shown in **Exhibit 3.10-1**: Northwest Seattle, Northeast Seattle, Queen Anne/Magnolia, Downtown/Lake Union, Capitol Hill/Central District, West Seattle, Duwamish, and Southeast Seattle. These analysis subareas are used to describe how transportation conditions vary throughout the city.

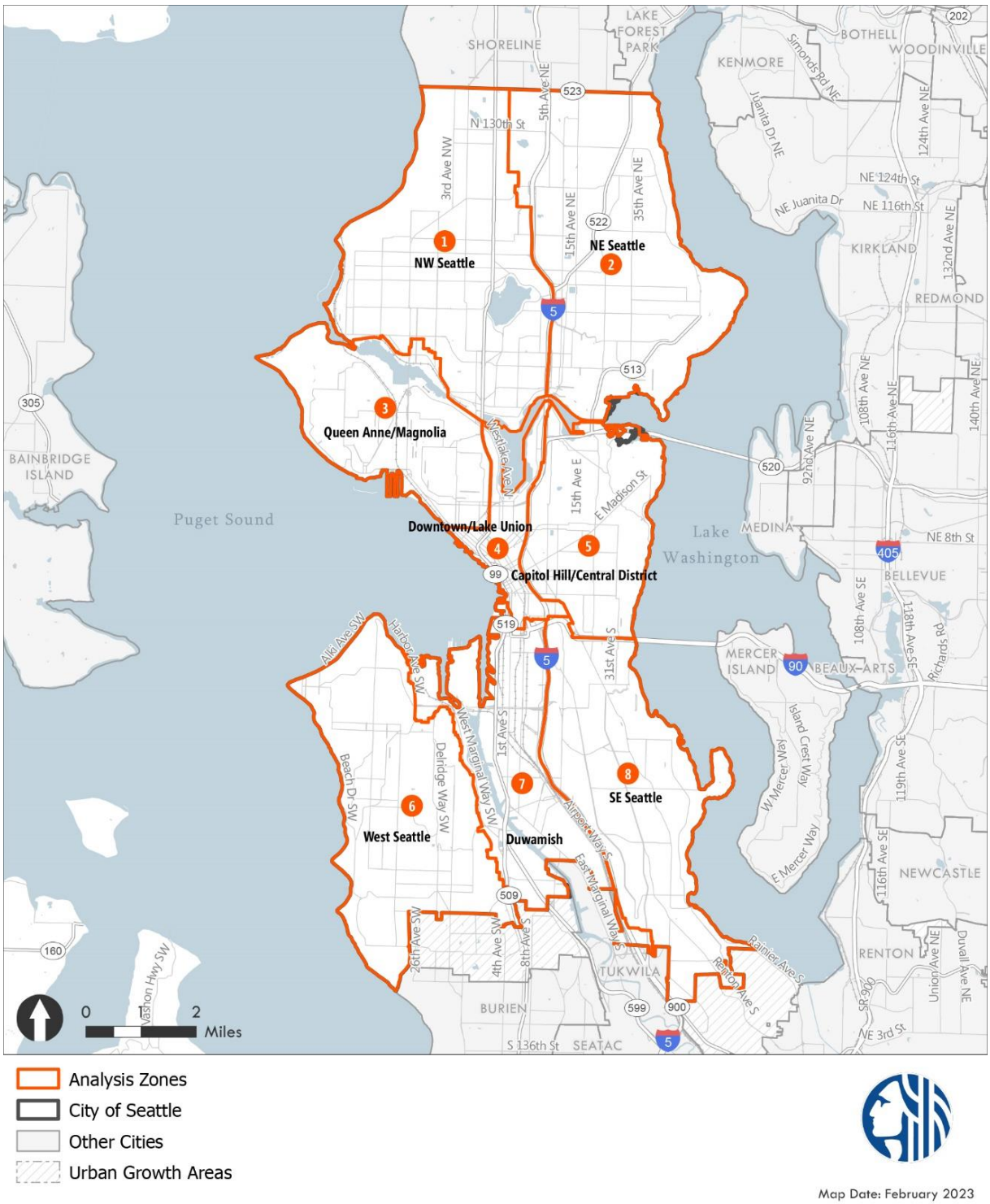
Data & Methods

This section describes the methodology used to evaluate impacts across scenarios. The following metrics are included as part of the evaluation:

- Mode share by subarea
- Person trips by mode
- Sidewalk network completion
- Access to All Ages and Abilities bicycle network
- Transit capacity analysis
- Vehicle Miles Traveled (VMT), Vehicle Hours Traveled (VHT), and average trip speed
- Corridor travel time
- Volume-to-Capacity across screenlines
- Intersection LOS in the NE 130th/NE 145th Street Subarea
- State facility capacity analysis

Each metric is used to quantitatively evaluate and contextualize impacts. The following sections describe the data sources and procedures for calculating each analysis metric.

Exhibit 3.10-1. EIS Analysis Subareas



Sources: City of Seattle, 2022.

Data Collection Period

This EIS considers two time periods for analysis: 2019 as the baseline of existing conditions and 2044 as a horizon year at which the outcomes of the alternatives are compared. Beginning in March 2020, the COVID-19 pandemic disrupted longstanding commute patterns and broader travel trends. In the same month, the closure of the West Seattle Bridge fundamentally changed local travel patterns through a large portion of the city until the bridge's reopening in September 2022. For these reasons, 2019 was selected as a more representative year for baseline travel conditions. Selecting 2019 as the base year also provides a more conservative assumption (i.e., a baseline with more traffic congestion) with respect to identifying potential impacts of the alternatives because growth is assumed to be additive to existing conditions.

Puget Sound Regional Council (PSRC) Travel Model

Puget Sound Regional Council (PSRC) built a travel demand model for the Puget Sound Region called SoundCast designed to evaluate future travel behavior and inform land use planning. The model covers the four-county region for which PSRC is the metropolitan planning organization: King, Kitsap, Snohomish, and Pierce counties. Therefore, the model provides an inherently cumulative evaluation of travel behavior that accounts for not only Seattle, but also the transportation networks and land uses in neighboring jurisdictions. SoundCast is an activity-based model which estimates travel behavior across the region based on characteristics of individual persons and their households. The model produces detailed trip diaries for each simulated person in the region throughout an average weekday tracking the departure time, starting location, ending location, travel mode, and any other people sharing that trip.

This model was used to evaluate trip patterns under each of the analyzed alternatives. Alternative 4 was not modeled due to its similarities to other alternatives; see discussion of Alternative 4 under **Section 3.10.2 Impacts**. SoundCast incorporates household and employment forecasts for each future year alternative within the EIS. PSRC regional assumptions are maintained for areas outside of Seattle city boundaries. Transportation facilities that ~~will~~ are expected to be in place by the horizon year 2044 are also incorporated into the future year model network. The model and user guide are available at psrc.org.

As noted above, travel patterns have substantively changed over the past several years, particularly related to commute trips as an increasing number of people work from home at least part of the time. The PSRC model is rooted in the travel patterns observed through its periodic regional household travel surveys and therefore reflects the more traditional commute patterns that occurred before the COVID-19 pandemic. While there is considerable uncertainty about how travel patterns will evolve in the coming years, the PSRC travel model is the best available tool to evaluate the future year alternatives. The model is best used to ~~3.10-4~~identify relative differences among alternatives rather than provide a specific prediction of the exact location and magnitude of impacts, particularly given this is a programmatic EIS.

Single Occupancy Vehicle (SOV) Mode Share by Subarea

Using PSRC household travel survey data for 2017 and 2019, existing single occupancy vehicle (SOV) mode share has been compiled based on the eight analysis subareas defined in the *Seattle 2035* Comprehensive Plan. **Exhibit 3.10-1** shows the eight EIS analysis subareas: (1) Northwest Seattle, (2) Northeast Seattle, (3) Queen Anne/Magnolia, (4) Downtown/Lake Union, (5) Capitol Hill/Central District, (6) West Seattle, (7) Duwamish, and (8) Southeast Seattle. For future conditions, the PSRC regional travel demand model is used to estimate the change in SOV mode share relative to these observed values.

~~As part of the One Seattle Comprehensive Plan update~~In the next several years, the City is proposing to replace the existing LOS standards, based on SOV mode share, with new multimodal LOS standards for locally owned arterials, locally and regionally operated transit routes, and active transportation facilities.

SOV mode share targets as defined in the *Seattle 2035* Comprehensive Plan are summarized in **Exhibit 3.10-2**.

Exhibit 3.10-2. Single Occupancy Vehicle (SOV) Mode Share Target by Subarea

Subarea	2035 Target
(1) Northwest Seattle	37%
(2) Northeast Seattle	35%
(3) Queen Anne/Magnolia	38%
(4) Downtown/Lake Union	18%
(5) Capitol Hill/Central District	28%
(6) West Seattle	35%
(7) Duwamish	51%
(8) Southeast Seattle	38%

Source: *Seattle 2035* Comprehensive Plan, Transportation Appendix, 2020.

Person Trips by Mode

Person trips by mode ~~will be~~is estimated at the citywide level as well as by EIS analysis subarea. This metric ~~will be~~is calculated for both the existing and future year evaluation using the PSRC regional travel demand model.

Sidewalk Network Completion

Using ArcGIS Pro, the pedestrian network is evaluated based on the percentage of sidewalk complete. The analysis uses sidewalk data from SDOT's ArcOnline Assets App. The percentage of sidewalk complete is calculated as the total sidewalk length divided by twice the length of centerline miles (i.e., defining 100% completion as sidewalks on both sides of every roadway).

These statistics are then aggregated at the census tract level to display the levels of sidewalk network completion throughout the city.

Access to All Ages and Abilities Bicycle Network

ArcGIS Pro ~~was~~ is used to estimate the number of people and jobs within ¼ mile of an All Ages & Abilities bicycle facility, which includes off-street trails, cycle tracks (protected bike lanes), and neighborhood greenways. The analysis uses bicycle facility data from the SDOT ArcOnline Assets App.

Transit Capacity Analysis

Transit boarding data has been summarized by route to evaluate the extent to which crowding occurs on each route. The average maximum load on each route (i.e., the highest number of riders using a bus or train at one time) is compared to the transit agency crowding threshold to determine the number of trips over the crowding threshold. The crowding threshold is set by the agency depending on the vehicle type and is based on the number of seats and standing room available to riders. The analysis evaluates each route's inbound and outbound direction and considers the PM peak period. For future conditions, the PSRC regional travel demand model, SoundCast, is used to forecast the change in ridership on the following routes: Link light rail, RapidRide bus, and those routes that were identified as exceeding the crowding threshold under existing conditions.

VMT / VHT / Average Trip Speed

The PSRC regional travel demand model provides estimates of daily vehicle miles traveled (VMT) and vehicle hours traveled (VHT) for both existing and future conditions. These metrics are reported both in total and relative to the total service population (number of residents and workers within the city) for each alternative. The methodology for VMT and VHT includes all trips with at least one end in Seattle and made by cars and trucks. Bus travel is not included as the number of bus trips is assumed to be the same across all future year alternatives. In addition, the ratio of VMT to VHT is reported; this metric represents the average speed of trips made by Seattle residents and workers.

Travel Time

Travel time along major city arterials is used as a performance measure because it addresses the fundamental concern of most travelers—the time it takes to move within and through the city. These travel times speak to mobility for autos, freight, and transit that all share space along these corridors. To assess existing conditions, PM peak hour travel times were analyzed using September through November 2019 data from SDOT's Iteris travel time data platform. The PM peak period represents the overall peak of traffic volumes during the day though some types of travel activity may peak at other times (for example, freight travel tends to peak during the morning and midday hours).

As noted in the **Data & Methods** section, using 2019 as the base year represents a period when traffic congestion was at its peak. Travel times decreased substantially during the pandemic as typical travel patterns were disrupted, remote work became more common, and traffic congestion decreased. Over the past several years, travel times have continued to increase toward pre-pandemic levels as traffic volumes have rebounded but peak period travel times are still generally below those experienced in 2019.

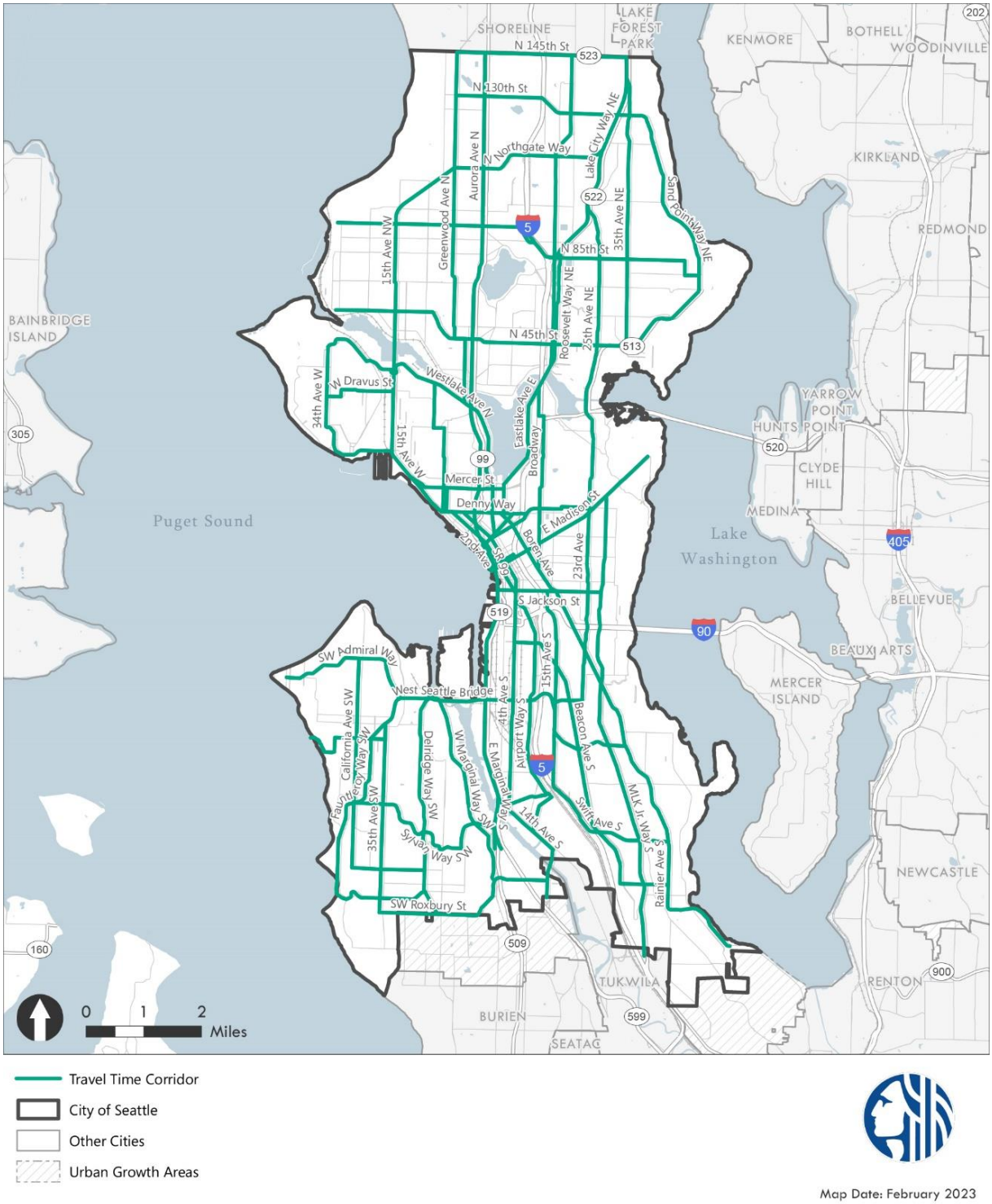
The concept of level of service (LOS) is used to describe traffic operations by assigning a letter grade of A through F, where A represents free-flow conditions, B represents free-flow conditions with some restrictions in lane changes, C is near free-flow conditions with a heavier flow, D is an unstable flow with minor queuing, E represents unstable flow with potentially extended queuing, and F represents highly congested conditions. This study uses concepts from the 7th Edition of the Highway Capacity Manual (HCM) to define thresholds for each LOS grade, as shown in **Exhibit 3.10-3.** The thresholds represent the ratio between observed travel time and free-flow travel time (i.e., at the speed limit). For example, a vehicle traveling at half the free-flow speed will have a travel time twice that of the free-flow travel time, which equates to the breakpoint between LOS C and LOS D. Because most city arterials include frequent signalized intersections or other traffic control, corridors in Seattle's urban environment tend to have travel times well below the overall speed limit of a corridor. The LOS values for the travel time study corridors in **Exhibit 3.10-4** utilize the thresholds described in **Exhibit 3.10-3**.

Exhibit 3.10-3. LOS Thresholds for Travel Speeds and Travel Time

	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Threshold for Ratio of PM Peak Hour Travel Time to Travel Time at Free-Flow Speed	<1.25	<1.5	<2.0	<2.5	<3.0	≥3.0

Source: Highway Capacity Manual, 7th Edition, 2022.

Exhibit 3.10-4. Travel Time Corridors



Source: Fehr & Peers, 2023.

Screenlines

Seattle defines "screenlines" as one way to evaluate traffic conditions for autos, freight, and transit. A screenline is an imaginary line across which the number of passing vehicles is counted. Each designated screenline has a threshold in the form of a volume-to-capacity (V/C) ratio which is defined as the number of vehicles crossing the screenline compared to the capacity of the roadways crossing the screenline. This EIS evaluates 42 screenlines during the PM peak hour. **Exhibit 3.10-5** and **Exhibit 3.10-6** summarize the location of each screenline, as well as its threshold as designated in the *Seattle 2035* Comprehensive Plan. As shown in the map, there are screenlines along the north and south city limits to allow analysis of how the alternatives would affect traffic levels in neighboring jurisdictions. See the **State Facilities** sections for analysis of the SR 520 and I-90 facilities which indicate how the alternatives would affect traffic levels in communities across Lake Washington.

Thirty of the screenlines have performance thresholds defined while the remaining twelve (beginning with the letter A) provide supplemental information about performance in Seattle's regional centers but do not have specific performance thresholds defined.

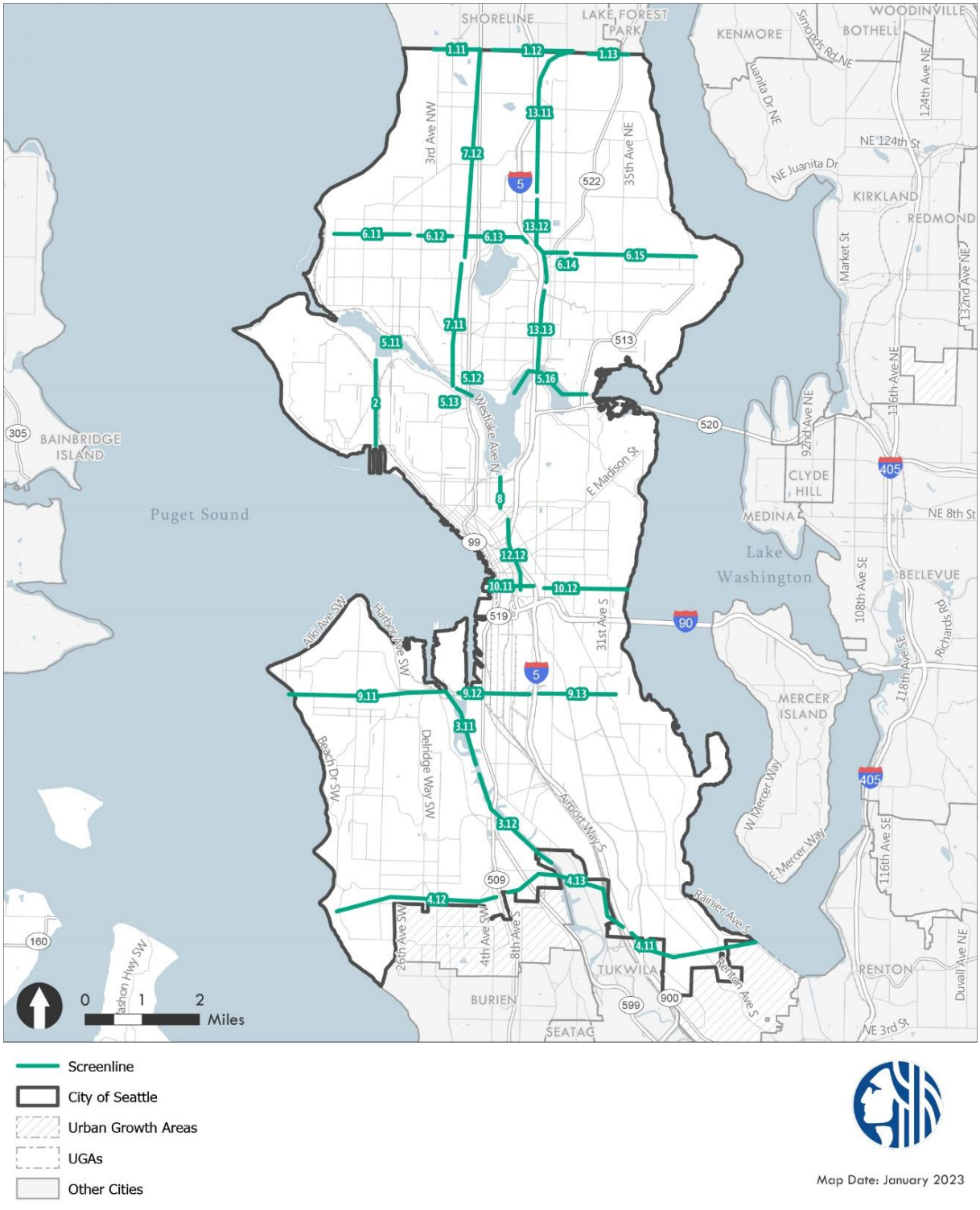
Exhibit 3.10-5. Screenline Locations and Volume-to-Capacity Thresholds

Screenline #	Screenline Location	Extents	V/C Threshold
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20
2.00	Magnolia	Magnolia Bridge to W Emerson Place	1.00
3.11	Duwamish River	West Seattle Bridge & Spokane St	1.20
3.12	Duwamish River	1st Ave S & 16th Ave S	1.20
4.11	South City Limit	Martin Luther King Jr. Way to Rainier Ave S	1.00
4.12	South City Limit	Marine Dr SW to Meyers Way S	1.00
4.13	South City Limit	SR 99 to Airport Way S	1.00
5.11	Ship Canal	Ballard Bridge	1.20
5.12	Ship Canal	Fremont Bridge	1.20
5.13	Ship Canal	Aurora Ave Bridge	1.20
5.16	Ship Canal	University & Montlake Bridges	1.20
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00
6.12	South of N(W) 80th St	8th Ave NW to Greenwood Ave N	1.00
6.13	South of N(E) 80th St	Linden Ave N to 1st Ave NE	1.00
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00

Screenline #	Screenline Location	Extents	V/C Threshold
7.11	West of Aurora Ave	Fremont Pl N to N 65th St	1.00
7.12	West of Aurora Ave	N 80th St to N 145th St	1.00
8.00	South of Lake Union	Valley St to Denny Way	1.20
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00
12.12	East of CBD	S Jackson St to Howell St	1.20
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00
13.12	East of I-5	NE 65th St to NE 80th St	1.00
13.3	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00
A1	North of Seneca St	1st Ave to 6th Ave	N/A
A2	North of Blanchard	Elliott Ave to Westlake Ave	N/A
A3	East of 9th Ave	Lenora St to Pike St	N/A
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	N/A
A5	East of 5th Ave N	Denny Way to Valley St	N/A
A6	North of Pine St	Melrose Ave E to 15th Ave E	N/A
A7	North of James St– E Cherry St	Boren Ave to 14th Ave	N/A
A8	West of Broadway	Yesler Way to E Roy St	N/A
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	N/A
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	N/A
A11	South of Northgate Way (N/NE 110th St)	N Northgate Way to Roosevelt Way NE	N/A
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	N/A

Source: *Seattle 2035* Comprehensive Plan, Transportation Appendix, 2020.

Exhibit 3.10-6. Screenline Map



Source: *Seattle 2035* Comprehensive Plan, Transportation Appendix, 2020.

Intersection Level of Service (LOS) Analysis—130th /145th Street Subarea

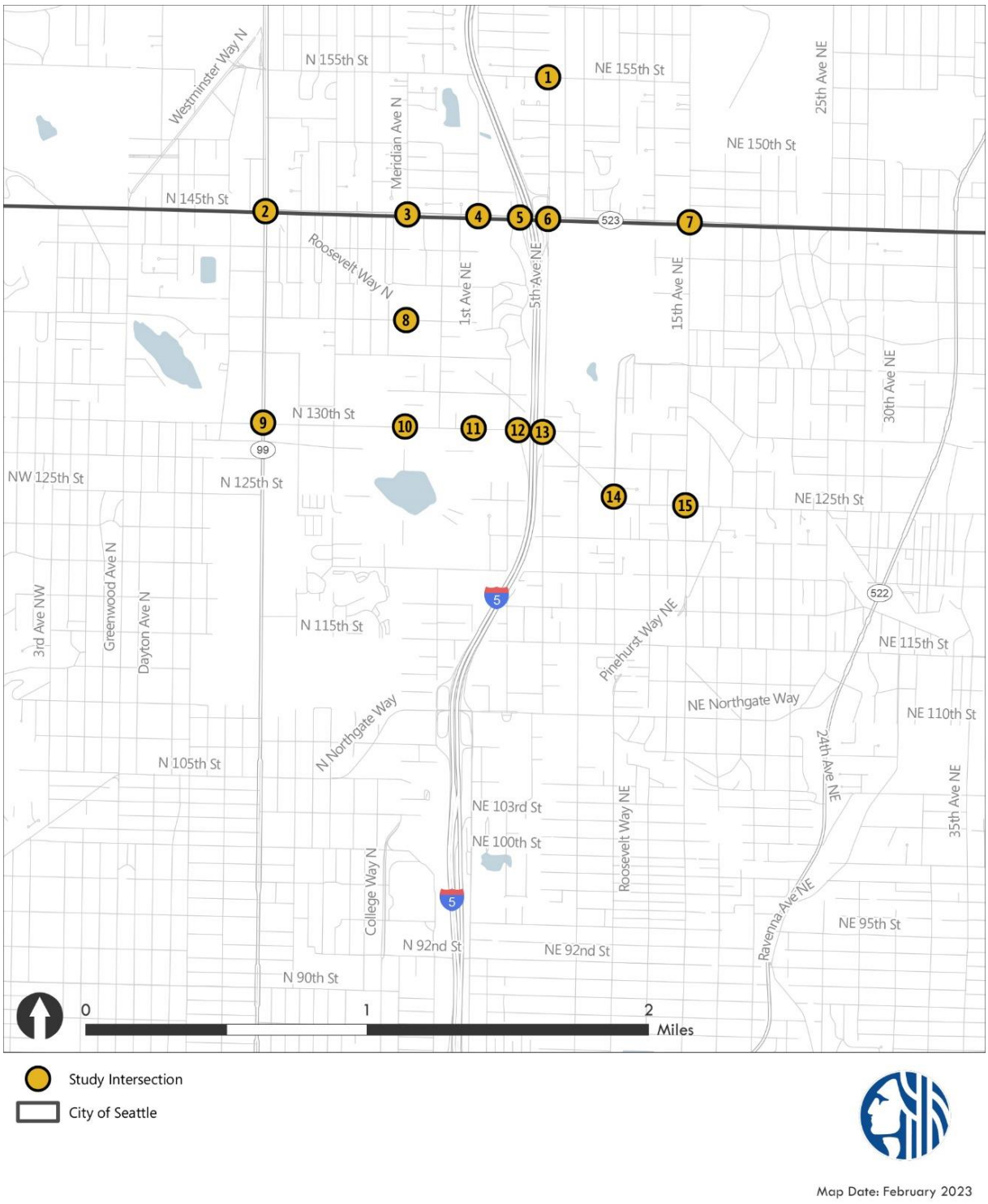
In addition to reviewing conditions and impacts citywide, this EIS also provides a focused review of the 130th and 145th Street Station Area Plan and options for the City to streamline future environmental review in that area. Therefore, this subarea is reviewed in greater detail, including intersection level of service (LOS) within the 130th/145th Street subarea surrounding the planned Link light rail stations. Study intersections were selected to cover the roughly quarter-mile to half-mile area around the stations and focus on arterial intersections that are most likely to see traffic volume changes due to growth in the area. This includes seven intersections within or along the city limit with Shoreline to capture potential effects to that neighboring jurisdiction. Average delay experienced at each intersection is estimated based on the volumes, lane configuration, and traffic control at each study intersection. **Exhibit 3.10-7** lists the 15 study intersections within the 130th/145th Street study area (mapped in **Exhibit 3.10-8**).

Exhibit 3.10-7. 130th/145th Street Subarea Study Intersections

Intersection ID	Intersection	Traffic Control
1	NE 155th St / 5th Ave NE	Signal
2	N 145th St / Aurora Ave N	Signal
3	N 145th St / Meridian Ave N	Signal
4	N 145th St / 1st Ave NE	Signal
5	NE 145th St / I-5 On & Off Ramps	Signal
6	NE 145th St / 5th Ave NE	Signal
7	NE 145th St / 15th Ave NE	Signal
8	N 137th St / Meridian Ave N / Roosevelt Way N	All-way Stop Control
9	N 130th St / Aurora Ave N	Signal
10	N 130th St / Meridian Ave N	Signal
11	N 130th St / 1st Ave NE	Signal
12	NE 130th St / I-5 On Ramp	Free / Yield
13	NE 130th St / Roosevelt Way NE / 5th Ave NE	Signal
14	Roosevelt Way NE / NE 125th St / 10th Ave NE	Signal
15	NE 125th St / 15th Ave NE	Signal

Source: Fehr & Peers, 2023.

Exhibit 3.10-8. 130th/145th Subarea Study Intersections Map



Sources: Fehr & Peers, 2023.

Intersection LOS is measured using a scale that ranges from LOS A (which represents minimal delay) to LOS F (which represents high delay and substantial congestion) as defined by the Highway Capacity Manual (Transportation Research Board, 2022). **Exhibit 3.10-9** displays the range of delays corresponding to each LOS grade. For signalized intersections and all-way stop intersections, the average delay is calculated as the average of all vehicles passing through a given intersection (i.e., on all approaches of the intersection). For side-street stop sign controlled intersections, the average delay and LOS are reported for the worst minor street movement. All study intersections are analyzed for the PM peak hour using Synchro software. For this EIS analysis, signalized intersections operating at LOS E or F and unsignalized intersections operating at LOS F are considered to be operating below acceptable levels.

Exhibit 3.10-9. Level of Service (LOS) and Delay Thresholds

LOS	Signalized Intersections Delay per Vehicle (seconds)	Unsignalized Intersections Delay per Vehicle (seconds)
A	≤ 10	≤ 10
B	> 10 to 20	> 10 to 15
C	> 20 to 35	> 15 to 25
D	> 35 to 55	> 25 to 35
E	> 55 to 80	> 35 to 50
F	> 80	> 50

Source: Transportation Research Board, 2022.

PM peak hour turning movement volumes were compiled for each study intersection. Most counts were collected during the 2016 to 2019 timeframe to reflect the pre-pandemic period with the exception of several counts collected in late 2022. Future year volumes were forecasted by applying the growth predicted by the PSRC regional travel demand model for each alternative to the observed counts.

State Facilities

State facilities (roadways owned by WSDOT) are also evaluated using the volume-to-capacity and LOS concepts. For this EIS analysis, capacities are defined using a set of tables developed by the Florida Department of Transportation (FDOT) based on Highway Capacity Manual methodologies. Capacities for this analysis are based on the characteristics of the roadway including number of lanes, presence of auxiliary lanes, and presence of ramp metering. Pre-pandemic (2019) annual average weekday traffic volumes were compiled from WSDOT's Traffic Count Database System. The results are summarized using Level of Service (LOS) designations A-F. WSDOT sets the standard for most of its facilities in Seattle at LOS D; the exception is the segment of SR 99 between SR 509 and I-5 which has a standard of "E mitigated" meaning congestion should be mitigated when PM peak hour LOS falls below LOS E. Future year volumes were forecasted by applying the growth predicted by the PSRC regional travel demand model for each alternative to the observed counts.

Current Policy & Regulatory Frameworks

Relevant policies related to transportation in Seattle are summarized below. At the time of Draft EIS publication, Tthe City of Seattle hads a 10-year strategic plan outlined in Move Seattle (2015) along with master plans specifically addressing pedestrians, bicycles, transit, and freight. and is currently developingSince the publication of the Draft EIS in March 2024, the City adopted a new citywide multimodal transportation plan as described at right. Seattle also has master plans specifically addressing pedestrians, bicycles, transit, and freight. More detailed information is available in the specified documents described in this section.

VISION 2050

VISION 2050, adopted in 2020, is the region's plan for how it will prepare for growth and meet goals including a healthy environment, thriving communities, and a strong economy. It also includes the region's multicounty planning policies which are adopted under the state's Growth Management Act. These policies guide Seattle's approach to growth as it develops its local comprehensive plan. The PSRC also released its 2022-2050 Regional Transportation Plan (RTP) which is a multimodal plan for the four-county region (King, Snohomish, Kitsap, and Pierce counties) to coordinate an integrated planning approach among the various jurisdictions in the region. The RTP includes an assessment of current and future transportation conditions and identifies regional projects to be implemented over the planning horizon.

Seattle Transportation Plan

As described here and in the Draft EIS, the City has previously adopted citywide modal plans for pedestrian, bicycle, transit, and freight travel. Since the publication of the Draft EIS in March 2024, SDOT is currently engaging in a process to createadopted a unified, multimodal Seattle Transportation Plan (STP) that will integrates the City's modal network visions into a single, holistic transportation plan.

A separate EIS was completed for the STP. The same No Action Alternative network assumptions are were used in both the Comprehensive Plan Draft EIS and STP EISs. The Comprehensive Plan Draft EIS assumes the No Action network is in place for all alternatives and tests varying land use alternatives. The STP EIS assumes Comprehensive Plan Alternative 5 land use growth and tests different network alternatives.

For the Comprehensive Plan Final EIS, the network maps, policy direction, and candidate projects from the adopted STP have been incorporated into an updated model of the No Action Alternative and Preferred Alternative networks.

Seattle Transportation Plan

The Seattle Transportation Plan (STP) was adopted in April 2024. The STP has six overarching goals: safety; equity; sustainability; mobility and economic vitality; livability; and maintenance and modernization. The STP outlines strategies and actions the City can take to reach each of those goals. The STP brings the City's previous modal plans (described later in this section) together into one vision for transportation in Seattle, but does include modal elements for transit; freight and urban goods; bicycle and e-mobility; pedestrian; people streets and public

spaces; vehicle; new and emerging mobility; and curbside management. The STP also includes a list of potential large capital projects that could be implemented to increase the capacity to move people and make the transportation system more efficient.

Pedestrian Master Plan

The Pedestrian Master Plan (PMP) envisions Seattle as the most walkable and accessible city in the nation.[65] To achieve that vision, the following goals are identified:

- Reduce the number and severity of crashes involving pedestrians;
- Develop a connected pedestrian environment that sustains healthy communities and supports a vibrant economy;
- Make Seattle a more walkable city for all through public engagement, service delivery, accessibility, and capital investments that promote equity; and
- Get more people moving to improve health and increase mobility.

The plan documents existing pedestrian facilities and defines a Priority Investment Network to guide future funding. SDOT publishes implementation plan reports every one to two years to update the public on its progress toward implementing PMP projects and meeting the identified performance measures.

Bicycle Master Plan

The Seattle Bicycle Master Plan (BMP) provides guidance on future investments in bicycle facilities in Seattle, with a vision for bicycling as a safe and convenient mode for people of all ages and abilities on a daily basis.[66] The plan identifies the following goals:

- Increase the amount and mode share of bicycle riding in Seattle for all trip purposes;
- Improve safety for bicycle riders in Seattle;
- Create a high-quality bicycle network that connects to places people want to go and provides a time-competitive travel option;
- Improve bicycle riding for all through equity in public engagement, program delivery, and capital investments; and
- Build vibrant communities by creating a welcoming environment for bicycle riding.

The document describes the existing network and over 400 miles of planned future network for the city. Strategies for end-of-trip facilities, programs, maintenance, project prioritization, and funding are included. SDOT publishes reports every one to two years to update the public on its progress toward implementing BMP projects and meeting the identified performance measures.

[65] Seattle Department of Transportation. 2017. "Pedestrian Master Plan." https://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/SeattlePedestrianMasterPlan.pdf
[66] Seattle Department of Transportation. 2014. "Bicycle Master Plan." https://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/BicycleMasterPlan/SBMP_21March_FINAL_full%20doc.pdf

Transit Master Plan

The Transit Master Plan (TMP) is a 20-year plan that outlines the needs to meet Seattle's transit demand through 2030.[67] It prioritizes capital investment to create frequent transit services that meet the most pressing needs of residents and workers. It outlines the high priority transit corridors and the preferred modes along each corridor. This document specifies capital projects to improve speed and reliability. Goals include:

- Meet sustainability, growth management and economic development goals;
- Make it easier and more desirable to take transit;
- Respond to needs of transit-reliant populations;
- Create great places where modes connect; and
- Advance implementation within constraints.

The elements of the document include policies and programs, transit corridors and service, access and connections to transit, and funding and performance monitoring.

Freight Master Plan

The Freight Master Plan (FMP) was adopted by the City in 2016.[68] Its purpose is to ensure efficient and predictable goods movement in the region to promote economic activity and international trade. This planning document is especially important for the two designated manufacturing and industrial centers, the Ballard-Interbay-Northend Manufacturing Industrial Center (BINMIC) and Greater Duwamish MIC, and the Port of Seattle. The FMP analyzes the current freight facilities and their ability to accommodate future freight growth and overlays the truck street system with other modal systems with the goal of facilitating better understanding of the potential for modal conflicts. The plan identifies six main goals with a total of 92 actions that address economy, safety, mobility, state of good repair, equity, and the environment in an effort to create a comprehensive freight network. The six overarching goals are as follows:

- Provide a freight network that supports a thriving and diverse economy for Seattle and the region;
- Improve the safety and the predictable movement of goods and people;
- Reliably connect manufacturing/industrial centers and business districts within the Seattle, regional, and international freight networks;
- Maintain and improve the freight transportation network to ensure safe and efficient operations;
- Benefit residents and businesses of Seattle through equity in freight investments and improve the health of communities impacted by goods movement; and

[67] Seattle Department of Transportation. 2016. "Transit Master Plan." https://www.seattle.gov/documents/Departments/SDOT/TransitProgram/TMPSupplmtALL2-16FINAL.pdf
[68] Seattle Department of Transportation. 2016. "Freight Master Plan." https://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/FMP_Report_2016E.pdf

- Improve freight operations in Seattle and the region by making goods movement more efficient and reducing its environmental footprint.

The plan also includes a list of freight supportive projects with a focus on corridors connecting the City's two MICs to the freeway system and corridors connecting the MICs to one another.

Vision Zero

Seattle has implemented a Vision Zero program, with the goal of zero serious injuries and fatalities on Seattle streets by 2030. Relevant plans include a 2015 Vision Zero Action Plan, 2017 Vision Zero Progress Report, and 2019 Vision Zero Update Report. The Vision Zero plans include equity and climate goals of eliminating racial disparities and reducing the number of personal trips that produce emissions.[69] The City of Seattle is moving forward with the program through the implementation of a wide range of projects and distribution of resources.

New Mobility Playbook

The New Mobility Playbook was published in 2017 to address the rapid changes to the transportation context, including ride-hailing, bike share, scooter share, and car share services.[70] The New Mobility Playbook outlines policies and strategies to guide the City's response to new mobility options while maintaining its commitment to safety, equity, affordability, and sustainability. The document discusses the potential benefits and risks of new mobility and defines five principles intended to drive the City's response to emerging technologies and mobility options:

- Put people and safety first;
- Design for customer dignity and happiness;
- Advance race and social justice;
- Forge a clean mobility future; and
- Keep an even playing field.

The New Mobility Playbook will guide the City's response to changes in transportation such that the implementation of new mobility options align with overall goals and plans.

Move Seattle

In 2015, voters approved a nine-year $930 million levy which replaced a prior levy that expired in 2015. The levy funds are used to implement projects including safety improvements, new facilities, as well as maintenance of existing infrastructure. Move Seattle is a strategic document

[69] Seattle Department of Transportation. "Vision Zero." https://www.seattle.gov/transportation/projects-and-programs/safety-first/vision-zero
[70] Seattle Department of Transportation. 2017. "New Mobility Playbook." https://www.seattle.gov/documents/Departments/SDOT/NewMobilityProgram/NewMobility_Playbook_9.2017.pdf

published in 2015 that guides SDOT's work over the 2016-2024 period with an updated workplan published in 2018.[71] The plan identifies projects within the following categories:

- Safe Routes
  - Vision Zero
  - Pedestrians and Bicyclists
  - Neighborhood Projects
- Maintenance and Repair
  - Arterial Roadway Maintenance
  - Bridges and Structures Maintenance
  - Urban Forest and Drainage
- Congestion Relief
  - Corridor Mobility
  - Light Rail Partnership
  - Pedestrian and Bicycle Improvements
  - Freight Mobility Improvements

SDOT provides annual reports summarizing accomplishments and delivery plans for the coming year as well as a Levy Performance Dashboard so the public can monitor the City's progress in implementing Move Seattle projects.[72] Since the publication of the Draft EIS, Seattle voters approved a $1.55 billion Seattle Transportation Levy which replaces the Levy to Move Seattle. The Seattle Transportation Levy will provide additional funding to SDOT over the next eight years to implement continued improvements.

Transportation Capital Improvement Program

For the 2022 to 2027 period, the Proposed Capital Improvement Program (CIP) plans to invest $1.6 billion on developing, maintaining, and operating Seattle's transportation system. Funded projects include street paving and resurfacing; building new sidewalks and curb ramps; school safety improvements; implementation of the modal plans described above; investments to facilitate freight mobility; traffic cameras and signals; bridge projects such as bridge replacement, maintenance, and seismic retrofitting; and support for the Waterfront Program.[73] Since the publication of the Draft EIS, the City has released its Proposed CIP for the 2025 to 2030 period.[74]

[71] Seattle Department of Transportation. 2018. "Levy to Move Seattle Workplan Report." https://www.seattle.gov/documents/Departments/SDOT/About/Funding/2018_1129_MoveSeattle_WorkPlan_FINAL.pdf
[72] Seattle Department of Transportation. 2022. "Reporting Dashboard: Levy to Move Seattle." https://public.tableau.com/app/profile/city.of.seattle.transportation/viz/Levy_Dashboard_16141242942520/SafeRoutes
[73] Seattle Department of Transportation. 2022. "2022-2027 Proposed Capital Improvement Program." https://www.seattle.gov/documents/Departments/FinanceDepartment/2227proposedcip/SDOT.pdf
[74] Seattle Department of Transportation. 2024. "2025-2030 Proposed Capital Improvement Program." https://seattle.gov/city-budget-office/capital-improvement-program-archives/2025-2030-proposed-cip

Complete Streets

Seattle's Complete Streets ordinance, passed in 2007, directs SDOT to design streets that balance the needs of all roadway users, including pedestrians, bicyclists, transit riders, and people of all abilities, while promoting safe operations for all users, including freight.[75] Design decisions are based on data, such as the adjacent land uses and anticipated future transportation needs. There is no set design template for complete streets as every situation requires a unique balance of design features within the available right-of-way. However, SDOT has developed a Right-of-Way Improvements Manual, called Seattle Streets Illustrated, which helps property owners, developers, engineers, and architects who are involved in the design, permitting, and construction of local streets.[76] Streets Illustrated sets standards for a variety of elements of the public right-of-way including sidewalks, landscaping, bicycle lanes, transit stop amenities, and vehicle lane widths.

Intelligent Transportation Systems (ITS) Strategic Plan

~~For the 2010-2020 period, t~~The Intelligent Transportation Systems (ITS) Strategic Plan provides a 10-year approach for implementing ITS across Seattle.[77] ITS employs electronic and communication technologies on the streets, as well as automated traffic systems, to enhance mobility for all modes by increasing the efficiency and safety of the transportation infrastructure. The goal of the strategic plan is to ensure the existing ITS infrastructure is maintained and preserved, maximize the value of the existing infrastructure, and expand ITS to provide additional geographic coverage and services to travelers.

Neighborhood and Subarea Transportation Planning

The City routinely works with specific communities to plan for needs at the neighborhood level, which can include discussing how to reduce modal conflicts, determine priorities within a local context, and develop design concepts and associated cost estimates. Recent neighborhood transportation planning efforts include:

- One Center City
- Georgetown Mobility Study
- Judkins Park Station Access Study
- Beacon Hill Station Access and Mobility Study
- North Downtown Mobility Study
- Imagine Greater Downtown
- Ballard-Interbay Regional Transportation System

[75] Seattle City Council. 2007. "Ordinance 122386."
http://clerk.ci.seattle.wa.us/search/results?d=CBOR&s1=115861.cbn.&Sect6=HITOFF&l=20&p=1&u=/%7Epublic/cbor2.htm&r=1&f=G
[76] Seattle Department of Transportation. 2022. "Seattle Right-of-Way Improvements Manual: Seattle Streets Illustrated."
https://streetsillustrated.seattle.gov/
[77] Seattle Department of Transportation. 2010. "ITS Strategic Plan."
https://www.seattle.gov/documents/Departments/SDOT/TechnologyProgram/ITSStrategicPlan20102020.pdf

Neighborhood and subarea transportation efforts are undertaken as needed to plan at a finer-grained level and provide cohesive plans for particular geographic focus areas.

Current Conditions

This section describes current transportation conditions for all modes in Seattle: active transportation (people walking, biking, and rolling), transit, autos, and freight. The transportation network is described at various geographies: citywide, neighborhoods and districts, and for the 130th/145th Street subarea in particular. While not exhaustive given the programmatic nature of this EIS, some metrics are evaluated at a more detailed level, for example, subareas of the city or specific key facilities.

SOV Mode Share by Subarea

PM peak single occupancy vehicle (SOV) mode shares by subarea are summarized in **Exhibit 3.10-10**. This data is from the PSRC household travel survey which is a sampling of households to understand typical travel behavior. Because the PSRC household travel survey data sample size is limited at the subarea level, the margin of error ranges from 11% to 28%. The City of Seattle's overall SOV mode share during the PM peak is estimated to be 36%; the margin of error at the city level is approximately 7%. Given the margin of error in this survey, it is difficult to characterize the extent to which mode share is on track to meet the 2035 target.

Exhibit 3.10-10. PM Peak SOV Mode Share by Subarea, 2017-2019

Subarea	2035 SOV Target	2017-2019 Share of Single Occupancy Vehicles
(1) Northwest Seattle	37%	42% (+/- 14%)
(2) Northeast Seattle	35%	35% (+/- 16%)
(3) Queen Anne/Magnolia	38%	42% (+/-25%)
(4) Downtown/Lake Union	18%	24% (+/-11%)
(5) Capitol Hill/Central District	28%	37% (+/-20%)
(6) West Seattle	35%	41% (+/-26%)
(7) Duwamish	51%	72% (+/-28%)
(8) Southeast Seattle	38%	36% (+/-17%)
Citywide	N/A	36% (+/-7%)

Note: Margins of error are based on a 90% confidence interval.
Source: Puget Sound Regional Council Household Survey, 2017-2019.

Person Trips by Mode

Exhibit 3.10-11 summarizes the current estimates of daily person trips in Seattle. Of the roughly 4.1 million daily person trips currently generated in Seattle, SOV trips are estimated to make up 40%. HOV trips are estimated to account for 28%. More than two-thirds of daily trips are made by private vehicle. Transit accounts for 11% of trips, walking for 19%, and biking for 2%.

Exhibit 3.10-11. Daily Person Trips by Mode—Existing Conditions

Mode	Person Trips	Mode Share
SOV	1,624,000	40%
HOV	1,169,000	28%
Transit	465,000	11%
Walk	776,000	19%
Bike	71,000	2%
Total	**4,105,000**	**100%**

Source: Fehr & Peers, 2023.

Active Transportation

The active transportation network is composed of a variety of facility types, some of which serve specific modes while others are shared-use among multiple modes. These include sidewalks, crosswalks, curb ramps, staircases, pedestrian/bicycle bridges, pathways, shared-use trails, protected bike lanes, striped bike lanes, and neighborhood greenways. Detail regarding each active transportation mode has been expanded in the following sections below.

Pedestrian Network

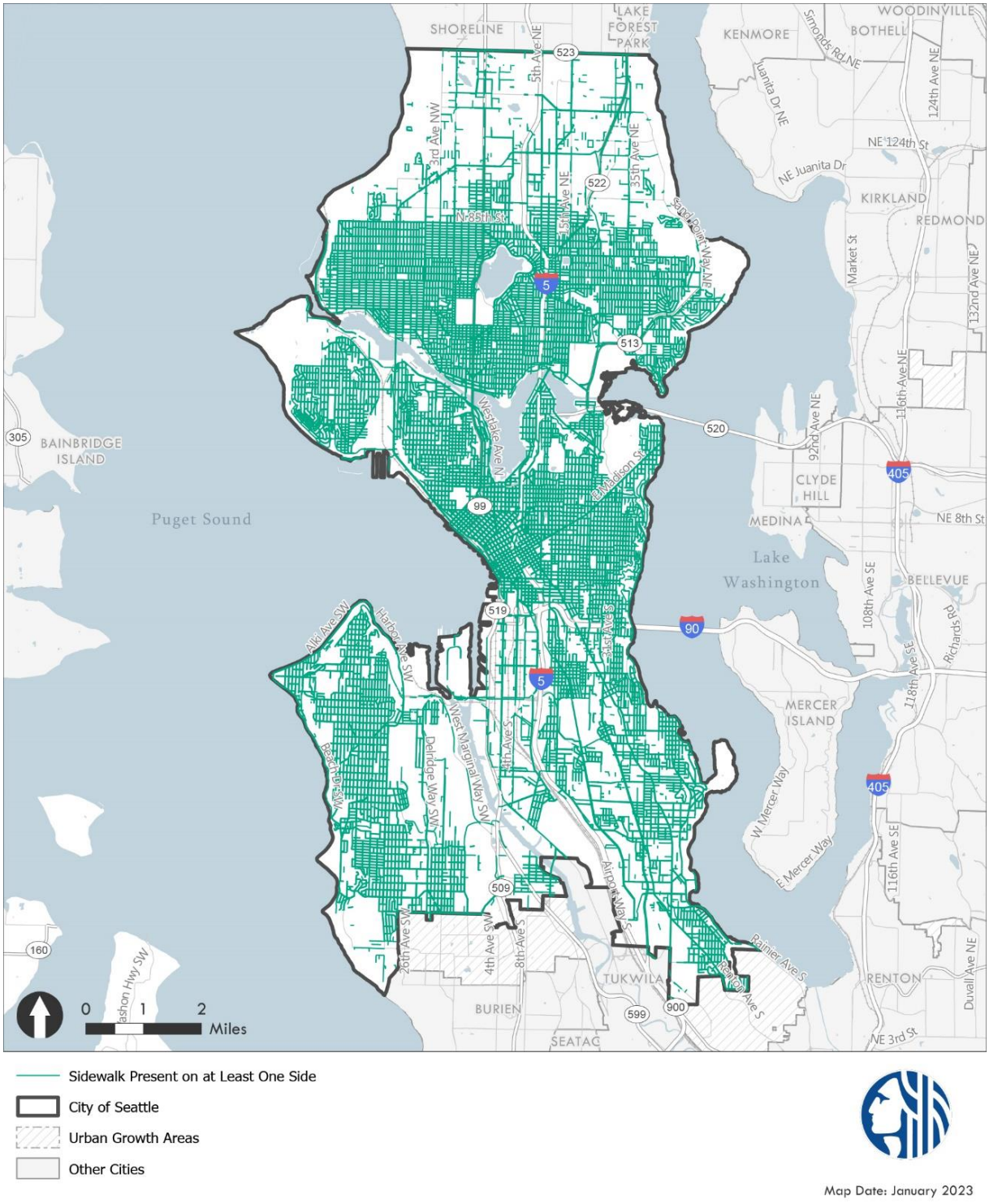
The Seattle pedestrian network is composed of sidewalks, crosswalks, staircases, pedestrian bridges, curb ramps, and trails. Seattle has over 2,000 miles of sidewalks. A map of the sidewalk facilities can be found in **Exhibit 3.10-12**. To view additional datasets related to pedestrian infrastructure, visit the Seattle Accessible Route Planner website. To evaluate the level of sidewalk network connectivity, GIS data was used to calculate the proportion of the sidewalk network that is complete, assuming a fully complete network would have a sidewalk on both sides of each roadway. The information has been summarized at the census tract level to evaluate trends in sidewalk network completion throughout the city. The results are shown in **Exhibit 3.10-13**. For the purposes of the EIS, sidewalk network completion percentages are categorized as follows:

- Low Completion: less than 50% complete
- Medium Completion: between 50% and 75% complete
- High Completion: greater than 75% complete

As shown in **Exhibit 3.10-12** and **Exhibit 3.10-13**, Seattle's pedestrian network is most complete in and around its regional centers and urban centers, including Downtown, South Lake Union, Capitol Hill, Uptown, University District, Northgate, Lake City, Fremont, Ballard, and North Rainier. These areas tend to have uninterrupted sidewalks with frequent pedestrian infrastructure including curb ramps, crosswalks, staircases, and pedestrian bridges.

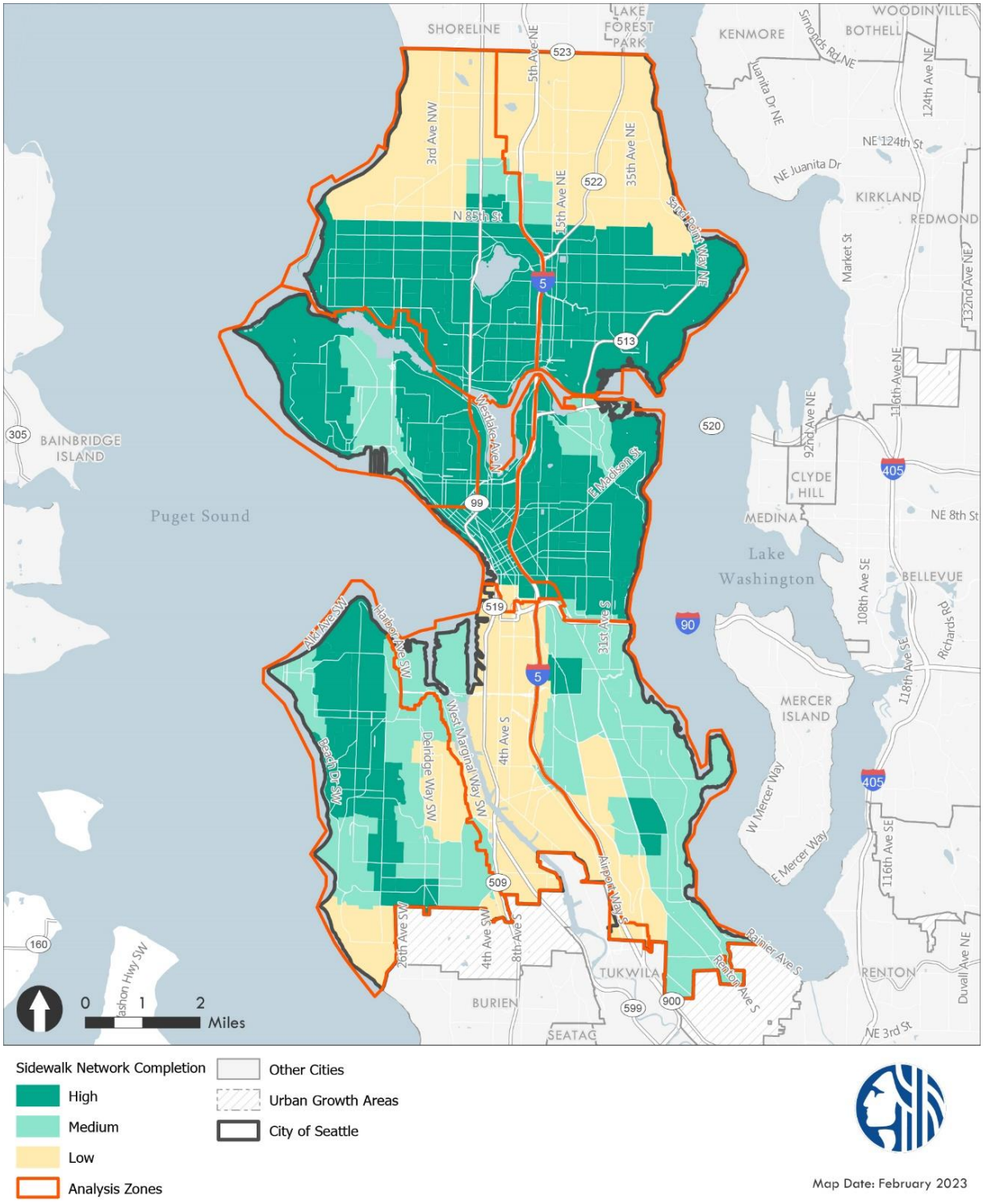
Some areas of the city lack connected networks. Those areas are primarily north of NE/NW 85th Street, Arbor Heights and the Delridge neighborhood in West Seattle, in industrial areas in the Duwamish and Ballard-Interbay MICs, and South Beacon Hill.

Exhibit 3.10-12. Existing Pedestrian Facilities, 2022



Source: Seattle Department of Transportation, 2022.

Exhibit 3.10-13. Existing Sidewalk Connectivity, 2022



Source: Fehr & Peers analysis of Seattle Department of Transportation data, 2023.

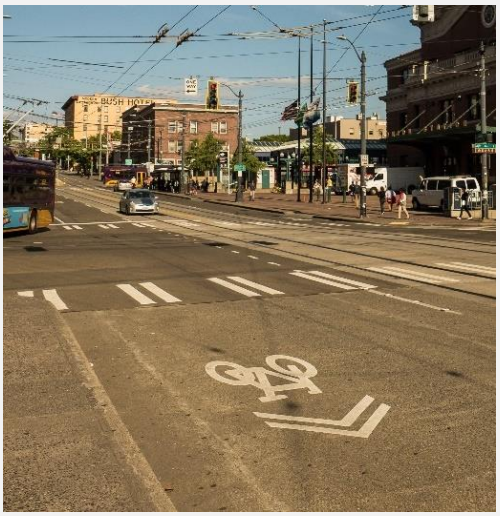
The Seattle Transportation Plan (STP), like the Pedestrian Master Plan (PMP) before it, designated a Priority Investment Network (PIN) to identify locations that are most in need of pedestrian improvements and therefore are the highest priority for investment. The STP identifies three types of PINs: a missing sidewalk PIN, a substandard sidewalk PIN, and an enhanced street crossings PIN. The PIN prioritization criteria include measures related to proximity to land use areas, safety, and equity ~~the following metrics: location within ¼ mile of a K-12 Seattle Public School, location along a Frequent Transit Network arterial, and proximity to Frequent Transit Network stops, and health and equity factors guided by the City's Race and Social Justice goals, and safety factors~~. ~~The maps of the PIN network for each subarea can be found in **Appendix H.1**.~~

Bicycle Network

Seattle aims to provide a connected network of bicycle facilities that serve all ages and abilities by providing a comfortable separation from motor vehicles as well as a focus on intersection safety along those routes. **Exhibit 3.10-14** provides descriptions and images of various types of bicycle facilities. SDOT defines Seattle's All Ages & Abilities network to include off-street trails, cycle tracks, and neighborhood greenways.

Exhibit 3.10-14. Bicycle Facility Type

Facility Type	Description	Example
Bike Lane	A conventional bike lane is a striped lane on a roadway that is designed for exclusive use by people riding bicycles.	
Protected Bike Lane/Cycle Track	Protected bike lanes are separated by vertical elements that provide further protection from motor vehicle traffic. Common vertical elements include vertical curbs, a painted buffer with planter boxes, and parked cars.	

Facility Type	Description	Example
Neighborhood Greenway	Neighborhood Greenways are low-volume and low-speed streets that are designated and designed to give people walking and biking travel priority. They incorporate signage, pavement markings, and traffic calming tools to improve the comfort and connectivity of the bicycle roadway network.	
Off-street Paths & Trails	Off-street paths and trails are shared use, paved facilities for the exclusive use of those who walk, bike, or roll. They are wide enough for two-way travel.	
Sharrow	Sharrows are pavement markings used to indicate a shared lane use for bicycles and vehicles.	

Source: Fehr & Peers, 2023.

Exhibit 3.10-15 displays the citywide bicycle network. The City of Seattle maintains data layers showing many forms of bicycle facilities. To explore the detailed data, the City's interactive GIS database can be accessed here: SDOT Bike Web Map.

Bicycle facilities are spread throughout the city and tend to be most prevalent in regional centers such as the center city area. The areas farthest from downtown, in addition to the Duwamish area, have the lowest access to these facilities. Trails are generally along the water (Lake Washington, Lake Union, Ship Canal, Puget Sound), while neighborhood greenways are predominantly in residential areas.

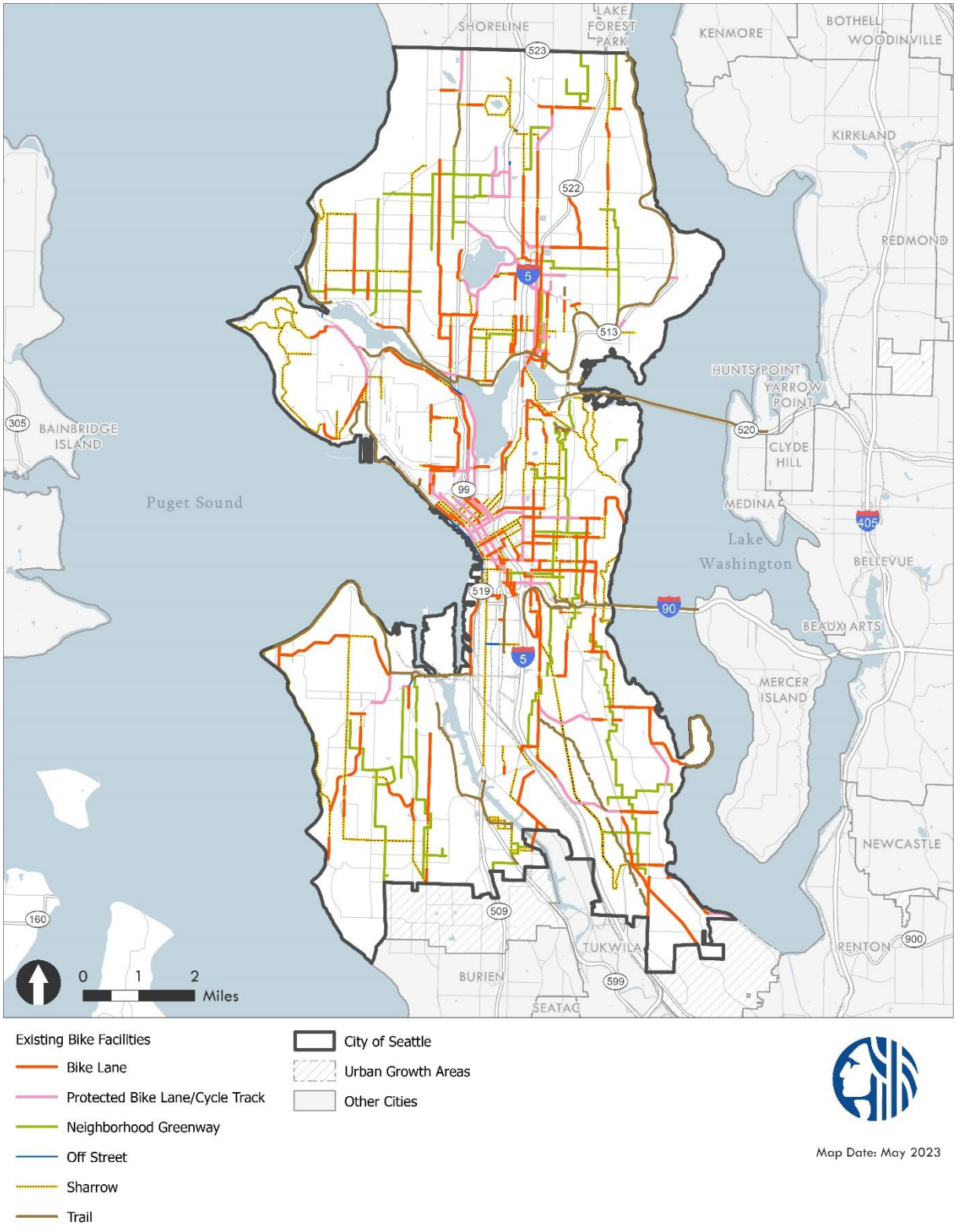
To gauge the current level of access to the All Ages & Abilities bicycle network, **Exhibit 3.10-16** displays the areas of the city within a quarter mile of any All Ages & Abilities facility. Of the approximately 503,000 households in Seattle, 75% (377,000) are within a quarter mile of a designated All Ages & Abilities facility. Approximately 86% of employees are within a quarter mile of an All Ages & Abilities facility. Although most households and employment locations are within a quarter mile of an All Ages & Abilities facility, not all facilities are connected to one another, creating gaps in the network.

~~As part of the City of Seattle's Bicycle Master Plan (BMP), t~~The City regularly produces implementation plans that evaluate the current progress towards overarching goals. This includes data on the 12 bike counters that SDOT maintains throughout Seattle. Four of the counters are also able to capture pedestrian counts.[78] From 2014 to 2019, bike ridership increased by 26%—the locations with the highest ridership were the Fremont Bridge and SW Spokane Street. After several years of increasing ridership, the City of Seattle experienced a decrease in bike ridership at those locations between 2019 and 2020, in line with the COVID-19 pandemic. With the 2020 numbers included, the bicycle ridership rate increased 4% from 2014 to 2020.[79]

[78] Seattle Department of Transportation. "Bike Counters." https://www.seattle.gov/transportation/projects-and-programs/programs/bike-program/bike-counters

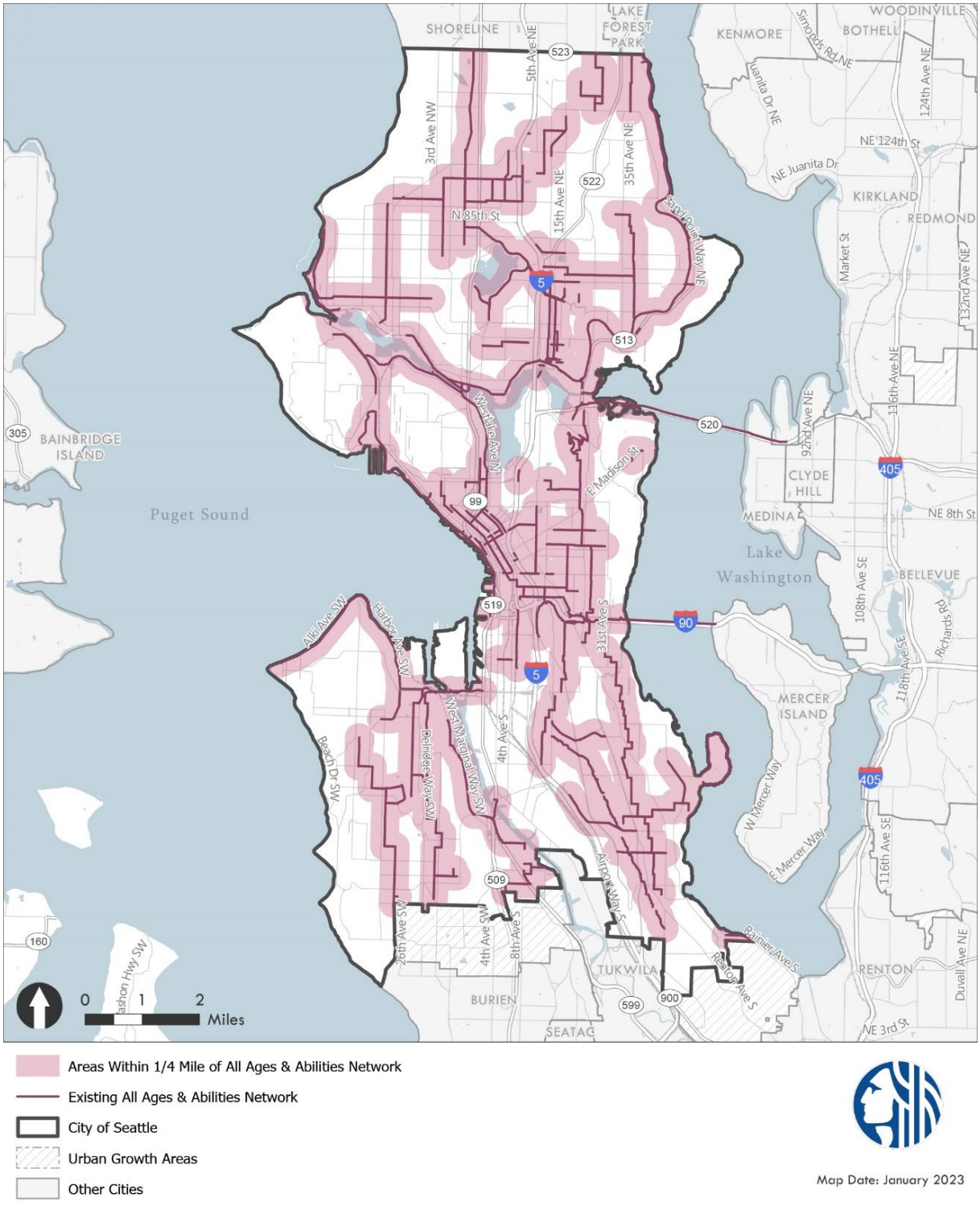
[79] Seattle Department of Transportation. 2021. "Seattle Bicycle Master Plan: 2021-2024 Implementation Plan." https://www.seattle.gov/documents/Departments/SDOT/BikeProgram/BMP_Imp_Plan_2021_FINAL.pdf

Exhibit 3.10-15. Existing Bicycle Facilities, 2022



Sources: Seattle Department of Transportation, 2022.

Exhibit 3.10-16. Existing All Ages & Abilities Network, 2022



Sources: Fehr & Peers analysis of Seattle Department of Transportation, 2022.

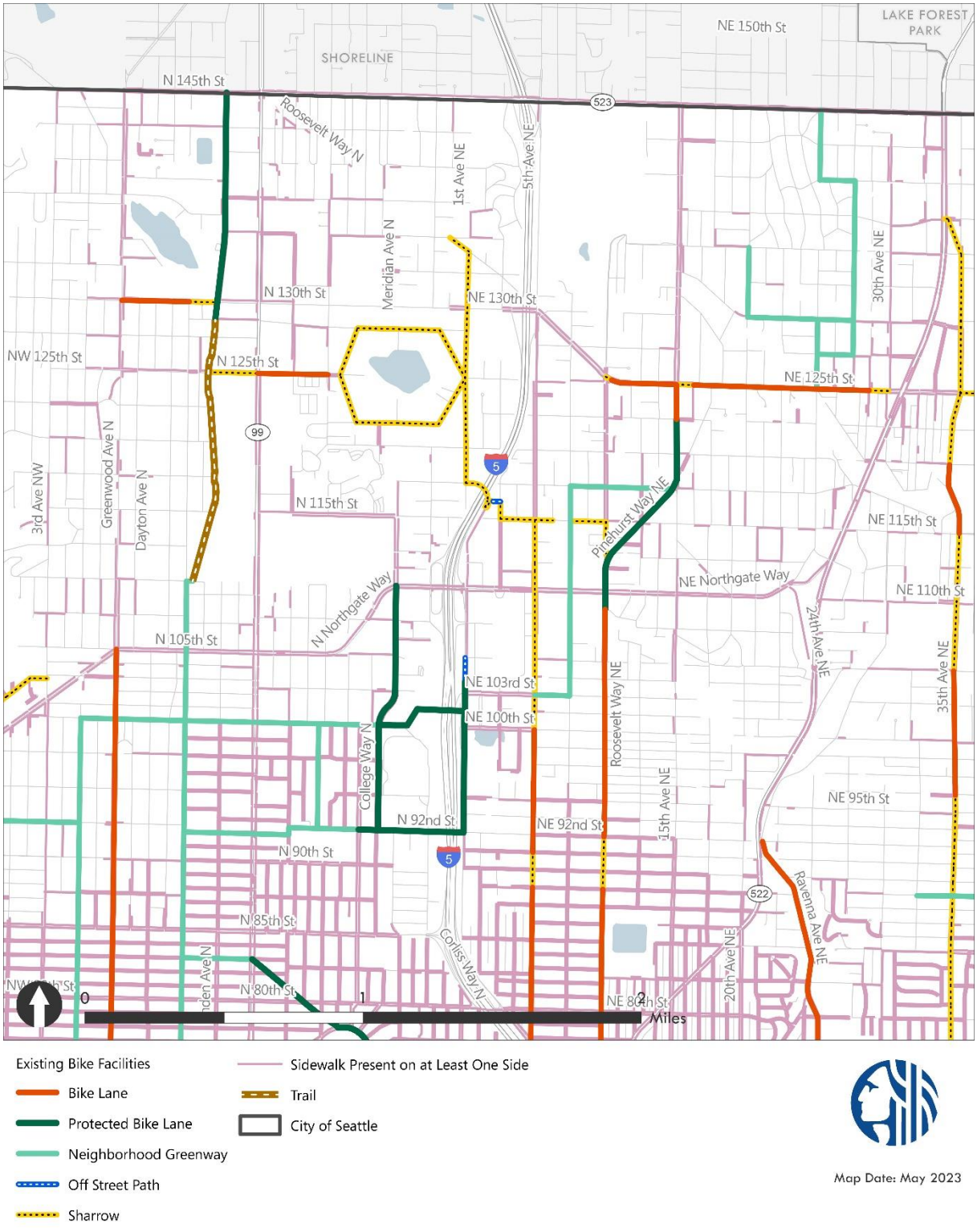
NE 130th / NE 145th Street Subarea

Exhibit 3.10-17 displays a map of the bicycle and pedestrian facilities within the subarea. In the NE 130th / NE 145th Street subarea, the pedestrian network has frequent gaps. Arterials such as NE 130th Street and Roosevelt Way NE have good sidewalk connectivity, but many north/south streets surrounding the area lack continuous sidewalks and ADA-compliant curb ramps. There are two planned sidewalk projects scheduled to be implemented in 2024: the first on 5th Avenue NE between NE 125th Street and NE 130th Street and the second on N 128th Street between Meridian Avenue N and Ashworth Avenue N.[80]

Within the 130th/145th subarea, there are bike lanes on NE 125th Street connecting to a protected bike lane on 15th Avenue NE and Pinehurst Way NE as well as several neighborhood greenways east of I-5. The All Ages & Abilities network is more limited on the west side of I-5. Additional protected and striped lanes are planned within the subarea.[81]

[80] Seattle Department of Transportation. "Sidewalk Development Program." https://www.seattle.gov/transportation/projects-and-programs/programs/pedestrian-program/sidewalk-development-program
[81] Seattle Department of Transportation. "SDOT Bike Map." https://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=a24b25c3142c49e194190d6a888d97e3

Exhibit 3.10-17. NE 130th / NE 145th Street Subarea



Sources: Seattle Department of Transportation, 2022.

Transit

Seattle's public transit services are provided by King County Metro, Sound Transit, Community Transit, Kitsap Transit, and the City of Seattle. **Exhibit 3.10-18** displays Seattle's transit facilities.

Sound Transit's Link light rail serves the greater Seattle area with about 25 miles of rail coverage and 11.5 million annual riders in 2021. As of 2024, ~~T~~the 1 Line runs from ~~Northgate Station~~Lynnwood through the center city and south to Seattle-Tacoma International Airport and Angle Lake. The park-and-ride located at Northgate Station serves as a central hub for riders in the northern parts of the city.

Sound Transit plans to expand the Link light rail network in the next several years. The 1 Line will be extended ~~northward to Lynnwood and~~ southward to Federal Way, with a targeted opening of 2026~~4 or 2025~~. ~~This will include the NE 130th Street Station and Shoreline South/148th Station just north of the Seattle city limit.~~ The 2 Line, slated to ~~open~~ connect to the rest of the light rail system in 2025~~4~~, will run from Redmond to Northgate via Downtown Bellevue and Seattle. Additional expansions will incorporate the entire Everett to Tacoma corridor. Within Seattle, the Link network will be expanded to include lines to West Seattle and Ballard with expected completion dates of 2032 and 2037-2039, respectively.[82]

Transit Ridership

In 2019, the mode share of workers who arrived at Seattle's center city core between 6 AM and 9 AM by public transit was 46 percent (Commute Seattle 2019). The share of workers who drove alone to the city center was 26 percent. The COVID-19 pandemic has affected commuting behaviors since early 2020. Depending on the nature of the industry, many employers shifted to a full or partial remote format. Accordingly, this shaped the demand for travel during peak periods as well as the level of comfort people have sharing a space with other commuters. King County Metro reported a drop in ridership from over 123 million annual riders in 2019 to approximately 58 million riders in 2020. While transit ridership has begun to rebound since 2020, commuting patterns continue to evolve as remote and hybrid work has become more common in many workplaces.

King County Metro (KCM) operates fixed route bus service, on-demand transit, night service shuttles, and a limited number of ferry and rideshare programs. This includes three RapidRide routes connecting the center city to West Seattle (the C Line), Ballard (the D Line) and Shoreline along the Aurora Avenue corridor (the E Line). Seattle is also served by Community Transit bus routes that provide service north into Snohomish County and Kitsap Transit ferries to Kingston and Bremerton.

In addition to bus and light rail modes of public transit, the City of Seattle hosts a monorail as well as two streetcar lines: South Lake Union and First Hill.[83] At present, the two routes are not connected. However, there are plans in place to join the routes and provide north-south

[82] The Sound Transit Board completed a realignment process to adjust project timelines to reflect financial constraints. Depending on the ability to close the funding gap, service may open to Smith Cove in 2037 and Ballard in 2039. https://www.soundtransit.org/system-expansion/west-seattle-ballard-link-extensions/timeline-milestones

[83] Seattle Department of Transportation. "Seattle Streetcar." https://www.seattle.gov/transportation/getting-around/transit/streetcar#streetcar-reports

connectivity through the Center City Connector route. The Seattle Monorail is owned by the City of Seattle and is operated by Seattle Monorail Services (SMS). The Seattle Monorail serves a singular route between two stations: Seattle Center and Westlake Center. Both the Seattle Monorail and the Seattle streetcars accept ORCA card payment for the cost of fares.

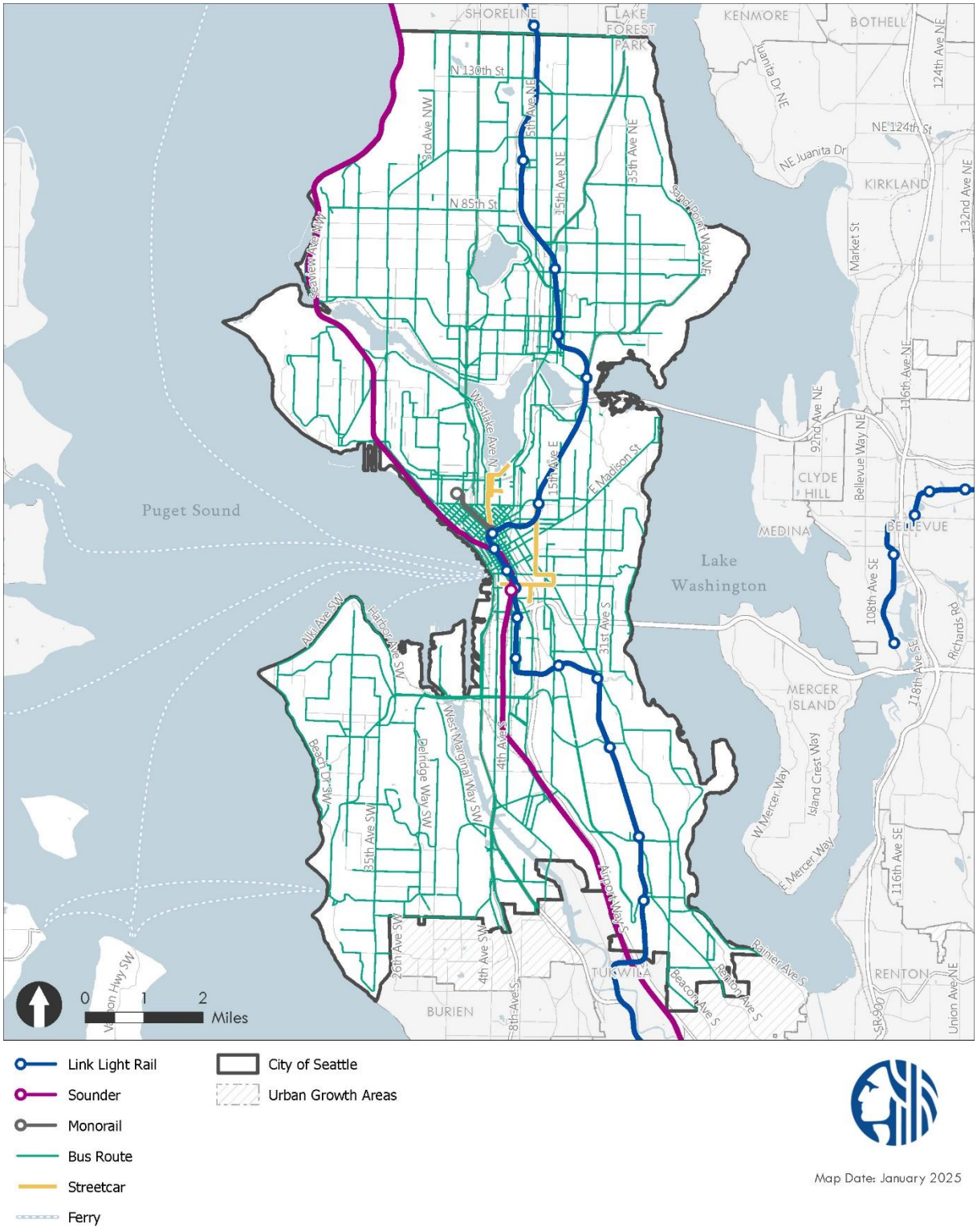
The Washington State Ferries (WSF) system serves many residents of the City of Seattle. The ferry system includes the following four routes, with Seattle service[84]:

- Seattle (Colman Dock) / Bainbridge Island
- Seattle (Colman Dock) / Bremerton
- Seattle (Fauntleroy Terminal) / Southworth
- Seattle (Fauntleroy Terminal) / Vashon

ORCA cards are accepted as a form of payment for all ferries, however there are some limitations for usage.[85]

[84] Washington State Department of Transportation. "Schedule By Route." https://wsdot.com/ferries/schedule/default.aspx
[85] Washington State Department of Transportation. "Wave2Go." https://wave2go.wsdot.com/webstore/landingPage?cg=21&c=76

Exhibit 3.10-18. City of Seattle Transit Service



Sources: Seattle Department of Transportation, 2023~~5~~.

On fixed route buses, KCM uses two separate measures of passenger loads: number of passengers compared to space on the bus; and the amount of time the bus has a standing load (i.e., more passengers than seats). For each trip, KCM further determines a passenger load threshold for overcrowding, based on the characteristics of the bus type scheduled for that trip. This threshold is determined by the number of seats on the bus and the number of standing people that can fit on the bus (assuming each standing person is given at least four square-feet of space). KCM considers these routes for further investment to alleviate overcrowding—this can be achieved by assigning a larger vehicle to the trip, adjusting the spacing of trips, or adding trips.

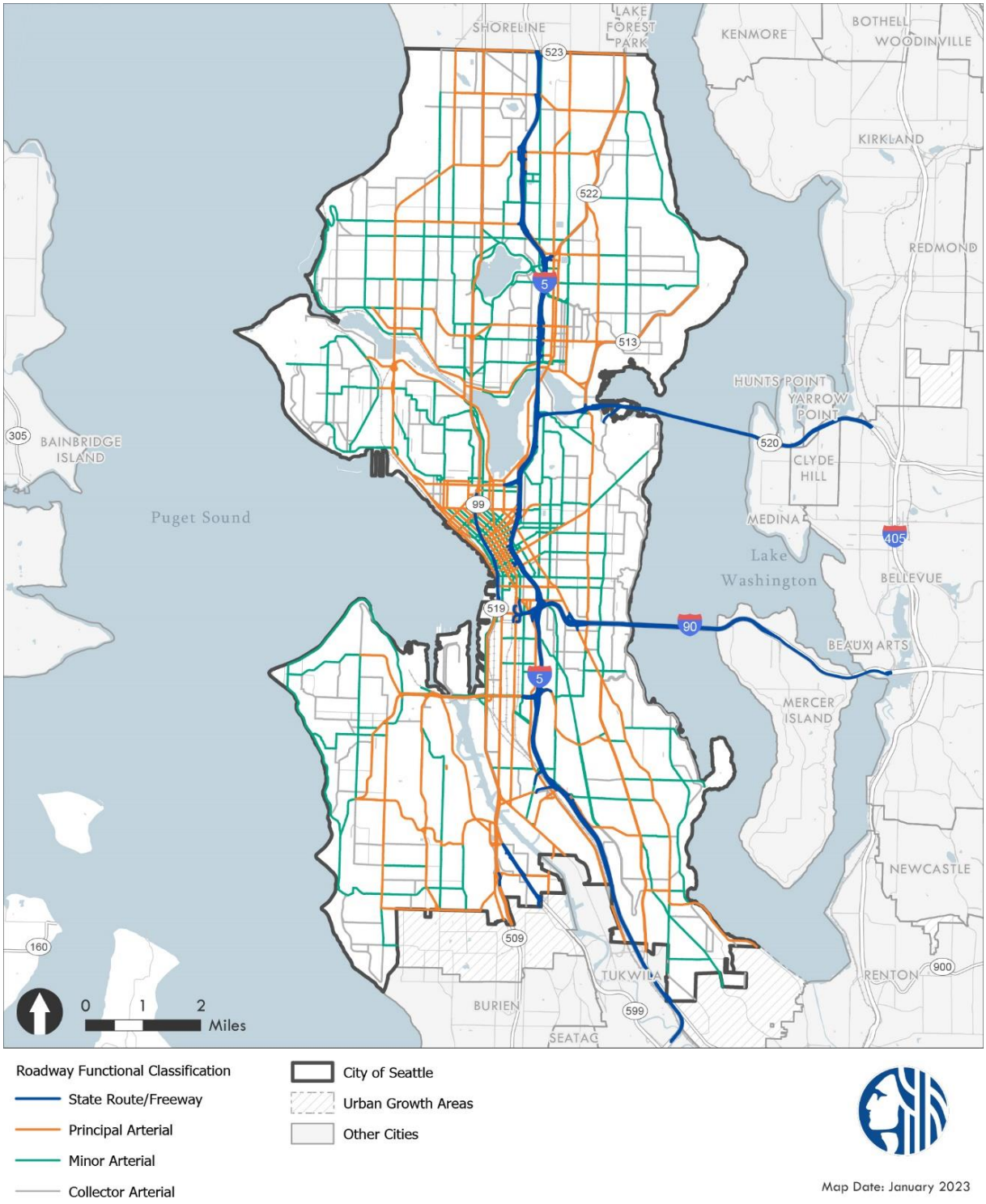
Based on Fall 2019 data, out of 57 bus routes operating in the City of Seattle, four routes had one trip that exceeded the crowding threshold during the PM peak period. These include:

- Route 40: Northgate to Downtown Seattle via Loyal Heights, Crown Hill, Ballard, Fremont and South Lake Union.
- Route 62: Sand Point to Downtown Seattle via View Ridge, Ravenna, Green Lake, Wallingford, Fremont and South Lake Union.
- Route 63: Northgate to Downtown Seattle via Maple Leaf, Ravenna and the University District (note this route stopped operating after the 2021 opening of the 1 Line to Northgate).
- Route 64: Lake City to Downtown Seattle via Wedgwood, Ravenna, University District and South Lake Union.
- **Appendix H~~.2~~** displays the inbound and outbound crowding summaries by bus route.

Roadway Users

The City of Seattle is served by a dense roadway system of principal, minor, and collector arterials, as shown in **Exhibit 3.10-19**. City arterials generally follow a grid pattern. Much of Seattle's transportation network is constrained by the waterways within and around the city. The Ship Canal divides north Seattle from the rest of the city, with six crossing points: the Ballard Bridge, the Fremont Bridge, State Route (SR) 99, Interstate 5 (I-5), the University Bridge, and the Montlake Bridge. Likewise, West Seattle is separated from the rest of the city by the Duwamish Waterway, and is accessed via the West Seattle Bridge, Spokane Street Bridge, the First Avenue S Bridge, and the South Park Bridge.

Exhibit 3.10-19. Arterial Classification, 2022



Sources: Seattle Department of Transportation, 2022.

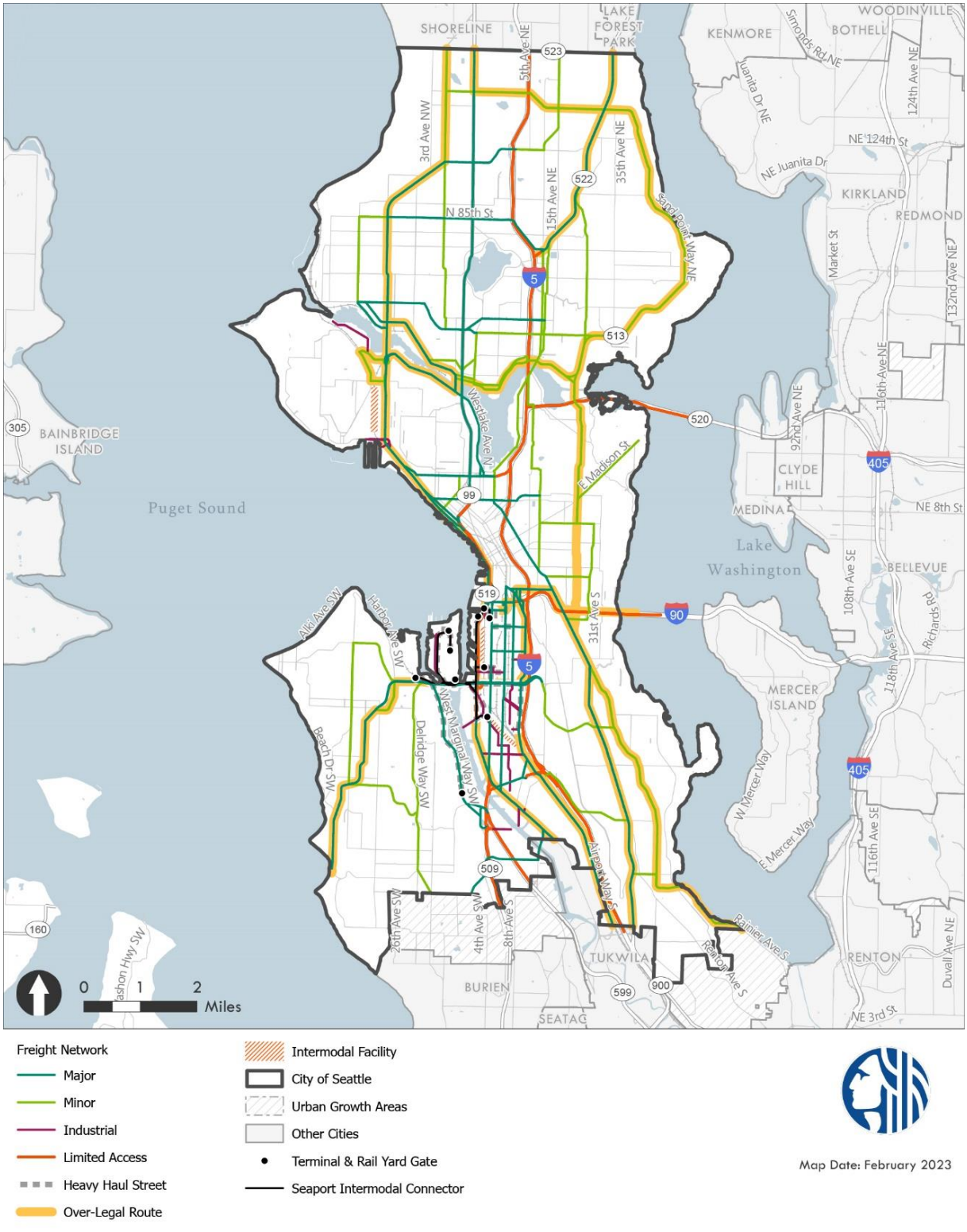
Freight

Seattle is a key port city along the West Coast and has two industrial zones that need ample transportation access to function: Ballard-Interbay-Northend and Duwamish Manufacturing and Industrial Centers (MICs). Seattle has designated a major truck street network throughout the city that carries a substantial amount of freight traffic. As shown in **Exhibit 3.10-20**, the freight network is comprised of state routes, interstates, and major arterials linking key freight destinations as well as intermodal facilities where freight is transferred among rail, truck, and ship. The map also shows terminal and rail yard gate locations, the heavy haul network, and over-legal routes.

Rail is also a critical mode for freight movement within the MICs. There are two Class 1 railroads in Seattle: BNSF and the Union Pacific Railroad (UP). The BNSF mainline extends north-south through Seattle and operates in a double-tracked tunnel through downtown, serving Balmer Yard in the BINMIC and SIG in the Duwamish MIC. The UP mainline only operates south of downtown Seattle and parallels the BNSF network, serving the Seattle ARGO Terminal. The MICs also include a variety of local rail spurs that provide direct rail service to businesses as well as on-dock rail at Port of Seattle terminals.

The BNSF and UP railroads cross roadways in many locations throughout the MICs. While at-grade crossings are more limited in the BINMIC, they are prevalent throughout the Duwamish MIC. When a train is passing through these locations, the crossing is closed to vehicle traffic resulting in delays to those on the roadway network, particularly truck freight in heavily industrial areas. Delays depend on the frequency and duration of the at-grade crossing closure and have been identified by the freight community as a key challenge for truck freight mobility.

Exhibit 3.10-20. Freight Network



Sources: Seattle Department of Transportation, 2022.

VMT / VHT / Average Trip Speed

Several metrics are used to evaluate the use of the road network: vehicle miles traveled (VMT), vehicle hours traveled (VHT), and average trip speed. VMT and VHT are calculated on a per capita basis to normalize each metric against the number of people living and working in Seattle.

Based on the base year PSRC travel demand model, Seattle is currently estimated to generate 22.2 million VMT each day. This equates to roughly 17.2 VMT per Seattle resident and worker. Total VHT is estimated to be 741,900 each day which equates to an average of 34 minutes of vehicle travel per person. The average speed of all trips generated is approximately 30mph. This includes travel on the highway system and local roadway network.

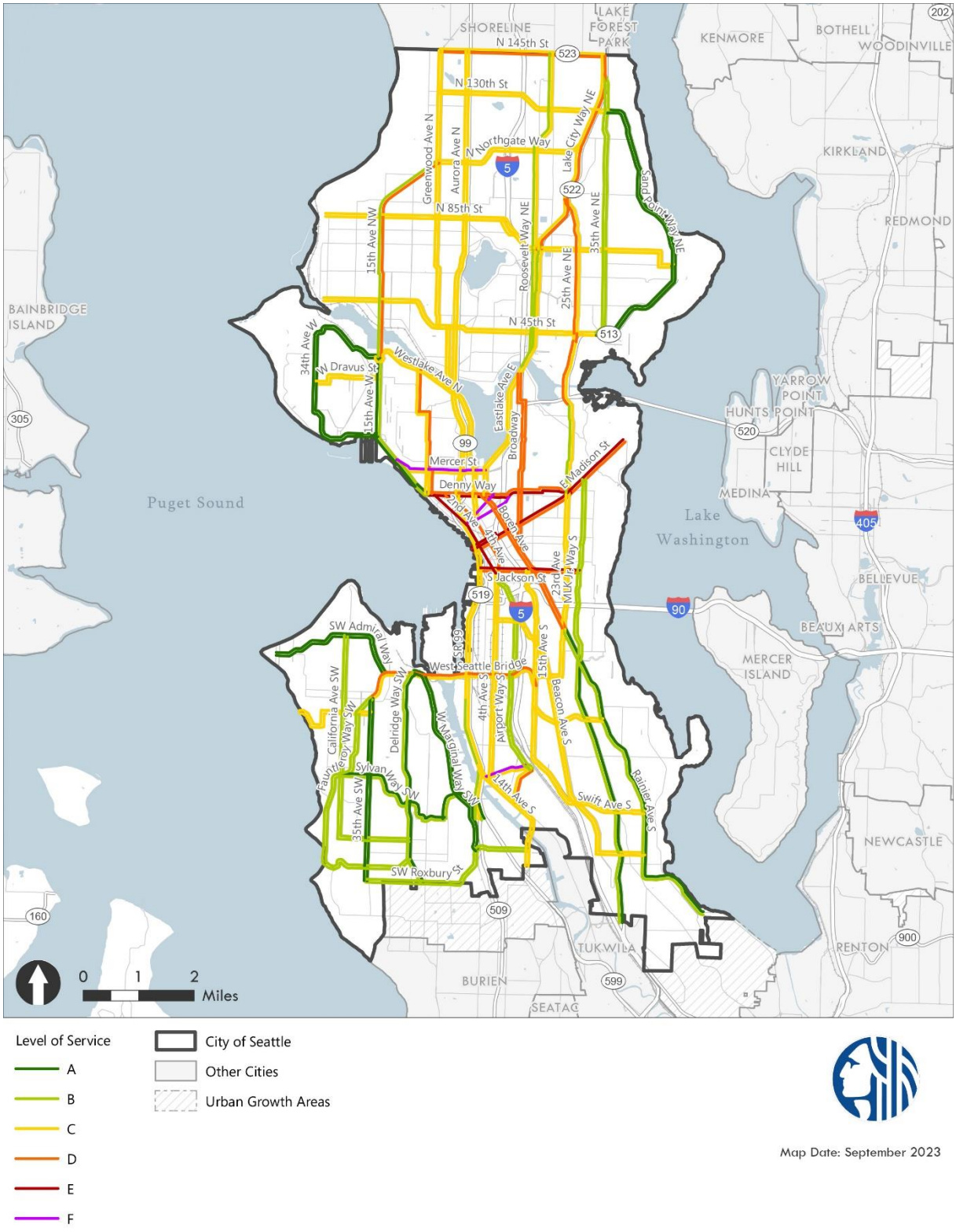
Telework & VMT

As a result of the COVID-19 pandemic, some workplaces have deviated from the typical in-person environment. As a result, commuting patterns have changed with increased telework opportunities. An analysis based on a recent household travel survey in the Sacramento region found that while workers who only telework generate substantially less VMT than workers who do not telework at all, workers who telework on some but not all days do not generate statistically less VMT than workers who do not telework at all.

Travel Time

PM peak hour corridor travel time results are summarized in **Exhibit 3.10-21** and **Exhibit 3.10-22**. As shown when mapped geographically, corridors closest to the center city tend to operate at LOS D through F with travel time generally improving in outlying neighborhoods. Corridors that cross waterways are also pinchpoints in the network and therefore tend to have lower LOS.

Exhibit 3.10-21. PM Peak Hour Corridor Travel Time, 2019



Sources: Fehr & Peers analysis of SDOT Iteris data, 2023.

Exhibit 3.10-22 PM Peak Hour Travel Time Corridor Level of Service

			Minutes / Level of Service	
Roadway	Extents		N/E	S/W
N 145th St	Greenwood Ave N	Lake City Way NE	10 / D	9.5 / C
N 130th St	Greenwood Ave N	35th Ave NE	11.5 / C	12 / C
N Northgate Way	Greenwood Ave N	Lake City Way NE	10.5 / C	10.5 / C
N 85th St	32nd Ave NW	Sand Point Way NE	24.5 / C	24.5 / C
N 45th St	32nd Ave NW	Union Bay Pl NE	23.5 / C	23.5 / C
15th Ave NW	W Emerson St	N 105th St	16 / D	10.5 / B
Greenwood Ave N	Nickerson St	N 145th St	26 / C	24 / C
Aurora Ave N	N 38th St	N 145th St	18.5 / C	15 / C
Roosevelt Way NE	Fuhrman Ave E	N 145th St	22 / C	20.5 / B
Lake City Way NE	NE 75th St	N 145th St	13.5 / D	10 / C
25th Ave NE	E Roanoke St	Lake City Way NE	14 / C	21 / D
35th Ave NE	Union Bay Pl NE	Lake City Way NE	16.5 / B	17 / B
Sand Point Way NE	Union Bay Pl NE	35th Ave NE	12.5 / A	12 / A
34th Ave W	15th Ave W	15th Ave W	11.5 / A	12 / A
W Dravus St	34th Ave W	15th Ave W	5 / C	4.5 / C
15th Ave W	Queen Anne Ave N	W Emerson St	9 / B	7.5 / A
Queen Anne Ave N	Denny Way	Nickerson St	12.5 / D	11.5 / C
SR 99	S Nevada St	N 38th St	13.5 / C	15 / C
Westlake Ave N	Stewart St	W Emerson St	16 / C	17 / C
Eastlake Ave E	Denny Way	Fuhrman Ave E	11.5 / C	10.5 / C
Broadway	Boren Ave	Eastlake Ave E	17.5 / D	17 / D
23rd Ave	E Madison St	E Roanoke St	6.5 / C	5 / B
Mercer St	Elliott Ave W	Fairview Ave N	7.5 / C	14 / F
Denny Way	Queen Anne Ave N	E Madison St	17 / E	16 / D
2nd Ave	4th Ave S	Denny Way	- / -	11.5 / E
4th Ave	S Jackson St	Denny Way	9 / D	- / -
Stewart St	1st Ave	Denny Way	- / -	6 / F
Olive Way	4th Ave	Denny Way	7 / F	- / -
E Madison St	Alaskan Way S	McGilvra Blvd E	20 / D	20 / E
Boren Ave	23rd Ave S	Denny Way	16 / D	14.5 / D
S Jackson St	Alaskan Way S	MLK Jr. Way S	8.5 / D	10.5 / E
23rd Ave	15th Ave S	E Madison St	14 / C	15.5 / C

Roadway	Extents		Minutes / Level of Service N/E	S/W
MLK Jr. Way S	Rainier Ave S	E Madison St	10 / B	11 / B
4th Ave S	E Marginal Way S	S Jackson St	12 / C	11.5 / C
Airport Way S	S Albro Pl	4th Ave S	10 / B	10 / B
15th Ave S	S Jackson St	Rainier Ave S	14.5 / C	16 / C
E Marginal Way S	S Holden St	S Nevada St	4.5 / C	4.5 / B
Swift Ave S	Rainier Ave S	S Columbian Way	13 / C	13 / C
Beacon Ave S	Rainier Ave S	4th Ave S	21.5 / C	24 / C
MLK Jr. Way S	S Boeing Access Rd	Rainier Ave S	14.5 / A	15.5 / B
Rainier Ave S	Cornell Ave S	23rd Ave S	17.5 / A	20 / B
S Michigan St	E Marginal Way S	Airport Way S	3.5 / C	4.5 / F
Ellis Ave S	E Marginal Way S	Airport Way S	3 / D	3.5 / C
14th Ave S	S Director St	1st Ave S	7 / C	7 / C
California Ave SW/SW Thistle St	Delridge Way SW	SW Admiral Way	17 / B	17 / B
Fauntleroy Way SW/SW Barton St	Delridge Way SW	35th Ave SW	15 / B	17 / B
35th Ave SW	SW Roxbury St	Fauntleroy Way SW	8.5 / A	9 / A
Delridge Way SW	SW Roxbury St	W Marginal Way SW	11 / A	13 / B
W Marginal Way SW	S Cloverdale St	Delridge Way SW	7.5 / A	8 / A
SW Admiral Way	63rd Ave SW	SW Manning St	6.5 / A	7 / A
West Seattle Bridge	35th Ave SW	15th Ave S	7.5 / C	10 / D
SW Alaska St	Beach Dr SW	35th Ave SW	7 / C	7.5 / C
Sylvan Way SW	California Ave SW	S Holden St	12 / B	10.5 / A
SW Roxbury St	35th Ave SW	14th Ave S	11 / B	10 / B

Source: Fehr & Peers analysis of SDOT Iteris data, 2023.

Screenlines

Exhibit 3.10-23 summarizes each screenline's LOS threshold and V/C ratio based on pre-pandemic observed counts. Almost all screenlines are below 90% capacity. Only three locations are estimated to exceed 90% capacity in one travel direction during the evening peak hour. These locations are all bridges crossing the Lake Washington Ship Canal—the Ballard Bridge, Fremont Bridge, and the Aurora Avenue Bridge which are currently operating at or near capacity. However, no screenlines currently exceed the established thresholds.

Exhibit 3.10-23. PM Peak Hour Screenline Volume-to-Capacity Ratios—Existing Conditions

Screenline	Screenline Location	Extents	V/C Threshold	Northbound/ Eastbound V/C Ratio	Southbound/ Westbound V/C Ratio
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20	0.68	0.52
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20	0.47	0.30
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20	0.84	0.47
2.00	Magnolia	Magnolia Bridge to W Emerson Place	1.00	0.56	0.61
3.11	Duwamish River	West Seattle Bridge & Spokane St	1.20	0.64	0.81
3.12	Duwamish River	1st Ave S & 16th Ave S	1.20	0.56	0.87
4.11	South City Limit	Martin Luther King Jr. Way to Rainier Ave S	1.00	0.57	0.75
4.12	South City Limit	Marine Dr SW to Meyers Way S	1.00	0.37	0.42
4.13	South City Limit	SR 99 to Airport Way S	1.00	0.44	0.45
5.11	Ship Canal	Ballard Bridge	1.20	1.01	0.71
5.12	Ship Canal	Fremont Bridge	1.20	1.00	0.79
5.13	Ship Canal	Aurora Ave Bridge	1.20	0.96	0.58
5.16	Ship Canal	University & Montlake Bridges	1.20	0.74	0.79
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00	0.37	0.46
6.12	South of N W 80th St	8th Ave NW to Greenwood Ave N	1.00	0.57	0.49
6.13	South of NE 80th St	Linden Ave N to 1st Ave NE	1.00	0.54	0.49
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00	0.71	0.56
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00	0.47	0.34
7.11	West of Aurora Ave	Fremont Pl N to N 65th St	1.00	0.53	0.65
7.12	West of Aurora Ave	N 80th St to N 145th St	1.00	0.41	0.41
8.00	South of Lake Union	Valley St to Denny Way	1.20	0.49	0.35
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00	0.45	0.71
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00	0.51	0.54
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00	0.56	0.57
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00	0.61	0.64
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00	0.52	0.64
12.12	East of CBD	S Jackson St to Howell St	1.20	0.36	0.36

Screenline	Screenline Location	Extents	V/C Threshold	Northbound/ Eastbound V/C Ratio	Southbound/ Westbound V/C Ratio
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00	0.67	0.51
13.12	East of I-5	NE 65th St to NE 80th St	1.00	0.52	0.54
13.3	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00	0.59	0.52
A1	North of Seneca St	1st Ave to 6th Ave	N/A	0.47	0.50
A2	North of Blanchard	Elliott Ave to Westlake Ave	N/A	0.43	0.31
A3	East of 9th Ave	Lenora St to Pike St	N/A	0.46	0.83
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	N/A	0.53	0.46
A5	East of 5th Ave N	Denny Way to Valley St	N/A	0.40	0.40
A6	North of Pine St	Melrose Ave E to 15th Ave E	N/A	0.39	0.32
A7	North of James St– E Cherry St	Boren Ave to 14th Ave	N/A	0.46	0.32
A8	West of Broadway	Yesler Way to E Roy St	N/A	0.47	0.38
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	N/A	0.56	0.53
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	N/A	0.51	0.48
A11	South of Northgate Way (N/NE 110th St)	N Northgate Way to Roosevelt Way NE	N/A	0.44	0.46
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	N/A	0.43	0.48

Sources: Fehr & Peers, 2023.

Intersection LOS—NE 130th / NE145th Street Subarea

Exhibit 3.10-24 summarizes the existing LOS and delay for each of the 15 study intersections within the 130th/145th Subarea. Among the 15 intersections, only one intersection (N 145th Street and Meridian Avenue N) operates at LOS E or worse. All other intersections operate at LOS D or better.

Exhibit 3.10-24. 130th/145th Street Subarea PM Peak Hour Level of Service—Existing Conditions

Intersection ID	Intersection	Level of Service / Delay (seconds)
1	NE 155th St / 5th Ave NE	B / 11
2	N 145th St / Aurora Ave N	D / 47
3	**N 145th St / Meridian Ave N**	**E / 58**
4	N 145th St / 1st Ave NE	C / 21
5	NE 145th St / I-5 On & Off Ramps	D / 35
6	NE 145th St / 5th NE	D / 42
7	NE 145th St / 15th Ave NE	D / 48
8	N 137th St / Meridian Ave N / Roosevelt Way N	A / 7

Intersection ID	Intersection	Level of Service / Delay (seconds)
9	N 130th St / Aurora Ave N	D / 51
10	N 130th St / Meridian Ave N	A / 9
11	N 130th St / 1st Ave NE	D / 52
12	NE 130th St / I-5 On Ramp	A / 2
13	NE 130th St / Roosevelt Way NE / 5th Ave NE	C / 32
14	Roosevelt Way NE / NE 125th St / 10th Ave NE	B / 17
15	NE 125th St / 15th Ave NE	D / 41

Source: Fehr & Peers, 2023.

State Facilities

State facilities are evaluated to monitor performance and facilitate coordination between the city and state per the Growth Management Act. I-5 runs north-south throughout the city, serving both local and regional travelers. SR 99 also runs north-south through the city and tends to serve more locally focused trips. To the east, there are two bridges across Lake Washington: SR 520 and Interstate 90 (I-90). These four state facilities are all designated as Highways of Statewide Significance (HSS) by WSDOT, a designation that assists with funding allocation. Other HSS facilities within the city include SR 509 connecting the Duwamish area south to Sea-Tac Airport; SR 519 connecting Colman Dock to I-90; and SR 522 connecting North Seattle to communities to the northeast.

Exhibit 3.10-25 summarizes the average annual daily traffic (AADT) on each HSS that passes through the city. For I-5 and SR 99, multiple study locations were selected. The AADT were compared to the maximum service volume correlating to WSDOT's LOS standard (e.g., the maximum number of vehicles that can be served while maintaining a LOS D).

WSDOT sets the standard for most of the HSS facilities in Seattle at LOS D; the exception is the segment of SR 99 between SR 509 and I-5 which has a standard of "E mitigated" meaning congestion should be mitigated when PM peak hour LOS falls below LOS E. Because the volumes are compared to the maximum service volume for WSDOT's LOS standard, a ratio above 1.0 indicates the state facility is not meeting its LOS standard.

Based on these findings, the segments of I-5 over the Ship Canal Bridge and north of the West Seattle Bridge are exceeding the LOS D standard. SR 99 over the Aurora Avenue Bridge and SR 522 south of NE 145th Street are also exceeding their LOS D standards.

Exhibit 3.10-25. ~~PM Peak Hour~~Daily State Facilities Level of Service—Existing Conditions

Facility	Extents	WSDOT LOS Standard	Average Annual Daily Traffic (AADT)	Existing Volume to LOS Service Volume Ratio
I-5	North of NE Northgate Way	D	215,000	0.96
I-5	**Ship Canal Bridge**	**D**	**203,000**	**1.21**

Facility	Extents	WSDOT LOS Standard	Average Annual Daily Traffic (AADT)	Existing Volume to LOS Service Volume Ratio
I-5	**North of West Seattle Bridge**	**D**	**253,000**	**1.24**
I-5	North of Boeing Access Rd Ramp	D	200,000	0.93
I-90	Mt Baker Tunnel	D	148,000	0.90
SR 99	North of N Northgate Way	D	31,000	0.96
SR 99	**Aurora Ave Bridge**	**D**	**71,000**	**1.19**
SR 99	Tunnel	D	39,000	0.58
SR 99	North of West Seattle Bridge	D	67,000	0.72
SR 99	South of S Cloverdale St	E (mitigated)	32,000	0.42
SR 509	1st Ave S Bridge	D	60,000	0.97
SR 519	S Atlantic St West of I-90 Ramps	D	29,000	0.90
SR 520	Lake Washington Bridge	D	74,000	0.60
SR 522	**South of NE 145th St**	**D**	**34,000**	**1.01**

Source: WSDOT Transportation Data and GIS Office, 2019.

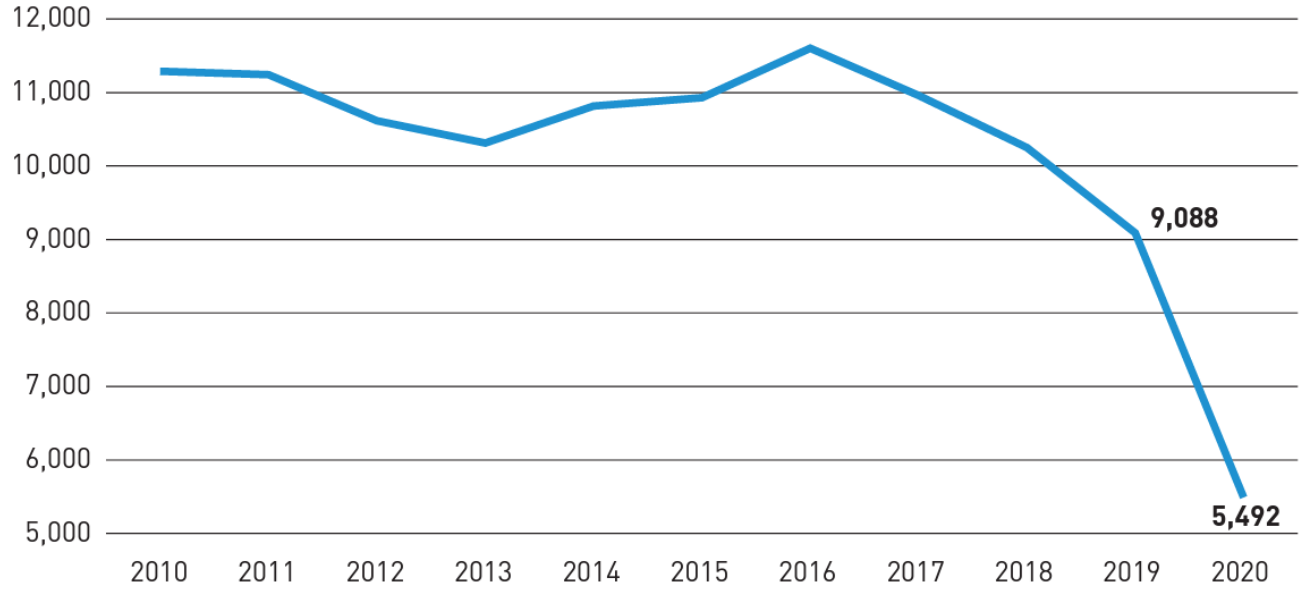
Safety

SDOT releases annual traffic reports that summarize citywide traffic information, including collision data. ~~The most recently released data comes from the 2021 traffic report, providing data through 2020.~~The traffic reports covering 2019 and 2020 were reviewed for this EIS. Due to the onset of the COVID-19 pandemic in 2020, the data covers a volatile period in terms of travel behavior. Accordingly, this section discusses both 2020 and 2019 data.

The total number of police reported collisions on Seattle streets had been decreasing since a peak in 2016 of about 11,500 collisions. In 2019, there were 9,088 reported collisions and 5,492 collisions in 2020.[86] This decrease in collisions between 2019 and 2020 can be attributed to the reduction in overall trips as a result of the COVID-19 pandemic. However, despite the lower total number of collisions in 2020, the collision rate reported in 2020 increased—in other words, there were more collisions per trip made. This is shown in **Exhibit 3.10-26** and **Exhibit 3.10-27**. In 2020, the collision rate is reported as 74.2 per million AADT trips and the 2019 collision rate is reported as 60.5 per million AADT trips.[87] Traffic-related fatalities in 2019 and 2020 were similar at 26 in 2019 and 25 in 2020, mostly among pedestrians both years.[88]

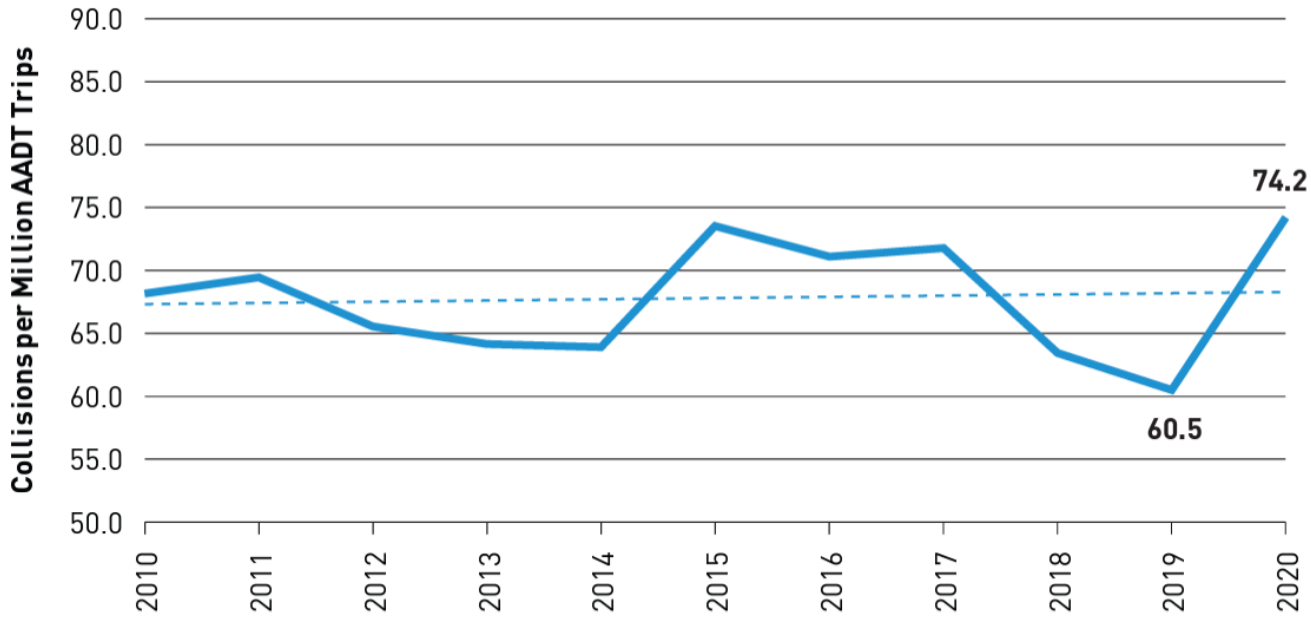
[86] Seattle Department of Transportation. 2022. "2021 Traffic Report." https://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/Reports/2021_Traffic_Report_ADA_21522.pdf (Page 22)
[87] Seattle Department of Transportation. 2022. "2021 Traffic Report." https://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/Reports/2021_Traffic_Report_ADA_21522.pdf (Page 23)
[88] Seattle Department of Transportation. 2022. "2021 Traffic Report." https://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/Reports/2021_Traffic_Report_ADA_21522.pdfhttps://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/Reports/2021_Traffic_Report_ADA_21522.pdf (Page 24)

Exhibit 3.10-26. Police Reported Collisions on Seattle Streets, 2010-2020



Source: SDOT, 2021 Traffic Report, 2022.

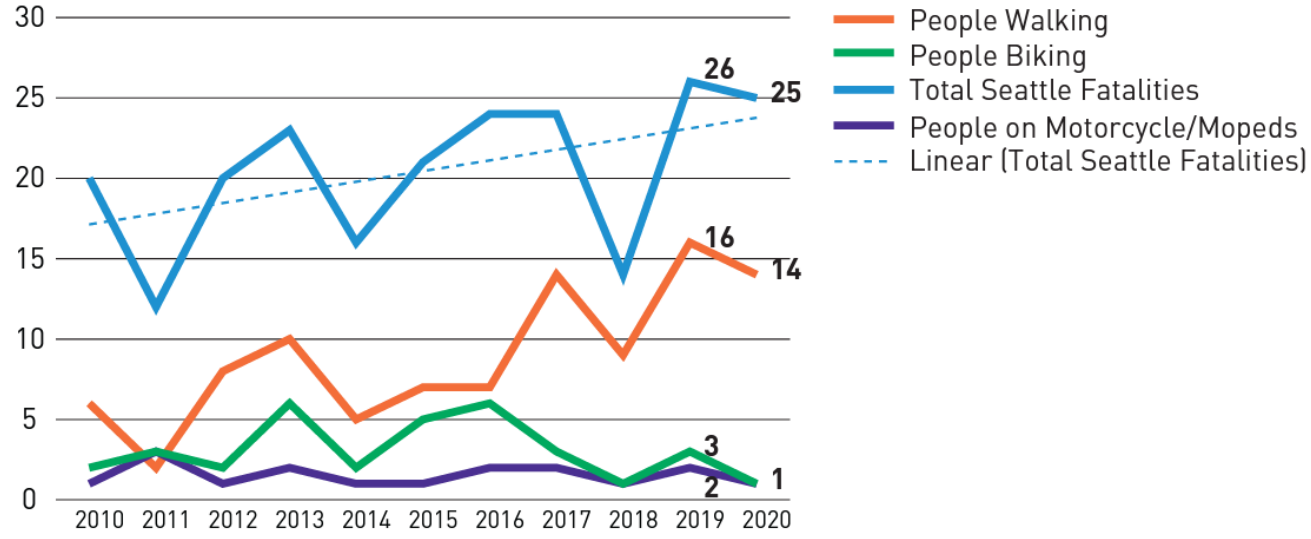
Exhibit 3.10-27. Citywide Collision Rate, 2010-2020



Source: SDOT, 2021 Traffic Report, 2022.

The report also summarizes trends among each mode, as shown in **Exhibit 3.10-28**. Over the past decade, fatalities on Seattle's streets have been increasing, particularly among people walking as they are among the most vulnerable in collisions with vehicles.

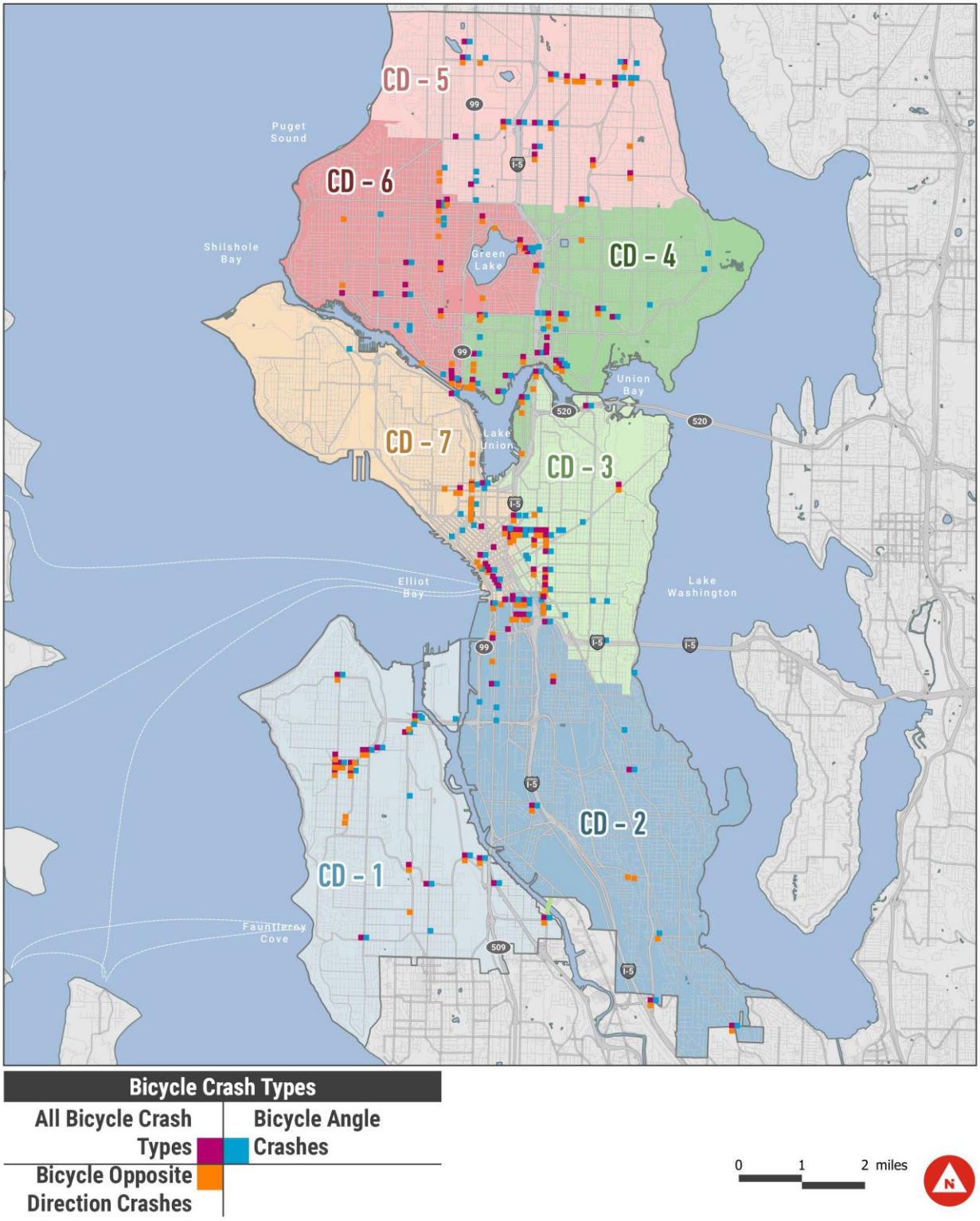
Exhibit 3.10-28. Traffic Fatalities on Seattle Streets, 2010-2020



Source: SDOT, 2021 Traffic Report, 2022.

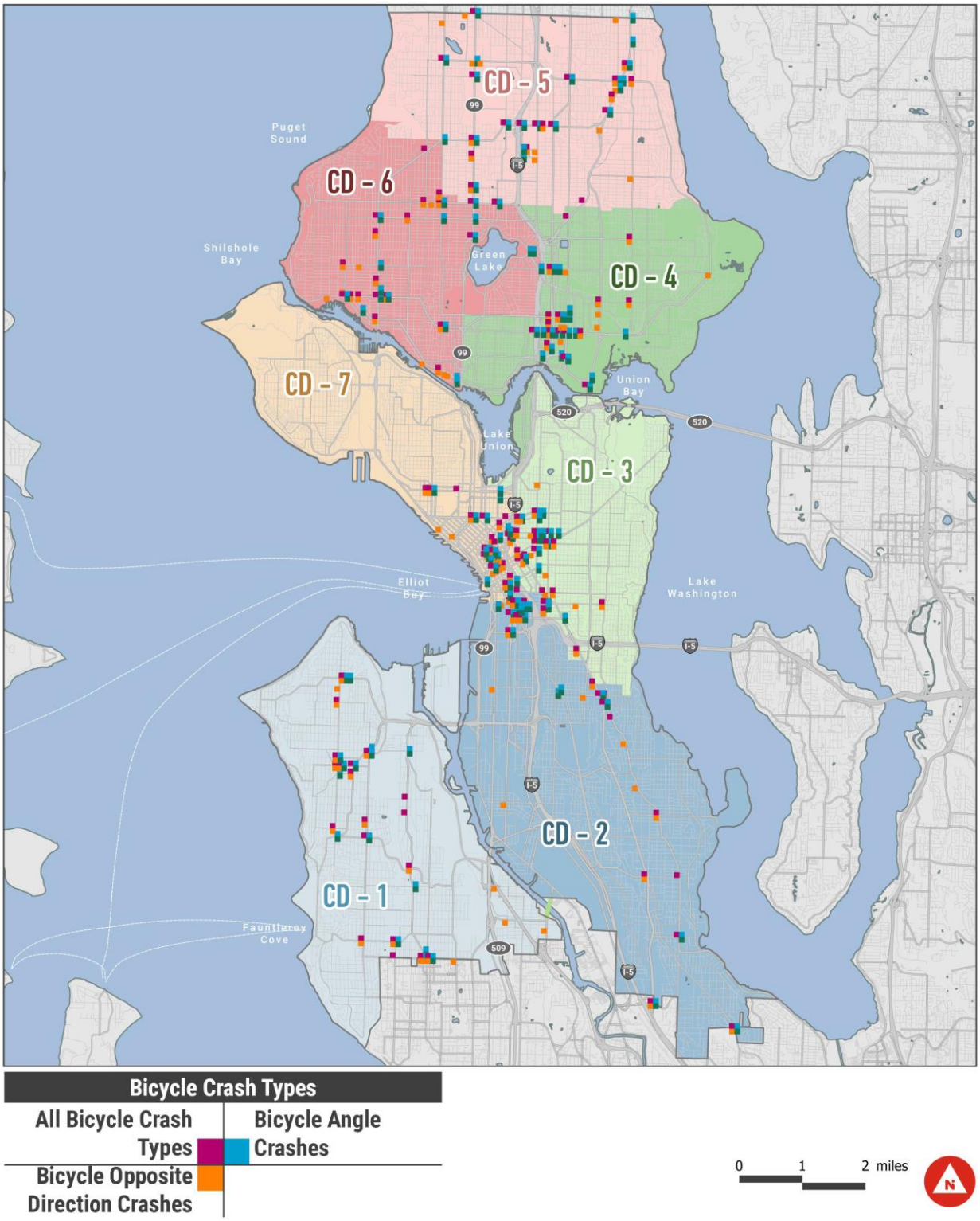
In 2020, SDOT released Phase 2 of the City of Seattle's Bicycle and Pedestrian Safety Analysis, providing statistical foundations for analyzing bicyclist and pedestrian collision data between 2010 and 2017. The analysis involved mapping the locations and types of bicycle and pedestrian collisions to determine priority locations for each council district. **Exhibit 3.10-29** and **Exhibit 3.10-30** display maps of collision locations by type in each council district. As part of the Vision Zero goal in place in the City of Seattle, SDOT is taking both proactive and reactive measures to eliminate serious injuries and fatalities from Seattle's streets.

Exhibit 3.10-29. Top 20 Priority Bicycle Locations Per Council District



Source: SDOT, City of Seattle Bicycle and Pedestrian Safety Analysis Phase 2, 2020.

Exhibit 3.10-30. Top 20 Priority Pedestrian Locations Per Council District



Source: SDOT, City of Seattle Bicycle and Pedestrian Safety Analysis Phase 2, 2020.

3.10.2 Impacts

This section discusses the potential impacts of each of the future year alternatives. Each of the action alternatives (Alternatives 2 through 5 and the Preferred Alternative) are measured against the expected conditions of the No Action Alternative (Alternative 1). While there is uncertainty inherent in any analysis of future travel behavior, this EIS uses the best available tool, the PSRC travel model, as a consistent basis to evaluate the future year alternatives. In particular, the model is best used to identify relative differences among alternatives rather than provide a specific prediction of the exact location and magnitude of impacts, particularly given this is a programmatic EIS assessing areawide changes rather than specific development proposals which are unknown at this time.

Analysis Methodology & Planning Scenarios Evaluated

For the Draft EIS, five alternatives ~~are~~ were evaluated under future year 2044 conditions for each of the key metrics. The same transportation network ~~i~~was assumed under each alternative. That network includes all existing facilities plus those considered to be reasonably foreseeable by the 2044 horizon year based on adopted plans at the time of analysis. The 2044 transportation network used in the Draft~~is~~ EIS is consistent with the assumptions used for the Seattle Transportation Plan (STP) EIS No Action Alternative. More details describing each alternative can be found in **Chapter 2**.

Per **Section 2.4.8 Transportation Planning & Alternatives**, the City evaluated its transportation plan in a separate EIS in February 2024. For this Final EIS, the City identified a Preferred Alternative to be evaluated which includes a growth strategy, updated Comprehensive Plan elements, and development code updates. In addition, since the Draft EIS was published in March 2024, the City adopted the Seattle Transportation Plan (STP). The long-term STP concepts are implemented during the 20-year planning period by the Transportation Element and Capital Facilities Plan. Thus to consider land use and transportation elements together, the SoundCast travel demand model was updated for this Final EIS to reflect the network maps, policy direction, and candidate projects identified in the STP. While the specific project list will be refined over time, the revisions to the model reflect the overarching goals of the STP to make active transportation and transit more convenient choices for Seattle residents and employees. Therefore, the revised model reflects the reallocation of some general purpose roadway capacity to become dedicated transit (or transit and freight) lanes which provide better speed and reliability for those modes, increase the capacity to move people along a corridor, and accommodate increased growth. As required, the City would prepare additional analysis and take public and stakeholder input into consideration before implementing specific transportation improvement projects, whether they are included in the STP or identified as mitigation for an action alternative. SDOT may choose not to pursue the projects assumed for modeling purposes due to potential impacts and future outcomes from community engagement, but they are used as a reasonably likely assumption to assess the proposed land use alternative.

Because the focus of this EIS is the Comprehensive Plan land use proposal, the STP assumptions were incorporated into an updated Alternative 1, No Action, as well as the Preferred Alternative models. The updated Alternative 1, No Action, is the baseline for comparison to isolate the effects that can be expected as a result of the Preferred Alternative.

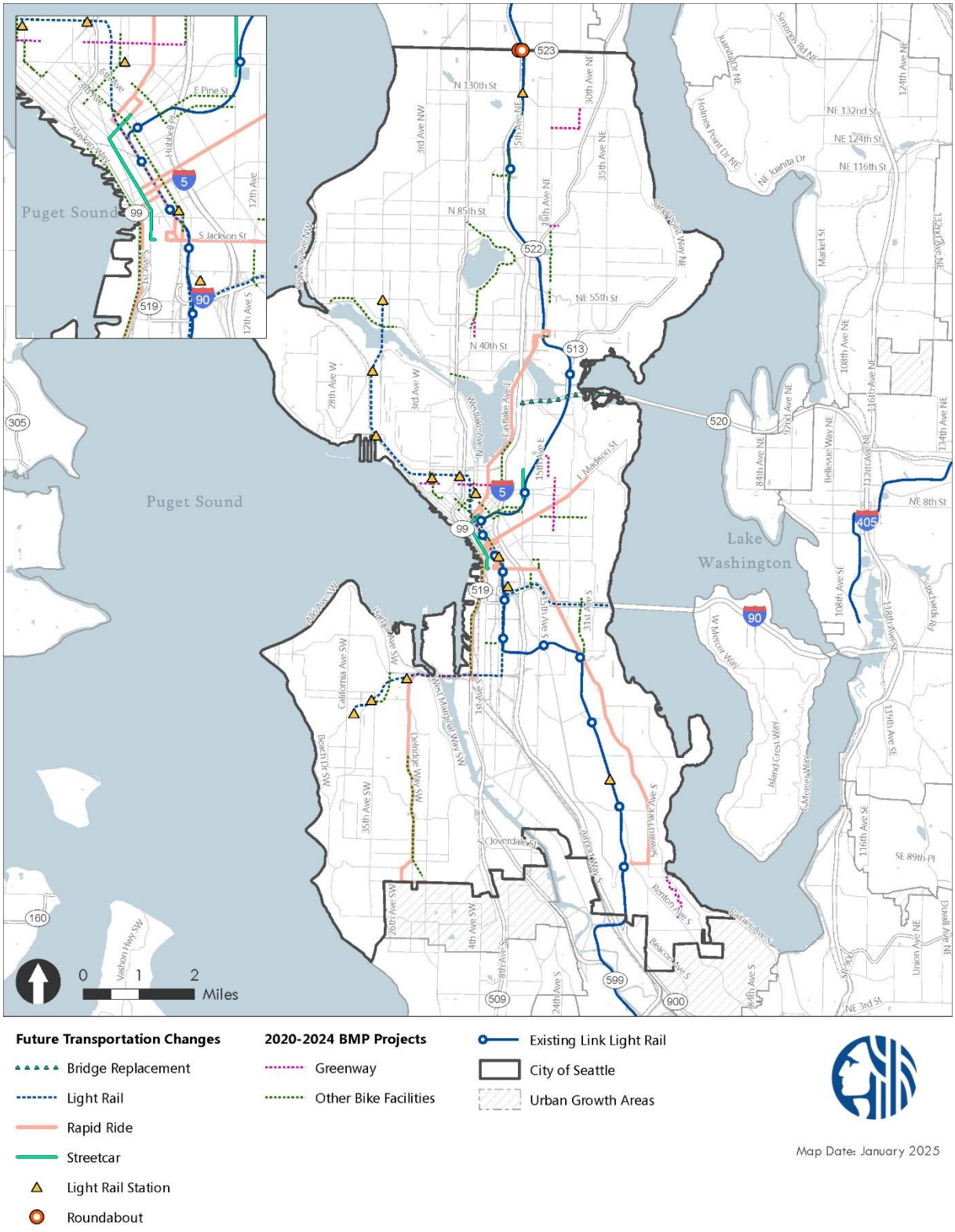
Travel Demand Forecasting

As described in the **Data & Methods** section, the PSRC's regional travel demand model, SoundCast, was used to develop travel forecasts for each of the future year alternatives. The model covers the four-county region of King, Kitsap, Snohomish, and Pierce counties. SoundCast is an activity-based model which estimates travel behavior across the region based on characteristics of individual persons and their households. The model produces detailed trip diaries for each simulated person in the region throughout an average weekday tracking the departure time, starting location, ending location, travel mode, and any other people sharing that trip.

SoundCast accounts for the household and employment forecasts for each future year alternative within the City of Seattle and is consistent with regional assumptions from PSRC for the areas outside city limits. The model also incorporates planned transportation facilities into the model network, such as the Link light rail extensions to Ballard and West Seattle. The projects assumed to be in place by 2044 for the Draft EIS alternatives are shown in **Exhibit 3.10-31**. See the previous section for a description of the additional network changes assumed for the Final EIS modeling.

The purpose of this EIS is to compare impacts among the future year alternatives. Relative to prior travel demand model frameworks developed by PSRC, SoundCast projects substantially higher transit usage in the future. While future travel behavior cannot be definitively known, these travel behavior assumptions underly the modeling for all future year alternatives, providing a consistent basis for comparison across the alternatives. A sensitivity test is included ~~at the end of the document~~ to explore how effects may differ with a lower transit mode share and higher vehicle mode share.

Exhibit 3.10-31 Planned Transportation Improvements for Draft EIS Alternatives, 2044



Source: City of Seattle, 2025~~3~~.

Although not individually modeled, the potential impacts of Alternative 4 are expected to fall between the other action alternatives due to the overall magnitude of growth and pattern of density. The citywide growth total for Alternative 4 is equivalent to Alternative 2 and Alternative 3, while Alternative 5 and the Preferred Alternative have higher growth. The pattern of growth assumed in Alternative 4 falls between the more concentrated growth of Alternative 2 and more dispersed growth of Alternative 3. Therefore, the potential impacts under Alternative 4 are expected to fall within the results for Alternatives 2, 3, and 5.

Thresholds of Significance

This section outlines the thresholds used to determine the impacts of No Action Alternative, as well as the four action alternatives. The expected conditions under the No Action Alternative are used as the baseline against which each of the action alternatives (Alternatives 2 through 5 and the Preferred Alternative) are measured. In addition to the quantitative thresholds defined below, potential impacts to active transportation and safety are addressed qualitatively.

A significant transportation impact under the No Action Alternative is identified if:

- A subarea would have a percentage of SOV travel exceeding the target stated in the Seattle 2035 Comprehensive Plan.
- A study route would operate over the transit agency crowding threshold.
- VMT per capita exceeds the existing level.
- A corridor would have a travel time LOS grade of F.
- A screenline would exceed the V/C threshold stated in the *Seattle 2035* Comprehensive Plan by at least 0.01.
- A signalized intersection would operate at LOS E or F and an unsignalized intersection would operate at LOS F.
- A state facility does not meet the standard set by WSDOT.

A significant transportation impact under the ~~four~~ action alternatives is identified if:

- A subarea that does not exceed its SOV mode share target under the No Action Alternative would exceed its SOV mode share target or a subarea that exceeds its SOV mode share target under the No Action Alternative would have an increase in SOV mode share of at least 1% compared to the No Action Alternative.
- A study route that would operate at or under the transit agency crowding threshold under the No Action Alternative would operate over the transit agency crowding threshold or a study route identified as operating over the transit agency crowding threshold under the No Action Alternative would have an increase in passenger load of at least 5% compared to the No Action Alternative.
- VMT per capita would exceed the VMT per capita under the No Action Alternative.

- A corridor that would have a travel time LOS grade of A-E under the No Action Alternative would operate at LOS F or a corridor that would have a travel time LOS grade F under the No Action Alternative would have an increase in travel time of at least 5%.
- A screenline that would not exceed the V/C threshold under the No Action Alternative would exceed the V/C threshold or a screenline that would exceed the V/C threshold under the No Action Alternative would increase the V/C ratio by at least 0.01.
- The action alternative would cause an intersection that operated acceptably under No Action Alternative to operate unacceptably, or the action alternative would add at least a 5 second delay from the No Action Alternative at an intersection that operated unacceptably under the No Action Alternative.
- A state facility that would meet WSDOT's standards under the No Action Alternative would exceed WSDOT's standards or a state facility that does not meet WSDOT's standards under the No Action Alternative would increase the volume-to-LOS service volume ratio by at least 0.01 compared to the No Action Alternative.

Impacts Common to All Alternatives

The following section describes impacts common to all alternatives.

Active Transportation

SDOT is continually planning and implementing improvements to active transportation facilities through various plans and programs such as ~~through the Pedestrian Master Plan (PMP), Bicycle Master Plan (BMP),~~the Vision Zero safety programs, ~~and~~ subarea planning efforts, and the recently adopted Seattle Transportation Plan (STP). ~~The modal plans are currently being integrated into a citywide transportation plan that will bring together the individual plans into a single document.~~

As described in the **Affected Environment** section, SDOT has identified ~~the PMP identifies a Priority Investment Network (PIN) which designates~~many street segments that should be prioritized for investment. However, the ability to implement investments is constrained by the high cost of infrastructure. ~~SDOT publishes a BMP Implementation Plan every two years detailing the infrastructure projects that will be constructed over the following four years.~~ It is assumed that the City will continue to implement ~~both~~ its envisioned ~~PMP and BMP~~pedestrian and bicycle network under whichever alternative is pursued, though the pace of improvements will vary over time depending on funding availability. Sound Transit's light rail extensions to Ballard and West Seattle are planned to be complete by 2044, providing frequent, high-capacity service to more neighborhoods in Seattle. The Link extensions would construct stations in ten new locations and reconstruct or expand upon existing facilities at several other station areas. These projects will include investments to the pedestrian and bicycle connections to the station areas.

The City's emphasis on prioritizing neighborhoods with historical underinvestment will continue to guide future decisions on where improvements are focused; the discussion of

equity considerations in the preceding section indicates neighborhoods where priority populations and improvement needs intersect. Among many other factors, the planning process for active transportation network improvements will also consider changes in land use patterns for continued prioritization and phasing of infrastructure projects. Those areas of focus may vary to some degree depending on which alternative is selected.

A GIS analysis was completed to quantify how each action alternative would perform in terms of concentrating growth in areas with the highest access to active transportation facilities. Population data under each alternative was compiled by high, medium, and low sidewalk connectivity census tracts, as was presented in **Exhibit 3.10-13**.

Exhibit 3.10-32 summarizes the percentage of Seattle's population within each category ~~under~~ for each alternative. This analysis shows that ~~under~~ for all future alternatives, including the No Action Alternative, the percentage of people living within high connectivity census tracts would increase compared to existing conditions. Alternative 1, No Action, and Alternative 2 would have the greatest concentration of population within high sidewalk connectivity areas. Alternatives 3 and 5 would also result in an increase, but not as high as for the other alternatives and the Preferred Alternative would fall between those bookends.

Exhibit 3.10-32. Population within Low, Medium, and High Sidewalk Connectivity Census Tracts

	Low (≤ 0.5)	Medium (>0.5; ≤ 0.75)	High (>0.75)
Existing	19.5%	17%	64%
Alternative 1, No Action	17%	16%	68%
Alternative 2	17%	16%	68%
Alternative 3	18%	16%	66%
Alternative 5	18%	16%	66%
Preferred Alternative	18%	15%	67%

Note: The Preferred Alternative was added to this exhibit since the Draft EIS—no edits were made to Alternatives 1–5.
Source: Fehr & Peers, 2023~~3~~4.

Exhibit 3.10-33 summarizes the percentage of jobs in Seattle within each category of census tract ~~under~~ for each alternative. These results are much more consistent across alternatives as the concentrations of employment growth are not assumed to vary as much as housing growth. All future year alternatives would result in 75% of employment within high connectivity census tracts, 9% within medium connectivity census tracts, and 16% within low connectivity census tracts.

Exhibit 3.10-33. Employment within Low, Medium, and High Sidewalk Connectivity Census Tracts

	Low (≤ 0.5)	Medium (>0.5; ≤ 0.75)	High (>0.75)
Existing	16%	9%	76%
Alternative 1, No Action	16%	9%	75%
Alternative 2	16%	9%	75%
Alternative 3	16%	9%	75%
Alternative 5	16%	9%	75%
Preferred Alternative	16%	9%	75%

Note: The Preferred Alternative was added to this exhibit since the Draft EIS—no edits were made to Alternatives 1–5.
Source: Fehr & Peers, 2023~~3~~4.

A summary of population and employment within a quarter mile of the All Ages and Abilities bicycle network is shown in **Exhibit 3.10-34**. The existing All Ages and Abilities network can be found in **Exhibit 3.10-16** with future year changes displayed in **Exhibit 3.10-31**.

All future year alternatives, including the No Action Alternative, show an increase in the percentage of population and employment within a quarter-mile of the All Ages and Abilities bike network as compared to existing conditions. Of the ~~four~~ modeled future year alternatives, Alternative 1 would have~~has~~ the greatest percentage of population and employment growth within a quarter-mile of the All Ages and Abilities bike network. Though Alternative 1, No Action, would have the highest percentage of employment within a quarter-mile of the All Ages and Abilities bike network, the other action alternatives would be very similar. The Preferred Alternative would have the lowest percentage of population within a quarter-mile of the All Ages and Abilities bike network~~; however, the share is just slightly above the three action alternatives~~.

Exhibit 3.10-34. Population and Employment within ¼ Mile of the All Ages and Abilities Bike Network

	Population	Employment
Existing	68%	84%
Alternative 1, No Action	76%	88%
Alternative 2	75%	87%
Alternative 3	75%	87%
Alternative 5	75%	87%
Preferred Alternative	73%	87%

Note: The Preferred Alternative was added to this exhibit since the Draft EIS—no edits were made to Alternatives 1–5.
Source: Fehr & Peers, 2023~~3~~4.

The number of people walking and biking will continue to increase compared to existing conditions even under currently adopted policies. Therefore, under the No Action Alternative, there would be more demand for active transportation facilities throughout the city, including areas that lack sidewalks, curb ramps, pedestrian crossings, and dedicated bicycle facilities. Capacity constraints on pedestrian and bicycle facilities are rare and are typically only a concern at bottlenecks such as pathways across bridges or areas of extremely high pedestrian activity. However, there are many locations throughout the city that would benefit from improvements to make walking and biking safer and more comfortable.

The action alternatives considered in this EIS are not expected to preclude any planned pedestrian and bicycle improvements and would likely result in improved infrastructure as new development projects would be subject to city standards for frontage improvements. As shown by the GIS analysis, the relative shares of growth within areas of high pedestrian and bicycle infrastructure access have slight differences across the alternatives. Compared to the No Action Alternative, there are slightly higher percentages of population within low pedestrian connectivity areas under Alternative 3, ~~and~~ Alternative 5, and the Preferred Alternative. Additionally, all action alternatives have a slightly lower percentage of population and employment within ¼ mile of the All Ages and Abilities bike network compared to the No Action Alternative.

Because the action alternatives would result in higher levels of growth than the No Action Alternative, there would be more people walking and biking in areas with existing network gaps, affecting the comfort, convenience, and willingness of those vulnerable users to travel by active transportation modes and potentially making it more difficult to reach the City's mode share targets. However, from a regional perspective, accommodating more growth within Seattle may provide access to better active transportation amenities as more suburban locations may have less pedestrian and bicycle infrastructure than Seattle. Therefore, at this programmatic level of evaluation and considering both the local and regional effects of accommodating more growth in Seattle, the impact to pedestrian and bicycle travel is not considered to rise to a level of significance.

Freight Mobility & Access

Because this is a programmatic EIS for all of Seattle, it studies citywide land use and zoning changes, rather than a project-specific proposal. Whichever alternative is implemented would result in a wide range of individual projects implemented over a long timeframe and across the city. Because the specific locations and sizes of development are unknown, it is not possible to specify how freight may be impacted by changes to loading zones or access needs at particular locations. These are potentially significant impacts that would need to be analyzed and mitigated at the project level.

The relative differences in traffic congestion described in the Roadway Users sections under each alternative are relevant to freight mobility. While these results provide an indication of relative delays expected among the alternatives, these effects may be more challenging for

freight as traffic congestion is more difficult for large trucks to navigate and trucks typically travel at slower speeds than general purpose traffic.

The alternatives under consideration are not expected to materially affect rail operations. The railroads running through the city are privately ~~operated~~ owned and regularly adjust their operations to respond to changing needs.

Safety

Seattle's Vision Zero policy aims to eliminate traffic-related fatalities and serious injuries by 2030. This goal, and the policies and strategies supporting it, will be pursued regardless of which land use alternative is selected. Some strategies can be applied citywide, for example reducing speed limits and implementing leading pedestrian intervals (LPIs) that give people walking additional time to begin crossing the street before vehicles proceed. Other strategies are more location-specific depending on the context and could include traffic calming treatments, new traffic signals, separation of facilities for vulnerable users, and other physical changes to transportation facility design. As is current practice, SDOT will continue to monitor traffic safety and act to address areas of high need particularly for the most vulnerable users. As safety improvements continue to be implemented over the next two decades, it is expected that the safety program will result in safer conditions at many locations, potentially leading to decreased likelihood of traffic fatalities and serious injuries at those locations.

Relative to the No Action Alternative, the action alternatives would result in between 1% and 3.3~~1~~% more vehicle miles traveled due to higher levels of growth assumed. In terms of relative exposure among the action alternatives, Alternative 5 and the Preferred Alternative are ~~is~~ expected to be on the high end of that range while Alternatives 2 and 3 would be on the lower end. Alternative 4 would be within that range and likely closer to Alternatives 2 and 3 because of the similarity in total assumed growth. Increased VMT could potentially result in an increased number of collisions. Likewise, the increase in people walking and biking could increase exposure to the most vulnerable travelers. While the increasing number of travelers inherently increases the potential exposure to collisions, there is no evidence that the collision rate (i.e., the likelihood of a collision at a particular location) would increase. From a regional perspective, accommodating more growth within Seattle may provide safety benefits as more suburban locations may have less pedestrian and bicycle infrastructure than Seattle. Other factors may improve safety, for example the expected decrease in vehicle speeds may limit the severity of crashes and the action alternatives may result in more safety project implementation due to additional frontage improvements and a larger tax base.

Site-specific issues cannot be addressed at this level of analysis. However, regardless of the alternative selected, individual development applications would be reviewed through the City's permitting process, at which time the City may identify required safety features for the specific site. Due to the increase in people traveling by all modes relative to the No Action Alternative, a potential safety impact is identified under all action alternatives. However, at this programmatic level of evaluation and given the potentially counteracting factors influencing

safety among the alternatives, the impact of the action alternatives relative to the No Action Alternative is not considered to rise to a level of significance.

Ferry Service

All of the alternatives could result in additional development near Washington State Ferries (WSF) and King County ferry terminals which could result in minor adverse impacts to staging, load, drop-off, and other activities. These impacts would be minor due to existing facilities for staging of cars, opportunities for project specific mitigation, and limitations on development in shoreline environment. Impacts might be larger, but still minor, for those alternatives that focus growth near transit services such as Alternative 4 and 5 and the Preferred Alternative.

Equity & Climate Vulnerability Considerations

The City of Seattle has undertaken many recent efforts to understand and analyze race and social justice, as it relates to access to opportunities, equity, and climate vulnerability. The Seattle Racial and Social Equity Index combines data on race, ethnicity, and related demographics with data on socioeconomic and health disadvantages to identify neighborhoods with large proportions of priority populations.[89] In many cases, locations with large proportions of priority populations are correlated to locations that lack comfortable transportation facilities, including sidewalks and access to bicycle facilities. A similar pattern is shown in the City's Access to Opportunity Index which includes access to frequent bus service and light rail/streetcar among other criteria.

In many neighborhoods there is a strong connection between demographic variables identified in the Racial and Social Equity Index and sidewalk connectivity. The Racial and Social Equity Composite Index shows that South Seattle, including Columbia City, Beacon Hill, and Rainier Valley have the highest or second highest equity priority. A similar geographic pattern is reflected in the sidewalk connectivity map, which shows low or medium connectivity in these communities. Similarly, the Delridge neighborhood shows the highest equity priority and ranks as low to medium connectivity for network completion. On the opposite end of Seattle, North Seattle near Shoreline has the highest or second highest equity priority composites, while these areas are also identified as low sidewalk connectivity. Comparatively, neighborhoods in areas that have the lowest or second lowest composite scores, including Ballard, Fremont, Laurelhurst, Magnolia, Capitol Hill, and West Seattle, have high sidewalk connectivity. Providing additional housing growth in areas with more complete infrastructure could advance equity by expanding the opportunity for more people to live in those areas. From that perspective, all of the action alternatives could advance equity by providing more housing opportunities throughout the city with Alternative 5 and the Preferred Alternative providing the most opportunity through theirits higher housing targets.

[89] City of Seattle. "City of Seattle Racial and Social Equity Index Viewer." https://population-and-demographics-seattlecitygis.hub.arcgis.com/apps/SeattleCityGIS::racial-and-social-equity-index-viewer/explore

There are similar correlations when comparing the Racial and Social Equity Composite Index to access to the All Ages and Abilities bicycle network. However, due to recent investment by the City of Seattle, many areas with the highest equity priority are located within one-quarter mile of the All Ages and Abilities network, including South Seattle and Delridge. While access is provided to many neighborhoods, as previously noted, gaps in the network are often a barrier to bicycle connectivity.

An important consideration for climate vulnerability and health disparities is the distribution of effects from emissions, generated by personal and freight vehicles. Underserved communities often face the highest effects of vehicle emissions; for example, freight traffic emissions or poor air quality due to close proximity heavily congested roadways and freeways. Total VMT generated by each alternative was estimated using the SoundCast model. The action alternatives are expected to result in higher VMT than the No Action Alternative due to the increased growth levels. The increase for Alternatives 2 and 3 is expected to be approximately 1% higher than the No Action Alternative and for Alternative 5 and the Preferred Alternative are~~is~~ expected to be approximately 3% higher. Alternative 4 would fall within that range and likely most similar to Alternatives 2 and 3. Therefore, it is possible that the action alternatives—Alternative 5 and the Preferred Alternative in particular—could result in additional vehicle emissions near underserved communities along high vehicle emissions roadways. See **Section 3.1 Earth & Water Quality** and **Section 3.2 Air Quality & GHG Emissions** for a comprehensive evaluation of the potential effects of increased VMT on water and air quality.

From a regional perspective, accommodating more growth within dense urban areas like Seattle provides better climate outcomes than if that growth were accommodated elsewhere. People living in urban areas tend to generate lower VMT than those in suburban or rural locations. One key factor is the modal choices available; people living in cities tend to walk, bike, and take transit more often as those modes are more readily available and convenient within dense areas. In addition, trips that are made by car tend to be shorter because residents are generally in closer proximity to their destinations (e.g., school, shopping, or commute trips). Therefore, at a regional scale, concentrating more growth within Seattle is expected to lead to travel behaviors with lower impacts to climate vulnerability than if that growth occurred in outlying areas. Because all of the action alternatives would accommodate more growth than the No Action Alternative, they are expected to result in better climate outcomes with Alternative 5 and the Preferred Alternative providing the most benefit as theyit would accommodate the highest level of housing growth within Seattle.

Impacts of Alternative 1: No Action

This section summarizes the analysis results and potential impacts of Alternative 1, No Action. Alternative 1 serves as the baseline for identifying impacts of the action alternatives. It represents the operation of the transportation system if no zoning changes were made. However, growth would continue to occur under Alternative 1 consistent with current adopted zoning as described in **Chapter 2**.

Seattle Transportation Plan & Alternative 1, No Action

The Alternative 1, No Action, results described in this section are those produced for the Draft EIS, before the Seattle Transportation Plan was adopted. This version of the No Action Alternative is used as the baseline for identifying impacts of Alternatives 2, 3, 4, and 5.

The Impacts of Preferred Alternative section includes a revised evaluation of Alternative 1, No Action, that includes the network maps, policy direction, and candidate projects from the adopted STP. This updated Alternative 1, No Action, is used as the baseline for impacts evaluation of the Preferred Alternative.

Mode Share

The mode share expected to occur under Alternative 1 is summarized by subarea in **Exhibit 3.10-35**. The model predicts that SOV mode shares will decrease by 2044, with changes ranging from approximately five to thirteen percent depending on the subarea. The largest decreases are expected in the Downtown/Lake Union and Capitol Hill/Central District subareas. Most subareas are expected to meet their SOV mode share targets under the 2044 Alternative 1 scenario. The exception is Duwamish where shifts to non-SOV modes are more difficult to achieve given the travel needs of the manufacturing and industrial land uses in that area. Therefore, a mode share impact is expected in one subarea under Alternative 1.

Exhibit 3.10-35. PM Peak Hour SOV Mode Share—Alternative 1, No Action

Subarea	SOV Target	Existing SOV Share	Alternative 1, No Action, SOV Share
(1) Northwest Seattle	37%	42%	34%
(2) Northeast Seattle	35%	35%	26%
(3) Queen Anne/Magnolia	38%	42%	34%
(4) Downtown/Lake Union	18%	24%	11%
(5) Capitol Hill/Central District	28%	37%	27%
(6) West Seattle	35%	41%	35%
(7) Duwamish	51%	72%	67%
(8) Southeast Seattle	38%	36%	31%

Note: Existing (2017-2019) mode share data from the PSRC household travel survey have substantial margins of error. See **Exhibit 3.10-10** for margins of error by subarea.
Source: Fehr & Peers, 2023.

Exhibit 3.10-36 compares the number of person trips expected by mode over the course of a day under existing conditions and 2044 Alternative 1. At the citywide level, the number of person trips is expected to increase by approximately 42% by 2044. However, the increase in trips by mode varies substantially. Growth in transit trips is expected to be highest among all modes with daily trips more than doubling; this would bring the transit mode share from the current 11% to 19% in 2044. While trips made by SOV and HOV would increase, the rate of growth would be much lower at 10% and 23%, respectively, decreasing the overall mode shares by 2044. In other words, while a substantial new number of trips are expected as population and employment increases in Seattle, travel behavior is expected to shift such that people choose to ride transit, walk, or bike in larger shares than currently occurs.

Exhibit 3.10-36. Daily Person Trips by Mode—Alternative 1, No Action

	Existing		Alternative 1, No Action	
Mode	Person Trips	Mode Share	Person Trips	Mode Share
SOV	1,624,000	40%	1,783,000	31%
HOV	1,169,000	28%	1,440,000	25%
Transit	465,000	11%	1,138,000	19%
Walk	776,000	19%	1,378,000	24%
Bike	71,000	2%	99,000	2%
Total	**4,105,000**	**100%**	**5,838,000**	**100%**

Source: Fehr & Peers, 2023.

The shift in mode shares predicted by the SoundCast model reflects trends observed over the decade preceding the pandemic. According to SDOT's 2021 Traffic Report, average daily traffic volumes remained essentially flat over the 2009-2019 period despite a 24% increase in the City's population and a 23% increase in regional employment.[90] During that time, average regional transit ridership grew at roughly the same rate as population and employment. The limited vehicle traffic growth projected by 2044 also reflects the constraints of the roadway system as many roadways already operate with considerable congestion during peak periods.

Transit

Passenger loads on key transit connections were forecasted for the PM peak hour. **Exhibit 3.10-37** summarizes the projected load factors on the busiest segment of each route in the peak direction of travel. Therefore, the conditions indicated here are conservatively high as all other segments on each route would operate with lower passenger volumes.

[90] Seattle Department of Transportation. 2022. "2021 Traffic Report." https://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/Reports/2021_Traffic_Report_ADA_21522.pdf

The table includes the Link light rail lines that will run through Seattle by 2044 as well as planned RapidRide routes. These include routes serving the same corridors as Routes 40 and 62 which were both found to reach the crowding threshold under existing conditions. Route 40 is now represented as RapidRide Fremont and Route 62 is now represented as RapidRide 65th.

Based on the transit ridership levels projected by the SoundCast model, eight of the sixteen studied routes (shown in bold in **Exhibit 3.10-37**) would exceed the crowding threshold on their busiest segments in the peak direction during the peak hour, constituting an impact under Alternative 1.

Exhibit 3.10-37. PM Peak Hour Maximum Passenger Load Factors—Alternative 1, No Action

Transit Route	Maximum Passenger Load Factor in Peak Direction
Link light rail—1 Line	**1.08**
Link light rail—2 Line	**1.29**
Link light rail—3 Line	**1.29**
RapidRide C Line—Westwood Village to Alaska Junction	0.71
RapidRide E Line—Downtown to Aurora Village	**1.89**
RapidRide G Line—Downtown to Madison Valley	0.35
RapidRide H Line—Alki to Burien	0.77
RapidRide J Line—Downtown to University District	**1.97**
RapidRide R Line—Downtown to Rainier Valley	**1.07**
RapidRide 23rd	0.47
RapidRide 65th (replaces Route 62)	0.82
RapidRide Beacon	0.50
RapidRide Denny	**2.83**
RapidRide Fremont (replaces Route 40)	**1.49**
RapidRide Green Lake	0.47
RapidRide Market	0.76

Source: Fehr & Peers, 2023.

Roadway Users

Under Alternative 1, growth would continue to occur resulting in increased vehicle volumes—both passenger vehicles and trucks. However, traffic volume growth rates during the PM peak hour are expected to be low. This is consistent with traffic growth patterns over the decade preceding the pandemic, as described earlier in this section. As growth throughout the city continues, the transportation system will likely experience "peak spreading." Peak spreading refers to travelers shifting the times they travel to avoid the heaviest traffic congestion. The

result is that while the peak hour may retain similar characteristics, the length of the congested period may grow.

VMT / VHT / Average Trip Speed

Exhibit 3.10-38 summarizes several citywide metrics for Alternative 1 relative to the existing condition. Total daily VMT generated by Seattle is expected to increase 10% between current conditions and 2044. However, the increase in the number of residents and workers assumed within the city would be higher at 38%; therefore, the VMT per capita would decrease from approximately 17.2 miles per day to 13.7 miles per day, a 20% decrease. This decrease is reflecting a change in travel behavior in terms of mode choice as well as average trip lengths decreasing as people do not have to travel as far, for instance between their home and work locations.

Seattle Transportation Plan VMT Target

The Seattle Transportation Plan targets a 37% reduction in VMT by 2044 (relative to a 2018 baseline). However, the PSRC regional travel demand model used for this EIS suggests increases in total VMT for all future year scenarios. To move toward a decreasing VMT trend, the City of Seattle would need to pursue additional strategies related to equitable demand management through vehicle pricing; parking supply and pricing; investments to maximize the comfort, convenience, and reliability of walking, rolling, and riding transit; and land use coordination to increase transit-oriented development. Additional information may be found in Section 3.10.3 Mitigation Measures.

Similarly, VHT is projected to increase in total compared to existing conditions but would slightly decrease on a per capita basis. By 2044, the average resident/worker is expected to spend approximately half an hour traveling by private car or truck; this metric does not include bus travel. The ratio of VMT to VHT represents the average speed of trips made by Seattle residents and workers, including on the highway system and local streets. That metric is projected to decrease from 30mph under existing conditions to 28mph in 2044, reflecting higher levels of congestion.

Exhibit 3.10-38. Daily VMT, VHT, and Average Trip Speed—Alternative 1, No Action

	Existing		Alternative 1, No Action	
Metric	Total	Per Capita	Total	Per Capita
VMT	22,203,300	17.2	24,357,100	13.7
VHT	741,900	0.6	865,800	0.5
Average Trip Speed	29.9	—	28.1	—

Source: Fehr & Peers, 2023.

Because the VMT per capita would not exceed the existing levels, no impact to VMT per capita is identified under Alternative 1.

Travel Time

Exhibit 3.10-39 summarizes existing PM peak hour corridor travel times as well as those forecasted to occur under 2044 Alternative 1.[91] **Exhibit 3.10-40** shows the LOS values along associated corridors on the map. Corridor travel times are expected to increase by up to 2.5 minutes compared to existing conditions. The largest increases are expected on Boren Avenue, 23rd Avenue, and Martin Luther King, Jr Way South. Under existing conditions, 81 study corridors (with each direction counted separately) would operate at LOS A-C, 15 would operate at LOS D, 4 would operate at LOS E, and 4 would operate at LOS F. By 2044, LOS levels would shift to have 77 corridors operating at LOS A-C, 15 at LOS D, 8 operating at LOS E, and 4 operating at LOS F. Therefore, travel time impacts are expected under Alternative 1on four corridors (shown in bold in **Exhibit 3.10-39**):

- Mercer Street between Elliott Avenue W and Fairview Avenue N
- Stewart Street between 1st Avenue and Denny Way
- Olive Way between 4th Avenue and Denny Way
- S Michigan Street between E Marginal Way S and Airport Way S

[91] For corridors with peak directional patterns, the AM peak hour would typically reflect similar conditions in the opposite direction from those shown for the PM peak hour.

Exhibit 3.10-39. PM Peak Hour Travel Time Corridor Level of Service—Alternative 1, No Action

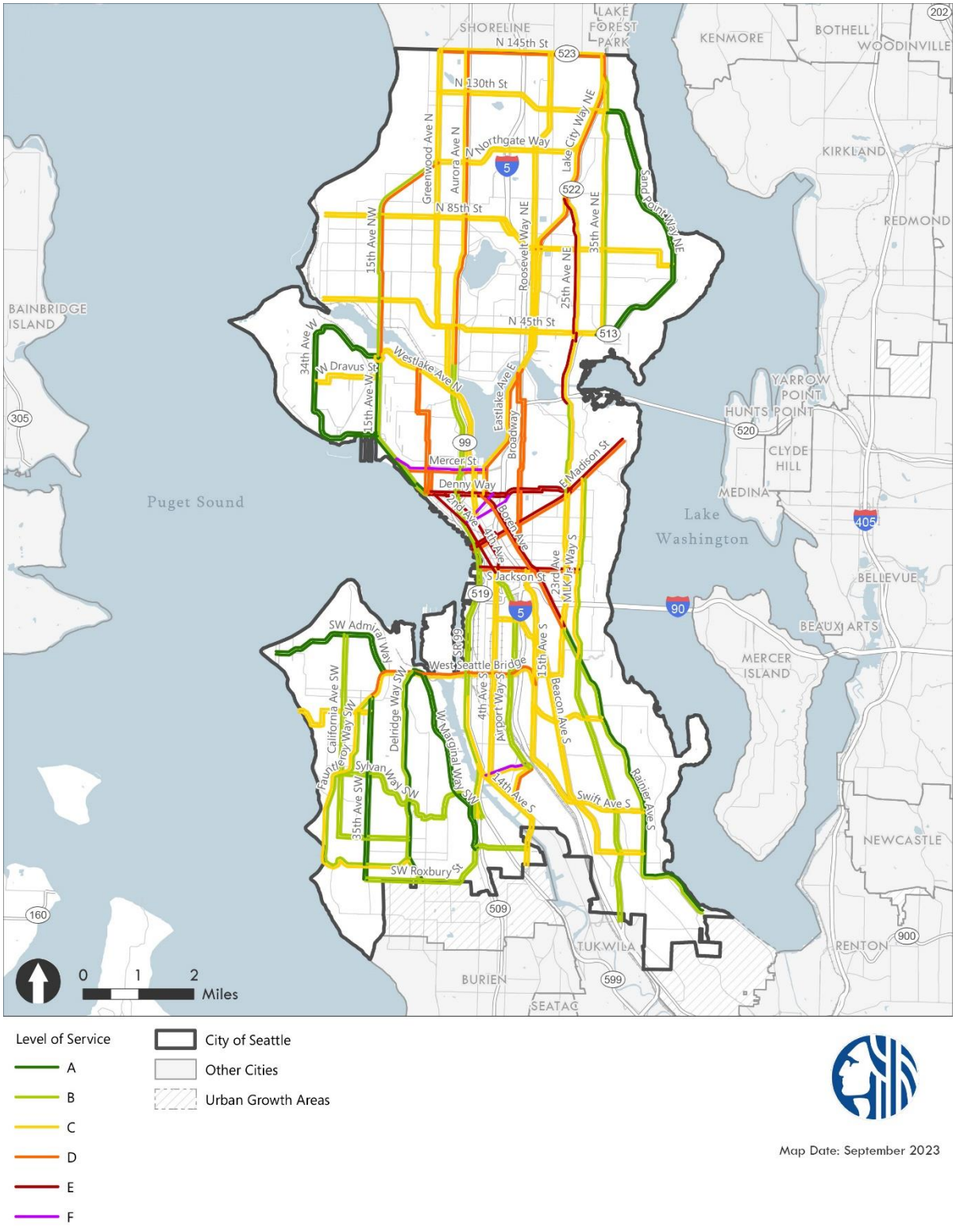
		Existing Conditions Minutes / Level of Service		Alternative 1, No Action, Minutes / Level of Service	
Roadway	Extents	N/E	S/W	N/E	S/W
N 145th St	Greenwood Ave N to Lake City Way NE	10 / D	9.5 / C	10.5 / D	9.5 / C
N 130th St	Greenwood Ave N to 35th Ave NE	11.5 / C	12 / C	11.5 / C	12 / C
N Northgate Way	Greenwood Ave N to Lake City Way NE	10.5 / C	10.5 / C	10.5 / C	11 / C
N 85th St	32nd Ave NW to Sand Point Way NE	24.5 / C	24.5 / C	25 / C	24.5 / C
N 45th St	32nd Ave NW to Union Bay Pl NE	23.5 / C	23.5 / C	24.5 / C	23.5 / C
15th Ave NW	W Emerson St to N 105th St	16 / D	10.5 / B	17 / D	11.5 / B
Greenwood Ave N	Nickerson St to N 145th St	26 / C	24 / C	27 / C	25 / C
Aurora Ave N	N 38th St to N 145th St	18.5 / C	15 / C	19 / D	16.5 / C
Roosevelt Way NE	Fuhrman Ave E to N 145th St	22 / C	20.5 / B	23 / C	21.5 / C
Lake City Way NE	NE 75th St to N 145th St	13.5 / D	10 / C	14 / D	11 / C
25th Ave NE	E Roanoke St to Lake City Way NE	14 / C	21 / D	15 / C	22.5 / E
35th Ave NE	Union Bay Pl NE to Lake City Way NE	16.5 / B	17 / B	16.5 / B	17.5 / C
Sand Point Way NE	Union Bay Pl NE to 35th Ave NE	12.5 / A	12 / A	12.5 / A	12 / A
34th Ave W	15th Ave W to15th Ave W	11.5 / A	12 / A	11.5 / A	12 / A
W Dravus St	34th Ave W to15th Ave W	5 / C	4.5 / C	5 / C	4.5 / C
15th Ave W	Queen Anne Ave N to W Emerson St	9 / B	7.5 / A	8.5 / B	8 / A
Queen Anne Ave N	Denny Way to Nickerson St	12.5 / D	11.5 / C	12.5 / D	12 / D
SR 99	S Nevada St to N 38th St	13.5 / C	15 / C	11.5 / B	12.5 / B
Westlake Ave N	Stewart St to W Emerson St	16 / C	17 / C	16 / C	18 / C
Eastlake Ave E	Denny Way to Fuhrman Ave E	11.5 / C	10.5 / C	12 / D	11.5 / C
Broadway	Boren Ave to Eastlake Ave E	17.5 / D	17 / D	18 / D	18.5 / D

Roadway	Extents	Existing Conditions Minutes / Level of Service		Alternative 1, No Action, Minutes / Level of Service	
		N/E	S/W	N/E	S/W
23rd Ave	E Madison St to E Roanoke St	6.5 / C	5 / B	6 / C	5 / B
Mercer St	**Elliott Ave W to Fairview Ave N**	7.5 / C	14 / F	8 / D	**14 / F**
Denny Way	Queen Anne Ave N to E Madison St	17 / E	16 / D	17.5 / E	16.5 / E
2nd Ave	4th Ave S to Denny Way	- / -	11.5 / E	- / -	12 / E
4th Ave	S Jackson St to Denny Way	9 / D	- / -	10 / E	- / -
Stewart St	**1st Ave to Denny Way**	- / -	6 / F	- / -	**6.5 / F**
Olive Way	**4th Ave to Denny Way**	7 / F	- / -	**7 / F**	- / -
E Madison St	Alaskan Way S to McGilvra Blvd E	20 / D	20 / E	20 / D	20 / E
Boren Ave	23rd Ave S to Denny Way	16 / D	14.5 / D	18 / E	15.5 / D
S Jackson St	Alaskan Way S to MLK Jr. Way S	8.5 / D	10.5 / E	8.5 / D	11 / E
23rd Ave	15th Ave S to E Madison St	14 / C	15.5 / C	16.5 / C	17.5 / C
MLK Jr. Way S	Rainier Ave S to E Madison St	10 / B	11 / B	11.5 / B	12 / C
4th Ave S	E Marginal Way S to S Jackson St	12 / C	11.5 / C	13.5 / C	11.5 / C
Airport Way S	S Albro Pl to 4th Ave S	10 / B	10 / B	10.5 / B	10 / B
15th Ave S	S Jackson St to Rainier Ave S	14.5 / C	16 / C	15 / C	16.5 / C
E Marginal Way S	S Holden St to S Nevada St	4.5 / C	4.5 / B	5.5 / C	5 / B
Swift Ave S	Rainier Ave S to S Columbian Way	13 / C	13 / C	14 / C	14 / C
Beacon Ave S	Rainier Ave S to 4th Ave S	21.5 / C	24 / C	22 / C	24.5 / C
MLK Jr. Way S	S Boeing Access Rd to Rainier Ave S	14.5 / A	15.5 / B	16.5 / B	16.5 / B
Rainier Ave S	Cornell Ave S to 23rd Ave S	17.5 / A	20 / B	18.5 / A	20.5 / B
S Michigan St	**E Marginal Way S to Airport Way S**	3.5 / C	4.5 / F	3.5 / C	**4.5 / F**
Ellis Ave S	E Marginal Way S to Airport Way S	3 / D	3.5 / C	3 / D	3.5 / C

Roadway	Extents	Existing Conditions Minutes / Level of Service		Alternative 1, No Action, Minutes / Level of Service	
		N/E	S/W	N/E	S/W
14th Ave S	S Director St to 1st Ave S	7 / C	7 / C	7.5 / C	7 / C
California Ave SW/SW Thistle St	Delridge Way SW to SW Admiral Way	17 / B	17 / B	17 / B	17.5 / B
Fauntleroy Way SW/SW Barton St	Delridge Way SW to 35th Ave SW	15 / B	17 / B	15.5 / B	18 / C
35th Ave SW	SW Roxbury St to Fauntleroy Way SW	8.5 / A	9 / A	8.5 / A	9 / A
Delridge Way SW	SW Roxbury St to W Marginal Way SW	11 / A	13 / B	11.5 / A	13.5 / B
W Marginal Way SW	S Cloverdale St to Delridge Way SW	7.5 / A	8 / A	7.5 / A	8.5 / A
SW Admiral Way	63rd Ave SW to SW Manning St	6.5 / A	7 / A	6.5 / A	7 / A
West Seattle Bridge	35th Ave SW to 15th Ave S	7.5 / C	10 / D	8.5 / C	10 / D
SW Alaska St	Beach Dr SW to 35th Ave SW	7 / C	7.5 / C	7 / C	7.5 / C
Sylvan Way SW	California Ave SW to S Holden St	12 / B	10.5 / A	12 / B	11 / B
SW Roxbury St	35th Ave SW to 14th Ave S	11 / B	10 / B	11.5 / B	10.5 / B

Source: Fehr & Peers, 2023.

Exhibit 3.10-40. Alternative 1, No Action, Travel Time Corridor LOS



Source: Fehr & Peers, 2023.

Screenlines

Exhibit 3.10-41 summarizes PM peak hour screenline V/C ratios for existing conditions and 2044 Alternative 1. On average, the future volume forecasts are approximately ~~ten~~ twelve percent higher than the existing volumes across all locations. Under Alternative 1, there are six screenlines with V/C ratios higher than 0.90 (indicating volumes are approaching capacity) including several at or just over capacity, compared with three in the existing conditions. The screenlines are:

- Ship Canal—Ballard Bridge
- Ship Canal—Fremont Bridge
- Ship Canal—Aurora Avenue N
- Duwamish River—1st Avenue S and 16th Avenue S
- Ship Canal—University and Montlake Bridges
- East of 9th Street

However, no screenlines exceed the established thresholds and therefore no impacts to screenlines are expected under Alternative 1.

Exhibit 3.10-41. PM Peak Hour Screenline Volume-to-Capacity Ratio—Alternative 1, No Action

Screenline	Location	Extents	V/C Threshold	Existing Conditions		Alternative 1, No Action	
				N/E	S/W	N/E	S/W
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20	0.68	0.52	0.75	0.65
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20	0.47	0.30	0.48	0.39
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20	0.84	0.47	0.85	0.62
2.00	Magnolia	Magnolia Bridge to W Emerson Place	1.00	0.56	0.61	0.58	0.61
3.11	Duwamish River	West Seattle Bridge & Spokane St	1.20	0.64	0.81	0.72	0.81
3.12	Duwamish River	1st Ave S & 16th Ave S	1.20	0.56	0.87	0.69	0.91
4.11	South City Limit	Martin Luther King Jr. Way to Rainier Avenue S	1.00	0.57	0.75	0.83	0.87
4.12	South City Limit	Marine Dr SW to Meyers Way S	1.00	0.37	0.42	0.44	0.49
4.13	South City Limit	SR 99 to Airport Way S	1.00	0.44	0.45	0.63	0.47
5.11	Ship Canal	Ballard Bridge	1.20	1.01	0.71	1.01	0.90
5.12	Ship Canal	Fremont Bridge	1.20	1.00	0.79	1.00	1.03
5.13	Ship Canal	Aurora Ave Bridge	1.20	0.96	0.58	0.96	0.70
5.16	Ship Canal	University & Montlake Bridges	1.20	0.74	0.79	0.74	0.94
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00	0.37	0.46	0.40	0.52
6.12	South of N W 80th St	8th Ave NW to Greenwood Ave N	1.00	0.57	0.49	0.60	0.62
6.13	South of NE 80th St	Linden Ave N to 1st Ave NE	1.00	0.54	0.49	0.51	0.59
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00	0.71	0.56	0.65	0.69
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00	0.47	0.34	0.41	0.39
7.11	West of Aurora Ave	Fremont Pl N to N 65th St	1.00	0.53	0.65	0.64	0.63
7.12	West of Aurora Ave	N 80th St to N 145th St	1.00	0.41	0.41	0.44	0.45
8.00	South of Lake Union	Valley St to Denny Way	1.20	0.49	0.35	0.50	0.35
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00	0.45	0.71	0.51	0.82

Screenline	Location	Extents	V/C Threshold	Existing Conditions		Alternative 1, No Action	
				N/E	S/W	N/E	S/W
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00	0.51	0.54	0.65	0.52
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00	0.56	0.57	0.69	0.60
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00	0.61	0.64	0.81	0.82
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00	0.52	0.64	0.74	0.74
12.12	East of CBD	S Jackson St to Howell St	1.20	0.36	0.36	0.37	0.44
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00	0.67	0.51	0.70	0.53
13.12	East of I-5	NE 65th St to NE 80th St	1.00	0.52	0.54	0.54	0.50
13.3	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00	0.59	0.52	0.61	0.56
A1	North of Seneca St	1st Ave to 6th Ave	N/A	0.47	0.50	0.63	0.65
A2	North of Blanchard	Elliott Ave to Westlake Ave	N/A	0.43	0.31	0.45	0.37
A3	East of 9th Ave	Lenora St to Pike St	N/A	0.46	0.83	0.46	0.94
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	N/A	0.53	0.46	0.55	0.59
A5	East of 5th Ave N	Denny Way to Valley St	N/A	0.40	0.40	0.41	0.37
A6	North of Pine St	Melrose Ave E to 15th Ave E	N/A	0.39	0.32	0.41	0.42
A7	North of James St– E Cherry St	Boren Ave to 14th Ave	N/A	0.46	0.32	0.56	0.39
A8	West of Broadway	Yesler Way to E Roy St	N/A	0.47	0.38	0.55	0.46
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	N/A	0.56	0.53	0.54	0.60
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	N/A	0.51	0.48	0.58	0.53
A11	South of Northgate Way (N/NE 110th St)	N Northgate Way to Roosevelt Way NE	N/A	0.44	0.46	0.46	0.54
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	N/A	0.43	0.48	0.44	0.51

Source: Fehr & Peers, 2023.

Intersection LOS—NE 130th / NE 145th Street Subarea

Exhibit 3.10-42 summarizes the LOS and vehicle delay for each study intersection for Alternative 1. The subarea is expected to experience increased congestion in 2044 compared to current conditions. This can be attributed to the expected growth in population and employment locally and throughout the region. Separate from the model forecasts, the trips from a related project along Aurora Avenue N were added to the intersection forecasts because the growth from the traffic model did not account for all of the anticipated growth from this proposed project. A 145,000 square foot discount warehouse was assumed to generate 610 PM peak hour trips. These were distributed throughout the study area based on a trip distribution pattern from the model for this area. The City of Shoreline also has plans to improve N 145th Street (the city limit between Seattle and Shoreline), which include installing roundabouts at the two ramp intersections with I-5. The analysis is consistent with all planned design changes along N 145th Street.

Under Alternative 1, six intersections are expected to no longer meet the LOS D threshold, constituting a significant impact. These include:

- N 145th Street / Aurora Avenue N
- NE 145th Street / 5th Avenue NE
- NE 145th Street / 15th Avenue NE
- N 130th Street / Aurora Avenue N
- N 130th Street / 1st Avenue NE
- NE 125th Street / 15th Avenue NE

Exhibit 3.10-42. 130th/145th Street Subarea PM Peak Hour Level of Service—Alternative 1, No Action

ID	Intersection	Existing Conditions—Level of Service / Delay (seconds)	Alternative 1, No Action—Level of Service / Delay (seconds)
1	NE 155th St / 5th Ave NE	B / 11	B / 19
2	**N 145th St / Aurora Ave N**	D / 47	**E / 68**
3	N 145th St / Meridian Ave N	E / 58	B / 18
4	N 145th St / 1st Ave NE	C / 21	B / 20
5	NE 145th St / I-5 On & Off Ramps	D / 35	A / 9
6	**NE 145th St / 5th Ave NE**	D / 42	**E / 69**
7	**NE 145th St / 15th Ave NE**	D / 48	**E / 66**
8	N 137th St / Meridian Ave N / Roosevelt Way N	A / 7	A / 7
9	**N 130th St / Aurora Ave N**	D / 51	**E / 79**
10	N 130th St / Meridian Ave N	A / 9	B / 13
11	**N 130th St / 1st Ave NE**	D / 52	**E / 71**
12	NE 130th St / I-5 On Ramp	A / 2	A / 2

ID	Intersection	Existing Conditions—Level of Service / Delay (seconds)	Alternative 1, No Action—Level of Service / Delay (seconds)
13	NE 130th St / Roosevelt Way NE / 5th Ave NE	C / 32	D / 38
14	Roosevelt Way NE / NE 125th St / 10th Ave NE	B / 17	B / 17
15	**NE 125th St / 15th Ave NE**	D / 41	**E / 60**

Note: Intersections that exceed the LOS threshold are shown in bold.
Source: Fehr & Peers, 2023.

State Facilities

Exhibit 3.10-43 includes volume to maximum service volume ratios for state facilities under existing conditions as well as Alternative 1. Nearly all state facilities are expected to have increased volumes by 2044. Under Alternative 1, volumes at seven state facility study locations are expected to exceed the levels required to maintain the WSDOT LOS standard, constituting an impact under Alternative 1. These include:

- I-5 north of NE Northgate Way
- I-5 at the Ship Canal Bridge
- I-5 north of the West Seattle Bridge
- SR 99 north of N Northgate Way
- SR 99 at the Aurora Avenue Bridge
- SR 509 at the 1st Avenue S Bridge
- SR 522 south of NE 145th Street

I-5 north of Boeing Access Rd Ramp and the I-90 Mt Baker Tunnel are both expected to approach the LOS D service volumes, but not surpass the threshold. I-5 at the Ship Canal Bridge and north of the West Seattle Bridge, SR 99 at the Aurora Bridge, and SR 509 at the 1st Avenue Bridge are forecasted to have demand more than 20% over the LOS standard, indicating substantial vehicle congestion for some hours of the day. Because multiple state facilities within the city are expected to exceed WSDOT's LOS D standard, a significant impact to state facilities is expected under Alternative 1.

Exhibit 3.10-43. ~~PM Peak Hour~~Daily State Facilities Level of Service—Alternative 1, No Action

Facility	Extents	WSDOT LOS Standard	Existing Conditions—Volume to Maximum Service Volume Ratio	Alternative 1, No Action—Volume to Maximum Service Volume Ratio
I-5	**North of NE Northgate Way**	D	0.96	**1.03**
I-5	**Ship Canal Bridge**	D	1.21	**≥1.~~3~~20**
I-5	**North of West Seattle Bridge**	D	1.24	**≥1.~~3~~20**

Facility	Extents	WSDOT LOS Standard	Existing Conditions—Volume to Maximum Service Volume Ratio	Alternative 1, No Action—Volume to Maximum Service Volume Ratio
I-5	North of Boeing Access Rd Ramp	D	0.93	0.98
I-90	Mt Baker Tunnel	D	0.90	0.97
SR 99	**North of N Northgate Way**	D	0.96	**1.08**
SR 99	**Aurora Ave Bridge**	D	1.19	**≥1.320**
SR 99	Tunnel	D	0.58	0.65
SR 99	North of West Seattle Bridge	D	0.72	0.76
SR 99	South of S Cloverdale St	E (mitigated)	0.42	0.41
SR 509	**1st Ave S Bridge**	D	0.97	**≥1.250**
SR 519	S Atlantic St West of I-90 Ramps	D	0.90	0.83
SR 520	Lake Washington Bridge	D	0.60	0.86
SR 522	**South of NE 145th St**	D	1.01	**1.15**

Note: Facilities that exceed the LOS threshold are shown in bold.
A ratio of >1.2 indicates a demand of more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The WSDOT standard is equivalent to a 1.0 (the denominator is the maximum volume at which LOS D can be maintained).
Source: Fehr & Peers, 2023.

Impacts of Alternative 2: Focused

Mode Share

Exhibit 3.10-44 summarizes the SOV mode share expected under Alternative 2. The SoundCast model predicts that Alternative 2 SOV mode shares will be essentially the same as Alternative 1 across all eight subareas. Seven of the subareas would still meet their SOV target and although the Duwamish subarea would exceed its target, the difference in mode share relative to Alternative 1 is expected to be less than the 1% impact threshold. Therefore, no mode share impact is expected under Alternative 2.

Exhibit 3.10-44. PM Peak Hour SOV Mode Share—Alternative 2

Subarea	SOV Target	Alternative 1, No Action, SOV Share	Alternative 2 SOV Share
(1) Northwest Seattle	37%	34%	34%
(2) Northeast Seattle	35%	26%	26%
(3) Queen Anne/Magnolia	38%	34%	34%
(4) Downtown/Lake Union	18%	11%	11%

Subarea	SOV Target	Alternative 1, No Action, SOV Share	Alternative 2 SOV Share
(5) Capitol Hill/Central District	28%	27%	27%
(6) West Seattle	35%	35%	35%
(7) Duwamish	51%	67%	67%
(8) Southeast Seattle	38%	31%	31%

Note: Existing (2017-2019) mode share data from the PSRC household travel survey have substantial margins of error. See **Exhibit 3.10-10** for margins of error by subarea.
Source: Fehr & Peers, 2023.

Exhibit 3.10-45 compares the number of daily person trips expected by mode under 2044 Alternative 1 and Alternative 2. Citywide, Alternative 2 is expected to result in approximately 156,000 additional person trips compared to Alternative 1, an increase of 43%. That increase is spread fairly evenly across modes. In other words, while Alternative 2 would result in slightly more trips, the underlying travel behavior and mode shares expected by 2044 is consistent between the alternatives.

Exhibit 3.10-45. Daily Person Trips by Mode—Alternative 2

Mode	Alternative 1, No Action	Alternative 2
SOV	1,783,000	1,847,000
HOV	1,440,000	1,471,000
Transit	1,138,000	1,160,000
Walk	1,378,000	1,414,000
Bike	99,000	102,000
Total	**5,838,000**	**5,994,000**

Source: Fehr & Peers, 2023.

Transit

Passenger loads on key transit connections were forecasted for the PM peak hour. **Exhibit 3.10-46** summarizes the projected load factors on the busiest segment of each route in the peak direction of travel. Passenger loads are expected to increase on most, but not all, routes. Study routes that would have a transit capacity impact under Alternative 2 are shown in bold in **Exhibit 3.10-46**. The impacted routes include:

- RapidRide E Line—Downtown to Aurora Village
- RapidRide J Line—Downtown to University District
- RapidRide R Line—Downtown to Rainier Valley
- RapidRide Fremont

Exhibit 3.10-46. PM Peak Hour Average Passenger Load Factors—Alternative 2

Transit Route	Maximum Passenger Load Factor in Peak Direction	
	Alternative 1, No Action	Alternative 2
Link light rail—1 Line	1.08	1.04
Link light rail—2 Line	1.29	1.31
Link light rail—3 Line	1.29	1.21
RapidRide C Line—Westwood Village to Alaska Junction	0.71	0.78
RapidRide E Line—Downtown to Aurora Village	1.89	**2.22**
RapidRide G Line—Downtown to Madison Valley	0.35	0.40
RapidRide H Line—Alki to Burien	0.77	0.93
RapidRide J Line—Downtown to University District	1.97	**2.64**
RapidRide R Line—Downtown to Rainier Valley	1.07	**1.27**
RapidRide 23rd	0.47	0.50
RapidRide 65th (replaces Route 62)	0.82	0.93
RapidRide Beacon	0.50	0.53
RapidRide Denny	2.83	2.58
RapidRide Fremont (replaces Route 40)	1.49	**1.65**
RapidRide Green Lake	0.47	0.42
RapidRide Market	0.76	0.85

Note: Impacted routes are shown in bold.
Source: Fehr & Peers, 2023.

Roadway Users

This section summarizes roadway conditions expected under Alternative 2.

VMT / VHT / Average Trip Speed

Exhibit 3.10-47 summarizes VMT, VHT, and average trip speed for Alternative 2 relative to Alternative 1. Total daily VMT generated under Alternative 2 is expected to increase by 1.4% compared to Alternative 1. However, the VMT per capita would decrease slightly from approximately 13.7 miles per day to 13.5 miles per day. This incremental difference may reflect slight changes in travel behavior in terms of mode choice and average trip lengths.

Similarly, VHT is projected to increase in total compared to Alternative 1 but would remain flat on a per capita basis at approximately a half hour of daily travel by private car or truck. The average trip speed would also decrease very slightly representing a small increase to levels of congestion on the highway system and local street network.

Exhibit 3.10-47. Daily VMT, VHT, and Average Trip Speed—Alternative 2

	Alternative 1, No Action		Alternative 2	
Metric	Total	Per Capita	Total	Per Capita
VMT	24,357,100	13.7	24,698,900	13.5
VHT	865,800	0.5	882,300	0.5
Average Trip Speed	28.1	—	28.0	—

Source: Fehr & Peers, 2023.

Because the VMT per capita under Alternative 2 would not exceed the level under Alternative 1, no impact to VMT per capita is identified under Alternative 2.

Travel Time

Exhibit 3.10-48 summarizes PM peak hour corridor travel times under Alternative 2 compared to Alternative 1.[92] **Exhibit 3.10-49** displays the LOS values along associated corridors on the map. All corridor travel times are expected to be within 0.5 minutes of Alternative 1 with some corridors seeing slight increases while others seeing slight decreases. Under Alternative 1, 77 corridors (with each direction counted separately) are expected to operate at LOS A-C, 15 at LOS D, 8 operating at LOS E, and 4 operating at LOS F. Under Alternative 2, 76 corridors are expected to operate at LOS A-C, 16 at LOS D, 8 operating at LOS E, and 4 operating at LOS F.

Alternative 1 and Alternative 2 are expected to result in the same four corridors operating at LOS F, one of which would have an increase in excess of the 5% threshold of significance. Therefore, a travel time impact is expected under Alternative 2 on one corridor (shown in bold in **Exhibit 3.10-48**):

- Olive Way between 4th Avenue and Denny Way

[92] For corridors with peak directional patterns, the AM peak hour would typically reflect similar conditions in the opposite direction from those shown for the PM peak hour.

Exhibit 3.10-48. PM Peak Hour Travel Time Corridor Level of Service—Alternative 2

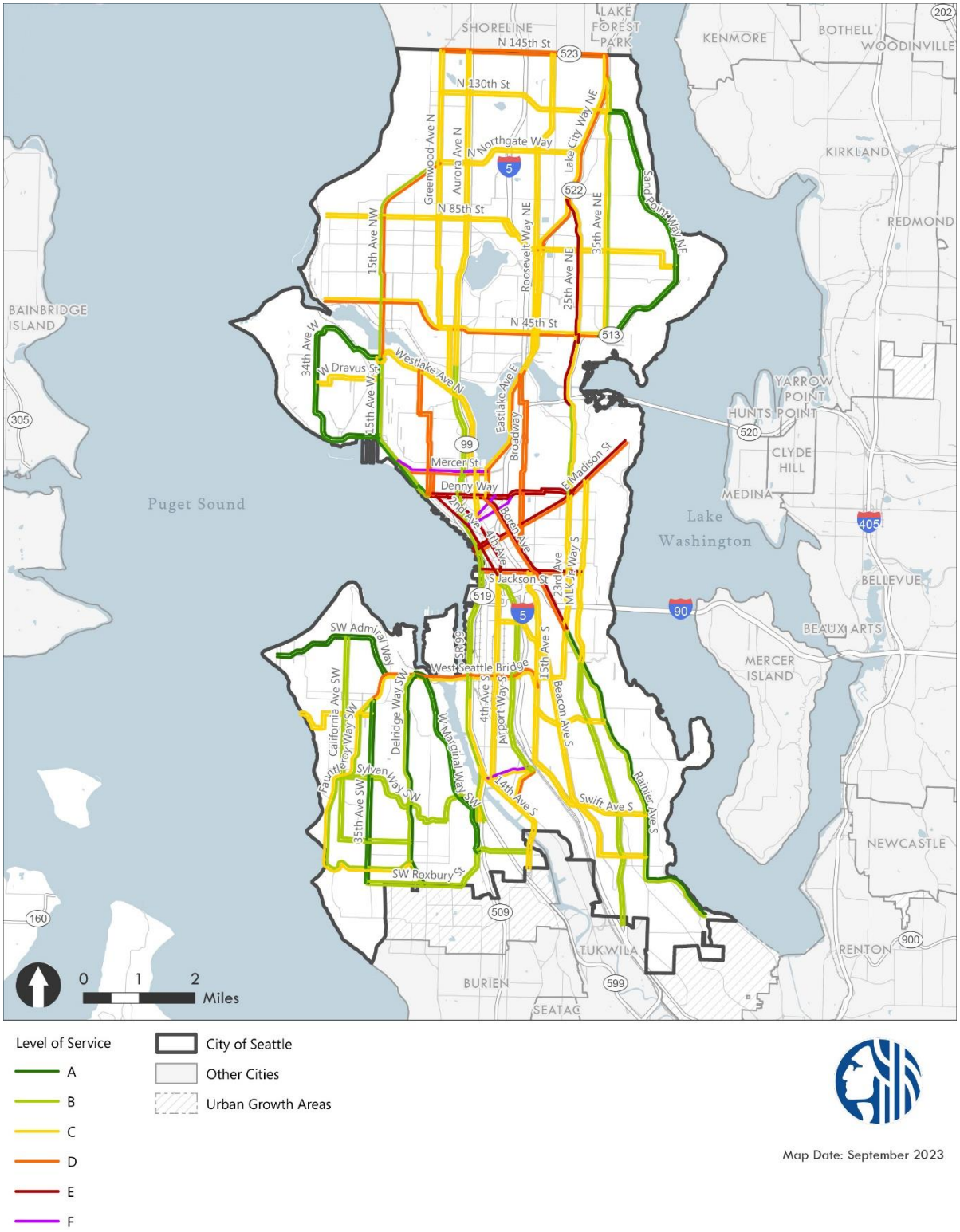
		Alternative 1, No Action Minutes / Level of Service		Alternative 2 Minutes / Level of Service	
Roadway	Extents	N/E	S/W	N/E	S/W
N 145th St	Greenwood Ave N to Lake City Way NE	10.5 / D	9.5 / C	10.5 / D	10 / D
N 130th St	Greenwood Ave N to 35th Ave NE	11.5 / C	12 / C	11.5 / C	12.5 / C
N Northgate Way	Greenwood Ave N to Lake City Way NE	10.5 / C	11 / C	10.5 / C	11 / C
N 85th St	32nd Ave NW to Sand Point Way NE	25 / C	24.5 / C	25 / C	25 / C
N 45th St	32nd Ave NW to Union Bay Pl NE	24.5 / C	23.5 / C	25 / D	24 / C
15th Ave NW	W Emerson St to N 105th St	17 / D	11.5 / B	17 / D	11.5 / B
Greenwood Ave N	Nickerson St to N 145th St	27 / C	25 / C	26.5 / C	25.5 / C
Aurora Ave N	N 38th St to N 145th St	19 / D	16.5 / C	18.5 / C	17 / C
Roosevelt Way NE	Fuhrman Ave E to N 145th St	23 / C	21.5 / C	22.5 / C	22 / C
Lake City Way NE	NE 75th St to N 145th St	14 / D	11 / C	13.5 / D	11 / C
25th Ave NE	E Roanoke St to Lake City Way NE	15 / C	22.5 / E	15 / C	23 / E
35th Ave NE	Union Bay Pl NE to Lake City Way NE	16.5 / B	17.5 / C	16 / B	18 / C
Sand Point Way NE	Union Bay Pl NE to 35th Ave NE	12.5 / A	12 / A	12 / A	12 / A
34th Ave W	15th Ave W to15th Ave W	11.5 / A	12 / A	11.5 / A	12 / A
W Dravus St	34th Ave W to15th Ave W	5 / C	4.5 / C	5 / C	4.5 / C
15th Ave W	Queen Anne Ave N to W Emerson St	8.5 / B	8 / A	8.5 / B	8 / A
Queen Anne Ave N	Denny Way to Nickerson St	12.5 / D	12 / D	12.5 / D	12 / D
SR 99	S Nevada St to N 38th St	11.5 / B	12.5 / B	11.5 / B	12.5 / B
Westlake Ave N	Stewart St to W Emerson St	16 / C	18 / C	16 / C	18.5 / C
Eastlake Ave E	Denny Way to Fuhrman Ave E	12 / D	11.5 / C	12 / D	11.5 / C
Broadway	Boren Ave to Eastlake Ave E	18 / D	18.5 / D	18.5 / D	18.5 / D

Roadway	Extents	Alternative 1, No Action Minutes / Level of Service		Alternative 2 Minutes / Level of Service	
		N/E	S/W	N/E	S/W
23rd Ave	E Madison St to E Roanoke St	6 / C	5 / B	6 / C	5.5 / B
Mercer St	Elliott Ave W to Fairview Ave N	8 / D	14 / F	8 / D	14 / F
Denny Way	Queen Anne Ave N to E Madison St	17.5 / E	16.5 / E	17.5 / E	16.5 / E
2nd Ave	4th Ave S to Denny Way	- / -	12 / E	- / -	12 / E
4th Ave	S Jackson St to Denny Way	10 / E	- / -	10 / E	- / -
Stewart St	1st Ave to Denny Way	- / -	6.5 / F	- / -	6.5 / F
Olive Way	**4th Ave to Denny Way**	7 / F	- / -	**7.5 / F**	- / -
E Madison St	Alaskan Way S to McGilvra Blvd E	20 / D	20 / E	20.5 / D	20.5 / E
Boren Ave	23rd Ave S to Denny Way	18 / E	15.5 / D	18.5 / E	15.5 / D
S Jackson St	Alaskan Way S to MLK Jr. Way S	8.5 / D	11 / E	8.5 / D	11 / E
23rd Ave	15th Ave S to E Madison St	16.5 / C	17.5 / C	16.5 / C	17.5 / C
MLK Jr. Way S	Rainier Ave S to E Madison St	11.5 / B	12 / C	12 / C	12 / C
4th Ave S	E Marginal Way S to S Jackson St	13.5 / C	11.5 / C	13.5 / C	11.5 / C
Airport Way S	S Albro Pl to 4th Ave S	10.5 / B	10 / B	11 / B	10 / B
15th Ave S	S Jackson St to Rainier Ave S	15 / C	16.5 / C	15.5 / C	16.5 / C
E Marginal Way S	S Holden St to S Nevada St	5.5 / C	5 / B	5.5 / C	5 / B
Swift Ave S	Rainier Ave S to S Columbian Way	14 / C	14 / C	14.5 / C	14 / C
Beacon Ave S	Rainier Ave S to 4th Ave S	22 / C	24.5 / C	22 / C	25 / C
MLK Jr. Way S	S Boeing Access Rd to Rainier Ave S	16.5 / B	16.5 / B	16.5 / B	16 / B
Rainier Ave S	Cornell Ave S to 23rd Ave S	18.5 / A	20.5 / B	18.5 / A	20.5 / B
S Michigan St	E Marginal Way S to Airport Way S	3.5 / C	4.5 / F	3.5 / C	4.5 / F
Ellis Ave S	E Marginal Way S to Airport Way S	3 / D	3.5 / C	3 / D	3.5 / C

Roadway	Extents	Alternative 1, No Action Minutes / Level of Service		Alternative 2 Minutes / Level of Service	
		N/E	S/W	N/E	S/W
14th Ave S	S Director St to 1st Ave S	7.5 / C	7 / C	7.5 / C	7 / C
California Ave SW/SW Thistle St	Delridge Way SW to SW Admiral Way	17 / B	17.5 / B	17.5 / B	17.5 / B
Fauntleroy Way SW/SW Barton St	Delridge Way SW to 35th Ave SW	15.5 / B	18 / C	15.5 / B	18 / C
35th Ave SW	SW Roxbury St to Fauntleroy Way SW	8.5 / A	9 / A	8.5 / A	9.5 / A
Delridge Way SW	SW Roxbury St to W Marginal Way SW	11.5 / A	13.5 / B	11.5 / A	13.5 / B
W Marginal Way SW	S Cloverdale St to Delridge Way SW	7.5 / A	8.5 / A	8 / A	8.5 / A
SW Admiral Way	63rd Ave SW to SW Manning St	6.5 / A	7 / A	6.5 / A	7 / A
West Seattle Bridge	35th Ave SW to 15th Ave S	8.5 / C	10 / D	8.5 / C	10.5 / D
SW Alaska St	Beach Dr SW to 35th Ave SW	7 / C	7.5 / C	7 / C	7.5 / C
Sylvan Way SW	California Ave SW to S Holden St	12 / B	11 / B	12 / B	11 / B
SW Roxbury St	35th Ave SW to 14th Ave S	11.5 / B	10.5 / B	11.5 / B	11 / B

Note: Impacted corridors are shown in bold.
Source: Fehr & Peers, 2023.

Exhibit 3.10-49. Alternative 2 PM Peak Hour Travel Time Corridor LOS



Source: Fehr & Peers, 2023.

Screenlines

Exhibit 3.10-50 summarizes PM peak hour screenline V/C ratios for 2044 Alternative 1 and 2044 Alternative 2. The volume forecasts in Alternative 2 are approximately ~~five~~ four percent higher than the Alternative 1 forecasts across all locations. There are six screenlines with V/C ratios higher than 0.90, which is the same as compared with Alternative 1. The screenlines are:

- Ship Canal—Ballard Bridge
- Ship Canal—Fremont Bridge
- Ship Canal—Aurora Ave N
- Duwamish River—1st Ave S and 16th Ave S
- Ship Canal—University and Montlake Bridges
- East of 9th Avenue

While Alternative 2 would cause V/C ratios to increase across many screenlines, none of the screenlines are expected to exceed the established thresholds. Therefore, no significant impacts to screenlines are expected under Alternative 2.

Exhibit 3.10-50. PM Peak Hour Screenline Volume-to-Capacity Ratio—Alternative 2

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action		Alternative 2	
				N/E	S/W	N/E	S/W
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20	0.75	0.65	0.73	0.70
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20	0.48	0.39	0.46	0.43
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20	0.85	0.62	0.83	0.65
2.00	Magnolia	Magnolia Bridge to W Emerson Place	1.00	0.58	0.61	0.62	0.65
3.11	Duwamish River	West Seattle Bridge & Spokane St	1.20	0.72	0.81	0.74	0.86
3.12	Duwamish River	1st Ave S & 16th Ave S	1.20	0.69	0.91	0.69	0.93
4.11	South City Limit	Martin Luther King Jr. Way to Rainier Ave S	1.00	0.83	0.87	0.86	0.89
4.12	South City Limit	Marine Dr SW to Meyers Way S	1.00	0.44	0.49	0.46	0.49
4.13	South City Limit	SR 99 to Airport Way S	1.00	0.63	0.47	0.64	0.48
5.11	Ship Canal	Ballard Bridge	1.20	1.01	0.90	1.06	0.93
5.12	Ship Canal	Fremont Bridge	1.20	1.00	1.03	1.09	1.12
5.13	Ship Canal	Aurora Ave Bridge	1.20	0.96	0.70	0.99	0.73
5.16	Ship Canal	University & Montlake Bridges	1.20	0.74	0.94	0.81	1.00
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00	0.40	0.52	0.40	0.54
6.12	South of N W 80th St	8th Ave NW to Greenwood Ave N	1.00	0.60	0.62	0.61	0.64
6.13	South of NE 80th St	Linden Ave N to 1st Ave NE	1.00	0.51	0.59	0.52	0.62
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00	0.65	0.69	0.69	0.74
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00	0.41	0.39	0.42	0.43
7.11	West of Aurora Ave	Fremont Pl N to N 65th St	1.00	0.64	0.63	0.67	0.66
7.12	West of Aurora Ave	N 80th St to N 145th St	1.00	0.44	0.45	0.45	0.47
8.00	South of Lake Union	Valley St to Denny Way	1.20	0.50	0.35	0.52	0.39

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action		Alternative 2	
				N/E	S/W	N/E	S/W
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00	0.51	0.82	0.53	0.85
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00	0.65	0.52	0.66	0.53
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00	0.69	0.60	0.71	0.63
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00	0.81	0.82	0.85	0.86
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00	0.74	0.74	0.79	0.76
12.12	East of CBD	S Jackson St to Howell St	1.20	0.37	0.44	0.38	0.45
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00	0.70	0.53	0.72	0.54
13.12	East of I-5	NE 65th St to NE 80th St	1.00	0.54	0.50	0.58	0.53
13.3	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00	0.61	0.56	0.67	0.60
A1	North of Seneca St	1st Ave to 6th Ave	N/A	0.63	0.65	0.67	0.67
A2	North of Blanchard	Elliott Ave to Westlake Ave	N/A	0.45	0.37	0.47	0.39
A3	East of 9th Ave	Lenora St to Pike St	N/A	0.46	0.94	0.46	0.95
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	N/A	0.55	0.59	0.58	0.63
A5	East of 5th Ave N	Denny Way to Valley St	N/A	0.41	0.37	0.43	0.42
A6	North of Pine St	Melrose Ave E to 15th Ave E	N/A	0.41	0.42	0.43	0.44
A7	North of James St– E Cherry St	Boren Ave to 14th Ave	N/A	0.56	0.39	0.58	0.41
A8	West of Broadway	Yesler Way to E Roy St	N/A	0.55	0.46	0.58	0.47
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	N/A	0.54	0.60	0.57	0.64
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	N/A	0.58	0.53	0.62	0.56
A11	South of Northgate Way (N/NE 110th St)	N Northgate Way to Roosevelt Way NE	N/A	0.46	0.54	0.46	0.57
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	N/A	0.44	0.51	0.44	0.50

Source: Fehr & Peers, 2023.

Intersection LOS—NE 130th / NE 145th Street Subarea

Exhibit 3.10-51 summarizes the LOS and vehicle delay for each study intersection analyzed based on Alternative 2 conditions. Under Alternative 2, six intersections do not meet the LOS D standard. These intersections, highlighted in bold, are the same impacted intersections as those identified under Alternative 1. Five of the six intersections operate with LOS F conditions.

Under Alternative 2, six intersections are expected to fall below the LOS D threshold; these intersections are the same as those identified under Alternative 1. However, operations are expected to degrade with five of the six intersections falling from LOS E to F. All six intersections would experience at least five additional seconds of delay (the impact threshold) and therefore are considered to have a significant impact under Alternative 2. These include:

- N 145th Street / Aurora Avenue N
- NE 145th Street / 5th Avenue NE
- NE 145th Street / 15th Avenue NE
- N 130th Street / Aurora Avenue N
- N 130th Street / 1st Avenue NE
- NE 125th Street / 15th Avenue NE

Exhibit 3.10-51. 130th/145th Street Subarea PM Peak Hour Level of Service—Alternative 2

ID	Intersection	Alternative 1, No Action—Level of Service / Delay (seconds)	Alternative 2—Level of Service / Delay (seconds)
1	NE 155th St / 5th Ave NE	B / 19	C / 21
2	**N 145th St / Aurora Ave N**	**E / 68**	**F / 83**
3	N 145th St / Meridian Ave N	B / 18	B / 20
4	N 145th St / 1st Ave NE	B / 20	C / 25
5	NE 145th St / I-5 On & Off Ramps	A / 9	A / 9
6	**NE 145th St / 5th Ave NE**	**E / 69**	**F / 85**
7	**NE 145th St / 15th Ave NE**	**E / 66**	**F / 80**
8	N 137th St / Meridian Ave N / Roosevelt Way N	A / 7	A / 8
9	**N 130th St / Aurora Ave N**	**E / 79**	**F / 88**
10	N 130th St / Meridian Ave N	B / 13	B / 14
11	**N 130th St / 1st Ave NE**	**E / 71**	**F / 92**
12	NE 130th St / I-5 On Ramp	A / 2	A / 2
13	NE 130th St / Roosevelt Way NE / 5th Ave NE	D / 38	D / 42
14	Roosevelt Way NE / NE 125th St / 10th Ave NE	B / 17	B / 19
15	**NE 125th St / 15th Ave NE**	**E / 60**	**E / 70**

Note: Impacted intersections are shown in bold.
Source: Fehr & Peers, 2023.

State Facilities

Exhibit 3.10-52 shows a comparison of Alternative 2 forecasted volume to the maximum service volume needed to maintain the LOS standard ~~ratios for Alternative 1 and Alternative 2~~ at each of the identified state facility study locations. ~~V~~Alternative 2 volumes at all locations are expected to remain similar or increase slightly relative to Alternative 1. I-5 at the Ship Canal Bridge and north of the West Seattle Bridge, SR 99 at the Aurora Bridge, and SR 509 at the 1st Avenue Bridge are forecasted to have demand more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The same seven study locations projected to exceed the WSDOT LOS standard under Alternative 1 would do so under Alternative 2. At four of those locations, the ratio is projected to increase by at least 0.01, constituting a significant impact under Alternative 2:

- I-5 at the Ship Canal Bridge
- SR 99 north of N Northgate Way
- SR 99 at the Aurora Avenue Bridge
- SR 522 south of NE 145th Street

The following study locations are also expected to exceed the WSDOT LOS standard, but would have volumes roughly equivalent to Alternative 1, and therefore are not considered to be significant impacts under Alternative 2:

- I-5 north of NE Northgate Way
- I-5 north of the West Seattle Bridge
- SR 509 at the 1st Avenue S Bridge

Because Alternative 2 would cause volumes to increase on multiple state facilities already expected to exceed WSDOT's LOS D standard under Alternative 1, a significant impact to state facilities is expected under Alternative 2.

Exhibit 3.10-52. ~~PM Peak Hour~~Daily State Facilities Level of Service—Alternative 2

Facility	Extents	WSDOT LOS Standard	Alternative 1, No Action—Volume to Maximum Service Volume Ratio	Alternative 2—Volume to Maximum Service Volume Ratio
I-5	North of NE Northgate Way	D	1.03	1.03
I-5	**Ship Canal Bridge**	D	~~1.32~~>1.20	**>1.20**~~1.35~~
I-5	North of West Seattle Bridge	D	>1.20~~1.32~~	>1.20~~1.32~~
I-5	North of Boeing Access Rd Ramp	D	0.98	0.98
I-90	Mt Baker Tunnel	D	0.97	0.99
SR 99	**North of N Northgate Way**	D	1.08	**1.11**
SR 99	**Aurora Ave Bridge**	D	>1.20~~1.30~~	**>1.20**~~1.35~~

Facility	Extents	WSDOT LOS Standard	Alternative 1, No Action—Volume to Maximum Service Volume Ratio	Alternative 2—Volume to Maximum Service Volume Ratio
SR 99	Tunnel	D	0.65	0.66
SR 99	North of West Seattle Bridge	D	0.76	0.77
SR 99	South of S Cloverdale St	E (mitigated)	0.41	0.42
SR 509	1st Ave S Bridge	D	>1.20~~1.25~~	~~1.25~~>1.20
SR 519	S Atlantic St West of I-90 Ramps	D	0.83	0.83
SR 520	Lake Washington Bridge	D	0.86	0.88
SR 522	**South of NE 145th St**	D	1.15	**1.18**

Note: Impacted locations are shown in bold.
A ratio of >1.2 indicates a demand of more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The WSDOT standard is equivalent to a 1.0 (the denominator is the maximum volume at which LOS D can be maintained).
Source: Fehr & Peers, 2023.

Impacts of Alternative 3: Broad

Mode Share

Exhibit 3.10-53 summarizes the SOV mode share expected under Alternative 3. The SoundCast model predicts that Alternative 3 SOV mode shares will be very similar to Alternative 1. The only notable changes are expected in Northeast Seattle and Southeast Seattle where the SOV mode shares would increase slightly, however both subareas would still meet their SOV targets. Although the Duwamish subarea would exceed its target, the difference in mode share relative to Alternative 1 is expected to be less than the 1% impact threshold. Therefore, no mode share impact is expected under Alternative 3.

Exhibit 3.10-53. PM Peak Hour SOV Mode Share—Alternative 3

Subarea	SOV Target	Alternative 1, No Action SOV Share	Alternative 3 SOV Share
(1) Northwest Seattle	37%	34%	34%
(2) Northeast Seattle	35%	26%	27%
(3) Queen Anne/Magnolia	38%	34%	34%
(4) Downtown/Lake Union	18%	11%	11%
(5) Capitol Hill/Central District	28%	27%	27%
(6) West Seattle	35%	35%	35%
(7) Duwamish	51%	67%	67%

Subarea	SOV Target	Alternative 1, No Action SOV Share	Alternative 3 SOV Share
(8) Southeast Seattle	38%	31%	32%

Note: Existing (2017-2019) mode share data from the PSRC household travel survey have substantial margins of error. See **Exhibit 3.10-10** for margins of error by subarea.
Source: Fehr & Peers, 2023.

Exhibit 3.10-54 compares the number of daily person trips expected by mode under 2044 Alternative 1 and Alternative 3. Citywide, Alternative 3 is expected to result in approximately 138,000 additional person trips than Alternative 1, an increase of ~~3~~2%. The increase among modes varies more than was the case under Alternative 2. In particular, the number of trips by transit and biking is only expected to increase by approximately 1% while the number of trips by driving and walking would increase by 3 to 4%.

Exhibit 3.10-54. Daily Person Trips by Mode—Alternative 3

Mode	Alternative 1, No Action	Alternative 3
SOV	1,783,000	1,853,000
HOV	1,440,000	1,473,000
Transit	1,138,000	1,142,000
Walk	1,378,000	1,408,000
Bike	99,000	100,000
Total	**5,838,000**	**5,976,000**

Source: Fehr & Peers, 2023.

Transit

Exhibit 3.10-55 summarizes the projected load factors on the busiest segment of each route in the peak direction of travel. Passenger loads under Alternative 3 are generally lower than those forecasted under Alternative 2; however, the same study routes would be impacted. Study routes that would have a transit capacity impact under Alternative 3 are shown in bold in **Exhibit 3.10-55**. The impacted routes include:

- RapidRide E Line—Downtown to Aurora Village
- RapidRide J Line—Downtown to University District
- RapidRide R Line—Downtown to Rainier Valley
- RapidRide Fremont

Exhibit 3.10-55. PM Peak Hour Average Passenger Load Factors—Alternative 3

Transit Route	Maximum Passenger Load Factor in Peak Direction	
	Alternative 1, No Action	Alternative 3
Link light rail—1 Line	1.08	1.00
Link light rail—2 Line	1.29	1.25
Link light rail—3 Line	1.29	1.26
RapidRide C Line—Westwood Village to Alaska Junction	0.71	0.78
RapidRide E Line—Downtown to Aurora Village	1.89	**2.00**
RapidRide G Line—Downtown to Madison Valley	0.35	0.37
RapidRide H Line—Alki to Burien	0.77	0.87
RapidRide J Line—Downtown to University District	1.97	**2.14**
RapidRide R Line—Downtown to Rainier Valley	1.07	**1.18**
RapidRide 23rd	0.47	0.45
RapidRide 65th (replaces Route 62)	0.82	0.87
RapidRide Beacon	0.50	0.51
RapidRide Denny	2.83	2.77
RapidRide Fremont (replaces Route 40)	1.49	**1.63**
RapidRide Green Lake	0.47	0.44
RapidRide Market	0.76	0.70

Note: Impacted routes are shown in bold.
Source: Fehr & Peers, 2023.

Roadway Users

This section summarizes roadway conditions expected under Alternative 3.

VMT / VHT / Average Trip Speed

Exhibit 3.10-56 summarizes VMT, VHT and average trip speed under Alternative 3 relative to Alternative 1. As with Alternative 2, total daily VMT generated under Alternative 3 is expected to increase compared to Alternative 1; however, the increase is minimal at 1%. The VMT per capita is expected to decrease slightly from approximately 13.7 miles per day to 13.5 miles per day. This incremental difference may reflect slight changes in travel behavior in terms of mode choice and average trip lengths.

Similarly, VHT is projected to increase in total compared to Alternative 1 but would remain flat on a per capita basis at approximately a half hour of daily travel by private car or truck. The average trip speed is expected to stay essentially flat relative to Alternative 1.

Exhibit 3.10-56. Daily VMT, VHT, and Average Trip Speed—Alternative 3

	Alternative 1, No Action		Alternative 3	
Metric	Total	Per Capita	Total	Per Capita
VMT	24,357,100	13.7	24,593,100	13.5
VHT	865,800	0.5	873,000	0.5
Average Trip Speed	28.1	—	28.2	—

Source: Fehr & Peers, 2023.

Because the VMT per capita under Alternative 3 would not exceed the level under Alternative 1, no impact to VMT per capita is identified under Alternative 3.

Travel Time

Exhibit 3.10-57 summarizes PM peak hour corridor travel times under Alternative 3 compared to Alternative 1.[93] **Exhibit 3.10-58** shows the LOS values along associated corridors on the map. All corridor travel times are expected to be within 0.5 minutes of Alternative 1 with most corridors seeing slight increases. Under Alternative 1, 77 corridors (with each direction counted separately) are expected to operate at LOS A-C, 15 at LOS D, 8 operating at LOS E, and 4 operating at LOS F. Under Alternative 3, 75 corridors are expected to operate at LOS A-C, 17 at LOS D, 8 operating at LOS E, and 4 operating at LOS F.

Alternative 1 and Alternative 3 are expected to result in the same four corridors operating at LOS F, one of which would have an increase in excess of the 5% threshold of significance. Therefore, a travel time impact is expected under Alternative 3 on one corridor (shown in bold in **Exhibit 3.10-57**):

- Olive Way between 4th Avenue and Denny Way

[93] For corridors with peak directional patterns, the AM peak hour would typically reflect similar conditions in the opposite direction from those shown for the PM peak hour.

Exhibit 3.10-57. PM Peak Hour Travel Time Corridor Level of Service—Alternative 3

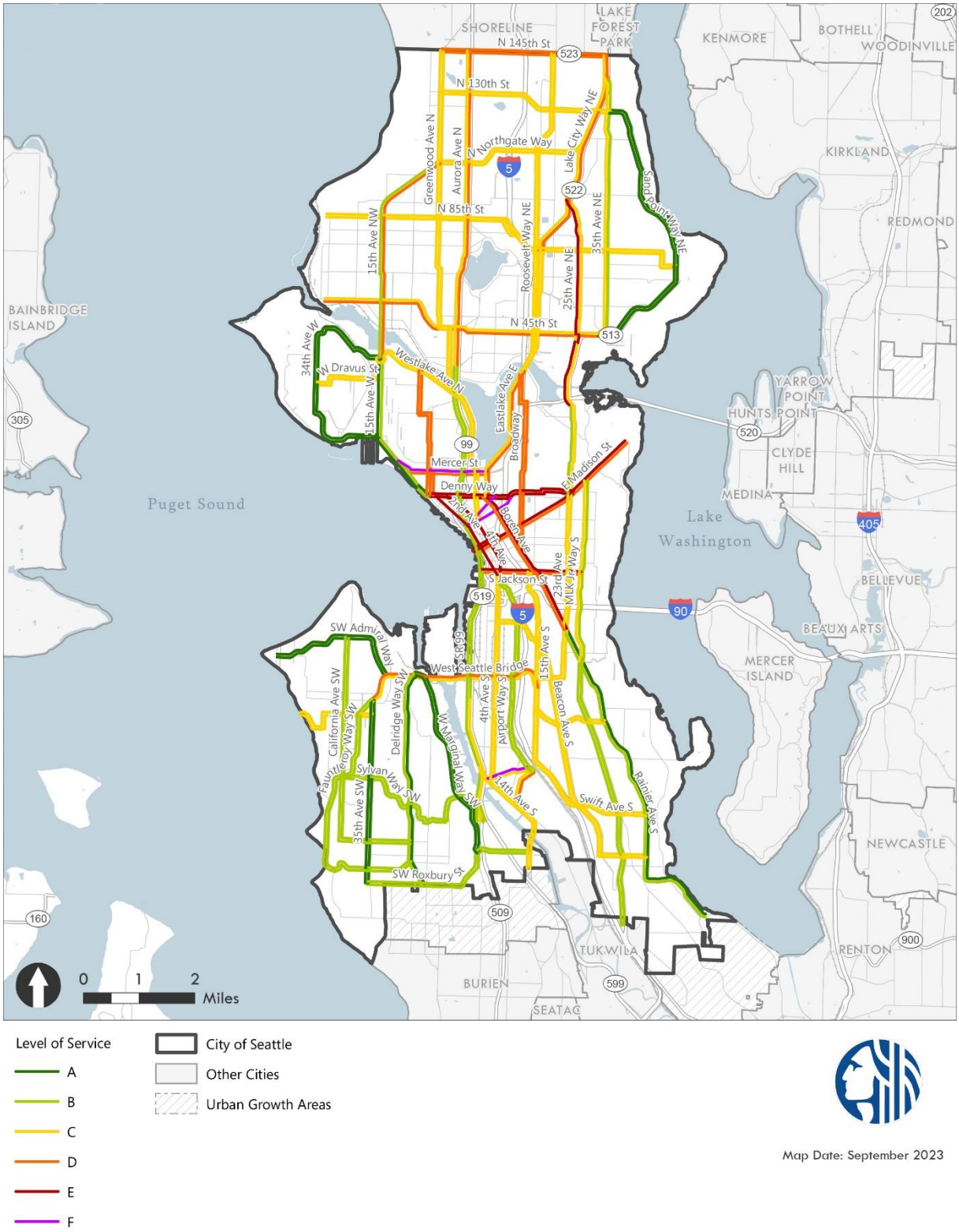
		Alternative 1, No Action, Minutes / Level of Service		Alternative 3 Minutes / Level of Service	
Roadway	Extents	N/E	S/W	N/E	S/W
N 145th St	Greenwood Ave N to Lake City Way NE	10.5 / D	9.5 / C	10.5 / D	10 / D
N 130th St	Greenwood Ave N to 35th Ave NE	11.5 / C	12 / C	12 / C	12.5 / C
N Northgate Way	Greenwood Ave N to Lake City Way NE	10.5 / C	11 / C	11 / C	11 / C
N 85th St	32nd Ave NW to Sand Point Way NE	25 / C	24.5 / C	25 / C	25 / C
N 45th St	32nd Ave NW to Union Bay Pl NE	24.5 / C	23.5 / C	25 / D	24 / C
15th Ave NW	W Emerson St to N 105th St	17 / D	11.5 / B	17.5 / D	11.5 / B
Greenwood Ave N	Nickerson St to N 145th St	27 / C	25 / C	27.5 / C	25.5 / C
Aurora Ave N	N 38th St to N 145th St	19 / D	16.5 / C	19 / D	17 / C
Roosevelt Way NE	Fuhrman Ave E to N 145th St	23 / C	21.5 / C	23 / C	22 / C
Lake City Way NE	NE 75th St to N 145th St	14 / D	11 / C	14 / D	11 / C
25th Ave NE	E Roanoke St to Lake City Way NE	15 / C	22.5 / E	15 / C	23 / E
35th Ave NE	Union Bay Pl NE to Lake City Way NE	16.5 / B	17.5 / C	16.5 / B	18 / C
Sand Point Way NE	Union Bay Pl NE to 35th Ave NE	12.5 / A	12 / A	12.5 / A	12 / A
34th Ave W	15th Ave W to15th Ave W	11.5 / A	12 / A	11.5 / A	12 / A
W Dravus St	34th Ave W to15th Ave W	5 / C	4.5 / C	5.5 / C	4.5 / C
15th Ave W	Queen Anne Ave N to W Emerson St	8.5 / B	8 / A	9 / B	8 / A
Queen Anne Ave N	Denny Way to Nickerson St	12.5 / D	12 / D	12.5 / D	12 / D
SR 99	S Nevada St to N 38th St	11.5 / B	12.5 / B	11.5 / B	12.5 / B
Westlake Ave N	Stewart St to W Emerson St	16 / C	18 / C	16.5 / C	18 / C
Eastlake Ave E	Denny Way to Fuhrman Ave E	12 / D	11.5 / C	12 / D	11.5 / C
Broadway	Boren Ave to Eastlake Ave E	18 / D	18.5 / D	18.5 / D	18.5 / D

Roadway	Extents	Alternative 1, No Action, Minutes / Level of Service		Alternative 3 Minutes / Level of Service	
		N/E	S/W	N/E	S/W
23rd Ave	E Madison St to E Roanoke St	6 / C	5 / B	6 / C	5 / B
Mercer St	Elliott Ave W to Fairview Ave N	8 / D	14 / F	8 / D	14 / F
Denny Way	Queen Anne Ave N to E Madison St	17.5 / E	16.5 / E	17.5 / E	16.5 / E
2nd Ave	4th Ave S to Denny Way	- / -	12 / E	- / -	12 / E
4th Ave	S Jackson St to Denny Way	10 / E	- / -	10 / E	- / -
Stewart St	1st Ave to Denny Way	- / -	6.5 / F	- / -	6.5 / F
Olive Way	**4th Ave to Denny Way**	7 / F	- / -	**7.5 / F**	- / -
E Madison St	Alaskan Way S to McGilvra Blvd E	20 / D	20 / E	20.5 / D	20 / E
Boren Ave	23rd Ave S to Denny Way	18 / E	15.5 / D	18 / E	15.5 / D
S Jackson St	Alaskan Way S to MLK Jr. Way S	8.5 / D	11 / E	9 / D	11 / E
23rd Ave	15th Ave S to E Madison St	16.5 / C	17.5 / C	16.5 / C	17.5 / C
MLK Jr. Way S	Rainier Ave S to E Madison St	11.5 / B	12 / C	11.5 / B	12 / C
4th Ave S	E Marginal Way S to S Jackson St	13.5 / C	11.5 / C	13.5 / C	11.5 / C
Airport Way S	S Albro Pl to 4th Ave S	10.5 / B	10 / B	10.5 / B	10 / B
15th Ave S	S Jackson St to Rainier Ave S	15 / C	16.5 / C	15.5 / C	17 / C
E Marginal Way S	S Holden St to S Nevada St	5.5 / C	5 / B	5 / C	5 / B
Swift Ave S	Rainier Ave S to S Columbian Way	14 / C	14 / C	14.5 / C	14.5 / C
Beacon Ave S	Rainier Ave S to 4th Ave S	22 / C	24.5 / C	22.5 / C	25 / C
MLK Jr. Way S	S Boeing Access Rd to Rainier Ave S	16.5 / B	16.5 / B	16.5 / B	16.5 / B
Rainier Ave S	Cornell Ave S to 23rd Ave S	18.5 / A	20.5 / B	18.5 / A	20.5 / B
S Michigan St	E Marginal Way S to Airport Way S	3.5 / C	4.5 / F	3.5 / C	4.5 / F
Ellis Ave S	E Marginal Way S to Airport Way S	3 / D	3.5 / C	3 / D	3.5 / C

Roadway	Extents	Alternative 1, No Action, Minutes / Level of Service		Alternative 3 Minutes / Level of Service	
		N/E	S/W	N/E	S/W
14th Ave S	S Director St to 1st Ave S	7.5 / C	7 / C	7.5 / C	7 / C
California Ave SW/SW Thistle St	Delridge Way SW to SW Admiral Way	17 / B	17.5 / B	17.5 / B	17.5 / B
Fauntleroy Way SW/SW Barton St	Delridge Way SW to 35th Ave SW	15.5 / B	18 / C	15.5 / B	17.5 / B
35th Ave SW	SW Roxbury St to Fauntleroy Way SW	8.5 / A	9 / A	8.5 / A	9 / A
Delridge Way SW	SW Roxbury St to W Marginal Way SW	11.5 / A	13.5 / B	11.5 / A	13.5 / B
W Marginal Way SW	S Cloverdale St to Delridge Way SW	7.5 / A	8.5 / A	8 / A	8.5 / A
SW Admiral Way	63rd Ave SW to SW Manning St	6.5 / A	7 / A	6.5 / A	7 / A
West Seattle Bridge	35th Ave SW to 15th Ave S	8.5 / C	10 / D	8.5 / C	10.5 / D
SW Alaska St	Beach Dr SW to 35th Ave SW	7 / C	7.5 / C	7 / C	7.5 / C
Sylvan Way SW	California Ave SW to S Holden St	12 / B	11 / B	12 / B	11 / B
SW Roxbury St	35th Ave SW to 14th Ave S	11.5 / B	10.5 / B	11.5 / B	11 / B

Note: Impacted corridors are shown in bold.
Source: Fehr & Peers, 2023.

Exhibit 3.10-58. Alternative 3 Travel Time Corridor LOS



Source: Fehr & Peers, 2023.

Screenlines

Exhibit 3.10-59 summarizes PM peak hour screenline V/C ratios for 2044 Alternative 1 and 2044 Alternative 3. The volume forecasts in Alternative 3 are approximately ~~five~~ four percent higher than the Alternative 1 forecasts across all locations (similar to Alternative 2). Under Alternative 3, seven screenlines are expected to operate with V/C ratios higher than 0.90, compared with six in Alternative 1. The screenlines are:

- Ship Canal—Ballard Bridge
- Ship Canal—Fremont Bridge
- Ship Canal—Aurora Ave N
- Duwamish River—1st Ave S and 16th Ave S
- Ship Canal—University and Montlake Bridges
- East of 9th Avenue
- South City Limit—Martin Luther King Jr Wy to Rainier Ave S (Alternative 3 only)

While Alternative 3 would cause V/C ratios to increase across many screenlines, none are expected to exceed the established thresholds. Therefore, no significant impacts to screenlines are expected under Alternative 3.

Exhibit 3.10-59. Screenline Volume-to-Capacity Ratio—Alternative 3

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action		Alternative 3	
				N/E	S/W	N/E	S/W
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20	0.75	0.65	0.74	0.71
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20	0.48	0.39	0.45	0.42
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20	0.85	0.62	0.83	0.66
2.00	Magnolia	Magnolia Bridge to W Emerson Place	1.00	0.58	0.61	0.62	0.65
3.11	Duwamish River	West Seattle Bridge & Spokane St	1.20	0.72	0.81	0.74	0.85
3.12	Duwamish River	1st Ave S & 16th Ave S	1.20	0.69	0.91	0.70	0.93
4.11	South City Limit	Martin Luther King Jr. Way to Rainier Ave S	1.00	0.83	0.87	0.86	0.92
4.12	South City Limit	Marine Dr SW to Meyers Way S	1.00	0.44	0.49	0.46	0.50
4.13	South City Limit	SR 99 to Airport Way S	1.00	0.63	0.47	0.63	0.47
5.11	Ship Canal	Ballard Bridge	1.20	1.01	0.90	1.06	0.93
5.12	Ship Canal	Fremont Bridge	1.20	1.00	1.03	1.11	1.11
5.13	Ship Canal	Aurora Ave Bridge	1.20	0.96	0.70	0.99	0.72
5.16	Ship Canal	University & Montlake Bridges	1.20	0.74	0.94	0.79	0.99
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00	0.40	0.52	0.43	0.56
6.12	South of N W 80th St	8th Ave NW to Greenwood Ave N	1.00	0.60	0.62	0.63	0.64
6.13	South of NE 80th St	Linden Ave N to 1st Ave NE	1.00	0.51	0.59	0.53	0.62
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00	0.65	0.69	0.72	0.75
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00	0.41	0.39	0.45	0.42
7.11	West of Aurora Ave	Fremont Pl N to N 65th St	1.00	0.64	0.63	0.67	0.65
7.12	West of Aurora Ave	N 80th St to N 145th St	1.00	0.44	0.45	0.47	0.49
8.00	South of Lake Union	Valley St to Denny Way	1.20	0.50	0.35	0.52	0.37

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action		Alternative 3	
				N/E	S/W	N/E	S/W
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00	0.51	0.82	0.53	0.86
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00	0.65	0.52	0.65	0.53
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00	0.69	0.60	0.70	0.63
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00	0.81	0.82	0.82	0.84
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00	0.74	0.74	0.77	0.75
12.12	East of CBD	S Jackson St to Howell St	1.20	0.37	0.44	0.38	0.44
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00	0.70	0.53	0.75	0.55
13.12	East of I-5	NE 65th St to NE 80th St	1.00	0.54	0.50	0.59	0.55
13.3	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00	0.61	0.56	0.66	0.60
A1	North of Seneca St	1st Ave to 6th Ave	N/A	0.63	0.65	0.64	0.65
A2	North of Blanchard	Elliott Ave to Westlake Ave	N/A	0.45	0.37	0.45	0.38
A3	East of 9th Ave	Lenora St to Pike St	N/A	0.46	0.94	0.46	0.93
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	N/A	0.55	0.59	0.57	0.62
A5	East of 5th Ave N	Denny Way to Valley St	N/A	0.41	0.37	0.42	0.40
A6	North of Pine St	Melrose Ave E to 15th Ave E	N/A	0.41	0.42	0.43	0.42
A7	North of James St– E Cherry St	Boren Ave to 14th Ave	N/A	0.56	0.39	0.57	0.40
A8	West of Broadway	Yesler Way to E Roy St	N/A	0.55	0.46	0.57	0.46
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	N/A	0.54	0.60	0.57	0.63
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	N/A	0.58	0.53	0.62	0.56
A11	South of Northgate Way (N/NE 110th St)	N Northgate Way to Roosevelt Way NE	N/A	0.46	0.54	0.49	0.57
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	N/A	0.44	0.51	0.46	0.53

Source: Fehr & Peers, 2023.

Intersection LOS—NE 130th / NE 145th Street Subarea

Under Alternative 3, Sound Transit would provide transit investments but the 130th / NE 145th Street Station Area Plan would not be implemented and the area would grow with citywide place types.

Exhibit 3.10-60 summarizes the LOS and vehicle delay for each study intersection under Alternative 3. The same six intersections that are identified as impacts under Alternative 1 and Alternative 2 would also be impacted under Alternative 3. Delays under Alternative 3 would be longer than under Alternative 2. These impacted intersections, all of which are expected to operate at LOS F, include:

- N 145th Street / Aurora Avenue N
- NE 145th Street / 5th Avenue NE
- NE 145th Street / 15th Avenue NE
- N 130th Street / Aurora Avenue N
- N 130th Street / 1st Avenue NE
- NE 125th Street / 15th Avenue NE

Exhibit 3.10-60. 130th/145th Street Subarea PM Peak Hour Level of Service—Alternative 3

ID	Intersection	Alternative 1, No Action—Level of Service / Delay (seconds)	Alternative 3—Level of Service / Delay (seconds)
1	NE 155th St / 5th Ave NE	B / 19	C / 21
2	**N 145th St / Aurora Ave N**	**E / 68**	**F / 86**
3	N 145th St / Meridian Ave N	B / 18	B / 20
4	N 145th St / 1st Ave NE	B / 20	C / 25
5	NE 145th St / I-5 On & Off Ramps	A / 9	A / 9
6	**NE 145th St / 5th Ave NE**	**E / 69**	**F / 92**
7	**NE 145th St / 15th Ave NE**	**E / 66**	**F / 81**
8	N 137th St / Meridian Ave N / Roosevelt Way N	A / 7	A / 8
9	**N 130th St / Aurora Ave N**	**E / 79**	**F / 96**
10	N 130th St / Meridian Ave N	B / 13	B / 19
11	**N 130th St / 1st Ave NE**	**E / 71**	**F / 107**
12	NE 130th St / I-5 On Ramp	A / 2	A / 2
13	NE 130th St / Roosevelt Way NE / 5th Ave NE	D / 38	D / 47
14	Roosevelt Way NE / NE 125th St / 10th Ave NE	B / 17	B / 19
15	**NE 125th St / 15th Ave NE**	**E / 60**	**F / 81**

Note: Impacted intersections are shown in bold.
Source: Fehr & Peers, 2023.

State Facilities

Exhibit 3.10-61 compares Alternative 3 forecasted volume to the maximum service volume needed to maintain the LOS standard ~~ratios for Alternative 1 and Alternative 3~~ at each of the state facility study locations. ~~V~~Alternative 3 volumes at all locations are expected to remain similar or increase slightly relative to Alternative 1. I-5 at the Ship Canal Bridge and north of the West Seattle Bridge, SR 99 at the Aurora Bridge, and SR 509 at the 1st Avenue Bridge are forecasted to have demand more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The same seven study locations are projected to exceed the WSDOT LOS standard under Alternative 1 would do so under Alternative 3. At four of those locations, the ratio is projected to increase by at least 0.01, constituting a significant impact under Alternative 3:

- I-5 at the Ship Canal Bridge
- SR 99 north of N Northgate Way
- SR 99 at the Aurora Avenue Bridge
- SR 522 south of NE 145th Street

The following study locations are also expected to exceed the WSDOT LOS standard, but would have volumes roughly equivalent to Alternative 1, and therefore are not considered to be significant impacts under Alternative 3:

- I-5 north of NE Northgate Way
- I-5 north of the West Seattle Bridge
- SR 509 at the 1st Avenue S Bridge

Because Alternative 3 would cause volumes to increase on multiple state facilities already expected to exceed WSDOT's LOS D standard under Alternative 1, a significant impact to state facilities is expected under Alternative 3.

Exhibit 3.10-61. Daily State Facilities Level of Service—Alternative 3

Facility	Extents	WSDOT LOS Standard	Alternative 1, No Action—Volume to Maximum Service Volume Ratio	Alternative 3—Volume to Maximum Service Volume Ratio
I-5	North of NE Northgate Way	D	1.03	1.03
I-5	**Ship Canal Bridge**	D	~~1.32~~>1.20	**>1.20**~~1.35~~
I-5	North of West Seattle Bridge	D	>1.20~~1.32~~	>1.20~~1.32~~
I-5	North of Boeing Access Rd Ramp	D	0.98	0.98
I-90	Mt Baker Tunnel	D	0.97	0.99
SR 99	**North of N Northgate Way**	D	1.08	**1.14**
SR 99	**Aurora Ave Bridge**	D	>1.20~~1.30~~	**>1.20**~~1.35~~
SR 99	Tunnel	D	0.65	0.68

Facility	Extents	WSDOT LOS Standard	Alternative 1, No Action—Volume to Maximum Service Volume Ratio	Alternative 3—Volume to Maximum Service Volume Ratio
SR 99	North of West Seattle Bridge	D	0.76	0.77
SR 99	South of S Cloverdale St	E (mitigated)	0.41	0.42
SR 509	1st Ave S Bridge	D	>1.20~~1.25~~	>1.20~~1.25~~
SR 519	S Atlantic St West of I-90 Ramps	D	0.83	0.83
SR 520	Lake Washington Bridge	D	0.86	0.87
SR 522	**South of NE 145th St**	D	1.15	**1.18**

Note: Impacted routes are shown in bold.
A ratio of >1.2 indicates a demand of more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The WSDOT standard is equivalent to a 1.0 (the denominator is the maximum volume at which LOS D can be maintained).
Source: Fehr & Peers, 2023.

Impacts of Alternative 5: Combined

Mode Share

Exhibit 3.10-62 summarizes the SOV mode share expected under Alternative 5. The SoundCast model predicts that Alternative 5 SOV mode shares will be essentially the same as Alternative 1. Although the Duwamish subarea would exceed its target, the difference in mode share relative to Alternative 1 is expected to be less than the 1% impact threshold. Therefore, no mode share impact is expected under Alternative 5.

Exhibit 3.10-62. PM Peak Hour SOV Mode Share—Alternative 5

Subarea	SOV Target	Alternative 1, No Action SOV Share	Alternative 5 SOV Share
(1) Northwest Seattle	37%	34%	34%
(2) Northeast Seattle	35%	26%	26%
(3) Queen Anne/Magnolia	38%	34%	34%
(4) Downtown/Lake Union	18%	11%	11%
(5) Capitol Hill/Central District	28%	27%	27%
(6) West Seattle	35%	35%	35%
(7) Duwamish	51%	67%	67%
(8) Southeast Seattle	38%	31%	31%

Note: Existing (2017-2019) mode share data from the PSRC household travel survey have substantial margins of error. See **Exhibit 3.10-10** for margins of error by subarea.
Source: Fehr & Peers, 2023.

Exhibit 3.10-63 compares the number of daily person trips expected by mode under 2044 Alternative 1 and Alternative 5. Citywide, Alternative 5 is expected to result in approximately 343,000 additional person trips compared to Alternative 1, an increase of ~~8~~6%. This is the highest growth among the action alternatives as Alternative 5 assumes the highest growth in residential and employment growth. The increase is spread fairly evenly across modes. In other words, while Alternative 5 would result in more trips, the underlying travel behavior and mode shares expected are very similar between the alternatives.

Exhibit 3.10-63. Daily Person Trips by Mode—Alternative 5

Mode	Alternative 1, No Action	Alternative 5
SOV	1,783,000	1,908,000
HOV	1,440,000	1,537,000
Transit	1,138,000	1,178,000
Walk	1,378,000	1,453,000
Bike	99,000	105,000
Total	**5,838,000**	**6,181,000**

Source: Fehr & Peers, 2023.~~Transit~~

Transit

Exhibit 3.10-64 summarizes the projected load factors on the busiest segment of each route in the peak direction of travel with impacts shown in bold. As with Alternatives 2 and 3, the following study routes would be impacted under Alternative 5:

- RapidRide E Line—Downtown to Aurora Village
- RapidRide J Line—Downtown to University District
- RapidRide R Line—Downtown to Rainier Valley
- RapidRide Fremont

Exhibit 3.10-64. PM Peak Hour Average Passenger Load Factors—Alternative 5

	Maximum Passenger Load Factor in Peak Direction	
Transit Route	Alternative 1, No Action	Alternative 5
Link light rail—1 Line	1.08	1.06
Link light rail—2 Line	1.29	1.32
Link light rail—3 Line	1.29	1.21
RapidRide C Line—Westwood Village to Alaska Junction	0.71	0.90
RapidRide E Line—Downtown to Aurora Village	1.89	**2.01**
RapidRide G Line—Downtown to Madison Valley	0.35	0.39

Transit Route	Maximum Passenger Load Factor in Peak Direction	
	Alternative 1, No Action	Alternative 5
RapidRide H Line—Alki to Burien	0.77	0.84
RapidRide J Line—Downtown to University District	1.97	**2.66**
RapidRide R Line—Downtown to Rainier Valley	1.07	**1.19**
RapidRide 23rd	0.47	0.48
RapidRide 65th (replaces Route 62)	0.82	0.97
RapidRide Beacon	0.50	0.59
RapidRide Denny	2.83	2.53
RapidRide Fremont (replaces Route 40)	1.49	**1.66**
RapidRide Green Lake	0.47	0.41
RapidRide Market	0.76	0.78

Note: Impacted routes are shown in bold.
Source: Fehr & Peers, 2023.

Roadway Users

Alternative 5 assumes the most extensive changes to Seattle's land use patterns. Accordingly, Alternative 5 is projected to have the highest increase in vehicle volumes, compared to Alternative 1. Results are summarized in the following sections.

VMT / VHT / Average Trip Speed

Exhibit 3.10-65 summarizes VMT, VHT and average trip speed under Alternative 5 relative to Alternative 1. Among the action alternatives, Alternative 5 would result in the highest total VMT (3.1% over No Action) and VHT (4.6% over No Action) because it assumes a higher level of growth. Consequently, it also assumes the lowest average trip speed at just under 28 mph. However, despite the increase in VMT, the VMT per capita would be the lowest among the action alternatives at 13.4 VMT per Seattle resident and employee. The VHT per capita under Alternative 5 would essentially flat relative to the other 2044 alternatives.

Exhibit 3.10-65. Daily VMT, VHT, and Average Trip Speed—Alternative 5

Metric	Alternative 1, No Action		Alternative 5	
	Total	Per Capita	Total	Per Capita
VMT	24,357,100	13.7	25,122,100	13.4
VHT	865,800	0.5	905,700	0.5
Average Trip Speed	28.1	—	27.7	—

Source: Fehr & Peers, 2023.

Because the VMT per capita under Alternative 5 would not exceed the level under Alternative 1, no impact to VMT per capita is identified under Alternative 5.

Travel Time

Exhibit 3.10-66 summarizes PM peak hour corridor travel times under Alternative 5 compared to Alternative 1.[94] **Exhibit 3.10-67** displays the LOS values along associated corridors on the map. Because Alternative 5 includes higher citywide growth levels than the other action alternatives, it is expected to result in higher travel time increases as well. Corridor travel times are expected to increase by up to one minute compared to Alternative 1 and no corridors are expected to see decreases. Under Alternative 1, 77 corridors (with each direction counted separately) are expected to operate at LOS A-C, 15 at LOS D, 8 operating at LOS E, and 4 operating at LOS F. Under Alternative 5, 72 corridors are expected to operate at LOS A-C, 20 at LOS D, 8 operating at LOS E, and 4 operating at LOS F.

Alternative 1 and Alternative 5 are expected to result in the same four corridors operating at LOS F, one of which would have an increase in excess of the 5% threshold of significance. Therefore, a travel time impact is expected under Alternative 5 on one corridor (shown in bold in **Exhibit 3.10-66**):

- Olive Way between 4th Avenue and Denny Way

[94] For corridors with peak directional patterns, the AM peak hour would typically reflect similar conditions in the opposite direction from those shown for the PM peak hour.

Exhibit 3.10-66 PM Peak Hour Travel Time Corridor Level of Service—Alternative 5

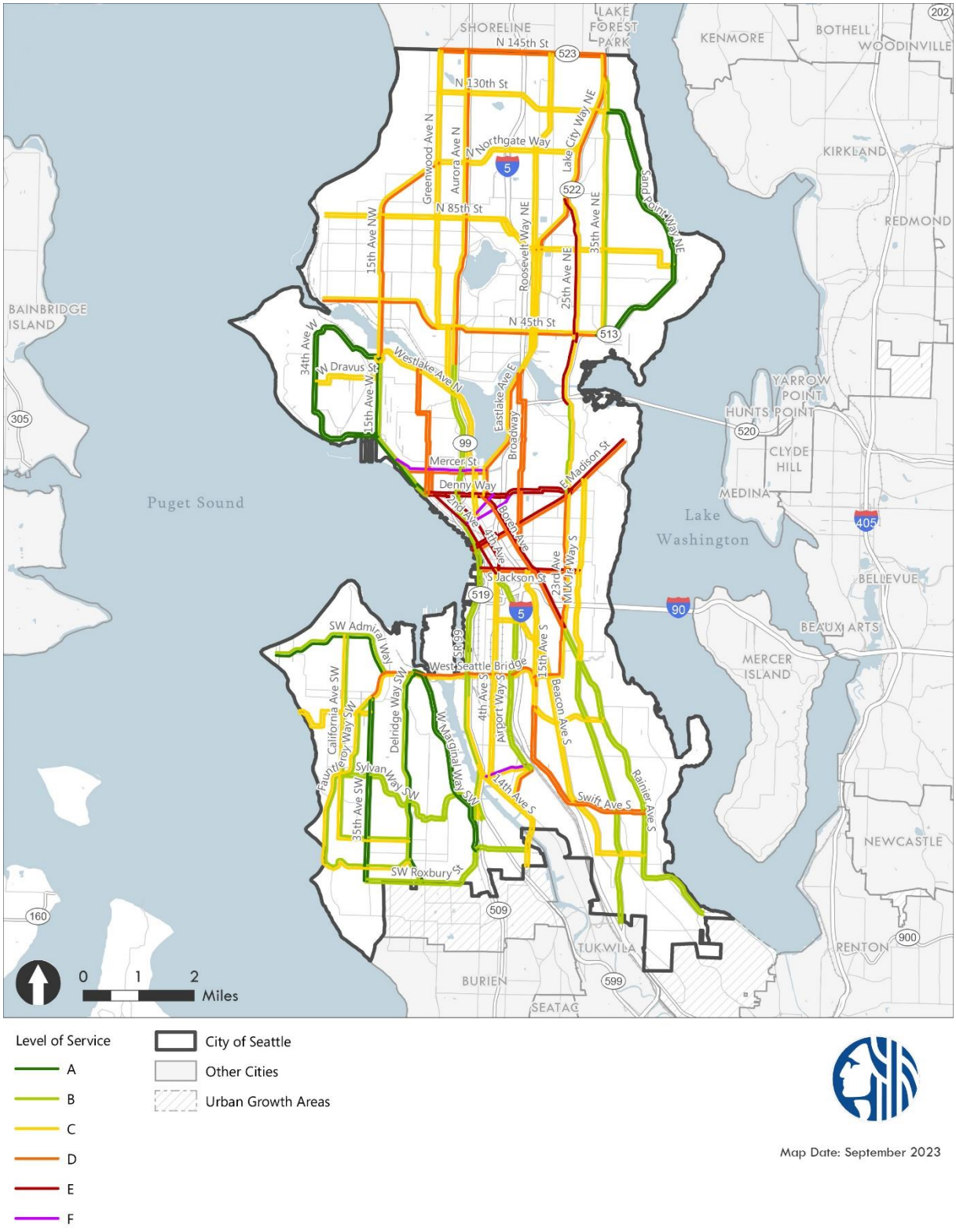
		Alternative 1, No Action Minutes / Level of Service		Alternative 5 Minutes / Level of Service	
Roadway	Extents	N/E	S/W	N/E	S/W
N 145th St	Greenwood Ave N to Lake City Way NE	10.5 / D	9.5 / C	10.5 / D	10 / D
N 130th St	Greenwood Ave N to 35th Ave NE	11.5 / C	12 / C	12 / C	12.5 / C
N Northgate Way	Greenwood Ave N to Lake City Way NE	10.5 / C	11 / C	11 / C	11 / C
N 85th St	32nd Ave NW to Sand Point Way NE	25 / C	24.5 / C	25 / C	25 / C
N 45th St	32nd Ave NW to Union Bay Pl NE	24.5 / C	23.5 / C	25 / D	24.5 / C
15th Ave NW	W Emerson St to N 105th St	17 / D	11.5 / B	17.5 / D	12 / C
Greenwood Ave N	Nickerson St to N 145th St	27 / C	25 / C	27.5 / C	26 / C
Aurora Ave N	N 38th St to N 145th St	19 / D	16.5 / C	19 / D	17 / C
Roosevelt Way NE	Fuhrman Ave E to N 145th St	23 / C	21.5 / C	23 / C	22.5 / C
Lake City Way NE	NE 75th St to N 145th St	14 / D	11 / C	14 / D	11 / C
25th Ave NE	E Roanoke St to Lake City Way NE	15 / C	22.5 / E	15.5 / C	23.5 / E
35th Ave NE	Union Bay Pl NE to Lake City Way NE	16.5 / B	17.5 / C	16.5 / B	18.5 / C
Sand Point Way NE	Union Bay Pl NE to 35th Ave NE	12.5 / A	12 / A	12.5 / A	12.5 / A
34th Ave W	15th Ave W to15th Ave W	11.5 / A	12 / A	11.5 / A	12 / A
W Dravus St	34th Ave W to15th Ave W	5 / C	4.5 / C	5 / C	4.5 / C
15th Ave W	Queen Anne Ave N to W Emerson St	8.5 / B	8 / A	9 / B	8 / A
Queen Anne Ave N	Denny Way to Nickerson St	12.5 / D	12 / D	12.5 / D	12.5 / D
SR 99	S Nevada St to N 38th St	11.5 / B	12.5 / B	12 / B	12.5 / B
Westlake Ave N	Stewart St to W Emerson St	16 / C	18 / C	16.5 / C	18.5 / C
Eastlake Ave E	Denny Way to Fuhrman Ave E	12 / D	11.5 / C	12 / D	11.5 / C
Broadway	Boren Ave to Eastlake Ave E	18 / D	18.5 / D	19 / D	19 / D

Roadway	Extents	Alternative 1, No Action Minutes / Level of Service		Alternative 5 Minutes / Level of Service	
		N/E	S/W	N/E	S/W
23rd Ave	E Madison St to E Roanoke St	6 / C	5 / B	6 / C	5.5 / B
Mercer St	Elliott Ave W to Fairview Ave N	8 / D	14 / F	8 / D	14 / F
Denny Way	Queen Anne Ave N to E Madison St	17.5 / E	16.5 / E	17.5 / E	16.5 / E
2nd Ave	4th Ave S to Denny Way	- / -	12 / E	- / -	12 / E
4th Ave	S Jackson St to Denny Way	10 / E	- / -	10 / E	- / -
Stewart St	1st Ave to Denny Way	- / -	6.5 / F	- / -	6.5 / F
Olive Way	**4th Ave to Denny Way**	7 / F	- / -	**7.5 / F**	- / -
E Madison St	Alaskan Way S to McGilvra Blvd E	20 / D	20 / E	21 / D	20.5 / E
Boren Ave	23rd Ave S to Denny Way	18 / E	15.5 / D	18.5 / E	16 / D
S Jackson St	Alaskan Way S to MLK Jr. Way S	8.5 / D	11 / E	9 / D	11 / E
23rd Ave	15th Ave S to E Madison St	16.5 / C	17.5 / C	17 / C	18 / D
MLK Jr. Way S	Rainier Ave S to E Madison St	11.5 / B	12 / C	12 / C	12 / C
4th Ave S	E Marginal Way S to S Jackson St	13.5 / C	11.5 / C	13.5 / C	11.5 / C
Airport Way S	S Albro Pl to 4th Ave S	10.5 / B	10 / B	10.5 / B	10 / B
15th Ave S	S Jackson St to Rainier Ave S	15 / C	16.5 / C	15.5 / C	17 / C
E Marginal Way S	S Holden St to S Nevada St	5.5 / C	5 / B	5.5 / C	5 / B
Swift Ave S	Rainier Ave S to S Columbian Way	14 / C	14 / C	15 / D	15 / D
Beacon Ave S	Rainier Ave S to 4th Ave S	22 / C	24.5 / C	22.5 / C	25.5 / C
MLK Jr. Way S	S Boeing Access Rd to Rainier Ave S	16.5 / B	16.5 / B	17 / B	16.5 / B
Rainier Ave S	Cornell Ave S to 23rd Ave S	18.5 / A	20.5 / B	19 / B	21 / B
S Michigan St	E Marginal Way S to Airport Way S	3.5 / C	4.5 / F	3.5 / C	4.5 / F
Ellis Ave S	E Marginal Way S to Airport Way S	3 / D	3.5 / C	3 / D	3.5 / C

Roadway	Extents	Alternative 1, No Action Minutes / Level of Service		Alternative 5 Minutes / Level of Service	
		N/E	S/W	N/E	S/W
14th Ave S	S Director St to 1st Ave S	7.5 / C	7 / C	7.5 / C	7 / C
California Ave SW/SW Thistle St	Delridge Way SW to SW Admiral Way	17 / B	17.5 / B	17.5 / B	18 / C
Fauntleroy Way SW/SW Barton St	Delridge Way SW to 35th Ave SW	15.5 / B	18 / C	16 / B	18 / C
35th Ave SW	SW Roxbury St to Fauntleroy Way SW	8.5 / A	9 / A	9 / A	9.5 / A
Delridge Way SW	SW Roxbury St to W Marginal Way SW	11.5 / A	13.5 / B	11.5 / A	13.5 / B
W Marginal Way SW	S Cloverdale St to Delridge Way SW	7.5 / A	8.5 / A	8 / A	8.5 / A
SW Admiral Way	63rd Ave SW to SW Manning St	6.5 / A	7 / A	6.5 / A	7.5 / B
West Seattle Bridge	35th Ave SW to 15th Ave S	8.5 / C	10 / D	9 / C	11 / D
SW Alaska St	Beach Dr SW to 35th Ave SW	7 / C	7.5 / C	7 / C	7.5 / C
Sylvan Way SW	California Ave SW to S Holden St	12 / B	11 / B	12 / B	11.5 / B
SW Roxbury St	35th Ave SW to 14th Ave S	11.5 / B	10.5 / B	11.5 / B	11.5 / B

Note: Impacted corridors are shown in bold.
Source: Fehr & Peers, 2023.

Exhibit 3.10-67. Alternative 5 PM Peak Hour Travel Time Corridor LOS



Source: Fehr & Peers, 2023.

Screenlines

Exhibit 3.10-68 summarizes PM peak hour screenline V/C ratios for 2044 Alternative 1 and 2044 Alternative 5. The volume forecasts in Alternative 5 are approximately seven percent higher than the Alternative 1 forecasts across all locations. Among the action alternatives, overall volumes would be highest under Alternative 5. There are seven screenlines with V/C ratios higher than 0.90, compared with six in Alternative 1. The screenlines are:

- Ship Canal—Ballard Bridge
- Ship Canal—Fremont Bridge
- Ship Canal—Aurora Ave N
- Duwamish River—1st Ave S and 16th Ave S
- Ship Canal—University and Montlake Bridges
- East of 9th Avenue
- South City Limit—M L King Jr Wy to Rainier Ave S (Alternative 5 only)

While Alternative 5 would cause V/C ratios to increase across many screenlines, none are expected to exceed the established thresholds. Therefore, no significant impacts to screenlines are expected under Alternative 5.

Exhibit 3.10-68. PM Peak Hour Screenline Volume-to-Capacity Ratio—Alternative 5

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action		Alternative 5	
				N/E	S/W	N/E	S/W
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20	0.75	0.65	0.75	0.72
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20	0.48	0.39	0.46	0.47
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20	0.85	0.62	0.83	0.67
2.00	Magnolia	Magnolia Bridge to W Emerson Place	1.00	0.58	0.61	0.61	0.68
3.11	Duwamish River	West Seattle Bridge & Spokane St	1.20	0.72	0.81	0.74	0.88
3.12	Duwamish River	1st Ave S & 16th Ave S	1.20	0.69	0.91	0.71	0.96
4.11	South City Limit	Martin Luther King Jr. Way to Rainier Ave S	1.00	0.83	0.87	0.92	0.92
4.12	South City Limit	Marine Dr SW to Meyers Way S	1.00	0.44	0.49	0.49	0.51
4.13	South City Limit	SR 99 to Airport Way S	1.00	0.63	0.47	0.68	0.47
5.11	Ship Canal	Ballard Bridge	1.20	1.01	0.90	1.07	0.96
5.12	Ship Canal	Fremont Bridge	1.20	1.00	1.03	1.12	1.13
5.13	Ship Canal	Aurora Ave Bridge	1.20	0.96	0.70	1.01	0.74
5.16	Ship Canal	University & Montlake Bridges	1.20	0.74	0.94	0.82	1.03
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00	0.40	0.52	0.42	0.54
6.12	South of N W 80th St	8th Ave NW to Greenwood Ave N	1.00	0.60	0.62	0.62	0.66
6.13	South of NE 80th St	Linden Ave N to 1st Ave NE	1.00	0.51	0.59	0.53	0.62
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00	0.65	0.69	0.73	0.76
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00	0.41	0.39	0.47	0.45
7.11	West of Aurora Ave	Fremont Pl N to N 65th St	1.00	0.64	0.63	0.68	0.68
7.12	West of Aurora Ave	N 80th St to N 145th St	1.00	0.44	0.45	0.48	0.50
8.00	South of Lake Union	Valley St to Denny Way	1.20	0.50	0.35	0.53	0.39

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action		Alternative 5	
				N/E	S/W	N/E	S/W
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00	0.51	0.82	0.54	0.88
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00	0.65	0.52	0.67	0.54
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00	0.69	0.60	0.73	0.67
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00	0.81	0.82	0.86	0.87
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00	0.74	0.74	0.81	0.79
12.12	East of CBD	S Jackson St to Howell St	1.20	0.37	0.44	0.39	0.45
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00	0.70	0.53	0.76	0.55
13.12	East of I-5	NE 65th St to NE 80th St	1.00	0.54	0.50	0.61	0.57
13.3	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00	0.61	0.56	0.69	0.60
A1	North of Seneca St	1st Ave to 6th Ave	N/A	0.63	0.65	0.67	0.68
A2	North of Blanchard	Elliott Ave to Westlake Ave	N/A	0.45	0.37	0.48	0.39
A3	East of 9th Ave	Lenora St to Pike St	N/A	0.46	0.94	0.46	0.95
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	N/A	0.55	0.59	0.59	0.62
A5	East of 5th Ave N	Denny Way to Valley St	N/A	0.41	0.37	0.42	0.41
A6	North of Pine St	Melrose Ave E to 15th Ave E	N/A	0.41	0.42	0.43	0.44
A7	North of James St– E Cherry St	Boren Ave to 14th Ave	N/A	0.56	0.39	0.58	0.41
A8	West of Broadway	Yesler Way to E Roy St	N/A	0.55	0.46	0.59	0.48
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	N/A	0.54	0.60	0.59	0.64
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	N/A	0.58	0.53	0.64	0.57
A11	South of Northgate Way (N/NE 110th St)	N Northgate Way to Roosevelt Way NE	N/A	0.46	0.54	0.49	0.58
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	N/A	0.44	0.51	0.47	0.52

Source: Fehr & Peers, 2023.

Intersection LOS—NE 130th / NE 145th Street Subarea

Exhibit 3.10-69 summarizes the LOS and vehicle delay for each study intersection under Alternative 5. Delays would generally be longest under Alternative 5. Under Alternative 5, impacted intersections would include the six intersections identified under the other alternatives as well as the intersection of NE 130th Street/Roosevelt Way NE/5th Avenue NE which would fall from LOS D to LOS E. Impacted intersections include:

- N 145th Street / Aurora Avenue N
- NE 145th Street / 5th Avenue NE
- NE 145th Street / 15th Avenue NE
- N 130th Street / Aurora Avenue N
- N 130th Street / 1st Avenue NE
- NE 130th Street/Roosevelt Way NE/5th Avenue NE
- NE 125th Street / 15th Avenue NE

Exhibit 3.10-69. 130th/145th Street Subarea PM Peak Hour Level of Service—Alternative 5

ID	Intersection	Alternative 1, No Action—Level of Service / Delay (seconds)	Alternative 5—Level of Service / Delay (seconds)
1	NE 155th St / 5th Ave NE	B / 19	B / 20
2	**N 145th St / Aurora Ave N**	**E / 68**	**F / 81**
3	N 145th St / Meridian Ave N	B / 18	C / 21
4	N 145th St / 1st Ave NE	B / 20	C / 27
5	NE 145th St / I-5 On & Off Ramps	A / 9	A / 9
6	**NE 145th St / 5th Ave NE**	**E / 69**	**F / 98**
7	**NE 145th St / 15th Ave NE**	**E / 66**	**F / 89**
8	N 137th St / Meridian Ave N / Roosevelt Way N	A / 7	A / 8
9	**N 130th St / Aurora Ave N**	**E / 79**	**F / 97**
10	N 130th St / Meridian Ave N	B / 13	C / 31
11	**N 130th St / 1st Ave NE**	**E / 71**	**F / 121**
12	NE 130th St / I-5 On Ramp	A / 2	A / 2
13	**NE 130th St / Roosevelt Way NE / 5th Ave NE**	D / 38	**E / 56**
14	Roosevelt Way NE / NE 125th St / 10th Ave NE	B / 17	C / 21
15	**NE 125th St / 15th Ave NE**	**E / 60**	**F / 83**

Note: Impacted intersections are shown in bold.
Source: Fehr & Peers, 2023.

State Facilities

Exhibit 3.10-70 shows a comparison of Alternative 5 forecasted volume to the maximum service volume ~~ratios for Alternative 1 and Alternative 5~~needed to maintain the LOS standard at each of the identified state facility study locations. Alternative 3 ~~V~~volumes at all locations are expected to remain similar or increase relative to Alternative 1 and to the other action alternatives as the assumed growth under Alternative 5 is highest among the alternatives. I-5 at the Ship Canal Bridge and north of the West Seattle Bridge, SR 99 at the Aurora Bridge, SR 509 at the 1st Avenue Bridge, and SR 522 south of NE 145th Street are forecasted to have demand more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. Again, the same seven study locations projected to exceed the WSDOT LOS standard under Alternative 1 would do so under Alternative 5. At six of those locations, the ratio is projected to increase by at least 0.01, constituting a significant impact under Alternative 5:

- I-5 at the Ship Canal Bridge
- I-5 north of the West Seattle Bridge
- SR 99 north of N Northgate Way
- SR 99 at the Aurora Avenue Bridge
- SR 509 at the 1st Avenue S Bridge
- SR 522 south of NE 145th Street

One study location is expected to exceed the WSDOT LOS standard, but would have volumes roughly equivalent to Alternative 1, and therefore is not considered to be a significant impact under Alternative 5:

- I-5 north of NE Northgate Way

Because Alternative 5 would cause volumes to increase on multiple state facilities already expected to exceed WSDOT's LOS D standard under Alternative 1, a significant impact to state facilities is expected under Alternative 5.

Exhibit 3.10-70. ~~PM Peak Hour~~Daily State Facilities Level of Service—Alternative 5

Facility	Extents	WSDOT LOS Standard	Alternative 1, No Action—Volume to Maximum Service Volume Ratio	Alternative 5—Volume to Maximum Service Volume Ratio
I-5	North of NE Northgate Way	D	1.03	1.03
I-5	**Ship Canal Bridge**	D	~~1.32~~>1.20	**>1.20**~~1.35~~
I-5	**North of West Seattle Bridge**	D	>1.20~~1.32~~	**>1.20**~~1.33~~
I-5	North of Boeing Access Rd Ramp	D	0.98	0.99
I-90	Mt Baker Tunnel	D	0.97	0.99
SR 99	**North of N Northgate Way**	D	1.08	**1.14**
SR 99	**Aurora Ave Bridge**	D	>1.20~~1.30~~	**>1.20**~~1.37~~

Facility	Extents	WSDOT LOS Standard	Alternative 1, No Action—Volume to Maximum Service Volume Ratio	Alternative 5—Volume to Maximum Service Volume Ratio
SR 99	Tunnel	D	0.65	0.68
SR 99	North of West Seattle Bridge	D	0.76	0.78
SR 99	South of S Cloverdale St	E (mitigated)	0.41	0.44
SR 509	**1st Ave S Bridge**	D	>1.20~~1.25~~	**>1.20**~~1.29~~
SR 519	S Atlantic St West of I-90 Ramps	D	0.83	0.86
SR 520	Lake Washington Bridge	D	0.86	0.88
SR 522	**South of NE 145th St**	D	1.15	**>1.20**~~1.21~~

Note: Impacted locations are shown in bold.
A ratio of >1.2 indicates a demand of more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The WSDOT standard is equivalent to a 1.0 (the denominator is the maximum volume at which LOS D can be maintained).
Source: Fehr & Peers, 2023.

Sensitivity Test

As noted earlier, the regionwide transit forecasts projected by PSRC's activity-based model are higher than the previous trip-based regional model. A sensitivity test was performed to understand how the impacts to certain transit and vehicle metrics might change if the transit forecasts were more closely aligned with the previous iteration of the regional model. This test assumes that transit trips would at most double from existing conditions to future conditions. For King County and regionwide, this would reduce transit trips in Alternative 5 (the highest growth action alternative) by 30% and if all those trips were to shift to vehicular modes, automobile trips would increase by 3 to 4%. For the sensitivity test, the transit trips were reduced by 30% for Alternatives 1 and 5 and the SOV and HOV trips were increased proportionally to maintain the same total number of trips. For metrics that do not have a direct relationship with the number of transit trips, the number of vehicle trips was increased by 5%.

Exhibit 3.10-71 summarizes the SOV mode share expected under the adjusted Alternative 1 and Alternative 5. The SoundCast model predicts that Alternative 5 SOV mode shares will be essentially the same as Alternative 1. Although the Duwamish subarea and West Seattle subarea would exceed their targets, the difference in mode share relative to adjusted Alternative 1 is expected to be less than the 1% impact threshold. Therefore, no SOV mode share impact is expected under the adjusted Alternative 5.

Exhibit 3.10-71. PM Peak Hour SOV Mode Share—Alternative 5 Sensitivity Test

Subarea	SOV Target	Alternative 1, No Action—Adjusted SOV Share	Alternative 5—Adjusted SOV Share
(1) Northwest Seattle	37%	35%	35%
(2) Northeast Seattle	35%	28%	28%
(3) Queen Anne/Magnolia	38%	35%	35%
(4) Downtown/Lake Union	18%	12%	12%
(5) Capitol Hill/Central District	28%	27%	28%
(6) West Seattle	35%	37%	36%
(7) Duwamish	51%	68%	68%
(8) Southeast Seattle	38%	32%	32%

Source: Fehr & Peers, 2023.

Exhibit 3.10-72 shows the trips by mode for the City of Seattle for Alternative 1 and Alternative 5 assuming a 30% reduction in transit trips for each scenario.

Exhibit 3.10-72. Daily Person Trips by Mode—Alternative 5 Sensitivity Test

Mode	Alternative 1—SoundCast	Alternative 1—Adjusted	Alternative 5—SoundCast	Alternative 5—Adjusted
SOV	1,783,000	1,972,000	1,908,000	2,104,000
HOV	1,440,000	1,592,000	1,537,000	1,694,000
Transit	1,138,000	797,000	1,178,000	825,000
Walk	1,378,000	1,378,000	1,453,000	1,453,000
Bike	99,000	99,000	105,000	105,000
Total	**5,838,000**	**5,838,000**	**6,181,000**	**6,181,000**

Source: Fehr & Peers, 2023.

Assuming a 30% reduction in transit loading, **Exhibit 3.10-73** summarizes the projected load factors on the busiest segment of each route in the peak direction of travel. Under the SoundCast results, Alternative 1 had eight impacted routes; with a reduction in ridership, the number of impacted routes would be four. Notably, the light rail lines would not be projected to be over capacity. Compared to Alternative 1, the Alternative 5 adjusted results indicate three routes would be impacted, slightly fewer than is projected using the unadjusted SoundCast results.

Exhibit 3.10-73. PM Peak Hour Average Passenger Load Factors—Sensitivity Test

Transit Route	Maximum Passenger Load Factor in Peak Direction	
	Alternative 1, No Action—Adjusted	Alternative 5—Adjusted
Link light rail—1 Line	0.76	0.74
Link light rail—2 Line	0.90	0.93
Link light rail—3 Line	0.91	0.85
RapidRide C Line—Westwood Village to Alaska Junction	0.50	0.63
RapidRide E Line—Downtown to Aurora Village	**1.33**	**1.40**
RapidRide G Line—Downtown to Madison Valley	0.24	0.27
RapidRide H Line—Alki to Burien	0.54	0.59
RapidRide J Line—Downtown to University District	**1.38**	**1.87**
RapidRide R Line—Downtown to Rainier Valley	0.75	0.83
RapidRide 23rd	0.33	0.34
RapidRide 65th (replaces Route 62)	0.57	0.68
RapidRide Beacon	0.35	0.41
RapidRide Denny	**1.98**	1.77
RapidRide Fremont (replaces Route 40)	**1.05**	**1.17**
RapidRide Green Lake	0.33	0.29
RapidRide Market	0.53	0.54

Source: Fehr & Peers, 2023.

Exhibit 3.10-74 summarizes VMT, VHT and average trip speed under the revised alternatives assuming a 5% increase in vehicle trips. Because the VMT per capita under Alternative 5 would not exceed the level under Alternative 1, no impact to VMT per capita is identified under Alternative 5.

Exhibit 3.10-74. Daily VMT, VHT, and Average Trip Speed—Alternative 5 Sensitivity Test

Metric	Alternative 1, No Action		Alternative 5	
	Total	Per Capita	Total	Per Capita
VMT	25,575,000	14.4	26,378,200	14.1
VHT	909,100	0.5	951100	0.5
Average Trip Speed	28.1	-	27.7	-

Source: Fehr & Peers, 2023.

Exhibit 3.10-75 summarizes PM peak hour screenline V/C ratios for adjusted Alternative 1 and Alternative 5, assuming a 5% increase in volumes. While the V/C ratios would increase, some to very near the thresholds, all screenlines would still be expected to fall within their threshold under both Alternative 1 and Alternative 5. In other words, the comparative impact conclusion would remain the same between the unadjusted and adjusted results.

Exhibit 3.10-75. PM Peak Hour Screenline Volume-to-Capacity Ratio—Alternative 5 Sensitivity Test

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action		Alternative 5	
				N/E	S/W	N/E	S/W
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20	0.79	0.68	0.79	0.76
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20	0.50	0.41	0.48	0.49
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20	0.89	0.65	0.87	0.70
2.00	Magnolia	Magnolia Bridge to W Emerson Place	1.00	0.61	0.64	0.64	0.71
3.11	Duwamish River	West Seattle Bridge & Spokane St	1.20	0.76	0.85	0.78	0.92
3.12	Duwamish River	1st Ave S & 16th Ave S	1.20	0.72	0.96	0.75	1.01
4.11	South City Limit	Martin Luther King Jr. Way to Rainier Ave S	1.00	0.87	0.91	0.97	0.97
4.12	South City Limit	Marine Dr SW to Meyers Way S	1.00	0.46	0.51	0.51	0.54
4.13	South City Limit	SR 99 to Airport Way S	1.00	0.66	0.49	0.71	0.49
5.11	Ship Canal	Ballard Bridge	1.20	1.06	0.95	1.12	1.01
5.12	Ship Canal	Fremont Bridge	1.20	1.05	1.08	1.18	1.19
5.13	Ship Canal	Aurora Bridge	1.20	1.01	0.74	1.06	0.78
5.16	Ship Canal	University & Montlake Bridges	1.20	0.78	0.99	0.86	1.08
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00	0.42	0.55	0.44	0.57
6.12	South of N W 80th St	8th Ave NW to Greenwood Ave N	1.00	0.63	0.65	0.65	0.69
6.13	South of NE 80th St	Linden Ave N to 1st Ave NE	1.00	0.54	0.62	0.56	0.65
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00	0.68	0.72	0.77	0.80
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00	0.43	0.41	0.49	0.47
7.11	West of Aurora Ave	Fremont Pl N to N 65th St	1.00	0.67	0.66	0.71	0.71
7.12	West of Aurora Ave	N 80th St to N 145th St	1.00	0.46	0.47	0.50	0.53
8.00	South of Lake Union	Valley St to Denny Way	1.20	0.53	0.37	0.56	0.41
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00	0.54	0.86	0.57	0.92

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action		Alternative 5	
				N/E	S/W	N/E	S/W
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00	0.68	0.55	0.70	0.57
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00	0.72	0.63	0.77	0.70
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00	0.85	0.86	0.90	0.91
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00	0.78	0.78	0.85	0.83
12.12	East of CBD	S Jackson St to Howell St	1.20	0.39	0.46	0.41	0.47
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00	0.74	0.56	0.80	0.58
13.12	East of I-5	NE 65th St to NE 80th St	1.00	0.57	0.53	0.64	0.60
13.3	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00	0.64	0.59	0.72	0.63
A1	North of Seneca St	1st Ave to 6th Ave	N/A	0.66	0.68	0.70	0.71
A2	North of Blanchard	Elliott Ave to Westlake Ave	N/A	0.47	0.39	0.50	0.41
A3	East of 9th Ave	Lenora St to Pike St	N/A	0.48	0.99	0.48	1.00
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	N/A	0.58	0.62	0.62	0.65
A5	East of 5th Ave N	Denny Way to Valley St	N/A	0.43	0.39	0.44	0.43
A6	North of Pine St	Melrose Ave E to 15th Ave E	N/A	0.43	0.44	0.45	0.46
A7	North of James St– E Cherry St	Boren Ave to 14th Ave	N/A	0.59	0.41	0.61	0.43
A8	West of Broadway	Yesler Way to E Roy St	N/A	0.58	0.48	0.62	0.50
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	N/A	0.57	0.63	0.62	0.67
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	N/A	0.61	0.56	0.67	0.60
A11	South of Northgate Way (N/NE 110th)St)	N Northgate Way to Roosevelt Way NE	N/A	0.48	0.57	0.51	0.61
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	N/A	0.46	0.54	0.49	0.55

Source: Fehr & Peers, 2023.

Exhibit 3.10-76 shows a comparison of the adjusted Alternative 5 volumes to the maximum service volume needed to maintain the LOS standard ~~ratios for adjusted Alternative 1 and Alternative 5~~ at each of the identified state facility study locations. Nine study locations are projected to exceed the WSDOT LOS standard under adjusted Alternative 1 and would also do so under adjusted Alternative 5. At all of these locations, the ratio is projected to increase by at least 0.01, constituting a significant impact under adjusted Alternative 5. This is three more impacts than were identified under the unadjusted Alternative 5.

Exhibit 3.10-76. ~~PM Peak Hour~~Daily State Facilities Level of Service—Alternative 5 Sensitivity Test

Facility	Extents	WSDOT LOS Standard	Alternative 1, No Action– Volume to Maximum Service Volume Ratio	Alternative 5–Volume to Maximum Service Volume Ratio
I-5	North of NE Northgate Way	D	1.08	**1.09**
I-5	**Ship Canal Bridge**	D	>1.20~~1.39~~	**>1.20**~~1.42~~
I-5	**North of West Seattle Bridge**	D	>1.20~~1.38~~	**>1.20**~~1.39~~
I-5	North of Boeing Access Rd Ramp	D	1.03	**1.04**
I-90	Mt Baker Tunnel	D	1.02	**1.04**
SR 99	**North of N Northgate Way**	D	1.13	**1.20**
SR 99	**Aurora Ave Bridge**	D	>1.20~~1.37~~	**>1.20**~~1.44~~
SR 99	Tunnel	D	0.68	0.71
SR 99	North of West Seattle Bridge	D	0.80	0.82
SR 99	South of S Cloverdale St	E (mitigated)	0.43	0.46
SR 509	**1st Ave S Bridge**	D	>1.20~~1.32~~	**>1.20**~~1.35~~
SR 519	S Atlantic St West of I-90 Ramps	D	0.88	0.91
SR 520	Lake Washington Bridge	D	0.90	0.93
SR 522	**South of NE 145th St**	D	1.20	**>1.20**~~1.27~~

Note: Impacted locations are shown in bold.
A ratio of >1.2 indicates a demand of more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The WSDOT standard is equivalent to a 1.0 (the denominator is the maximum volume at which LOS D can be maintained).
Source: Fehr & Peers, 2023.

Summary of Draft EIS Alternative Impacts

Exhibit 3.10-77 summarizes the potential impacts to Seattle's transportation system under each alternative studied in the Draft EIS. The purpose of an EIS is to disclose how potential actions by the City may impact the transportation system in comparison to what is expected to occur with currently adopted zoning codes and policies. Therefore, the impacts of each action alternative ~~is~~ are assessed against the performance of the transportation system under the No Action Alternative. The impacts identified under the No Action Alternative are also expected to occur under the action alternatives even if those alternatives would not result in additional impacts. Although the focus of the EIS is not to mitigate conditions under the currently adopted zoning code (i.e., the No Action Alternative), many of the mitigation measures proposed for the action alternatives would also lessen impacts under the No Action Alternative.

Comparison to the Preferred Alternative

The Draft EIS alternatives were analyzed before the Seattle Transportation Plan (STP) was adopted. Based on the findings of the revised modeling that includes assumptions consistent with the network maps, policy direction, and candidate projects of the STP, it is likely that the Draft EIS alternatives would have slightly more impacts to general purpose vehicles and state facilities with the STP in place. For example, the City may choose to increase the capacity to move people along its right-of-way by reallocating space to transit. A reallocation of general purpose travel lanes would make more efficient use of city streets and help accommodate growth, but could have a secondary impact on auto travel. Therefore, the screenline impacts identified for the Preferred Alternative may also occur with some of the Draft EIS alternatives. This is consistent with Section 3.10.3 in the Draft EIS, which identified that transportation mitigation projects could have secondary impacts.

All action alternatives are expected to have significant impacts to transit passenger load, corridor travel time, intersection LOS in the NE 130th/NE 145th Street Subarea, and state facilities. Impacts of Alternatives 2 and 3 would be similar to one another while impacts of Alternative 5 are expected to be higher in magnitude due to the increased growth. Alternative 4 would fall within this range, likely closer in magnitude to Alternatives 2 and 3 than Alternative 5. **Exhibit 3.10-77** details the types and number of impacts expected under each alternative.

Exhibit 3.10-77. Overview of Significant Adverse Impacts: ~~All~~ Draft EIS Alternatives

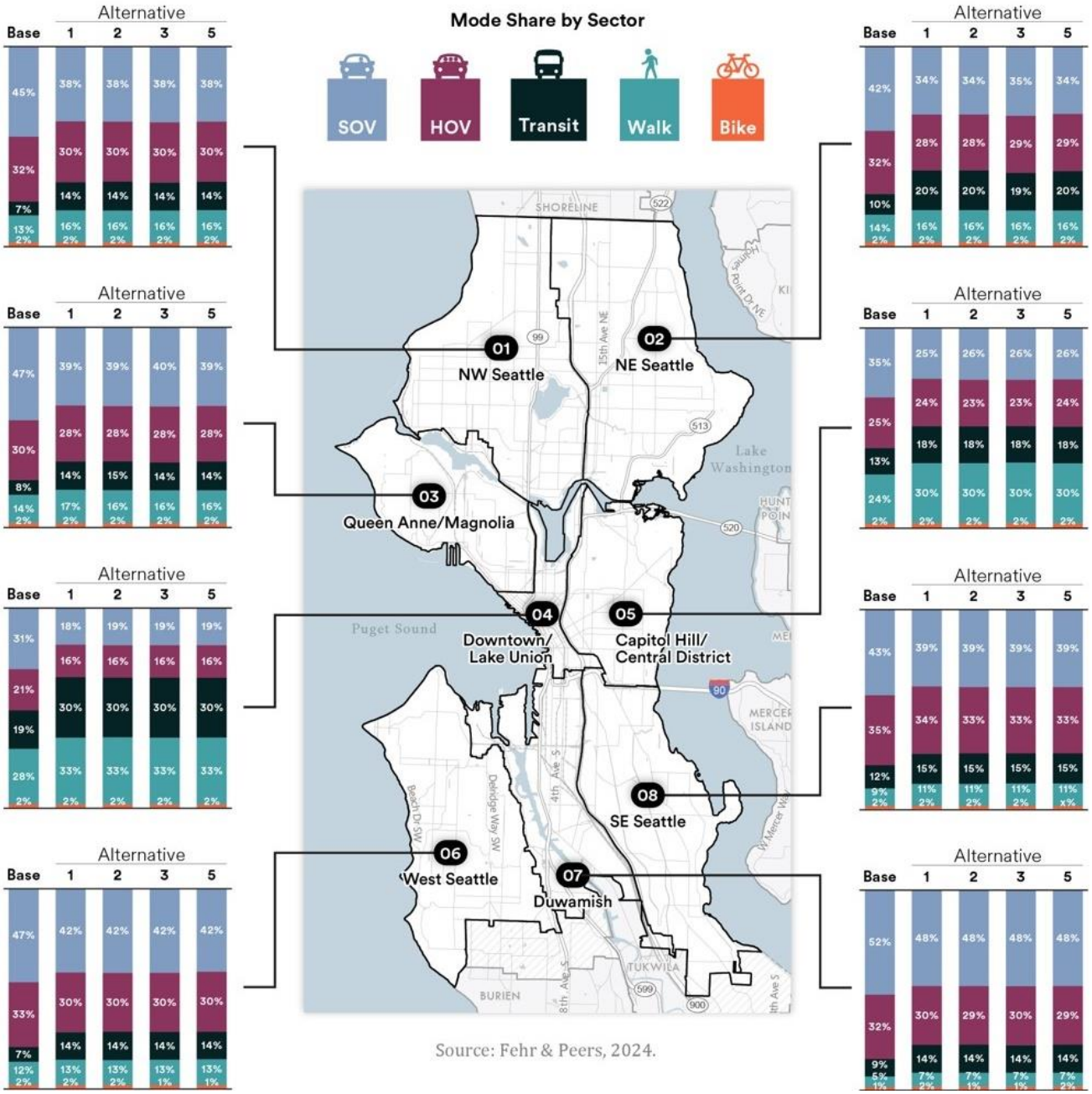
Impact Type	Alt. 1—No Action	Alt. 2—Focused	Alt. 3—Broad	Alt. 5—Combined
SOV Mode Share	Duwamish subarea impacted	No additional impacts beyond No Action	No additional impacts beyond No Action	No additional impacts beyond D No Action
VMT per Capita	No	No	No	No
Active Transportation	No	No	No	No
Transit	8 routes: Light Rail 1, 2, and 3 Lines; RapidRide E, J, R, Denny & Fremont	8 routes under No Action + additional impacts to	8 routes under No Action + additional impacts to	8 routes under No Action + additional impacts to

Impact Type	Alt. 1—No Action	Alt. 2—Focused	Alt. 3—Broad	Alt. 5—Combined
		RapidRide E, J, K & Fremont	RapidRide E, J, K & Fremont	RapidRide E, J, K & Fremont
Roadway Users				
Corridor Travel Time	4 corridors: Mercer, Stewart, Olive & Michigan	4 corridors under No Action + additional impact to Olive	4 corridors under No Action + additional impact to Olive	4 corridors under No Action + additional impact to Olive
Screenline	No	No	No	No
130th/145th Subarea Intersection LOS	6 intersections: 145th/Aurora, 145th/5th, 145th/15th, 130th/Aurora, 130th/1st & 125th/15th	Additional impacts to the 6 intersections impacted under No Action	Additional impacts to the 6 intersections impacted under No Action	Additional impacts to the 6 intersections impacted under No Action + impact at 130th/Roosevelt/5th
State Facilities	7 segments along I-5, SR 99, SR 509 & SR 522	7 segments under No Action + additional impacts along I-5, SR 99, & SR 522	7 segments under No Action + additional impacts along I-5, SR 99, & SR 522	7 segments under No Action + additional impacts along I-5, SR 99, SR 509 & SR 522
Safety	No	No	No	No

Source: Fehr & Peers, 2023.

Exhibit 3.10-78 and **Exhibit 3.6-79** summarizes some of the key metrics across the alternatives graphically.

Exhibit 3.10-78. Transportation Metrics Across the Draft EIS Alternatives



Source: Fehr & Peers, 2024.

Note: Base refers to 2019. All alternatives are studied with 2044 as a horizon year.
Source: Fehr& Peers, 2024.

Exhibit 3.10-79. Citywide Transportation Metrics across the Draft EIS Alternatives

Note: This exhibit was updated since the Draft EIS to reflect revised vehicle miles and hours traveled.
Source: Fehr & Peers, 2023.

Impacts of Preferred Alternative

Note: The impacts analysis for the Preferred Alternative was added since the Draft EIS.

This section evaluates the transportation impacts of the Preferred Alternative which has a similar magnitude of household and employment growth as Alternative 5. Since the Draft EIS was published in March 2024, the City adopted the Seattle Transportation Plan (STP). The SoundCast travel demand model was updated for this Final EIS to reflect the network maps, policy direction, and candidate projects identified in the STP. While the specific project list will be refined over time, the revisions to the model reflect the overarching goals of the STP to make active transportation and transit more convenient choices for Seattle residents and employees. Therefore, the STP candidate projects reflect the reallocation of some general purpose roadway capacity to become dedicated transit (or transit and freight) lanes which provide better speed and reliability for those modes, increase the capacity to move people along a corridor, and accommodate increased growth.

As noted in the Draft EIS, some transportation mitigation projects could have secondary impacts. For example, the City may choose to increase the capacity to move people along its right-of-way by reallocating space to transit. A reallocation of general purpose travel lanes would make more efficient use of city streets and help accommodate growth, but could have a secondary impact on auto travel. These types of secondary effects are apparent in the findings of the Final EIS revised modeling. The revised modeling indicates that it is likely that the Draft EIS alternatives would have slightly more impacts to roadway users and state facilities with the STP network and policy in place. For example, the screenline impacts identified for the Preferred Alternative may also occur with some of the Draft EIS alternatives. As required, the City would prepare additional analysis and take public and stakeholder input into consideration before implementing specific transportation improvement projects, whether they are included in the STP or identified as mitigation for an action alternative. SDOT may choose not to pursue these projects due to potential impacts and future outcomes from community engagement, but they are used as a reasonably likely assumption to assess the proposed land use alternative.

Because the focus of this EIS is the Comprehensive Plan land use proposal, the STP assumptions were incorporated into an updated Alternative 1, No Action, (called “Alternative 1, No Action, with STP” in the tables in the remainder of this section) as well as the Preferred Alternative models. This section uses the updated Alternative 1, No Action, as the baseline for comparison to isolate the effects that can be expected as a result of the Preferred Alternative.

Mode Share

Exhibit 3.10-80 summarizes the SOV mode share expected with the Alternative 1, No Action, and Preferred Alternative. The SoundCast model predicts that the Preferred Alternative SOV mode shares would be very similar to or slightly lower than Alternative 1, No Action. Although the Duwamish sector would exceed its target, the SOV mode share is projected to be slightly

lower with the Preferred Alternative than with Alternative 1, No Action. Therefore, the Preferred Alternative is not expected to cause a significant impact to mode share.

Exhibit 3.10-80. PM Peak Hour SOV Mode Share—Preferred Alternative

Sector	SOV Target	Alternative 1, No Action, with STP SOV Share	Preferred Alternative SOV Share
(1) Northwest Seattle	37%	32%	31%
(2) Northeast Seattle	35%	25%	24%
(3) Queen Anne/Magnolia	38%	32%	32%
(4) Downtown/Lake Union	18%	10%	10%
(5) Capitol Hill/Central District	28%	26%	26%
(6) West Seattle	35%	34%	33%
(7) Duwamish	51%	66%	65%
(8) Southeast Seattle	38%	31%	31%

Note: Existing (2017-2019) mode share data from the PSRC household travel survey have substantial margins of error. See **Exhibit 3.10-10** for margins of error by sector.
Source: Fehr & Peers, 2024.

Exhibit 3.10-81 compares the number of daily person trips expected by mode with 2044 Alternative 1, No Action, and the Preferred Alternative. Citywide, the Preferred Alternative is expected to result in approximately 389,000 additional person trips than Alternative 1, No Action, an increase of 7%. While the total number of trips would increase with the Preferred Alternative, the relative mode shares are expected to be very similar to Alternative 1, No Action.

Exhibit 3.10-81. Daily Person Trips by Mode—Preferred Alternative

Mode	Alternative 1, No Action, with STP	Preferred Alternative
SOV	1,784,000	1,897,000
HOV	1,539,000	1,664,000
Transit	1,148,000	1,209,000
Walk	1,373,000	1,459,000
Bike	106,000	111,000
Total	**5,950,000**	**6,340,000**

Source: Fehr & Peers, 2024.

Transit

Exhibit 3.10-82 summarizes the projected load factors on the busiest segment of each study route in the peak direction of travel with impacts shown in bold. King County Metro continually

tracks ridership by route and trip using their automatic passenger counters allowing them to revise service to adapt to changing demands. This evaluation indicates transit pathways that may have demand in excess of the currently planned service, but in practice King County Metro would regularly adapt service to better meet the highest demand corridors or riders may choose to travel at different times to avoid the most crowded trips, sometimes called "peak spreading." The potentially impacted routes include:

- Link Light Rail – 2 Line
- RapidRide E Line—Downtown to Aurora Village
- RapidRide J Line—Downtown to University District
- RapidRide R Line—Downtown to Rainier Valley
- RapidRide 65th
- RapidRide Denny
- RapidRide Fremont

Exhibit 3.10-82. PM Peak Hour Average Passenger Load Factors—Preferred Alternative

Transit Route	Maximum Passenger Load Factor in Peak Direction	
	Alternative 1, No Action, with STP	Preferred Alternative
Link light rail—1 Line	0.97	0.99
Link light rail—2 Line	1.38	**1.45**
Link light rail—3 Line	1.33	1.37
RapidRide C Line—Westwood Village to Alaska Junction	0.67	0.91
RapidRide E Line—Downtown to Aurora Village	1.98	**2.17**
RapidRide G Line—Downtown to Madison Valley	0.37	0.43
RapidRide H Line—Alki to Burien	0.78	0.78
RapidRide J Line—Downtown to University District	2.03	**2.18**
RapidRide R Line—Downtown to Rainier Valley	1.01	**1.12**
RapidRide 23rd	0.41	0.46
RapidRide 65th (replaces Route 62)	0.93	**1.08**
RapidRide Beacon	0.50	0.51
RapidRide Denny	2.90	**3.11**
RapidRide Fremont (replaces Route 40)	1.66	**1.87**
RapidRide Green Lake	0.47	0.61
RapidRide Market	0.91	0.89

Note: Impacted routes are shown in bold.
Source: Fehr & Peers, 2025.

As noted in the **Sensitivity Test** section, the regionwide transit forecasts projected by PSRC's activity-based model are higher than the previous trip-based regional model. Refer to that section for a sensitivity test to understand how the impacts to certain transit and vehicle metrics may change if the transit forecasts were more closely aligned with the previous iteration of the regional model.

Roadway Users

Results related to roadway users are summarized in the following sections.

VMT / VHT / Average Trip Speed

Exhibit 3.10-83 summarizes VMT, VHT, and average trip speed with the Preferred Alternative relative to Alternative 1, No Action. The Preferred Alternative would result in higher total VMT and VHT because it assumes a higher level of growth than Alternative 1, No Action, and would also result in lower average trip speed at just over 27 mph. Despite the increase in VMT, the VMT per capita would be lower than Alternative 1, No Action, at 13.2 VMT per Seattle resident and employee.

Exhibit 3.10-83. Daily VMT, VHT, and Average Trip Speed—Preferred Alternative

	Alternative 1, No Action, with STP		Preferred Alternative	
Metric	Total	Per Capita	Total	Per Capita
VMT	24,411,300	13.5	25,216,800	13.2
VHT	877,300	0.5	925,000	0.5
Average Trip Speed	27.8	—	27.3	—

Source: Fehr & Peers, 2025.

Because the VMT per capita with the Preferred Alternative would not exceed the level expected with Alternative 1, No Action, the Preferred Alternative is not expected to cause a significant impact to VMT per capita.

Travel Time

Exhibit 3.10-84 summarizes PM peak hour corridor travel times under the Preferred Alternative compared to Alternative 1, No Action.[95] **Exhibit 3.10-85** and **Exhibit 3.10-86** display the LOS values along associated corridors on the map for Alternative 1, No Action, and the Preferred Alternative, respectively. Corridor travel times are expected to increase by up to 2.5 minutes compared to Alternative 1, No Action, and no corridors are expected to have lower travel times than with Alternative 1, No Action. Under Alternative 1, No Action, with the STP

[95] For corridors with peak directional patterns, the AM peak hour would typically reflect similar conditions in the opposite direction from those shown for the PM peak hour.

network in place, 68 corridors (with each direction counted separately) are expected to operate at LOS A-C, 21 at LOS D, 9 corridors at LOS E, and 6 corridors at LOS F. Under the Preferred Alternative, 64 corridors are expected to operate at LOS A-C, 23 at LOS D, 10 corridors at LOS E, and 7 corridors at LOS F.

Based on the thresholds of significance defined for this EIS, the Preferred Alternative is expected to result in significant travel time impacts to three corridors (shown in bold in **Exhibit 3.10-84**):

- Mercer Street between Elliott Avenue West and Fairview Avenue North
- Denny Way between Queen Anne Ave N to E Madison St
- Stewart Street between 1st Avenue and Denny Way

Exhibit 3.10-84. PM Peak Hour Travel Time Corridor Level of Service—Preferred Alternative

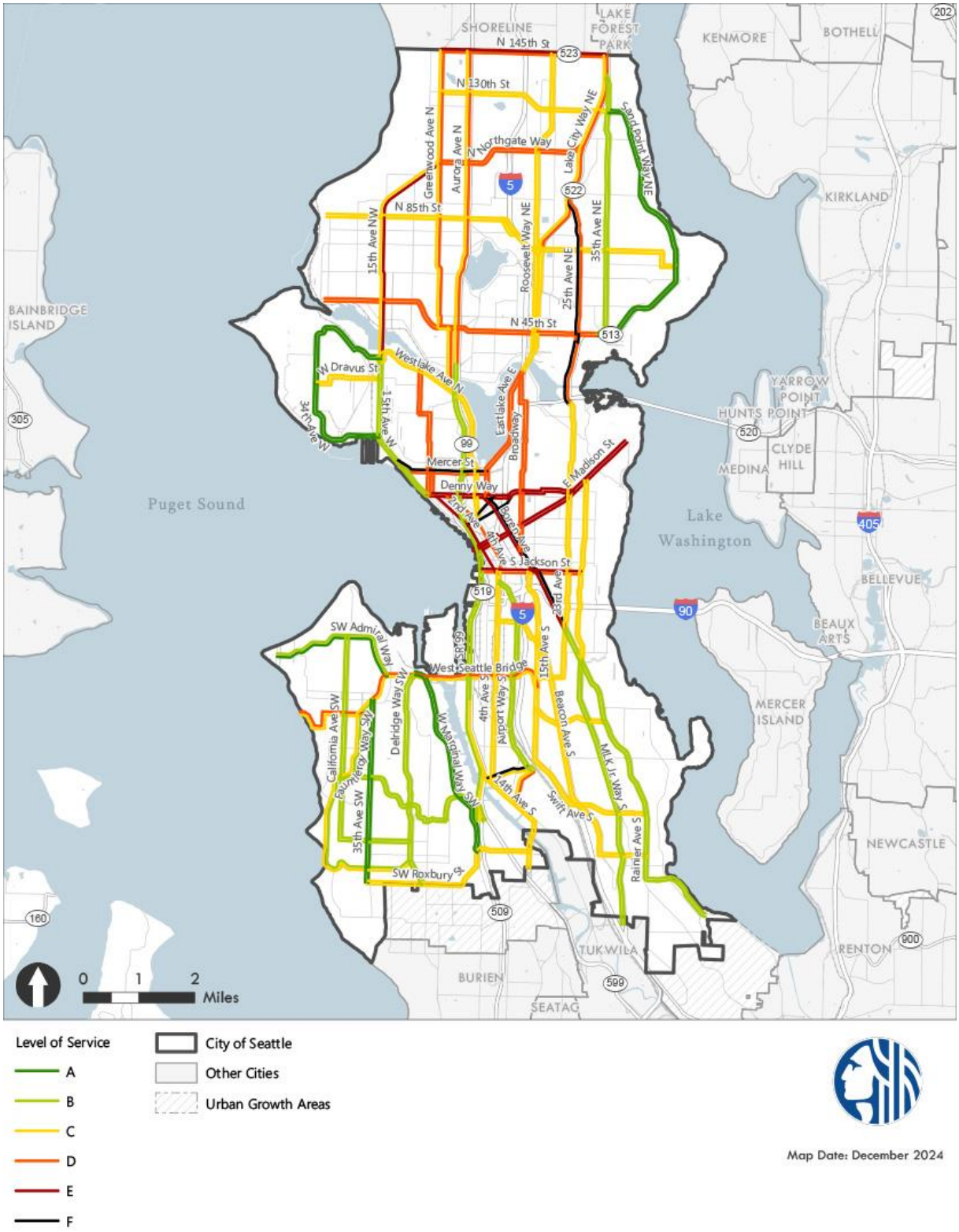
		Alternative 1, No Action, with STP Minutes / Level of Service		Preferred Alternative Minutes / Level of Service	
Roadway	Extents	N/E	S/W	N/E	S/W
N 145th St	Greenwood Ave N to Lake City Way NE	12 / D	12.5 / E	12.5 / E	12.5 / E
N 130th St	Greenwood Ave N to 35th Ave NE	13 / C	14 / C	13.5 / C	14.5 / C
N Northgate Way	Greenwood Ave N to Lake City Way NE	13.5 / D	13.5 / D	14 / D	14 / D
N 85th St	32nd Ave NW to Sand Point Way NE	25.5 / C	26.5 / C	27 / C	27 / C
N 45th St	32nd Ave NW to Union Bay Pl NE	27 / D	26.5 / D	28.5 / D	27.5 / D
15th Ave NW	W Emerson St to N 105th St	20 / E	13 / C	22 / E	13.5 / C
Greenwood Ave N	Nickerson St to N 145th St	31 / D	27 / C	33.5 / D	28 / C
Aurora Ave N	N 38th St to N 145th St	20 / D	16.5 / C	20.5 / D	17 / C
Roosevelt Way NE	Fuhrman Ave E to N 145th St	27 / C	25.5 / C	29.5 / D	26 / C
Lake City Way NE	NE 75th St to N 145th St	15 / D	11.5 / C	15.5 / D	11.5 / C
25th Ave NE	E Roanoke St to Lake City Way NE	19.5 / D	28 / F	22 / D	28.5 / F
35th Ave NE	Union Bay Pl NE to Lake City Way NE	16.5 / B	17 / B	17 / B	18 / C
Sand Point Way NE	Union Bay Pl NE to 35th Ave NE	13.5 / A	13 / A	13.5 / A	13 / A
34th Ave W	15th Ave W to15th Ave W	11.5 / A	12 / A	11.5 / A	12.5 / A
W Dravus St	34th Ave W to15th Ave W	5 / C	4.5 / C	5.5 / C	4.5 / C
15th Ave W	Queen Anne Ave N to W Emerson St	9.5 / B	8.5 / B	10.5 / C	8.5 / B
Queen Anne Ave N	Denny Way to Nickerson St	13.5 / D	12.5 / D	14.5 / D	13 / D
SR 99	S Nevada St to N 38th St	12 / B	12.5 / B	13.5 / C	12.5 / B
Westlake Ave N	Stewart St to W Emerson St	17.5 / C	19.5 / C	18.5 / C	20 / D
Eastlake Ave E	Denny Way to Fuhrman Ave E	12.5 / D	12 / D	13 / D	12 / D
Broadway	Boren Ave to Eastlake Ave E	17.5 / D	17.5 / D	18 / D	17.5 / D

		Alternative 1, No Action, with STP Minutes / Level of Service		Preferred Alternative Minutes / Level of Service	
Roadway	Extents	N/E	S/W	N/E	S/W
23rd Ave	E Madison St to E Roanoke St	7 / C	6 / C	7 / C	6.5 / C
Mercer St	**Elliott Ave W to Fairview Ave N**	9 / D	15 / F	9 / D	**16 / F**
Denny Way	**Queen Anne Ave N to E Madison St**	18.5 / E	17.5 / E	**19.5 / F**	18 / E
2nd Ave	4th Ave S to Denny Way	- / -	12 / E	- / -	12 / E
4th Ave	S Jackson St to Denny Way	9.5 / D	- / -	10 / E	- / -
Stewart St	**1st Ave to Denny Way**	- / -	6 / F	- / -	**6.5 / F**
Olive Way	4th Ave to Denny Way	7.5 / F	- / -	7.5 / F	- / -
E Madison St	Alaskan Way S to McGilvra Blvd E	21.5 / E	21 / E	21.5 / E	21.5 / E
Boren Ave	23rd Ave S to Denny Way	21 / F	17.5 / E	21.5 / F	17.5 / E
S Jackson St	Alaskan Way S to MLK Jr. Way S	9 / D	11.5 / E	9.5 / D	11.5 / E
23rd Ave	15th Ave S to E Madison St	16.5 / C	17.5 / C	17.5 / C	18 / D
MLK Jr. Way S	Rainier Ave S to E Madison St	12 / C	12 / C	12.5 / C	12.5 / C
4th Ave S	E Marginal Way S to S Jackson St	13.5 / C	12 / C	14 / C	12 / C
Airport Way S	S Albro Pl to 4th Ave S	11 / B	10 / B	11 / B	10 / B
15th Ave S	S Jackson St to Rainier Ave S	16.5 / C	17.5 / C	16.5 / C	18 / C
E Marginal Way S	S Holden St to S Nevada St	5.5 / C	5 / B	5.5 / C	5 / B
Swift Ave S	Rainier Ave S to S Columbian Way	14 / C	14.5 / C	14.5 / C	15 / D
Beacon Ave S	Rainier Ave S to 4th Ave S	23 / C	26 / C	23 / C	26.5 / C
MLK Jr. Way S	S Boeing Access Rd to Rainier Ave S	16.5 / B	16.5 / B	17.5 / B	16.5 / B
Rainier Ave S	Cornell Ave S to 23rd Ave S	19.5 / B	21.5 / B	20 / B	22 / B
S Michigan St	E Marginal Way S to Airport Way S	3.5 / C	4.5 / F	3.5 / C	4.5 / F
Ellis Ave S	E Marginal Way S to Airport Way S	3 / D	3.5 / C	3 / D	3.5 / C

Roadway	Extents	Alternative 1, No Action, with STP Minutes / Level of Service		Preferred Alternative Minutes / Level of Service	
		N/E	S/W	N/E	S/W
14th Ave S	S Director St to 1st Ave S	8 / C	7.5 / C	8 / C	8 / C
California Ave SW/SW Thistle St	Delridge Way SW to SW Admiral Way	17.5 / B	17.5 / B	17.5 / B	18 / C
Fauntleroy Way SW/SW Barton St	Delridge Way SW to 35th Ave SW	15.5 / B	18.5 / C	16 / B	18.5 / C
35th Ave SW	SW Roxbury St to Fauntleroy Way SW	9 / A	9.5 / A	9.5 / A	10 / B
Delridge Way SW	SW Roxbury St to W Marginal Way SW	12 / B	14 / B	12 / B	14.5 / C
W Marginal Way SW	S Cloverdale St to Delridge Way SW	8 / A	8.5 / A	8.5 / A	8.5 / A
SW Admiral Way	63rd Ave SW to SW Manning St	7 / A	8.5 / B	7 / A	9 / C
West Seattle Bridge	35th Ave SW to 15th Ave S	8.5 / C	11 / D	9 / C	12 / D
SW Alaska St	Beach Dr SW to 35th Ave SW	7 / C	8 / D	7 / C	8 / D
Sylvan Way SW	California Ave SW to S Holden St	12.5 / B	11.5 / B	12.5 / B	12.5 / B
SW Roxbury St	35th Ave SW to 14th Ave S	12.5 / C	12 / C	13 / C	13 / C

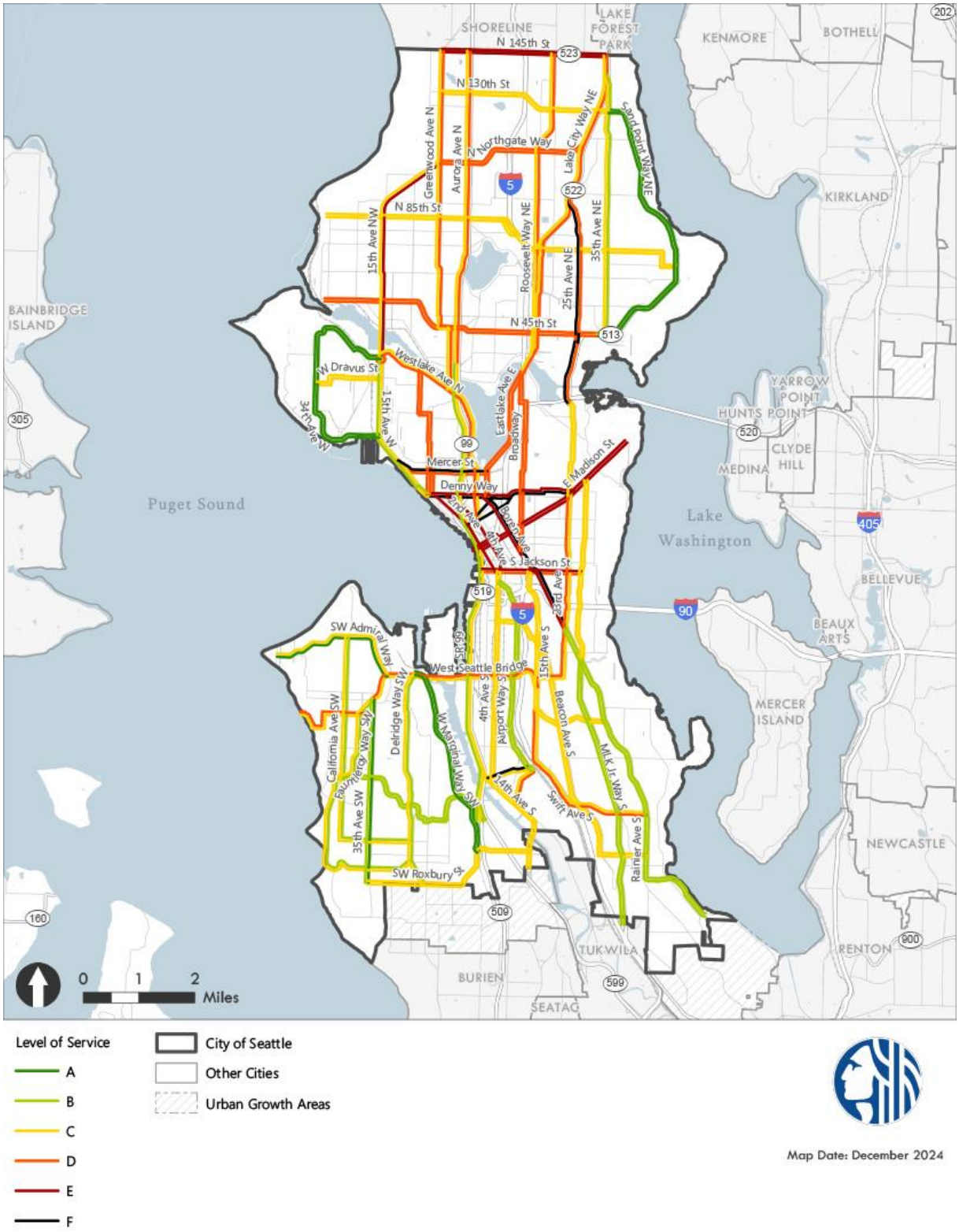
Note: Impacted corridors are shown in bold.
Source: Fehr & Peers, 2025.

Exhibit 3.10-85. Alternative 1, No Action, with STP—Travel Time Corridor LOS



Source: Fehr & Peers, 2025.

Exhibit 3.10-86. Preferred Alternative—Travel Time Corridor LOS



Source: Fehr & Peers, 2025.

Screenlines

Exhibit 3.10-87 summarizes PM peak hour screenline V/C ratios for 2044 Alternative 1, No Action, and the Preferred Alternative. Across all screenlines combined, the volume forecasts are approximately four percent higher with the Preferred Alternative than the Alternative 1, No Action. There are nine screenlines with V/C ratios higher than 0.90, compared with seven in Alternative 1, No Action. The screenlines exceeding 0.90 are:

- North City Limit – 30th Ave NE to Lake City Way NE
- South City Limit – Martin Luther King Jr Way to Rainier Ave S (Preferred Alternative only)
- Ship Canal – Ballard Bridge
- Ship Canal – Fremont Bridge
- Ship Canal – Aurora Ave N Bridge
- Ship Canal – University and Montlake Bridges
- South of Spokane St – Beach Dr SW to W Marginal Way SW (Preferred Alternative only)
- East of I-5 – NE Northgate Way to NE 145th St
- East of 9th Avenue

The screenline east of I-5 is expected to exceed the City's V/C threshold with both Alternative 1, No Action, and the Preferred Alternative, but does not constitute a significant impact because the change in volume would not meet the 0.01 V/C increase threshold of significance. Two of the screenlines are expected to exceed the established thresholds with both Alternative 1, No Action, and the Preferred Alternative and the increase relative to Alternative 1, No Action, would be more than the 0.01 threshold of significance:

- Ship Canal – Fremont Bridge
- Ship Canal – University and Montlake Bridges

Therefore, two significant impacts to screenlines are expected with the Preferred Alternative. These results indicate that the demand to cross the Ship Canal by general purpose vehicles would exceed the capacity of these three bridges. In addition to some demand shifting to the Ballard and Aurora Avenue bridges as shown in **Exhibit 3.10-87**, the model indicates that demand on I-5 over the Ship Canal would increase. See the State Facilities section for results.

Exhibit 3.10-87. PM Peak Hour Screenline Volume-to-Capacity Ratio—Preferred Alternative

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action, with STP		Preferred Alternative	
				N/E	S/W	N/E	S/W
1.11	North City Limit	3rd Ave NW to Aurora Ave N	1.20	0.89	0.78	0.88	0.83
1.12	North City Limit	Meridian Ave N to 15th Ave NE	1.20	0.59	0.49	0.58	0.54
1.13	North City Limit	30th Ave NE to Lake City Way NE	1.20	0.93	0.70	0.93	0.73
2.00	Magnolia	Magnolia Bridge to W Emerson Place	1.00	0.58	0.62	0.64	0.70
3.11	Duwamish River	West Seattle Bridge & Spokane St	1.20	0.73	0.83	0.75	0.89
3.12	Duwamish River	1st Ave S & 16th Ave S	1.20	0.68	0.85	0.69	0.88
4.11	South City Limit	Martin Luther King Jr. Way to Rainier Ave S	1.00	0.84	0.90	0.90	0.93
4.12	South City Limit	Marine Dr SW to Meyers Way S	1.00	0.47	0.52	0.51	0.53
4.13	South City Limit	SR 99 to Airport Way S	1.00	0.58	0.41	0.62	0.42
5.11	Ship Canal	Ballard Bridge	1.20	1.08	0.95	1.11	0.98
5.12	**Ship Canal**	**Fremont Bridge**	1.20	1.13	>1.20	1.17	**>1.20**
5.13	Ship Canal	Aurora Ave Bridge	1.20	1.03	0.77	1.07	0.77
5.16	**Ship Canal**	**University & Montlake Bridges**	1.20	0.90	>1.20	0.93	**>1.20**
6.11	South of NW 80th St	Seaview Ave NW to 15th Ave NW	1.00	0.40	0.46	0.43	0.47
6.12	South of NW 80th St	8th Ave NW to Greenwood Ave N	1.00	0.63	0.58	0.67	0.60
6.13	South of NE 80th St	Linden Ave N to 1st Ave NE	1.00	0.53	0.62	0.55	0.62
6.14	South of NE 80th St	5th Ave NE to 15th Ave NE	1.00	0.71	0.82	0.77	0.82
6.15	South of NE 80th St	20th Ave NE to Sand Point Way NE	1.00	0.50	0.44	0.55	0.46
7.11	West of Aurora Ave	Fremont Pl N to N 65th St	1.00	0.65	0.66	0.69	0.70
7.12	West of Aurora Ave	N 80th St to N 145th St	1.00	0.73	0.66	0.78	0.70
8.00	South of Lake Union	Valley St to Denny Way	1.20	0.57	0.41	0.59	0.43
9.11	South of Spokane St	Beach Dr SW to W Marginal Way SW	1.00	0.54	0.88	0.58	0.92

Screenline	Location	Extents	V/C Threshold	Alternative 1, No Action, with STP		Preferred Alternative	
				N/E	S/W	N/E	S/W
9.12	South of Spokane St	E Marginal Way S to Airport Way S	1.00	0.71	0.50	0.72	0.51
9.13	South of Spokane St	15th Ave S to Rainier Ave S	1.00	0.76	0.69	0.79	0.73
10.11	South of S Jackson St	Alaskan Way S to 4th Ave S	1.00	0.82	0.82	0.84	0.85
10.12	South of S Jackson St	12th Ave S to Lakeside Ave S	1.00	0.75	0.81	0.78	0.84
12.12	East of CBD	S Jackson St to Howell St	1.20	0.39	0.43	0.40	0.44
13.11	East of I-5	NE Northgate Way to NE 145th St	1.00	>1.00	0.87	>1.00	0.89
13.12	East of I-5	NE 65th St to NE 80th St	1.00	0.65	0.60	0.71	0.66
13.3	East of I-5	NE Pacific St to NE Ravenna Blvd	1.00	0.73	0.68	0.77	0.72
A1	North of Seneca St	1st Ave to 6th Ave	N/A	0.63	0.63	0.67	0.65
A2	North of Blanchard	Elliott Ave to Westlake Ave	N/A	0.46	0.40	0.48	0.42
A3	East of 9th Ave	Lenora St to Pike St	N/A	0.47	0.92	0.50	0.92
A4	South of Mercer St	Elliott Ave W to Aurora Ave N	N/A	0.62	0.70	0.67	0.70
A5	East of 5th Ave N	Denny Way to Valley St	N/A	0.51	0.49	0.51	0.51
A6	North of Pine St	Melrose Ave E to 15th Ave E	N/A	0.37	0.39	0.39	0.41
A7	North of James St– E Cherry St	Boren Ave to 14th Ave	N/A	0.51	0.35	0.51	0.36
A8	West of Broadway	Yesler Way to E Roy St	N/A	0.60	0.53	0.65	0.56
A9	South of NE 45th St	7th Ave NE to Montlake Blvd NE	N/A	0.52	0.65	0.54	0.67
A10	East of 15th Ave NE	NE 45th St to NE 52nd St	N/A	0.61	0.62	0.69	0.65
A11	South of Northgate Way (N/NE 110th St)	N Northgate Way to Roosevelt Way NE	N/A	0.60	0.70	0.59	0.71
A12	East of 1st Ave NE	NE 100th St to NE Northgate Way	N/A	0.55	0.62	0.57	0.53

Note: Impacted corridors are shown in bold.
Source: Fehr & Peers, 2025.

Intersection LOS—NE 130th / NE 145th Street Subarea

Exhibit 3.10-88 summarizes the LOS and vehicle delay for each study intersection under the Preferred Alternative. As noted earlier, the SoundCast travel demand model was updated for this Final EIS to reflect the network maps, policy direction, and candidate projects identified in the STP. These assumptions were also carried through to the traffic operations analysis at the intersection level. Most relevant to this subarea are the assumed reconfiguration of NE 130th Street and NE 145th Street to reallocate some general purpose vehicle capacity to facilities for other modes such as transit lanes, bicycle lanes, and/or widened sidewalks.

Under the Preferred Alternative, seven intersections are expected to have increases in delay relative to Alternative 1, No Action, that would constitute significant impacts:

- N 145th Street / Aurora Avenue N
- NE 145th Street / 15th Avenue NE
- N 130th Street / Aurora Avenue N
- N 130th Street / Meridian Avenue N
- N 130th Street / 1st Avenue NE
- Roosevelt Way NE / NE 125th St / 10th Ave NE
- NE 125th Street / 15th Avenue NE

Exhibit 3.10-88. 130th/145th Street Subarea PM Peak Hour Level of Service—Preferred Alternative

ID	Intersection	Alternative 1, No Action, with STP—Level of Service / Delay (seconds)	Preferred Alternative—Level of Service / Delay (seconds)
1	NE 155th St / 5th Ave NE	B / 17	C / 22
2	**N 145th St / Aurora Ave N**	**F / 98**	**F / 126**
3	N 145th St / Meridian Ave N	C / 24	C / 29
4	N 145th St / 1st Ave NE	C / 28	D / 37
5	NE 145th St / I-5 On & Off Ramps	A / 5	A / 6
6	NE 145th St / 5th Ave NE	C / 30	D / 44
7	**NE 145th St / 15th Ave NE**	**E / 73**	**E / 79**
8	N 137th St / Meridian Ave N / Roosevelt Way N	B / 14	C / 20
9	**N 130th St / Aurora Ave N**	**F / 83**	**F / 124**
10	**N 130th St / Meridian Ave N**	D / 43	**E / 66**
11	**N 130th St / 1st Ave NE**	**F / >150**	**F / >150**
12	NE 130th St / I-5 On Ramp	B / 12	B / 13
13	NE 130th St / Roosevelt Way NE / 5th Ave NE	C / 34	D / 37

ID	Intersection	Alternative 1, No Action, with STP—Level of Service / Delay (seconds)	Preferred Alternative—Level of Service / Delay (seconds)
14	**Roosevelt Way NE / NE 125th St / 10th Ave NE**	D / 32	**F / 58**
15	**NE 125th St / 15th Ave NE**	**F / 95**	**F / 126**

Note: Impacted intersections are shown in bold.
Source: Fehr & Peers, 2025.

State Facilities

Exhibit 3.10-89 shows a comparison of the Preferred Alternative forecasted volume to the maximum service volume needed to maintain the LOS standard at each of the identified state facility study locations. I-5 at the Ship Canal Bridge and north of the West Seattle Bridge, SR 99 at the Aurora Bridge and north of N Northgate Way, SR 509 at the 1st Avenue Bridge and SR 522 south of NE 145th Street are forecasted to have demand more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The locations with the highest expected congestion are the I-5 Ship Canal Bridge and the SR 99 Aurora Avenue Bridge, reflecting that general purpose vehicle capacity across the Ship Canal is provided via a limited number of bridges. Volumes at all locations are expected to remain similar or increase relative to Alternative 1, No Action.

Eight study locations are projected to operate at or above the maximum service volume for LOS D with both Alternative 1, No Action, and the Preferred Alternative. At all eight of those locations, the Preferred Alternative would result in volume to maximum service volume ratios increasing by at least 0.01, constituting a significant impact:

- I-5 north of NE Northgate Way
- I-5 at the Ship Canal Bridge
- I-5 north of the West Seattle Bridge
- I-90 at the Mount Baker Tunnel
- SR 99 north of N Northgate Way
- SR 99 at the Aurora Avenue Bridge
- SR 509 at the 1st Avenue S Bridge
- SR 522 south of NE 145th Street

Because the Preferred Alternative would cause volumes to increase on multiple state facilities already expected to fall below WSDOT's LOS D standard with Alternative 1, No Action, a significant impact to state facilities is expected with the Preferred Alternative.

Exhibit 3.10-89. Daily State Facilities Level of Service—Preferred Alternative

Facility	Extents	WSDOT LOS Standard	Alternative 1, No Action, with STP—Volume to Maximum Service Volume Ratio	Preferred Alternative—Volume to Maximum Service Volume Ratio
I-5	**North of NE Northgate Way**	D	1.02	**1.03**
I-5	**Ship Canal Bridge**	D	>1.20	**>1.20**
I-5	**North of West Seattle Bridge**	D	>1.20	**>1.20**
I-5	North of Boeing Access Rd Ramp	D	0.98	0.98
I-90	**Mt Baker Tunnel**	D	1.00	**1.01**
SR 99	**North of N Northgate Way**	D	1.20	**>1.20**
SR 99	**Aurora Ave Bridge**	D	>1.20	**>1.20**
SR 99	Tunnel	D	0.65	0.69
SR 99	North of West Seattle Bridge	D	0.77	0.79
SR 99	South of S Cloverdale St	E (mitigated)	0.44	0.45
SR 509	**1st Ave S Bridge**	D	>1.20	**>1.20**
SR 519	S Atlantic St West of I-90 Ramps	D	0.86	0.90
SR 520	Lake Washington Bridge	D	0.88	0.91
SR 522	**South of NE 145th St**	D	>1.20	**>1.20**

Note: Impacted locations are shown in bold.
A ratio of >1.2 indicates a demand of more than 20% over the maximum service volume, indicating substantial vehicle congestion for some hours of the day. The WSDOT standard is equivalent to a 1.0 (the denominator is the maximum volume at which LOS D can be maintained).
Source: Fehr & Peers, 2025.

3.10.3 Mitigation Measures

The impacts to the transportation system identified in the previous sections include effects on transit passenger load, corridor travel time, screenlines, intersection LOS in the NE 130th/NE 145th Street Subarea, and state facilities~~, and parking~~. This section explores ways in which Seattle could potentially reduce the severity of those adverse impacts. These measures would be considered holistically within the framework of other goals and policies in the Comprehensive Plan. For example, while some transportation impacts identified through the preceding analysis stem from increased traffic congestion, the City has prioritized reducing vehicle demand rather than increasing roadway capacity.

The mitigation strategies described below are organized into main themes though many measures relate to and complement one another.

- Transportation Systems Management and Operations (TSMO)
- Transportation Demand Management (TDM)
- Pedestrian and Bicycle System Improvement
- Transit Strategies
- Parking Management Strategies
- Safety Strategies

Secondary Impacts

Some transportation mitigation projects could have secondary impacts. For example, the City may choose to increase the capacity to move people along its right-of-way by reallocating space to transit. A reallocation of general purpose travel lanes would make more efficient use of city streets and help accommodate growth, but could have a secondary impact on auto travel. ~~For example, converting a general-purpose travel lane or a parking lane to a transit lane, truck-only lane, or cycle track would reduce capacity for autos to travel~~. As required, the City would prepare additional analysis and take public and stakeholder input into consideration before implementing specific transportation improvement projects, whether they are included in the STP or identified as mitigation for an action alternative. Given the programmatic nature of this EIS, this Mitigation Measures section lists the types of projects that could be considered to mitigate potential impacts of the action alternatives.

Regulations & Commitments

Transportation Systems Management and Operations (TSMO)

Transportation systems management and operations (TSMO) maximizes efficiency of the existing multimodal transportation system by implementing low-cost, near-term improvements to improve overall system performance. TSMO solutions can improve safety and provide flexibility to address changing conditions. Strategies can also prioritize movement of specific modes, including freight, transit, and active transportation. Many of these strategies would require coordination with partner agencies, such as Port of Seattle, King County Metro, and Sound Transit.

Seattle already utilizes some TSMO strategies to reduce traffic congestion and improve vehicle flow, including providing drivers with updated travel information and managing the flow of

traffic through intersections. SDOT has an ongoing effort to improve the operations of traffic signals, including some corridors with adaptive signal control, which coordinates signal timing changes in response to real-time traffic volume data in order to reduce traffic congestion and improve vehicular flow. Additionally, the ~~Seattle's *Transit Master Plan, Freight Master*~~*Seattle Transportation Plan*, and *Seattle Industrial Areas Freight Access Project* identify speed and reliability improvements, such as transit and/or freight lanes that could improve mobility for those modes. Expanding existing programs or implementing new TSMO strategies, in coordination with regional partners, could help mitigate impacts to corridor travel time, screenlines, intersection LOS in the NE 130th/NE 145th Street Subarea, and state facilities by increasing efficiency of the existing system.

Potential strategies that Seattle might consider include:

- Intelligent transportation systems (ITS) applications such as dynamic message signs to alert travelers to incidents and provide travel information about route choices.
- Transit signal priority (TSP) to facilitate transit movements at intersections, reducing travel times for transit vehicles.
- Automated enforcement of transit-only lanes and "don't block the box."
- Freight operations management to prioritize freight movements at specific locations and times.
- Reallocating travel lanes to serve specific uses such as transit and/or freight.
- Signal timing to improve vehicular flow along corridors.
- Wayfinding to improve route decisions and reduce illegal movements.
- Geometric or configuration improvements at intersections to facilitate key bus or truck turning movements.
- Improvements to pedestrian facilities such as crosswalk designs for increased safety, curb bulb-outs to reduce the distance to cross a street, curb ramps for accessibility, and signal timing improvements that increase pedestrian visibility at intersections.

Local and regional TSMO strategies could be combined to achieve greater reductions in impacts and maximize efficient operation of the transportation system. Seattle has historically funded some system improvements through voter-approved levies ($365M Bridging the Gap approved in 2006 and $930M Levy to Move Seattle approved in 2015). Since the publication of the Draft EIS, Seattle voters approved a $1.55 billion Seattle Transportation Levy which replaces ~~As~~ the Levy to Move Seattle ~~will~~ that expired at the end of 2024.~~,~~ The Seattle Transportation Levy will provide additional funding to SDOT over the next eight years ~~may consider putting forward a new levy~~ to ~~sustain funding for~~implement continued improvements. Other improvements may require partnering with regional and state agencies.

Transportation Demand Management (TDM)

Transportation demand management (TDM) strategies can help reduce congestion and travel time impacts by reducing demand for automobile travel and supporting travel by other modes.

Seattle currently promotes a variety of TDM strategies to encourage travel by carpooling, vanpooling, transit, walking, and biking, as well as reducing trips by teleworking. These include the Commute Trip Reduction (CTR) Program, Transportation Management Programs (TMPs), and the Commuter Benefits Ordinance which are described below along with additional measures Seattle could consider adding to its programmatic TDM efforts.

Commute Trip Reduction

The Washington State Commute Trip Reduction (CTR) Law, passed in 1991, requires large employers to implement employee commute programs to reduce drive alone peak-hour commute trips, with the goals of reducing traffic congestion and energy use and improving air quality. The CTR Law applies to employer worksites with at least 100 employees who begin work between 6 and 9 AM on weekdays. Employers who meet this threshold must develop commute trip reduction plans and work toward meeting their mode share targets through internal programs and monitoring. Affected employers must:

- Designate a transportation coordinator.
- Distribute information about non-drive alone commute options to employees.
- Survey employees every other year to measure vehicle miles traveled (VMT) and mode choice.
- Implement measures designed to achieve CTR goals adopted by the jurisdiction in which they are located.

The CTR program is currently undergoing a shift in the funding allocation and approach to better meet employer and jurisdictional needs and increase the effectiveness of the program. The changes to the CTR program present an opportunity for Seattle to reevaluate the City's TDM programs and implement new strategies to improve employer-focused TDM efforts and further reduce drive alone travel.

Transportation Management Programs

Seattle requires some large buildings to implement a Transportation Management Program (TMP) as part of the development review process. The TMP includes strategies the building managers must implement to encourage tenants to travel by transit, walking, biking, and/or carpooling. Parking management strategies are often included as well. A TMP typically includes measures such as:

- Travel options information displayed in a centrally located part of the building.
- Transit pass subsidies for tenants.
- Pedestrian and bicycle improvements and wayfinding signs directing tenants to nearby facilities.
- Bike parking and locker/shower facilities.
- Parking management strategies to minimize the number of vehicle trips made to and from the building.
- Preferred parking and subsidies for vanpool and carpool users.
- Telework and hybrid work options

Seattle also works with the building managers to set site-specific mode share targets and adjust the TDM approaches as needed to meet those goals.

Commuter Benefit Ordinance

In 2020, Seattle' Commuter Benefit Ordinance took effect, requiring businesses with 20 or more employees to offer their workers the option of making a pre-tax payroll deduction for transit or vanpool expenses. This program offers a financial incentive to workers and businesses to use non-SOV travel options by lowering their tax obligation.

Mobility Management through Vehicle Pricing

Over the past decade, the City of Seattle and other regional partners have committed to exploring how an equitable vehicle pricing mechanism could be implemented. This concept is also included in the recently adopted STP which identifies market mechanisms such as vehicle pricing as a mobility management strategy that could encourage walking, biking, and transit trips. This could also act as a funding source for transportation investments to transit, walking, and biking. To pursue this strategy, the STP includes the following actions:

- Explore equitable demand management tools that could influence travel choices and create revenues to invest in sustainable transportation options, freight movement, and innovation.
- Work with regional partners as they explore pricing options that are equitable and do not put the city at a competitive economic disadvantage.

Mobility Management through Parking Pricing & Supply

The City of Seattle has also committed to exploring mobility management through parking pricing. As with vehicle pricing, this concept is included in the STP as a mobility management strategy that could encourage walking, biking, and transit trips and supplement funding sources for transportation investments. To pursue this strategy, the STP includes the following actions:

- Expand the geography of and increase rates for paid on-street parking to encourage the use of less expensive and lower-pollution travel options.
- Continue to apply performance-based parking pricing rates and time limits to regulate on-street parking demand.

The amount of parking supply in a particular area also influences travel choices. SDOT could consider changes to its parking requirements (both minimums and maximums) to influence the amount of parking provided with new development.

Additional TDM Measures

In addition to the ongoing programs and ordinances in place, Seattle could consider further expanding their TDM efforts. Research compiled by the California Air Pollution Control Officers Association (CAPCOA), surveys the spectrum of TDM strategies and provides data

demonstrating which approaches can substantially reduce vehicle trips. Additional new or expanded TDM measures could include:

- Expand subsidized transit pass programs.
- Expand trip reduction programs to include new participants such as smaller businesses, residents, or community members.
- Improve bicycle and pedestrian facilities, including last-mile connections and end of trip facilities such as bicycle parking.
- Expand bike share/scooter share programs.

TDM program expansion, combined with other complementary strategies included in this section could help increase non-SOV mode share and reduce congestion to mitigate some impacts of the action alternatives.

Transportation Concurrency & Mitigation

SMC 23.52 subchapter 1 implements GMA policy that transportation improvements or strategies should be made concurrently with land development. SMC 23.52 subchapter 2 requires impact analysis and mitigation for projects meeting certain standards.

Pedestrian & Bicycle System Improvements

Improvements to the pedestrian and bicycle network can help provide last-mile connections and active transportation options that could increase the share of people walking and biking and mitigate impacts related to traffic congestion. Seattle is working to grow its share of people walking to 27% and people bicycling to 8%, by 2044. A well-documented connection exists between improved, safer bicycle and pedestrian accessibility and reduced demand for vehicle travel (CAPCOA 2021).

Seattle has ~~a Pedestrian Master Plan and Bicycle Master Plan~~its Capital Improvement Program and recently adopted STP programmatic directions as well as many subarea plans tailored to specific neighborhoods. All of these plans include recommendations to improve conditions for active transportation modes. Types of projects include concrete sidewalks, asphalt walkways, or painted walkways; signals to make crossing roadways easier and safer; treatments such as rectangular rapid flashing beacons (RRFBs) to alert drivers to people crossing the street; marked crosswalks; curb bulbs or extensions to shorten crossing distances and make people walking more visible to drivers; bicycle lanes (particularly protected and buffered bicycle lanes); and multi-use trails. ~~SDOT is currently working to refine and integrate these prior plans into a single multimodal plan in the upcoming Seattle Transportation Plan.~~

Other pedestrian and bicycle improvements will be implemented in conjunction with forthcoming Link light rail stations~~as part of the City's partnership with Sound Transit to plan for the station areas around the West Seattle and Ballard Link Extensions~~. The~~se~~ West Seattle Link Extension station areas include neighborhoods in Alaska Junction, Avalon, Delridge, and SODO.~~,~~ The Ballard Link Extension station areas include neighborhoods in Chinatown-

International District, Downtown, South Lake Union, Uptown, Smith Cove, Interbay, and Ballard. In addition, new infill stations along the existing 1 Line will include 130th Street and Graham Street stations and the 2 Line connection to Seattle will include the Judkins Park Station. The City and Sound Transit are currently coordinating on transportation improvements around expanded and new light rail stations in these areas to support residents and workers in accessing transit. These projects include better connections to surrounding neighborhoods through sidewalks, bike lanes, and shared use paths, and improving transit connections and transfers through community and mobility hubs.~~While specific projects have not yet been identified, it is assumed that Sound Transit will be constructing improvements in the immediate vicinity of each station as part of their project. Additional improvements could also be implemented through Sound Transit's System Access Fund which awards funds to jurisdictions to design and construct improvements that make it easier and more convenient for people to reach transit. This could include capital projects such as sidewalks, bike lanes, shared use paths, transit integration, and pick-up/drop-off facilities.~~

Seattle could also consider refining its development code to include requirements for pedestrian and bicycle infrastructure as part of frontage improvements. These investments in the multimodal transportation network would help provide alternate travel options and a more complete network, reducing reliance on SOV travel while increasing the share of people walking and biking thereby lessening traffic congestion impacts.

Transit Strategies

Potential impacts to transit passenger load were identified ~~on four RapidRide routes under~~for each of the action alternatives. However, it is unknown how future transit ridership levels will evolve with changing travel trends and land use changes, as demonstrated by the sensitivity test described in the previous section. King County Metro continually tracks ridership by route and trip using their automatic passenger counters allowing them to revise service to adapt to changing demands. The City could utilize an adaptive management approach to monitor crowding in partnership with King County Metro. Should it become apparent that some routes are exceeding King County Metro's crowding thresholds, the City of Seattle and King County Metro could identify potential measures, potentially including reallocating service hours within the city or pursuing funding for increased service levels. ~~The purchase of increased Metro service has occurred in the past via a voter-approved funding measure.~~

Safety Strategies

Potential impacts to safety have been identified under all future year alternatives due to the likely increase of overall exposure associated with higher numbers of people traveling by all modes. SDOT is working to incorporate proven safety countermeasures throughout their capital projects as well as employ a Safe Systems approach. Improvements to the active transportation network, as described in the previous section, could help mitigate some safety issues by providing dedicated facilities to separate people walking, biking, or rolling from

vehicular traffic and adding design elements to increase their visibility to drivers in areas of higher conflict such as intersections.

SDOT has ongoing safety programs that are aimed at reducing the number of collisions. This includes an array of strategies to reduce speeding such as street redesigns, traffic calming, and volume management. Many of the mitigation measures noted in the **Pedestrian & Bicycle System Improvements** section would also benefit safety of vulnerable users including: new sidewalks and walkways; signals to make crossing roadways safer; treatments such as rectangular rapid flashing beacons (RRFBs) to alert drivers to people crossing the street; marked crosswalks; curb bulbs or extensions to shorten crossing distances and make people walking more visible to drivers; protected and buffered bicycle lanes; and multi-use trails. Seattle may expand automated enforcement/safety cameras to help reduce speeding and red light running. SDOT may also pursue expanding strategies such as reducing speed limits, implementing leading pedestrian intervals, traffic calming treatments, new traffic signals, separation of facilities for vulnerable users, and other physical changes to transportation facility design.

These types of projects can reduce not only the number of collisions that occur but also the severity of those that do occur. Projects to address potential safety impacts could be implemented through City-led efforts or in partnership with new development through the development review and permitting process.

Coordination with Washington State Department of Transportation & Ferries

WSDOT and WSF frequently reviews large development projects near state facilities to identify potential impacts and suggest mitigation measures. The City could work with WSDOT and WSF to improve this coordination and to ensure that WSDOT and WSF continue to receive notices if SEPA thresholds are raised.

Other Potential Mitigation Measures

Intersection-Specific Improvements

Analysis of the action alternatives, relative to Alternative 1 No Action, identified seven The following impacted intersections could be significantly impacted by one or more action alternatives. The impacted intersections are listed below:

- N 145th Street / Aurora Avenue N
- NE 145th Street / 5th Avenue NE
- NE 145th Street / 15th Avenue NE
- N 130th Street / Aurora Avenue N
- N 130th Street /Meridian Avenue N
- N 130th Street / 1st Avenue NE

- NE 130th Street / Roosevelt Way NE / 5th Avenue NE
- Roosevelt Way NE / NE 125th St / 10th Avenue NE
- NE 125th Street / 15th Avenue NE

Each intersection was evaluated to identify potential mitigation measures that would address delay impacts such that intersection delays would not exceed the five second impact threshold relative to Alternative 1.

Some impacts could be addressed with more minimal interventions such as signal timing and phasing modifications while others would require physical changes to the intersections to expand capacity, for example adding turn pockets or lanes. However, adding physical capacity to these intersections is likely not practical or desirable due to right-of-way constraints and potential secondary impacts to other modes, and conflicts with the network maps and policy direction included in the adopted STP. As described in the analysis for the Preferred Alternative, the modeling assumptions based on the STP network maps, policy direction, and candidate projects include reconfiguring NE 130th Street and NE 145th Street to reallocate some general purpose vehicle capacity to facilities for other modes such as transit lanes, bicycle lanes, and/or widened sidewalks. The adopted STP also includes potential~~Instead, the City would likely pursue~~ multimodal improvements aimed at making transit, walking, and biking more convenient and comfortable such that people have more options to choose from when traveling through the neighborhood. ~~The STP, described in the following section, outlines the types of multimodal improvements that are being considered.~~ Therefore, it is likely that intersection LOS at some locations would continue to operate below the threshold set forward in this EIS.

Seattle Transportation Plan

The City ~~is currently developing~~adopted the STP in April 2024. The STP ~~which considers how the level of~~guides transportation infrastructure investment ~~in infrastructure~~over the next 20 years with the goal of creating safer, more equitable, reliable, sustainable, and affordable travel options ~~for people walking, biking, and riding transit could improve transportation outcomes~~. ~~The EIS for the STP considers three alternatives:~~

- ~~**No Action**: This alternative represents the future of Seattle's transportation system where the city implements no additional multimodal or other transportation improvements beyond what is funded today. This alternative focuses on optimizing existing conditions in the transportation system with no new additional dedicated space for transit, pedestrians, or bikes. Roadway operations are optimized at key intersections, limited spot safety improvements are made throughout the network, and very limited slow zones are implemented on key pedestrian spaces. *Because this alternative reflects currently adopted plans, this is the network assumed for this Comprehensive Plan EIS.*~~
- ~~**Moderate Pace:** This alternative envisions a future with moderate growth in funding for new multimodal infrastructure in Seattle's transportation system. This alternative takes a modest approach to expanding pedestrian, bicycle, and transit connections. Some space for general~~

purpose vehicular traffic in this alternative would be reallocated to dedicated spaces for other modes including some improvements to the public and pedestrian realm. In this alternative, the city implements a modest set of the overarching policies of the STP. These include some restricted areas for general purpose traffic or "car-lite streets", a moderate number of mobility hubs and speed limits below 20 mph on higher-density residential streets.

- **Rapid Progress:** This alternative envisions a future with strong growth in funding for expanded and enhanced multimodal infrastructure in Seattle's transportation system. This option includes substantial improvements to the pedestrian, bicycle, and transit networks. It reallocates some general-purpose lanes to dedicated spaces for other modes to create a more balanced distribution of space for all mobility options. This alternative also includes a broad range of improvements to the public and pedestrian realm and additional dedicated space for goods movement through the city. In this alternative, the city fully implements overarching policies of the STP with car-free streets, electrification infrastructure, a wider range of mobility hubs, and deploys a road user charge to manage the level of miles driven in personal vehicles.

The proposed STP in February 2024 includes programmatic components as well as a proposed unconstrained list of potential large capital projects, which have been incorporated into the modeling for the Preferred Alternativeproject list derived from the range of potential projects in the Moderate Pace and Rapid Progress alternatives.

Many of the elements of the Moderate Pace and Rapid Progress alternatives listed above could serve as mitigating measures to some of the Comprehensive Plan impacts, namely, transit passenger load, corridor travel time, intersection LOS in the NE 130th/NE 145th Street Subarea, and state facilities. By making non-SOV travel a safer and more convenient option for Seattle's residents, workers, and visitors, the STP could reduce vehicle demand. However, there could also be increased cumulative impacts to corridor travel time, screenlines, and intersection LOS, and state facilities because the Moderate Pace and Rapid Progress alternativesSTP network maps, policy direction, and candidate projects include reductions in roadway general purpose vehicle capacity, whether for car-free streets, car-lite streets, or reallocations of right-of-way to other modes (see **Impacts of Preferred Alternative** section). SDOT may choose not to pursue these projects due to potential impacts and future outcomes from community engagement.It is not possible to identify effects in specific locations as the roadway modifications are not yet known, but there would likely be areas of measurably increased traffic congestion in the vicinities of roadway capacity reductions.

3.10.4 Significant Unavoidable Adverse Impacts

This section identifies the significant and unavoidable adverse impacts to transportation expected to occur with implementation of the action alternatives. Those impacts have been identified relative to the performance of the transportation system if no new actions were taken, i.e., the No Action Alternative. Regardless of the alternative selected, travel demand is expected to increase, resulting in potentially significant adverse impacts to transit passenger

load, corridor travel time, screenlines, intersection LOS in the NE 130th/NE 145th Street Subarea, and state facilities.

Significant impacts to transit were identified under all action alternatives with respect to passenger loads. The mitigation measures described in **Section 3.10.3 Mitigation Measures** could lessen the severity of the passenger load impacts. However, due to the increment of change projected, service levels may not be able to fully mitigate the projected impacts. Therefore, the action alternatives may still result in a significant unavoidable adverse impact to transit capacity.

The City will pursue targeted transportation capacity improvements focused on improved transit, bicycle, pedestrian, and freight connections. Additionally, the City will manage demand using policies, programs, and investments aimed at shifting travel to non-SOV modes. However, the magnitude and duration of traffic congestion during peak periods (as measured using corridor travel time) is expected to be exacerbated as growth continues to occur.

~~As noted in **Section 3.10.3 Mitigation Measures**, some of the impacts to subarea intersections would require physical capacity expansions which are unlikely to be implemented due to right-of-way constraints and potential secondary impacts to other modes. Therefore, the intersection impacts are not expected to be fully mitigated and the action alternatives may still result in a significant unavoidable adverse impact to intersection LOS.~~

Some combination of the travel demand management strategies discussed in **Section 3.10.3 Mitigation Measures** could be implemented to reduce the magnitude of SOV travel. These programmatic measures may lessen the severity of some of the potential impacts, particularly the travel time impacts which are fairly limited in scope. However, in the absence of state facility capacity expansion beyond that already planned and funded or other increased vehicle capacity across the Ship Canal, the action alternatives may still result in significant unavoidable adverse impacts to state facilities and screenlines.

As noted in **Section 3.10.3 Mitigation Measures**, some of the impacts to subarea intersections would require physical capacity expansions which are unlikely to be implemented due to right-of-way constraints and potential secondary impacts to other modes. Therefore, the intersection impacts are not expected to be fully mitigated and the action alternatives may still result in a significant unavoidable adverse impact to intersection LOS.

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